



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

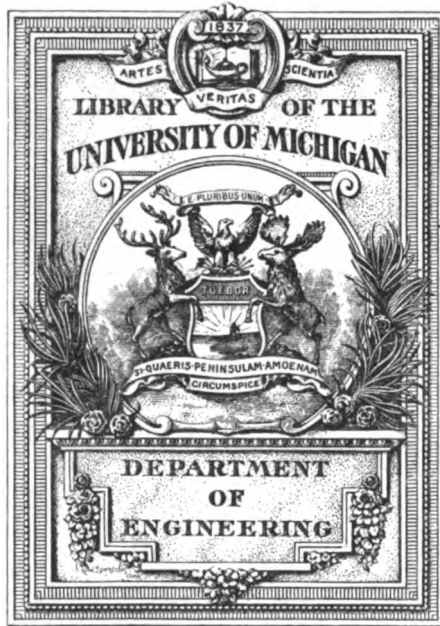
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

C

429,405



Engineering

VM

320

.R91

[JANUARY TO DECEMBER, 1915]

THE RUDDER

EDITED BY

THOMAS FLEMING DAY

Out drives the fog before the rolling wind,
Sunrise! Loud speaks the morning gun.
The distant beaches boulder-lined
Sparkle like salt beneath the sun,
As past the headlands—bound to me,
A ship comes sweeping in from sea.

VOLUME XXXI



NEW YORK
THE RUDDER PUBLISHING COMPANY

1915



COPYRIGHT, 1915
BY
THE RUDDER PUBLISHING CO.
NEW YORK, U. S. A.
All Rights Reserved

PRESS OF

Thomson Lee
9 MURRAY STREET, NEW YORK

INDEX

ARTICLES

An Ancient Cruise.....	387
Ankle Deep Too. C. G. Davis.....	367
Around Cape Cod in a 13-ft. Schooner. David L. Webster.....	89
Atlantic to Pacific on Athene, From. Forrest Clark.....	219
Auxiliaries, A Yarn About. C. G. Davis.....	312
Block Island Races. F. W. Goeller, Jr. 300, 378	300, 378
Boats for Sale.....	137, 178
Boat Housekeeping. Winfield M. Thomp- son.....	179
Bonney Aux. Lifeboat Cruiser.....	67
California Cruise, A. W. P. B.....	420, 451
Cape May and Brenton Reef Challenge Cup Races. F. W. Goeller, Jr.....	455
Chicago Motor Boat Show.....	211
Choosing a Place to be Wrecked.....	307
Cockle, 16-ft. Cutter.....	124
Columbia Y. C. Races.....	320
Connecticut River, The. Edwin C. Dick- enson.....	491
Cruise Around Cape Cod in 1912, A. Geo. H. Sistare.....	267
Cruiser for President of Peru.....	48
Cruise of the Po Do, The. J. Norman Henry.....	352
Cruise of the Spindrift.....	339
Detachable Rudder, A. John W. F. Laker.....	500
Dinghy Cruise, A. Clute E. Noxon.....	331
Dutch Seagoing Motor Yacht. D. G. Dzn Fitting Out.....	364
Fitting Out for a Long Cruise.....	96
Gold Challenge Cup Races. Fred W. Goeller, Jr.....	414
Gold Cup Racers, Description of.....	322
Handicap Class Regatta.....	419
Hand V-Bottom Runabout.....	245
How to Build Flatlie Junco, Part II. Fred W. Goeller, Jr.....	33
How to Build the 9-ft. Skiff Ponywog. Fred W. Goeller, Jr.....	126
How to Build the 16-ft. Catboat Sea Duck. Fred W. Goeller, Jr.....	498, 531
How to Build the 12-ft. Outboard Motor Dinghy Sea Pup.....	243, 291
Hurrah's Nest: Adjusting the Compass.....	303
Alabaha, A.....	425
An Alcohol Stove for Australia.....	424
Answer to Racing Problem.....	504
A Short Cut.....	384
Bill 6143.....	132
Boat Drill at Sea.....	213
Bottle Hymn of the Sea Bird, The.....	246
Canoeing on the Solo River, Java.....	503
Canvas Canoe, A.....	541
Captain Voss' Tilticum III.....	304
Christchurch Yachtsmen.....	69
Comfort Afloat.....	542
Comfort Afloat and No Crew.....	463
Cruise in British Columbia, A.....	132
D. J. Keane's 38-Footer.....	70
Early Motor Boats.....	246
Enlarged Sea Bird.....	542
Fiji Island Passenger Boat, Lady Kelvin.....	246
Fiorgyn at North Canoe.....	384
First Gasoline Motor, The.....	247
Fowley Light.....	426
From An Old Hand.....	37
From Belgium.....	246
From Fuss to Fuss Races.....	214
From Madras.....	425
From Swatow, China.....	504
From Our Readers.....	215
Hail from Sweden.....	426
History of a Swallow.....	344
Honoring the Oldman.....	426
Inkstand Presented to Gas Engine & Power Company.....	344
Inside Route Pilot Books.....	802
Keel Dinghy, 13-ft.....	385
Keith Belch's Junco.....	502
Kestrel.....	213
Knockabout at San Juan P. R.....	70
La Cigale. R. Y. S.....	37
Leg-o'-Mutton or Gaff.....	68
Letters to the Oldman.....	248, 303
Lifeboat Cruisers.....	426
Likes the Kicks.....	424
Memories.....	132
Middletown Y. C.'s New House.....	344
Model of America.....	37
Monhegan Light.....	384
Mr. Chase's 25-Footer.....	68
Names of Islands Mentioned in An- cient Cruise.....	463
Never Joke With a Scot.....	346
New Zealand Swallow.....	68
Officers' Pennants, Uniformity of.....	68
Old Friends in the West Indies.....	133
Phydoro, Aux. Schooner.....	424
Plan of Middletown Y. C. House.....	345, 346
Pollywog and Sea Bird.....	383
Power Boat Racing.....	383
Preussen.....	134
Payche at Castries, St. Lucia.....	134
Pt. Fernin Lighthouse.....	70
Recreation.....	132
Regatta of the Pensacola Y. C.....	69
Renly to the Catboat Man.....	213
Rudder Boat, A.....	132
Rudder Sailing Dinghy.....	36

Rudder Station at San Juan, P. R.....	37
Safety First.....	384
Salters Point, Y. C.....	36
San Pedro Breakwater Light.....	426
Schooner Diabliesse at Castries, St. Lucia Sea Bird and Her Ballast.....	134
Sea Bird in Uruguay.....	302
Sea Bird, Naiad at Auckland, N. Z.....	385
Sea Duck, To Build.....	542
Sea Gull, Another.....	540
Sea Peeps.....	502
Small Tender.....	385
Spinnakers.....	68
Suggestion from Japan, A.....	304
Transporting Sailboat in Russia.....	69
Two Rudder Boats.....	502
Wants a Dinghy.....	383
White Ra.....	464
Wind Chart from Wellington, N. Z.....	247
Winning Crew on Josephine.....	504
With the Australians in Egypt.....	248
Yawl Owl.....	213
Ice Yachting. H. Percy Ashley.....	64
In the War Zone. D. Goedkoop, Jr.....	46
Junco Marion, The.....	341
King George's Cup Race. (San Francisco) Kiota III's Cruise. John G. Robinson.....	496
Lady Baltimore's Power Plant.....	409
Lady Baltimore, San Francisco Racer.....	120
Launch Trip in the Pacific.....	118
L. I. S. M. B. A. Wallace Trophy Race.....	336
Long Island Sound M. B. Association. F. W. Goeller, Jr.....	457
Los Angeles and Seattle, San Francisco Races. E. D. Seward.....	293
Madge.....	453
Manhasset Bay Challenge Cup Race. Fred W. Goeller, Jr.....	335
Mississippi Valley P. B. A. Regatta. Edw. H. Van Patten.....	460
Model Power Boat Racing in England. E. W. Hobbs.....	368
Modern Marine Motors. T. Orchard Lisle: Accessories, Electrical, for Motor Craft.....	11, 191, 281
A Childish Order.....	445
Adgadia's New Engine.....	115
Aloha-Oe.....	483
American Engines in Scottish Fishing Boats.....	88
America's Biggest Motor Boat.....	14
A New Shipyard.....	441
Attractive Speed Runabout.....	326
Aux. for Duke of Westminster.....	448
Aux. Sloop, 30-ft.....	324
Baby Doris.....	20
Baby Rambler.....	485
Before and After.....	51
Bermuda Race Conditions.....	230
Blackton's Boathouse.....	54
Boats and Engines of the Future.....	405
Boulton & Paul Engine, The 28-h.p.....	201
Brennan Engine, The New.....	277
Buffalo Cruiser Engine.....	111
Caille Engine.....	407
Caille Perfection Two-Stroke-Cycle En- gines.....	487
Celerity.....	51
Charmian II.....	400
Chicago Races.....	436
Conejo.....	440
Conversion of Windward and Katoura Correspondence.....	11, 18
Decorations and Furnishing of Yachts Detachable Motors.....	475
Diesel Engines for Our Submarines.....	231
Diesel Engines, New London Yacht.....	445
Dorothea.....	404
Dutch 21-Footer Gollywog.....	360
Dutch 21-ft. Runabout.....	486
Eagle, Two-Stroke-Cycle Engines.....	442
Effect of War on American Marine Sales.....	109
Elvo Express Engine.....	437
Elsa II.....	10
Engine Ratings.....	355
Fallacy of One-Design Classes.....	359
Pay & Bowen Engine.....	444
4,000 Revolutions per Minute.....	288
4,500 Revolutions per Minute.....	485
From Steam to Motor.....	485
Gasoline, 50 Cents per Gallon.....	234
Grand Duchess, The.....	517
Guessing Competition.....	23
Hacker Semi-Displacement Runabout.....	489
Hauver II.....	327
Helen IV.....	275
Highest Pow. Motor Yacht, America's Houp-La.....	288, 407
Houseboat Cruiser, Mathis.....	194
Is Business Bad!.....	315
Kermath Vanadium Twenty.....	59
Knockdown Hydroplane.....	519
L'Apache, 72-Footer.....	527
Lady Baltimore's Engine, Test of.....	408
Lake Erie Cruiser.....	22
Laving Up for the Winter.....	476
Lifeboats Yacht and Ships.....	484
List of Sterling-Engined Boats.....	317
Marblehead Race Trophy.....	283
Mail-Carrying Skimmer.....	529
Mason-Jager Forty.....	58
M. B. C. of America, Rejuvenation of M. B. C. A. One-Design Class.....	288
Miami Regatta, Second.....	530
Missouri, Two-Stroke-Cycle Engine.....	524

Model Power Boats.....	276, 395, 488
Model Speed Boat, An Interesting.....	396
Morris Whitaker.....	236
Motor Boats in War Service.....	437
Motor Ships, Accommodation of.....	116
Motor Survey Cruiser for War Dept.....	487
Motor Yacht Coming, The.....	402
Mysterious Six, The.....	477
Nacoochee.....	87
New Admiral's Barges.....	88
New and the Old, The.....	21
New Ketch for Bancroft C. Davis.....	449
New Zealand 21-ft. Class.....	188, 341
Nine-Ninety-Nine Class, The.....	108, 187
Norwegian Naval Motor Boat.....	20
Oils and Lubricating Devices.....	198, 278
Order Your Boat Now.....	476
Our Foreign Trade.....	515
Panama Launch.....	406
Panama Pilot Service Boat.....	490
Patricia, New British Motor Yacht.....	399
Pegasus, 28-ft. Runabout.....	520
Penrose, Two-Stroke-Cycle Engine.....	197
Protecting the Reader.....	315
Record Business Ahead.....	435
Reduction Gear for Cruisers.....	318
Red Wing "Thorobred".....	229
Regatta Committee M. B. C. A.....	288
Remedies for Slack Business.....	49
Rita.....	324
Runabout Power Plant.....	19
Safety First.....	475
Scottish Motor Fishing Vessels.....	408
Scripps, New Six.....	399
Silver Bird, Nautical Auto.....	530
Sixty-four ft. Trunk Cabin Cruiser.....	193
Southwark, Diesel Yacht.....	356
Special Features for April.....	112
Speed and the Truth.....	444
Speedway Engine.....	448
Speedy 30-Footer R. I. L.....	490
Standard Engine, 500-h.p.....	52
Starling, Seagoing Aux.....	528
Tarpon and Shark Fisher, A.....	110
Toppan 21-ft. Runabout.....	233
Trials of the M. B. C. A. 21-Footers.....	321
Twentieth Century Engine, The.....	358
Twenty-five Years of Progress.....	227
Twenty-one Foot Class for Mississippi Valley.....	106
Twenty-one Foot Class Racing in N. Z.....	316
Vitesse.....	449
Valve Operation Gear, Future Design of.....	521
Vulcan Engine, The.....	190
Wanted—New International M. B. Racing Authority.....	49
War Orders, More.....	516
Whileaway Whitney Houseboat.....	447
Wm. Hale Thompson's Endorsement.....	443
World's Record Speed? What is the.....	438
Xqme.....	88
Zuma, Cuban Towboat.....	20
Zumbrotta, Shallow-Draught Cruiser.....	87
Motor Boat Show, New York.....	73, 113
My Cruise. P. W. B.....	1
New Boats for 1915. C. G. Davis.....	102, 205
Novel Vacation, A. John A. Harding.....	467
One-Mile Championship Race.....	417
Our Twenty-Fifth Anniversary.....	100
Overhauling the Engine.....	253
Poughkeepsie-Brightwaters Race.....	343, 390
President Wilson Cup Race.....	536
Producer gas for Marine Use. A. L. Galusha.....	289, 328, 363
Protecting the Boat's Bottom. C. G. Davis.....	350
Racing Kinks. C. G. Davis.....	271
Rather.....	41
Round the Clubhouse Fire.....	39, 71, 135, 216, 265, 305, 386, 465, 505, 222
Sails. C. G. Davis.....	25, 61, 94, 182, 338
Sailing in Holland.....	473
Saturday Afternoon. W. H. DeC. Wright.....	122
Sea Bird, Raised Deck.....	30
Seagoer, Cabin Layout for.....	347
Sermons in Stones.....	411
Sheer Lines. C. G. Davis.....	269
Simple Navigation. 5, 43, 92, 203, 225, 269	511
Southward Ho! Cruise of the Wisdom.....	361
Speed of Hydroplanes, Effect of Breadth on. Linton Hope.....	284
The Dinghy, Its History, Structure and Morals.....	309
The Old Guard.....	255
Thrice Soun Yarns.....	471
Twice Wrecked. Chester Keene.....	507
Voyage of Sea Pup from New York to Boston.....	427
Voyage of Twister. J. A. Pickering.....	394
Wave-Collecting Runabout, 21-ft. F. W. Goeller, Jr.....	207
Wee Pup.....	38
Wianno One-Design, The.....	208

ILLUSTRATIONS

Adgadia at Speed.....	115
Admiral's Barge at Full Speed.....	88
Aeldgytha, 110-ft. Diesel-Driven Yacht.....	237
Air Propeller on a Canoe.....	86
Akbar, 74-ft. Express Cruiser.....	205
All Ready for the Water.....	99
Aloha-Oe.....	483
Always Paint the Topsides First.....	98
A Maternal Study.....	101
Another Fast 21-Footer.....	106

Apelco Lighting Equipment.....	192
Apelco Searchlight.....	192
A Poor Condition to Leave the Boat over Winter.....	97
At New London to See the Rowing Races	310
Athens, Views Aboard of.....	221
Athens, with all Sails Set.....	220
Autan.....	57
Ankle Deep Too. C. G. Davis sketch, 367,	368
Aux. Schooner, with Loew-Victor Engine	403
Baby Rambler.....	485
Baby Reliance V.....	416
Baby Speed Demon II.....	322
Barque Hougomont Ashore at Fire Island	472
Bay of Quinte, Chart of.....	333
Before the Winter Covers are Removed.	99
B. I. Trophy 1913 Course.....	438
Betty M., Chas. Kotcher, Owner.....	525
Blackton's Boathouse, Ballroom.....	55
Blackton's Boathouse, Plans of.....	56, 57
Blackton's Boathouse, Oyster Bay.....	54
Boulton & Paul Engine, Views of.....	201, 202
Brennan Engine, The New.....	277
Bridges Over the Cape Cod Canal, Jack-knife.....	91
Brooks Hydroplane.....	519, 520
Buckstaff Mainsheet Winch.....	64
Buffalo Engine, The New.....	111
Caille Engine.....	407
California, British Motor Yacht.....	229
Canoe Driven by Sweet Outboard Motor	242
Canvas Canoe.....	541
Catamaran Coaching Launch.....	303
Catboat Emeline.....	466
Chalmers Automobile Valve Operating Gear.....	522
Charman II.....	400
Cleaning Off the Bottom with a Wire Brush.....	98
Columbia Y. C. Race.....	306
Conejo.....	366
Conejo, Views of.....	440, 444
Connecticut River, Views of.....	491, 492, 493, 494
Cordon Rouge IV.....	106
Crank Case of Elco Engine.....	110
Creuscar.....	398
Daimler's First Advertisement, Reproduction of.....	228
Dayton 15 Light Outfit.....	191
Defiance, Vanitie and Katoura.....	354
Detachable Cylinder Head of Elco Engine	109
Detachable Rudder, Details of.....	501
Diesel Engine (Niseco) for the Fulton.....	15
Dining and Smoking Room on Motor Ship	117
Dome Light for Cabins.....	12
Dorothea.....	445
Dutch Yachts Racing.....	434
Elco Express Power Plant.....	109
Elco 45-ft. Cruiser.....	72
Elsa II.....	434
End of a High Speeder.....	497
Farmack Direct Valve Drive.....	523
Fay & Bowen Engine, View and Section of.....	359, 360
Fireboat Gamma, British.....	136
First Marine Gasoline Engine.....	228
First Motor Boats, One of the.....	227
Fishing Boat, Boy Fred.....	88
Fleetwing and Disturber at Full Speed	316
Fleetwing, 21-Footer, Views of, 188, 189,	190
Fun at Shanghai.....	541
Gardenia and Cero.....	458
Goeduck.....	358
Gold Challenge Cup Course.....	414
Grand Duchess, The.....	231
Gray Runabout Engine.....	19
Gretchen and Nossida.....	49
Guessing Competition Pictures.....	518
Hacker Semi-Displacement Runabout, Show-Me III.....	23
Hand V-Bottom 20-Footer.....	108
Hawaii, Pacific Coast Ocean Racer.....	422
Hauver II, Views of.....	489
Henricks Lighting Magneto.....	11
Holmes & Welin Lifeboats.....	362
Houp-La.....	407
Houseboat Sea King.....	362
How Speed Boat Styles Change.....	389
I Gave Her a Little More Cable.....	42
International 21-ft. Restricted Class Trophy.....	196
Interior Decorations of Yachts, Views of.....	478, 479, 480, 481, 482, 483
Italian Picket Boat, Gio Lio Cesare.....	232
Junco, Dimensions of Centerboard and Rudder of.....	35
Junco, Marion, The.....	341
Katoura.....	361
Katydid Winning in Her Class.....	320
Kermath Engine, Pictures of.....	59
Kermath Engine, Plans of.....	60
King George's Cup.....	497
Kromhout VIII.....	47
Lady Baltimore's Engine, Similar to.....	120
Lady Betty, Six-Meter Racer.....	536
L'Apache and Launching Party.....	527
Lapwing.....	439
Letter from National Association Engine & Boat Manufacturers.....	252
Lifeboats, Yacht and Ships.....	484, 485
Madge.....	335
Maudsley Valve Operating Gear.....	521
Manhasset Bay Challenge Cup Races, Views of.....	459, 460, 461, 462
Manhattan Engine, The.....	228
Marold.....	275
Mason-Jager Engine, Pictures of.....	58
Mathis Houseboat Cruiser, Views of.....	191, 195, 196
Maumee River Y. C.'s O. D. 14-Footers	133

M. B. C. of America's New 21-Footers.....	278
M. B. C. A. 21-Footers.....	321
Medford Ice Y. C. Boats.....	66
Minerva, Alexander Smith Cochran's Tender.....	320
Mischief.....	449
Miss Detroit and Baby Speed Demon II.....	415
Miss Detroit in Coopy Waters.....	436
Missouri Hot-Bulb Engine.....	525
Model Boat Built by H. F. Jorgensen.....	488
Model Yacht & Power Boat Exhibition.....	526, 527
Monieka.....	395
Morris Whitaker.....	236
Motor Yacht Coming.....	402
Nacoochee.....	87
Navigation Diagrams.....	6, 43, 44, 45, 46, 92, 93, 203, 204
New Boats for 1915.....	103
New London Diesel Yacht Engine.....	231
Nobel Diesel Engine, Section of.....	403
Nobel Valve Operating Gear.....	521
Northwestern Association's Oshkosh Meet	64
Novel Vacation, Pictures of.....	467, 468, 469, 470
N. Y. Y. C. 30-Footer.....	226
Oddities in Rudders.....	105
Officers of the M. B. C. of America.....	9
Officers of the Poughkeepsie Y. C.....	8
Oil Testing, Views of.....	198, 199, 200
Old Friends are Best.....	251
One of the Mysterious Six.....	477
On the Beach for a Scrub.....	99
Outboard Motor Canoe.....	237
Outboard Motor, Operated from Bow.....	241
Outboard Motors, Views of.....	238, 239
Over All the Beautiful Light of the Waning Afternoon.....	2
Ovidio.....	546
Panama Canal 50-Footer.....	407
Panama Pilot Boat on Trial Trip.....	490
Paragon.....	357
Passenger Boat, Galvez.....	290
P. D. Q. II.....	546
Pegasus.....	369
Pegasus, 28-ft. Runabout.....	520
Penrose Engine, Views of.....	197
Peter Pan and Disturber IV.....	436
Peter Pan Sr.....	86
Pictou, New Zealand.....	340
Poseidon, Motor Ship.....	401
Poughkeepsie-Brightwaters Race, Pictures of.....	390, 391, 392, 393
Poughkeepsie Y. C., 1892-1915.....	7
Poughkeepsie Y. C. House.....	7
President of Peru's Cruiser, General Castilla.....	48
Presto.....	416
Producer Gas-Driven Freighter, Richmond.....	289
Producer Gas Plant, Installation of.....	329
Producer Gas Towboat, Dawn.....	363
Promenade Deck on Motor Ship.....	116
Racing on the Hudson River.....	343
Raising the Water-Line.....	98
Ramsley Runabout, 35-ft.....	276
Reduction Gear for Cruisers.....	319
Red Wing Engine, New.....	280
Representatives of Three Nations at Sterling Works.....	517
Resolute, Cup Defender.....	421
R. I. L. at Full Speed.....	490
Roll Up Your Sleeves and Go to the Job	101
Russian Ice Yachting, Pictures of.....	65
Sail Diagrams.....	26, 27, 28, 62, 63, 95
Samoa, Islands of.....	337
Scenes Before and During a Cruiser Race	96
Scripps Engine, View of.....	399
Sea Bird, Seamore.....	455
Sea Bird, Small.....	541
Sea Call.....	372
Sea Gull.....	540
Sea Pup's Trip to Boston, Views of.....	428, 429, 430, 431, 432
Section of Buffalo Cruiser Engine.....	112
Skiff Driven by Gray Outboard Motor.....	240
Smoke, John R. Brophy Owner.....	53
Southwark on Trial Trip.....	356
Southwark's Engine, The.....	357
Snapshot, 16-ft. Hydroplane.....	410
Spindrift in Tom Cane Bay.....	340
Stamford Y. C. Clubhouse.....	459
Standard Engine, 500-h.p.....	52
Standard Engine, 500-h.p., Plans of.....	53
Starling, Seagoing Aux.....	528
Start of a Bang-and-Go-Back Race.....	300
Steel Wool, an Excellent Substitute for Sandpaper.....	97
Sterling Engine, 200-h.p.....	516
St. Louis Y. & B. Co. 26-ft. Runabout.....	405
Submarine Tender, Fulton.....	14
Sunbeam Valve Gear.....	523
Sutter Basin (Monoplane).....	47
Switchboard, Electric Lighting.....	12
Take Out the Engine to Work at It.....	100
Tech Jr.....	277
Tech Jr. II.....	323
Tech Jr. Established a New Record.....	417
Toppan 21-Footers in Florida.....	233
Toto, World's Champion 21-Footer.....	107
The Chinook and Bo'sun.....	21
The Lady Wears Sensible Clothes at Sea	220
There Had Been Plenty of Tough Sailing That Day.....	42
Thirty-five ft. Elco Express Launch.....	288
Thirty ft. Working Boat.....	301
Twentieth Century Engine, Views and Section of.....	358, 359
Ursula.....	475
U. S. Survey Cruiser, Neuse.....	488

U. S. Torpedo Chaser.....	200, 283
Utopia.....	281
van Blerck High-Speed Engine.....	360
V-Bottom Cruiser, 30-ft.....	485
Vite, A Modern Q Boat.....	351
Vitesse.....	449
Voyage of the Wisdom, Pictures of.....	510, 511, 512, 513
Vulcan Engine, Views of.....	190, 191
Wall Brackets Suitable for Cabins.....	11
Webb Cup Race.....	369
Westward, Winner of King George Cup.....	496
Whitit at Cotuit, The.....	91
Whittaker 21-Footer.....	108
Wianno Y. C. One-Design.....	210
Windward, Schooner.....	361
With the Engine Out the Job Can Be Done Right.....	101
Xqme Going Some.....	88
Yawl Minerva, Winner of Second Prize.....	454
Yawl Trojan, Winner of First Prize.....	454
Yolanda II, Mail-Carrying Skimmer.....	529
Your Pals Will Lend a Hand.....	100
Zumbrota, Shallow-Draught Cruiser.....	87

DESIGNS

Aux. Lifeboat Cruiser. Bonney.....	57
British 21-Footer.....	107
Cargo Boat, 50-Ton. G. de Coninck.....	381
Catboat, 16-ft., Sea Duck. Fred W. Goeller, Jr.....	498, 499
Catboat, 16-ft. J. C. G. Bonney.....	299
Cruiser, 40-ft. Power. Martin C. Erisman.....	298
Cruiser, 40-ft. Seagoing, Cero. A. E. Luders.....	419
Cruiser, 47-ft. Aux. Power. Swasey, Raymond & Page.....	377
Cruiser, 47-ft. British Raised Deck. W. G. McBryde.....	486
Cruiser, 49-ft. Seagoing, Onima. Bowes & Mower.....	379
Cruiser, 50-ft. G. de Coninck & Co.....	524
Cruiser, 51-ft. Shallow-Draught. St. Louis Y. & B. Co.....	450
Cruiser, 64-ft. Trunk Cabin. J. Murray Watts.....	193
Cutter, 16-Footer Cockle. J. R. Purdon.....	124, 125
Dinghy, 12-ft. Outboard Motor, Sea Pup. F. W. Goeller, Jr.....	243, 291
Express Cruiser, 56-ft., Dorothea. J. Murray Watts.....	446
Express Cruiser, 62-ft. A. E. Luders.....	448
Express Cruiser, 72-Footer, L'Apache.....	528
Fishing Boat, 35-ft. Tarpon. Greenport Basin & Construction Company.....	111
Fleetwing, 21-Footer. Collings & Bell.....	189
Gold Cup Racer, Miss Detroit.....	323
Houseboat Cruiser, 43-ft., Accommodation Plan. Mathis.....	196
Ketch, 28-ft. Cruising. Titcomb.....	382
Ketch, 94-ft. Aux. B. B. Crowninshield	539
Lady Baltimore, 77-ft. San Francisco Racer. Bowes & Mower.....	119
Model Speed Boat.....	897
One-Design Sloops, 26-ft. o. a. Swasey, Raymond & Page.....	376
Pilot Schooner, 80-ft. Cox & Stevens.....	538
Raised Deck Cruiser, 50-ft. Luders.....	83
Raised Deck Cruiser, Matthews.....	22
Raised Deck Cruiser, 55-ft. Fred W. Goeller, Jr.....	585
Raised Deck Cruiser, 56-ft. M. Whitaker	318
Runabout, 21-ft. Toppan.....	83
Runabout, 25-ft. V-Bottom. J. Murray Watts.....	450
Runabout, Hand 30-ft. V-Bottom.....	245
Runabout, 30-ft. Hacker.....	24
Runabout, 35-ft. Speed. Bowes & Mower	326
Runabout, 36-ft. Speed.....	324
Runabout, V-Bottom. Hand.....	330
Schooner, Aux. 40-ft. w. l. J. Murray Watts.....	280
Schooner, 65-ft. Aux. Joe Fellows.....	381
Sea Bird, Raised Deck. Duncan W. Patterson.....	123
Sea Bright Skiff. R. M. Haddock.....	374
Sea Duck, 16-ft. Catboat. F. W. Goeller Jr.....	538
Seagoer, Cabin Layout for: Submitted by C. A. Chase.....	30
Submitted by G. B. Warren.....	31
Submitted by P. A. Duckworth.....	31
Submitted by R. A. Gordon.....	32
Seagoer, Level Engine Installation for. T. F. Day.....	33
Seagoing Motor Yacht, 82-ft. D. G. Dzn.....	365, 366
Skiff, 9-ft. Pollywog. F. W. Goeller, Jr.....	126, 127, 128, 129, 130, 325
Sloop, 30-ft. Aux. M. Whitaker.....	130
Speed Boat, 21-Footer, Gollywog. H. W. De Voegt.....	404
Speed Boat, 26-ft. Skimmer. Hope-Thornycroft.....	284
Submarine Tender, Fulton.....	16, 17
Tender, 16-Footer for Grand Duchess. Linton Hope.....	235
Wave-Collecting Runabout, 21-ft. High-Speed. F. W. Goeller, Jr.....	207, 208
Wee Pup, Lines of.....	88
Wianno Y. C. One-Design. Vaughan D. Bacon.....	209, 210
Working Boat, 30-ft. Power. Bowes & Mower.....	297
Yawl, 22 ft. w. l. Sail Plan. F. W. Goeller, Jr.....	342
Yawl, 38-ft. w. l. Aux. F. W. Goeller, Jr.....	294

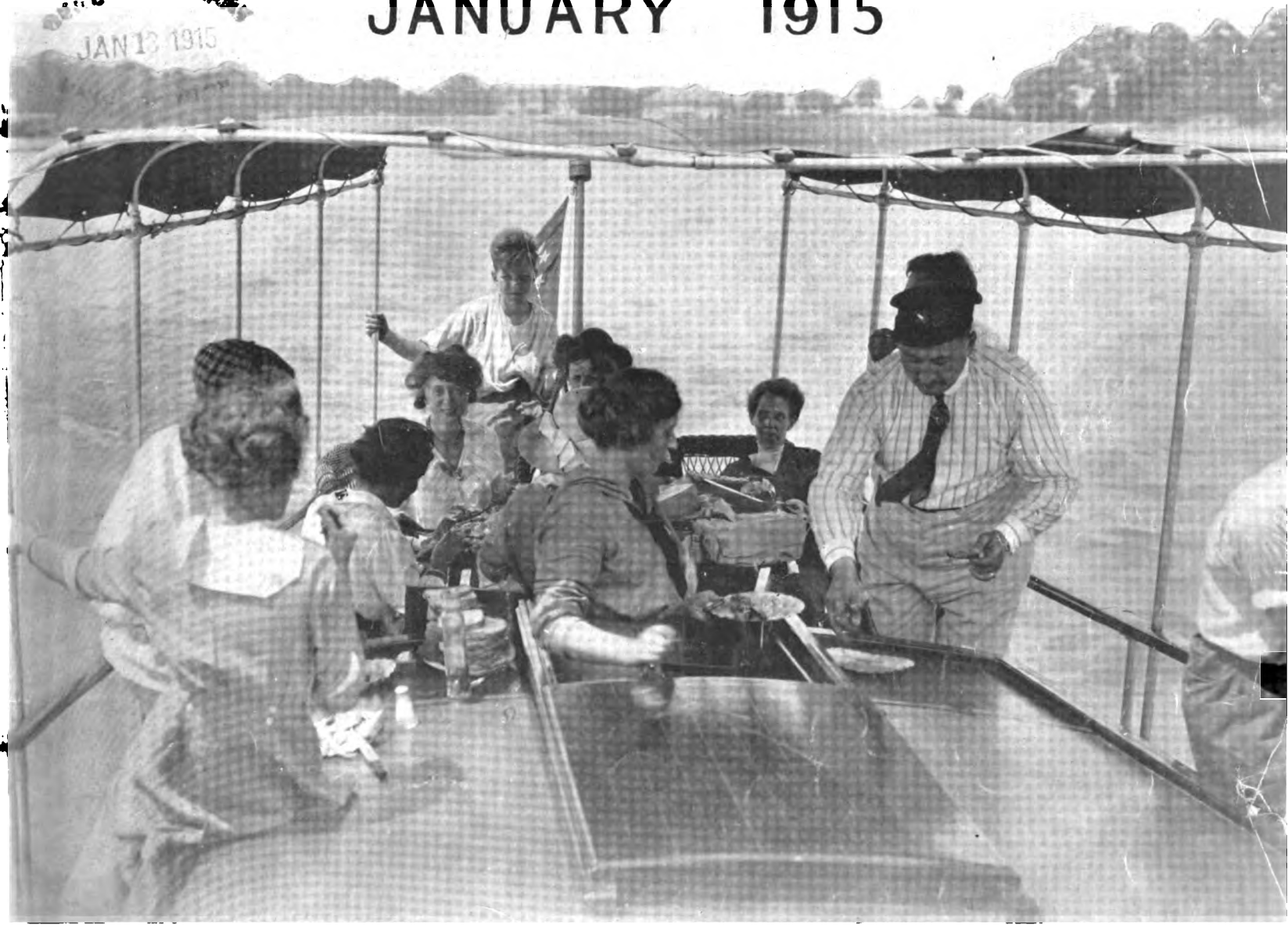
2121

Engineering
Library

THE RIGGER

JANUARY 1915

GENERAL LIBRARY
JAN 13 1915



**PRICE 25 CENTS
\$ 2.00 THE YEAR**

**Vol. XXXI
No.1**

Digitized by Google



Speedway Yacht Tenders

The Utmost in
Constructive Skill

Speedway Yacht Tenders have long enjoyed the preference among careful buyers.

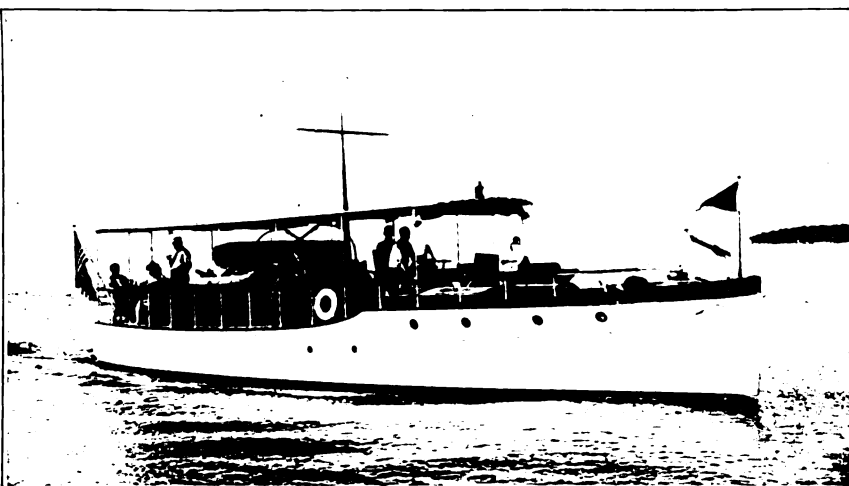
Two types are shown here: a 21-foot tender that is proving increasingly popular for yachts up to 150 feet and a 35-foot model for yachts of 200 feet and over.

Whatever your requirements, from the Speedway line you are always able to make a desirable selection. Remember, too, that a Speedway owner invariably belongs with the satisfied kind.



**GAS ENGINE & POWER COMPANY AND
CHARLES L. SEABURY & COMPANY, CONSOLIDATED**

Dept. E Morris Heights New York City



YACHT TRAVELER ENROUTE

The Matthews Boat Co., Port Clinton, Ohio.

Gentlemen:—Well, here I am, after a two months' cruise on the Great Lakes, embarked for a long trip to Cuba and Panama on board the yacht TRAVELER, and thinking that you would like to hear from me, here goes! ¶ As regards the boat in general, there really isn't anything else to say excepting that she has proven to be really superb, and in several little spells of Lake Erie weather has proven her general design and workmanship, and while it is true that I am a Simon Pure amateur and know more about western ranges than I do boats, have come to the conclusion that handling a Matthews Craft is much easier than branding a yearling heifer. ¶ I do not wonder that the boat attracted so much attention when exhibited by you in New York City at the Show last winter, as my many visitors aboard the TRAVELER take no pains to conceal their expressions of admiration in the all-around construction and equipment of the boat.

JDM-ESH.

Yours very truly,

(Signed) J. D. MEYERS.

**Fifty-Foot Cruiser
TRAVELER Exhibited
Madison Square Garden, 1914
Owned by a retired ranchman from
Montana. This is the finest Fifty-Footer
yet built. The TRAVELER
is added to the list of
Matthews' Successes**



WRITE FOR BULLETIN

**The
Matthews**

Electric Power Capstan
Electric Power Bilge Pump
Electric Power Air Pump
Electric Power Gasoline Pump
Electric Power Tender Hoist

Exhaust Hot Water Heaters for Motor Boats

THE MATTHEWS BOAT COMPANY Builders of the World's Finest Cruisers **Port Clinton, Ohio**

The Rudder

Vol. XXXI

JANUARY, 1915

No. 1

MY CRUISE



It had been one of the desires of my heart to make this particular cruise, and I had talked of it every Summer for eight years, until it had become a joke and byword in the family. The eight Summers had been spent very happily on the South shore of Long Island.

After our first Summer of hiring sailboats and being sailed by various "captains," we could not resist having a boat of our own. We began

very modestly with an old sharpie that my husband found in New Haven, and had brought over by way of Port Jefferson, and hauled across the island. It was the slowest thing on the bay, but when it sailed by with fresh paint, two masts, new leg-of-mutton sails and flags flying, our old friend, the doctor, used to stand on the hotel veranda, filled with enthusiasm, and much to our amusement, repeatedly call attention to the "marine picture." It was the subject of much amiable sarcasm among our nautical friends, but I doubt if we ever had more fun than in that old sharpie, and we certainly could cut across the flats and make time in that way, if in no other.

We had the Quinnipiack, so named for her native place, two years, and then sold her to a man who cut off her stern to evade the government equipment regulations, put a motor in her, and called her Alice A. We meet her now and then loaded with crabs, clams, oysters, or empty barrels, depending on season or luck.

Our next craft was a "Penny" catboat, hired for the season, but we lost so many races with her that we decided at the end of that Summer to have a cat built that had some speed. All the local marine talent agreed that "Gill" put together the "most going sticks of wood."

Our next boat, The Kittery, was the fastest thing of her inches that we could wish for, and by far the wettest—but she is a pretty boat, and we have her still.

I come now to the description of the boat that took me on my long-wished-for cruise up the "East Bays." We bought her last Spring and she has proved the most satisfactory boat we have had yet. The Bee is a sloop of 40 feet, with Summer cabin, protected with canvas sides and canvas cover for the cockpit in wet weather. There

are lockers, couch and chairs, and after we added ice-chest, water-cooler, alcohol stove, etc., I felt that if we did not make this long-talked-of cruise now it would be postponed forever. Towards the end of the Summer, therefore, we decided on a date and agreed to go, rain, hail or snow—my husband and the captain, myself and small son. We planned to take turns in sleeping on the boat, so we took a wide mattress for the floor on one side of the centerboard and a smaller one for the couch on the other side. These mattresses, with blankets, etc., were spread down at night and rolled up and put in a large sail bag in the daytime. Our table was a wide board with a deep batten below that fitted the centerboard trunk and was taken off and put away when we were sailing. There was plenty of room in the lockers and forward under the deck to stow away all our provisions and kitchen utensils. Like all travelers, we took many things, and the number and size of the wheelbarrow loads that went down to the dock caused the onlookers to scoff and jeer. But one can never tell when starting on a camping trip or a September cruise what one may need—but may be sadly in need of warm clothes and certain to be hungry and thirsty three times a day.

Nearly all our arrangements were made the day before and we started a little after 10 o'clock on a Tuesday morning. We had a favorable two-reef breeze and the sail up the bay on one of the most beautiful of September mornings put us all in hilarious spirits—even our good Captain seemed cheerful, though inclined at all times to prophesy atmospheric or other adverse conditions, when not relating droll legends. He said that "several years ago there was a sort of religious revival" in the town we were passing, "and all the ministers were invited to a meeting at one of the big houses. Well, the man that owns most of the land up on the bluff there, was sort of interested, and he went. You know Charlie Blank? Another one at the meeting was John Haff; he had a hair lip and talked curious. Both of them had been a little wild and unreliable. Well, during the meeting they all got sort of worked up, and one of the ministers called on Brother Charles to pray and relate his experience, so, though he hated to, he got up and began to pray. He did not seem to get on very well—he was sort of nervous—had sort of intermittent style. At last John could not stand it any longer, and called out: 'Shay, Chawles, for Gowd's shake git down, you can't pray for a damn—let me try.' Then they adjourned the meeting."

Towards noon, Pumpkin-seed, or "Punk" for short,

Copyright 1915, by THE RUDDER PUBLISHING CO., New York. NOTICE—The contents of this magazine, including all articles, illustrations, plans and designs, are covered by copyright, and their reproduction is absolutely forbidden without the consent and permission of THE RUDDER PUBLISHING COMPANY.

suggested our going ashore for luncheon at the largely and widely advertised hotel on the beach at Tangier, but the rest of us could not see it—nor did we have to remove our mast to go under the Tangier bridge. We continued our way up the crooked channel (which is pretty well staked by the Moriches and Bellport Bay Y. Cs.) and finally anchored for luncheon on the flats opposite Moriches, near the ocean beach. Hot soup, baked beans, bacon and coffee tasted extremely good, and after a successful grab for the dishpan, which had blown overboard, and which had to be fished up from the bottom of the bay with the boat-hook, we pulled up the anchor and went on our way, when the Captain said:

"I've often heard my mother tell about the time the Millerites thought the world was coming to an end. They had the day and hour all figured out and they had a lot of followers round here. There was one man named Clifford Hawkins, kept a sort of shoe store; he believed in it all right and so he gave away all his stock before the time set for the ascensions—well, the thing sort of got on his nerves, and the afternoon of the day the world was to end, he got a jug of rum and lay down with it in a wheat field and tried to empty the jug into himself before he was called. Well, before he heard any call he fell asleep and some of the boys found him there several hours later, so they made a ring of straw around him and set it afire, and began shouting and dancing around the outside. At last Clifford woke up and looked at the fire and the dancing figures, and said: 'Well, it's just my luck—here I am in Hell.'"

The Moriches Y. C. has a fine house on the bay and devotes itself mostly to catboat racing during the season. The members have a fine fleet of small craft—some of them very fast. One of the members engaged a professional to design a Class P sloop last season and a very neat boat was the result—the only hitch in the proceedings was that on measuring up the craft it proved about one and a half sizes too large for the class.

The Captain said: "There is the place I go for wild grapes. They ought to be ripe about now. When we get back we can get some if the mosquitoes aren't too bad. One day Charlie Hawkins came down here to get some and ran his boat up on the meadow bank. While he was fumbling for a basket under forward, a big muskrat

jumped aboard and scrambled over him. Charles began to kick and the muskrat bit him on the leg. He raised up so quick that he almost stove a hole in the deck with his head, and all he said was 'Well! Well!'"

We reached Westhampton a little after 3 o'clock and anchored at the mouth of a little creek just west of the Westhampton Bay. There was a hotel there, and as the sky had begun to show signs of a change in the weather, we decided to anchor for the night. As soon as we had made everything secure, we took the Periwinkle, which had been towed, and rowed up the creek where, a short distance from the bay, we found the duck farm owned by a nephew of the Captain. Here we saw several thousand, more or less (we did not stop to count) white ducks, penned in large yards according to age and condition. I do not know whether duck raising is profitable or not, but I am sure there must be lots of hard work about it. "Punk" and I wandered down to the shore of the farm, and in the grass we found nearly a dozen fresh hen's eggs in hide out nests, which we cooked for our supper when we returned to the Bee.

After the Captain had settled us in order for the night, with canvas down and lights burning, he went off to his nephew's house again and left us for our first night on board. The moon came up, but the wind as well, and it was a cool night, though comfortable enough in our little cabin. I was lulled to sleep by the motion of the boat and delightful sound of the water, but awoke at six in the morning to hear the not so pleasant sound of light rain on the canvas outside. Luckily for us, it didn't rain very hard and only while we were getting breakfast; by half past eight the sun began to break through the clouds. The nephew appeared soon after in a small sailing skiff and piloted us around to the Westhampton Bay proper, where we anchored off the yacht club dock.

These bays are all very similar in appearance and quite shallow, with large flats on which the unwary are almost certain to come to grief. Between Westhampton Bay and that of East Quogue there is a canal of nearly 3 miles. We intended to go as far as Canoe Place and even hoped to go through the canal, into Great Peconic Bay, and then as far as Greenport. But every time any such destination was mentioned the Captain would look very grave, and say he "didn't like the looks of the



"Over All, the Beautiful Light of the Waning Afternoon"

weather and he didn't know how we were going to get through those deep canals when you couldn't pole through them bridges with the tide running like a ball." However, fortune favors the brave, and I, the bravest or most pertinacious of the party, couldn't see why, with just the very wind we needed, we couldn't get somewhere. So, after having a good luncheon at the Howell House, and also having absorbed much wisdom and fatherly advice from the ancient mariner in charge of the yacht club landing, we prevailed on our Captain to continue East. Following the directions given and carefully observing the channel stakes, it was easy enough and we soon reached the first bridge. (This was the kind that can be opened in the center by raising a wide plank hinged to one side, and therefore the stays of the boat had to be loosened to allow the mast to pass through the opening, which was not more than a foot wide.) We tied up at the side of the canal and it was only a few minutes' work to get the boat ready to go through. The anchor was thrown over the stern to keep her from going too fast, and then the Captain guided her with a pole towards the middle of the bridge. As it was our first experience, it was more or less exciting, though in reality not a difficult matter. We held up an automobile or two for a few minutes, but they took their revenge by closing the planks so quickly after we passed as to scatter a lot of dust and dirt over the stern of the Bee. This did not prevent me from taking a keen delight in the picturesque surroundings—the meadows on which peaceful cows were grazing, the pink mallows still in bloom, and on the banks of the canal, many people fishing for the little "snappers," and over all, the beautiful light of the waning afternoon.

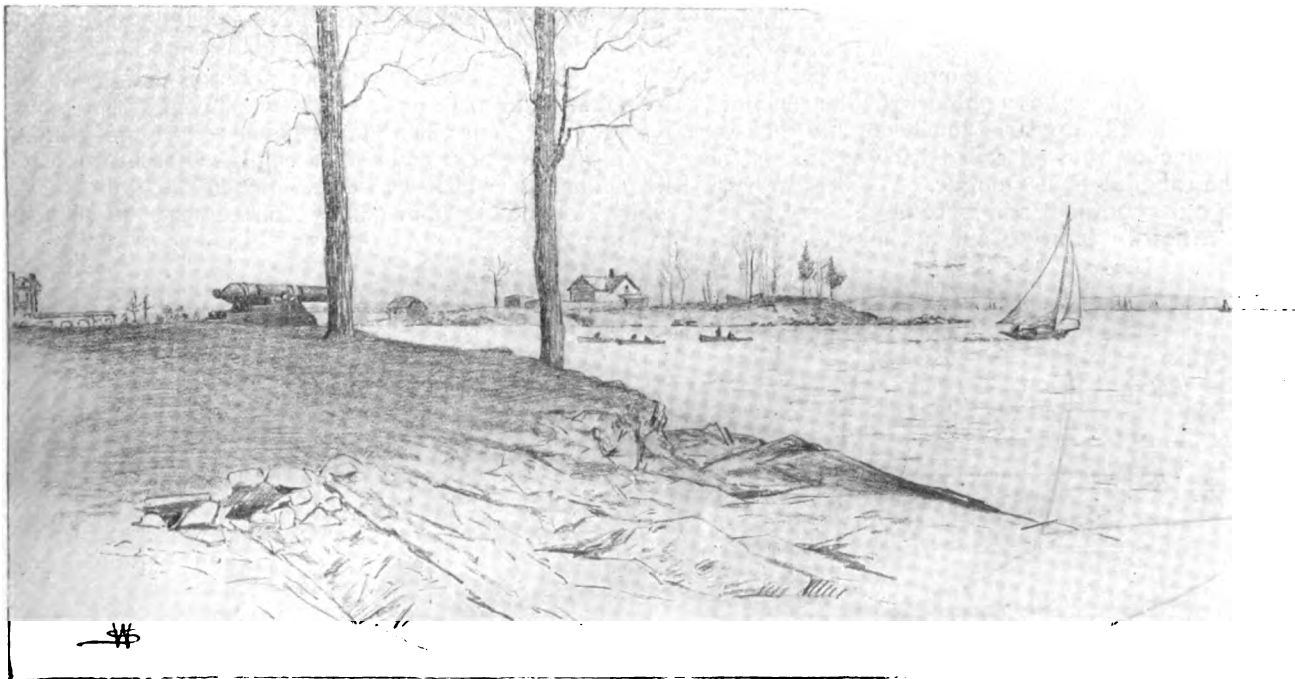
Before we reached the next bridge, we could see that it was of the ordinary swing type, and to our great satisfaction that they had seen us and were already opening for us. We had partly raised our sail and slipped through without trouble.

At the next bridge (which was like the first), my husband had a little more difficulty in raising the plank,

as it was jammed, but finally got it open. We stopped long enough to get some information from a ruddy individual, who happened to be refreshing himself from a black bottle at the time and crabbing from a green powerboat, about the channel in the East Quogue Bay ahead, and also the whereabouts of the Walker House, that had been suggested to us as a good place to stop for the night. In these bays they crab with a line about a mile long, each end anchored, with bits of eel tied every six feet along the line; the line is hung over a large hook on the outside of the boat, which is allowed to drift or sail slowly. As the line rises to the hook, the crabber "scaps" the crabs swiftly and deftly into two or more barrels carried amidship.

The channel in this bay was not very well staked, but we got along very well and only got aground once when we tried to keep too far off the point that comes out pretty well on the left before one reaches the Walker House. The wind had entirely dropped out when we anchored at 6 o'clock, off the hotel dock. We began preparations for supper, and soon were enjoying soup and fresh blue fish that the Captain fried better than any I think I ever tasted, also delicious tomatoes from his own garden, nut bread that made the Tea House jealous, tea and chocolate cake. Soon after supper my husband and I rowed ashore and the Captain returned to sleep on board with "Punk." We suspected that as the night was so still there might be a few mosquitoes on the water, but the breeze came up about four in the morning and after that, the Captain said, he slept. At any rate the crew was not up very early, we knew, because we watched the boat from time to time from the hotel windows of our room.

My husband had telephoned to a man he heard of who knew about the East Bay and the "ball" running tides. He appeared in a small motor boat, as promised, about 8 o'clock, and proved to be our ruddy acquaintance of the night before. He was glad to help finish our breakfast, though assuring us from time to time that he couldn't eat anything. The breeze began to blow fresh



from the East, so we tucked a reef (having adjusted the rigging the night before), and got underway about 10 o'clock.

The Captain said: "This reminds me of the lady who engaged Captain Hulse to sail her across to the beach; there was a heavy head wind, and after a while she noticed the boat was not headed exactly for the beach, so she began to scold and fret about being sailed all over the bay and when she got ashore complained to the other women about it. She was so mad she went back in another boat before the wind, and then told everyone how much better she liked Captain Hick Damel because 'he could sail just where she wanted to go.'"

Our red-whiskered pilot proved eminently satisfactory, though weighted with the responsibilities of his occupation. Under his guidance we learned the secret of keeping the chimney of a certain house in line with a window in the fancy pink Shinnecock Light Tower, and where to turn South just behind a large catboat that had grounded good and hard ahead of us. He could also tell us all the names and past histories of the owners of the pretty cottages on the shores we were passing. Though reefed down and towing two boats, we reached Canoe Place shortly after 11 o'clock, and anchored as close to the bar as possible.

The canal was dredged through a few years ago to about 15 feet, but a sand bar is forming a short distance South of the new highway bridge, and at the time we were there we could not find over 3 feet of water. That decided us not to attempt to go through the canal, especially as it would have been necessary to take out our mast in order to pass under the two bridges if we had kept on with our boat into Peconic Bay. That, to a mere woman, did not seem an insuperable detail, but as I just here began to notice indications of a growing desire on the part of my husband to return home in time for the annual yacht club cruise on Saturday morning, I agreed with the others to return—but proposed that we should ask our friendly pilot to take us a short excursion through the canal in his motor boat. The current was running very swiftly from Peconic to Shinnecock, but we chugged quickly through all the eddies and came out into the beautiful blue bay. We passed several parties fishing for snappers, but did not see any caught. When we came back to the Bee, our friend said he must leave us. However, after very little persuasion on our part, he remained and partook of a hastily prepared luncheon, and then we pulled up our anchor, and all sailed back as far as the opening of the canal at East Quogue. We became very chummy with our good pilot and were quite sorry to see him cast off after we came to our anchorage. It was

not the last we saw of him, however, for he was to render us good service later in the afternoon.

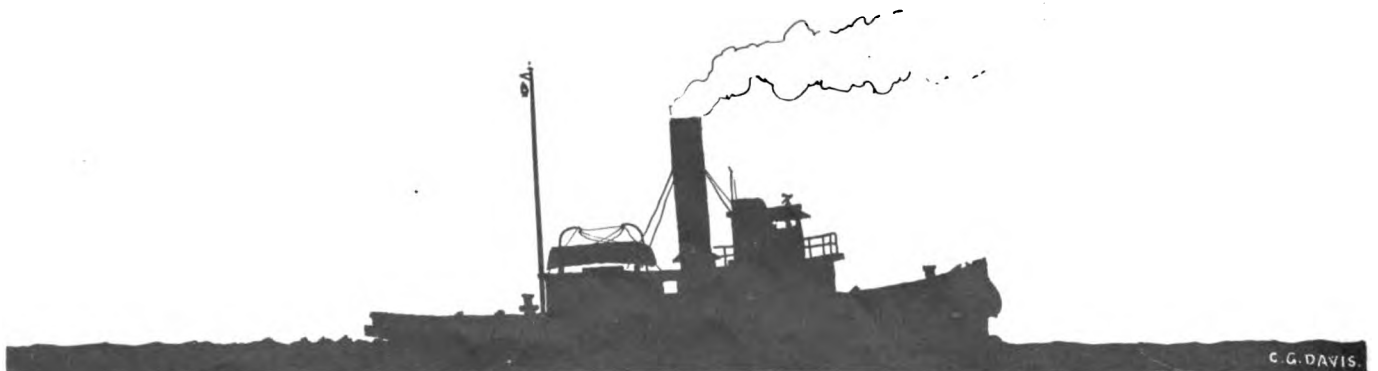
We left the Captain to clean house on the Bee, and in the Periwinkle, we rowed down the canal as far as the second bridge, where we got one of the life-saving men to haul some bait for us. Thus supplied, we rowed back, fishing here and there as we went. It would have been long after dark and a hard pull back to the Bee, for there was a very strong tide and wind against us, had not our pilot appeared in his motor boat on purpose to tow us back. We accepted his offer with joy and were soon speeding up to the end of the canal. On leaving us, he refused all payment for his last service, and insisted on making us a present of a fresh blue fish for our supper. This, with a few snappers we caught, made a capital *pièce de resistance*, and there was nothing wrong with our appetites. We lingered over this meal until the moon was well up, and then we rowed the Captain ashore and escorted him up to the Post House. The rest of us had a fine night on the boat and all slept well and were up early. The Captain arrived just in time to "bake" our final batch of griddle cakes, which he said he could detect from the shore. On asking him how he was treated at the Post House, he said: "Everything was fine—thick cream and beefsteak tender as chicken."

As soon as we could get off after breakfast, we sailed through the canal—a fair wind with us and had no difficulty in passing through the bridges. We left the Bee at the Quogue Bridge and walked up to the village to make some purchases. We walked seven miles, and went into both the "stores" and the post office, endeavoring to find some ice, without success. The main merchandising of the place seemed to be in picture post cards and *Saturday Evening Posts*. Coming back to the Bee, we found the ice wagon had been by and the Captain had captured a 100 lb.

We continued our way down to the Westhampton Bay, and anchored again off the yacht club dock. Here we had luncheon and then went on to Moriches, where we went ashore and walked a long distance up to the village. We did not stop to get our supper there but sailed for home and finished our cruise with a most lovely moonlight sail.

We were so pleased with our accommodations on the boat that instead of going home, we stayed at our mooring all night, only the Captain going ashore and coming down early the next day with a supply of fresh water and the spinnaker, which we needed during the club run, on which we almost immediately started as a supplement to My Cruise.

P. W. B.



SIMPLE NAVIGATION

FIRST LESSON



HERE is nothing esoteric about navigation. It is an art that can be mastered by any person of ordinary education and intelligence. In a certain French comedy one of the characters is greatly surprised to learn that all his life he has been talking prose, and I am going to astonish some of you by saying that all your lives you have been navigating. Every time you visit a strange city and make your way from place to place, you navigate;

when you cross country in a shooting or walking excursion you navigate, and the game of golf is a game of navigation, with shots for courses and holes for ports.

Some of the cleverest navigators are the cabbies in crooked streeeted towns like London, Paris, or Boston. The way some of those fellows will go into an unfamiliar district and find a port is an eye-opener, even to an old hand. One of the most necessary accomplishments of a military officer, no matter how high or low his rank, is to be a good navigator. Hannibal, Cæsar, Marlborough, Napoleon and Sherman were all good navigators, and much of their military success was due to this skill.

THE FIRST INSTRUMENT

The first and foremost instrument of navigation, no matter whether measured on land or water, is the eye. The human eye is a marvellous piece of mechanism, but like all optical instruments, natural or artificial, it cannot be trusted unless it has been thoroughly tested, and its errors detected and classified. The human eye not only has these errors, but such defects are intensified by its being under the control of the mind, a guiding and controlling force that is in itself entirely unreliable unless trained to detect, weigh and classify impressions.

Therefore, the first thing for a man who intends to become a skilled navigator to undertake is the education of the eye. He must train the eye to look for and measure the distance between objects, and to detect not only direction but the angle of direction. But first he must learn to distrust the naked evidence of this sense of sight. He must never believe that he sees a certain thing until he has proven that he has seen it, and especially must he never accept the eyes' evidence of distance and direction until by a correlation of evidence he has proven that what the brain reported the eye saw, the eye did really see. Distrust of the sight is one of the chief essentials of safe navigation.

You who would be navigators, start in and train your eyes, and this you can only do by educating by constant practice. Whenever you see objects either on shore or at sea, endeavor to judge the distance apart, then refer

to map or chart and find out how much you are in error. By constantly doing this you can by practice, correct the errors of sight and become under all ordinary conditions of atmosphere capable of very closely gauging distance. To be able to judge distance is of tremendous value to a navigator. In fact, it is the primary stone on which his art is builded.

THE COMPASS

Next to the eye in importance comes the compass. The navigator can throw overboard all his other instruments, and with his chart and compass, safely circumnavigate the world. Therefore, the first thing for the young navigator to learn is his compass, not only to learn the names of the points, box it, as it is called, but to learn to use the instrument, to put its powers into action. In order to do this he must keep it always before him while voyaging, and constantly use it.

He must learn to think compass.

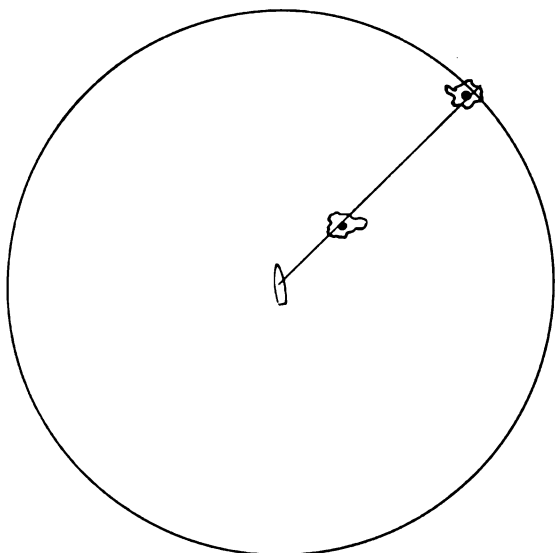
A Cuban gentleman once said to me, speaking of his children: "They speak English, but they do not think English, and that is what I want them to do." In other words, they thought in Spanish and translated these thoughts into English to utter them. This is what the majority of amateur navigators do when they use a compass—they think direction and translate it into compass. What I want you to do is to think compass and express direction by it.

The majority of yachtsmen never use a compass unless they are obliged to, on such rare occasions as they be out of sight of land, owing to distance, night or fog. They navigate solely by the eye, consequently when obliged to employ the instrument they know little or nothing regarding its action or use, and usually far less regarding its condition.

The compass is frequently kept for long periods below in places where it is under the influence of some foreign attraction, like a stove, anchor, or tank, and when brought on deck and placed in the binnacle or on the floor of the cockpit is decidedly out of order. Many yacht compasses are as much as two points off, and the owner unaware of it.

I once started from Block Island in a fog, steering by a compass that the owner brought up from below and assured me was correct. The course was E., which course we carefully steered, and which should have brought us into Vineyard Sound. After running for some time, we heard breakers ahead, and made land at the mouth of the Sakonnet River. When it cleared up, I found that the *correct* compass had an error of four points and was absolutely worthless. The owner then admitted that the compass had been in the locker for months, and that he had never tested it, and in fact, did not know how to.

A compass should always be kept in the binnacle while the yacht is in commission. If you are obliged to take it out, after putting back in the binnacle, always



No. 1. A Range

test it. If you have to put a compass below or away for the Winter in a locker, see that it is not placed close to steel or iron, nor turned upside down or on its side.

On wooden vessels, if no large amount of iron or steel is near it, a good spirit or oil compass is nearly always true, that is, it has so little deviation that for the purpose of our navigation it need not be taken into account, but despite this fact, it should be frequently tested as compasses are much like women—you can never trust them unless constantly watched. Frequently when you give them your implicit reliance you will find they have misled you.

I am not going into the question of compass correction, as that is another man's watch, but you can keep sufficient vigil over your instrument by observing the North Star at night, and the sun at noontime. If you find these luminous bodies are not bearing North and South to an appreciable degree you may be sure either something is wrong with the universe or else your compass has slipped a cog. Another and better way is to get two charted objects in line, like two lighthouses, and find out by your compass how they bear from each other. I will explain how to do this further along in the spinning.

Now I am not going to bother you with deviation or variation; we are going to navigate with a compass giving the correct bearings for the locality in which we are voyaging. The variation we have nothing to do with, because we are using local charts. After you have learned simple navigation you can learn what variation is and how to take care of it.

RANGES AND BEARINGS

One night on leaving the deck, I said to the man who had taken my place: "Mr. Mate, when you raise Point Highchiff take a bearing and let me know." Dropping below, I saw the mate look at me rather dumbplussedly, but being tired and sleepy thought no more of it until I relieved the deck at 4 a. m. We were abreast of the light. "How did it bear when you raised it?" I asked. "I don't know," he answered. "Don't know! Why, didn't you take a bearing?" "No, I didn't know what you meant by a bearing."

Until that particular moment I never supposed that a man who had been constantly in and around boats for

years could be ignorant of what was meant by the term a *bearing*, and how to obtain one. But a little investigation along the line proved that this man was no exception and that a number of yachtsmen were floundering in a like state of ignorance. Many confused a bearing with a range or vice versa.

In using a compass for taking bearings you must always suppose yourself to be standing in the middle of it. Let us suppose the compass card is a large round table with open circle in the middle in which you stand, and the periphery is marked with 32 divisions, these being what are called the principal or named points of the compass.

First let me explain what a range is, not only because it is employed in navigating, but because many confuse a range with a bearing and vice versa. When a man sights a gun he takes a range; the hind sight being one point and the fore sight the other, or second point of the range. The object aimed at is the third point and to hit all three points must be brought into a straight line. Many of the guiding lights for our river and channel navigation are located as ranges, the rear light being brought and kept in range, i. e., one directly behind the other.

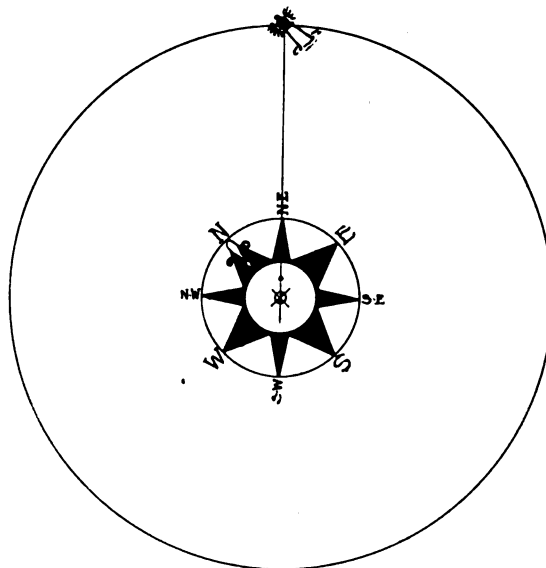
Fishermen use ranges to find good fishing spots. To find such and such a bank you are told to keep the spire of the Methodist Church in line with the big pine tree on School House Hill.

Diagram 1 shows a range taken from a vessel on two towers on two islands, and by examining it we can understand that a ship cannot see those two towers exactly one behind the other, unless she is somewhere on the straight line joining them.

To obtain a range a compass is unnecessary, but to establish a range it is necessary to take the compass bearings of both objects.

A range never alters its bearings; once established, exists so long as the objects comprising the range exist, but in a simple bearing the line connecting the two objects shifts constantly with the shifting of the vessel from which the bearing is taken.

Let us suppose that we are on board a vessel anchored in the exact center of an absolutely round lake, and that



No. 2. A Bearing

the center of our compass is the exact center of the piece of water. Standing in the middle of the compass, we would see distinct objects like large trees, houses and points of rock on the shore in all directions. Now let us stoop down until the eye is on the edge of the card, and looking along its surface we see directly in the direction we are looking, a white house. Running the finger along in the direction of the eye until we reach the marked outer circle of the compass we find a large letter N, meaning North. Let us take a string and stretch it from the house to our eye and it will strike the edge of our card at the letter N point. In other words, the house is at the end of a straight line extending North from the eye.

This is a bearing and you have taken a bearing of the house and this bearing our compass tells us is North.

In diagram 2 you have a bearing of lighthouse taken on the compass, the line cutting the card at N.E., therefore the bearing of this light from the vessel carrying the compass is Northeast.

Again in diagram 1, if the vessel shift its position, it

(To be Continued)



POUGHKEEPSIE Y. C., 1892-1915

ON the East side of the Hudson River, midway between Albany and New York City, in the month of August, 1892, five sailormen started out in the sloop-rigged yacht Beatrice for the distant city of Albany, 74 miles away, and up that narrow and winding channel they went their way with the same cherished spirits that made Hendrick Hudson's name go down in history, they likewise were making history, themselves. At the Albany Y. C. hospitality was extended them, the like of which they had never dreamed before. Returning down the Hudson with hearts throbbing beneath their brown skins, the whole world to them was the river, for their sloven beings had been awakened to the joys of a manly sport.

As the Beatrice was made fast to her old mooring, Fox's Point at Po'keepsie, a council was held, and

will no longer be in range, therefore you will understand that a range can only be on one bearing, but that either one of the two objects forming a range can have thirty-two compass bearings.

As soon as the vessel carrying the compass alters its position, it alters the bearing of the object.

After reading this, don't say I understand, but go to work and prove to yourself that you do understand. Take a compass or a compass card and place it upon a table in the center of the room and practice taking bearings of the objects and furniture lining the walls. This will not only teach you to take bearings but teach you the points of the compass.

If the room is large a good way is to have a companion holding, say, a candle or small lamp in his hand move around the room, calling out as he stops at a point, "How does she bear?" while you, sighting over the card, call out the bearing.

Next month I intend to show how to use bearings to fix your position.

in her cozy cabin those five men decided to have a boating home of their own where they likewise could extend the cordial hand to others of the yachting fraternity, so the foundation was laid for the Po'keepsie Y. C., and little they dreamed what the outcome of their endeavors would be or of the hundreds of people they would awaken to the boating world. Mr. Powell Hobart, a man they have with them today, was chosen to guide the club in the first days of its infancy, where it takes a man who is a man to overcome the numerous obstacles that were before him, and with but one thought, and that to make his dream of a glorious yacht club come true. The men who stood by him through thick and thin and made things possible were Wm. Hartman, R. W. Haupt, Gustave Nolting, C. W. Morgan, Edward Laufersweiller



Poughkeepsie Y. C. House

John Furman and Wm. Furman. The following May the first clubhouse was built, 20 feet by 20 feet, and gentlemen, if you of the luxuriant clubhouse were as proud of your clubhouse as these men were of theirs there could be nothing asked for in the boating world.

At the first sign of a real yacht club people came from everywhere to join in the upbuilding of a mighty club. Sundays were the days when mechanics from all the trades came down with their overalls and tools to contribute their mite toward the new recreation, and in 1896, as the ever-increasing membership made more room necessary, an addition of 50 feet was added.

Everything went along smoothly until the eventful Fall of 1904, when the startling news came that they had to move, for in their zeal they neglected to buy the land and that was a very solemn Winter for them, until their spirits of enterprise rose like a Phoenix and they could not say "die." Then, burdening themselves with debt, they decided to move and build over the dreams of yesterday. The following year, 1905, they had finished the present club and started in life anew with 125 members, 16 naphtha launches, 6 sail yachts and 35 rowboats, and debts galore, but the never failing spirits did not leave them and each year they added \$1,000 worth of improvements, and at last the club became self-sustaining. This could not have been possible if it were not for the members doing a very large part of the work themselves. From the painter, plumber and carpenter who belong to the club came new gifts of their handiwork and even today, when they do not need it, it is just the same, and a helping hand is ever in waiting.

Today they have a two-story spacious locker house, 30 by 120 feet, and a clubhouse 30 by 50 feet, three stories high with verandas, upper and lower, on three sides giving a 15-mile view of the Hudson; steward's apartments on the top floor, meeting and billiard room

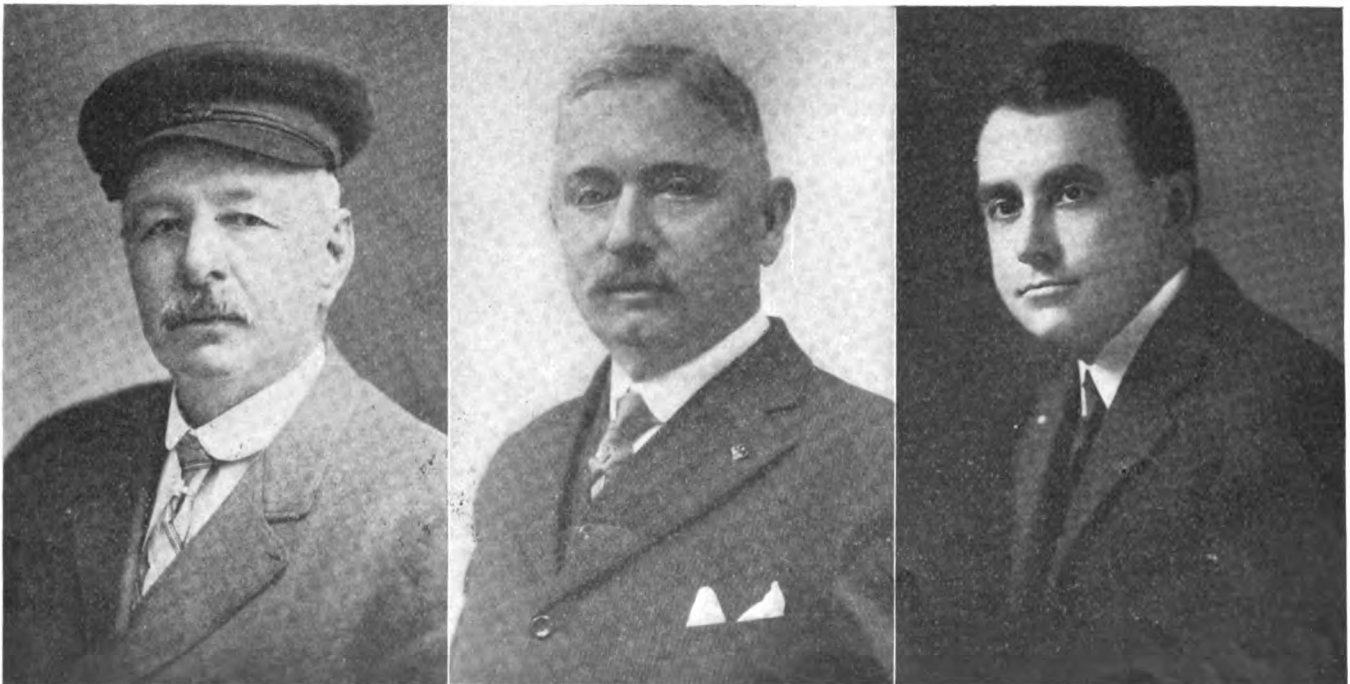
and ladies' parlor on the second floor, reception and ballroom on the ground floor, and a locker that proves interesting to numerous yachtsmen. In the yard there is storage for 200 assorted power boats. Gasolene storage tanks with a capacity of 2,000 gallons. One service float and one visitors' float. One-half mile of moorings three abreast; electric marine railway for boats up to 75 feet.

In the ballroom there is a full dining service, including folding tables and everything necessary for the banquets which are held during the Winter, especially the annual one, which takes place just as the yachting season closes to cheer up the boys at their saddest time, and the expense is all borne by the club. It also gives the non-boat owners in the club some real live fun. Commencing the middle of January, there is a navigation class once a week, when practical knowledge is gathered together with a lot of fun just to shorten the Winter, and during these classes they have mock trials of supposed accidents bringing out the points of marine law. Also there is a United States Power Squadron. The club has today a membership of 253, with 160 motor boats, and property valued at \$20,000, fully paid for. The club was one of the first four clubs to originate the Hudson River Yacht Racing Association. During the last four years the automobile has made some inroads on the rocking chair fleet, but in their place comes new boat owners that are ever increasing in numbers and hospitality ever glistens from their floats.

The following are the past and present Commodores:

Powell Hobert, 1892-3-4; E. Laufersweiller, 1895; J. E. Birdsall, 1896; Herman Vonder Linden, 1900; Frank Daubert, 1902-3; Javy Ackert, 1904-5; George Bogardus, 1906; William H. Frank, 1897-8-9, 1901, 1906 to 1915.

GEORGE C. SALTFOED.




Alfred Traver, Vice-Com.

William H. Frank, Com.

George C. Saltford, Rear-Com.

OFFICERS OF THE POUGHKEEPSIE Y. C.

MODERN MARINE MOTORS



by T. ORCHARD LISLE, A.M.I.MAR.E

REJUVENATION OF THE M. B. C. OF AMERICA

MR. J. STUART BLACKTON ELECTED COMMODORE—NEW LEASE ON LIFE TO BE TAKEN UNDER HIS ABLE AND ENERGETIC LEADERSHIP—THE INTERNATIONAL 21-FOOT CLASS TO BE PROMOTED

AFTER many years of existence in a state bordering on comatose, the Motor Boat Club of America is to rise Phoenix-like from the smouldering ashes which have been fanned by a live breeze, and the club now is likely to take its proper position as the premier motor-boat club in the United States. Having "burned its useless boats," it is starting unhampered by most of its old automobile associations, or by debt, and with a healthy exchequer, backed up with the promised indefatigable energy of some of our leading motor-boat racing men the future is indeed much rosier. Nowhere will this announcement be more welcome than in Europe, for the club controls what is the greatest international event on behalf of the entire sport in this country, and by the time the conclusion of the war enables racing abroad to be resumed, the M. B. C. of America should be in an

excellent position to handle the international events, such as the B. I. Trophy, ex-Harmsworth Cup. For long the trustees of the latter had been fretting over the inactivity of the M. B. C. A., the change in its attitude will no doubt prevent them from considering any other club or association as a possible proper American representative. This rejuvenation of the club appears to be due to the untiring efforts of Mr. J. Stuart Blackton who, during the last five or six years, probably has owned more high-speed motor boats than any single man alive, so it would be harder to find a more suitable man to be the Commodore, especially as it is certain that Mr. Blackton will be unceasing in his efforts to bring the club to a position that it has never attained before.

The officers of the club, several of whom were previously connected, are as follows: Commodore, Mr. J.



Vice-Com. J. Elverson



Commodore J. Stuart Blackton



Rear-Com. W. Hale Thompson

Stuart Blackton; vice-commodore, Mr. James Elverson; rear-commodore, Mr. Wm. Hale Thompson; secretary, Mr. Morris Whitaker; treasurer, Mr. Chas. Francis; directors: Messrs. A. E. Smith, J. A. Pugh, T. F. Cheseborough, G. McKesson Brown, C. M. Englis, H. S. Ford, W. H. Barnard.

Among prominent marine motorists who have just joined or rejoined the club are: Messrs. A. L. Judson, Egbert H. Gold, of Chicago, Charles M. Englis, August Heckscher, Preston P. Lynn, H. S. Ford, William J. Connors, Jr., W. Irving Twombly, J. E. Brulatour, Peter W. Rouss, Carlis de Zafra, Alan R. Hawley, H. W. Williams and Carl Fisher, altogether there being about 60 members at present, the majority of whom own motor boats.

The policy of the club has been changed and not only will cash prizes be barred, but in future no one directly connected or indirectly connected with the engine and boat building industry will be allowed to hold office or assist in running regattas. Furthermore, races will be held within easy reach of New York in order that the general public may see the world's fastest craft in competition with each other.

In view of the fact that "trade" is barred we sincerely hope that *every officer of the club will possess one or more racing boats*, in order that the trade may be stimulated to develop the proper type of hull and machinery. For in cutting out "trade" it must not be forgotten that the heads of many factories in the past have done much to support the sport and clubs, by building and racing fast launches and cruisers, particularly in the earliest days when motor boat clubs needed every atom of support that they could obtain. However, we are glad to see that this barring clause does not extend to members, for motor boat racing provides the finest laboratory possible for the designer, builder and engine manufacturer. Also among the trade are some of our finest and cleanest racing men.

We also understand that it is to be the club's policy to promote and develop a useful one-design class, which will most likely be the International 21-foot Restricted Class, in order that domestic and inter-country racing for the man of moderate means may be encouraged. The Commodore intends building one of these successful little semi-displacement racers, in addition to becoming a member of a syndicate that will build a boat to challenge for the historic British International Trophy as soon as the European war is over. By that time there should be a little fleet of 21-footers to accompany the Trophy racers, and so add extra interest to the event. Such a step will considerably increase the British and Continental estimation of the M. B. C. A. in addition to making all home devotees of the sport regard it more favorably as their representative club. As the B. I. Trophy races are not likely to be held next year, the club's most important event will be the Gold Challenge Cup at Manhasset Bay, which was won in 1914 on Lake George, by Mrs. Paula Blackton's Baby Speed Demon II.

Owing to the past inactivity of the M. B. C. A. we were obliged in our November issue to support the American Power-Boat Association in their efforts to obtain control in this country of the B. I. Trophy trials and races. However, now the M. B. C. A. is again on the active list and is likely to make good, the necessity of such a step, we are very glad to say, would seem to no longer exist, especially as the club has become a member of the A. P. B. A. So future work should be much smoother sailing. Until the club is sufficiently strong to have its own clubhouse or clubship in Manhasset Bay, the members will have the privilege of using the premises of the Automobile Club of America. Apart from this the M. B. C. A. will be quite distinct from the A. C. A. except that one member of the Automobile Club will be represented at the B. I. Trophy trials and meetings.



ENGINE RATINGS

NEW STEPS TO BE TAKEN BY THE A. P. B. A. TO PRODUCE LEVEL DECLARATIONS OF POWERS

AT a recent special meeting of the American Power-Boat Association, the question of engine ratings came under discussion, and it was pointed out how misleading were declarations of nominal power, and that very often a purchaser did not get anything like the power anticipated. For instance, an engine will be rated at, say, 20-45-h.p. and will not give more than 30-h.p. on the brake, while another make of motor will be rated at 30-50-h.p. and will develop 60 and even 70-h.p. All these weird ratings leave the average motor-boatist in a condition bordering on bewilderment.

Today the term "horsepower" really means little, unless the exact kind of horsepower is stated. It may be indicated horsepower, nominal horsepower, brake-horsepower, or horsepower, as determined by the A. P. B. A.'s own formula; again even an automobile engine formula. However, in order to ensure that purchasers receive at least what they are led to believe they buy, the A. P. B. A. have decided to appeal to the "powers that be" to have Government inspection of engine-testing, and to endeavor to have it made law that every engine shall have its maximum horsepower at its maximum revolutions plainly stamped thereon.

While this movement, if successfully carried through, will enable an owner to be confident that he is getting at least as much horsepower as he is paying for, too much confidence must not be placed upon this official declared power for race handicapping purposes, as it is often most difficult to get the absolute maximum brake-horsepower on the manufacturers' test bed, and to considerable extent depends upon valve setting, the carbureter used and the mechanic who carries out the testing.

Another matter, however, crops up as a resultant, and that is the question of cost per horsepower, where the productions of responsible manufacturers are concerned, that is to say, firms who rate their engines well below their real power. For instance, to take a fictitious name, the "Royal-Premier," 45-b.h.p. marine power plant, is sold as a 25-35-h.p. outfit at the price of \$1,000. According to the selling cost this works out at about \$28 per horsepower. But if the maker is forced to market the motor as a 45-b.h.p. set he may possibly sell it as such, which would mean that this price would still be about \$28 per horsepower, or \$1,260 for 45-b.h.p.

This he will be able to do because it gives him such a distinct advantage over his competitor who previously

was selling a 45-b.h.p. "Blank-Junk" engine as a 60-h.p. set, but who, according to the law, if it comes in force, will have to sell it as a 45-b.h.p. motor. Consequently where a dishonest firm is concerned the motor-boatist will gain, but is likely to lose in connection with an honorable

firm's products. However, it is obvious that the steps of the A. P. B. A. are turning in the right direction. We buy most goods by measure, upon which the Government keeps a strict and watchful eye, so why not purchase horsepower by a guaranteed measure?



CORRESPONDENCE

ANOTHER NEW FEATURE FOR RUDDER READERS

FROM now and onwards, the Editor of THE RUDDER will be glad to receive letters of topical and general interest from his numerous readers all over the world for the purpose of publication in these columns. The Oldman always has received a steady flow of correspondence but by far the greater majority of letters are written in a personal way, and this privacy we have to strictly regard. In future if you have any grievance against any motor-boating law, association rule, methods of handicapping, or running races by clubs, just sit down in the cabin, relieve your mind on paper and despatch it by the first mail packet. Maybe you don't like certain features of this magazine, or perhaps you have suggestions to offer. If so, don't be scared, for everything of general interest is welcome. For the benefit of the sport and industry we want to bring our readers in closer interlock, and when they are separated by great distances, correspondence is the only thing that can successfully ac-

complish this. If the engine in your boat uses kerosene, write and say why you use it, giving the disadvantages and the benefits of that fuel, or if your motor uses gasoline, state why you prefer this fuel. There are a thousand and one subjects to write about, and all these little things are most valuable to other readers, particularly those who are fairly new to the game. So while the Nor'easters blow take up your slack, my hearties, go below for a spell with the quill, and let the Oldman hear from you before the February pages are piped down for press.

The publication of letters does not, however, necessarily mean Editorial endorsement of the opinions or statements expressed by the correspondent. Further, all letters written under a *nom-de-plume* must contain the author's name and address for registering by the publishers. This rule will strictly be adhered to under all circumstances. Letters are to be marked "Publicity."



ELECTRICAL ACCESSORIES FOR MOTOR YACHTS

HANDY DEVICES AND EQUIPMENTS MANUFACTURED IN AMERICA

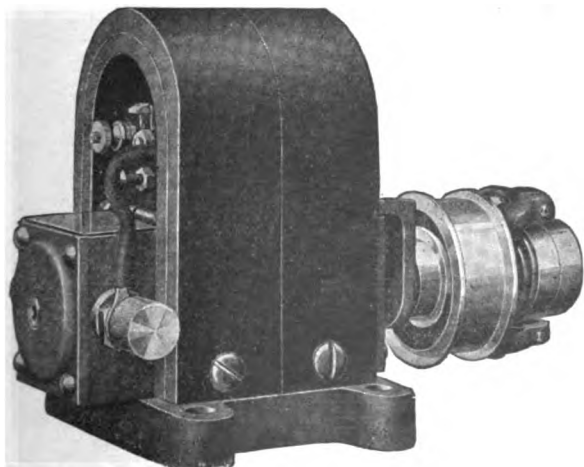
No. 1. Electric Lighting of a Forty-Five-Foot Cruiser

ALTHOUGH electricity as a propelling agent for launches is very nearly a by-gone power, particularly in America, where it has almost entirely been superseded by the gasoline motor, few persons fully realize to what a great extent electricity for auxiliary purposes has trebled of late years in its application to the motor boat and power yacht industries.

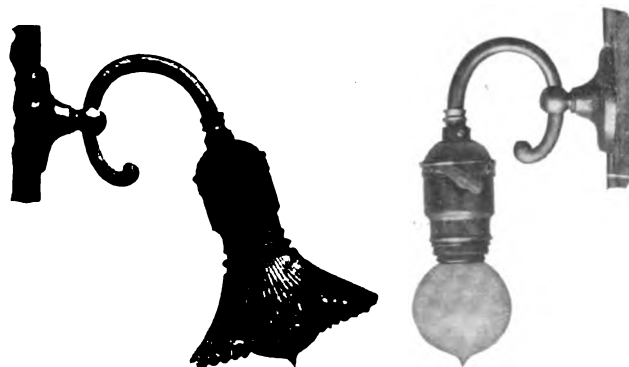
Among the fittings with which high-grade boats are equipped may be mentioned: Lighting sets, self-starters, ignition batteries, coils and magnetos, air fans, electrically driven bilge and fire pumps, engine room signals, stew-

ard's bells, and even cigar lighters. Many of these interesting novelties and fittings will be dealt with in the course of this article.

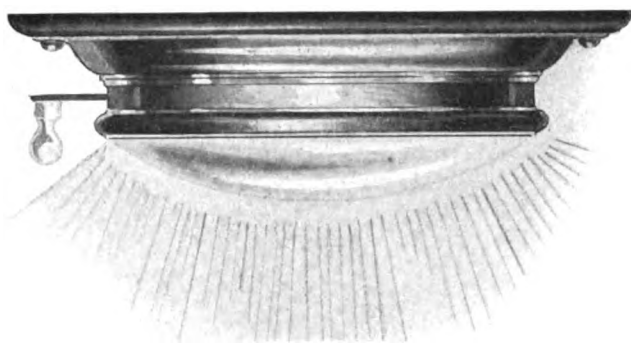
First of all we will deal with a lighting outfit suitable for a 45-foot cabin cruiser as supplied and planned by the Henricks Novelty Company, of Indianapolis, who are represented in New York by Messrs. Sutcliffe & Madsen, of 136 Liberty Street, who suggest the following lights for the average cruiser of this length, namely: Main cabin, two side lights and a two-light ceiling fixture of 12-c.p. each; stateroom, one 12-c.p. wall fixture; galley, one 12-c.p. ceiling fixture; engine room, one 12-c.p. ceiling fixture and one 8-c.p. portable; toilet, one 8-c.p. wall fixture; forecabin, one 12-c.p. ceiling fixture.



Henricks Lighting Magneto



Wall Brackets Suitable for Saloons and Cabins. The Keynote is Neatness and Simplicity



Dome Light for a Saloon

We have assumed that the layout of the boat provides accommodation for the crew in the bow of the boat or in the engine room and recommend ceiling lights where there is the most probability that they would be hit or damaged, and wall lights where it is desired that they be most convenient and accessible.

Miniature base dome lights are not so desirable, as the bulbs are hard to obtain, and are not as satisfactory as the standard Edison base article, which may now be obtained in lower voltages without any difficulty. For the riding lights on a boat of this size we would suggest an 8-inch parabolic incandescent bulb searchlight. A 45-footer is really too small to install an arc light equipment, and with the 8-inch searchlight we referred to, a distance of 800 feet may be obtained on a clear night, and this is ample for most manoeuvring. We have found few motor-boat searchlights of larger diameter to give any further projection. A light can also be placed in the binnacle, but sometimes these are self-contained.

It would be a good plan to electrify the two side lights, installing 10-c.p. Edison base bulbs and also the bow light, but the use of oil for the mast headlight is the most practical, for unless the work is skillfully done and with the heaviest of materials, the weight of the swinging cables will sooner or later give trouble on this light. Shades on the inside fixtures, unless they are small and securely fastened, are hardly advisable. Excellent results may be obtained by frosting the bulbs in the stateroom and main cabin. This reduces the glare and increases the effectiveness and beauty of the fixture, and adds to the general effect in the compartments.

With all lights burning, including the searchlight, a grand total of 160 watts are consumed. On the average, this load may be divided in half. If the system is operated at a 6-volt pressure we find that the current consumption will be about 14 amperes.

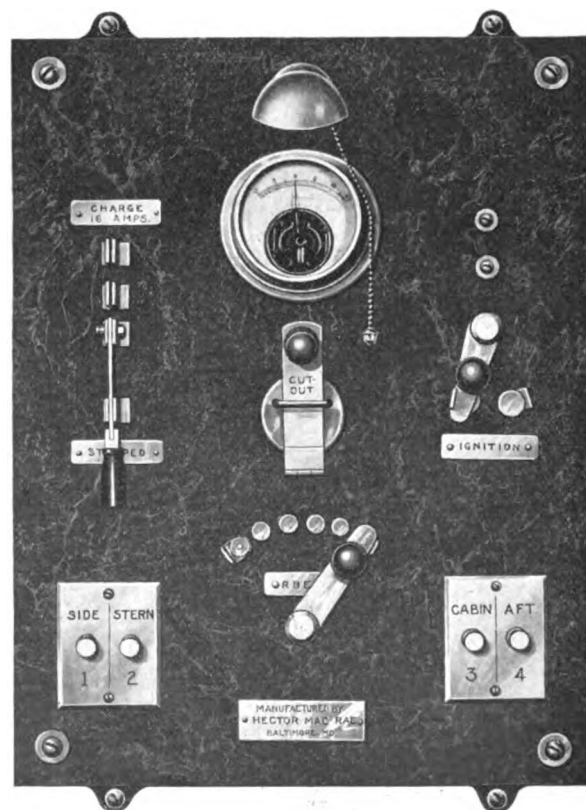
The type BC-1 Henricks generator would be suitable therefore, for a boat and installation of this character. In eight hours' running this generator will charge an 80-ampere-hour battery, which will in turn run the load referred to for about 5½ hours. Inasmuch as the boat is sometimes run at night, and also as this load will be much lightened during part of the evening, it will be necessary to charge the battery about once every other day when cruising. Any good lighting-type battery of 80-ampere-hour capacity may be used with this system. It will do no harm and it is quite practical to install a 100-ampere-hour 6-volt accumulator, the only difference being that it will take two hours longer to fully charge.

On an outfit this size the use of a switchboard to control the lighting circuit and to indicate the charge and

discharge rates is recommended. This switchboard may be obtained for \$20 and a suitable 6-volt, 80-ampere-hour battery for about the same price. The wire and fixtures will not cost over \$12, making the total cost of the entire lighting apparatus in the vicinity of \$100. The best position for the switchboard is on the engine room bulkhead, where the mechanic can keep a ready eye upon it.

The principle and construction of the lighting outfit furnished by the Henricks concern is as follows: A magneto is used to generate the current, the armature being wound with heavier wire than is the case with their ignition line and running at a speed of about 2,000 r.p.m. Above the armature and in the "U" formed by the magnets they mount a mechanical automatic circuit breaker, which is operated by a centrifugal governor, and this governor maintains the speed of the armature constant regardless of the speed of the driving member.

It will be seen, therefore, that they aim to incorporate all the essential and necessary features for a successful system in compact form in the magneto itself. No switchboard is necessary with this system, although one is furnished if desired, which permits the independent and localized control of the lighting circuits and also contains an amperemeter, showing charging and discharging rates. As far as the proper operation of the system is concerned, the switchboard may be eliminated, and in this case two wires are run direct from the magneto to the battery and the lights and ignition are tapped off of this circuit or at the battery. They claim the following advantages: Simplicity in wiring, low cost and absence of complicated and confusing mechanism. They also claim with special reference to the magneto and its equipment, the following: The magneto may be run at a high speed without overheating and, being designed to generate at a fairly high speed, a high output is obtained from a low weight



Electric Lighting Switchboard Suitable for a Small Cabin Cruiser

generator, a positive mechanical governor maintaining the electrical output constant and doing away with oxidizing and faulty electrical contacts, a positive cutout which, owing to its nature, must open the circuit when the magneto falls below speed and close it when it is running up to speed. The contacts of the cutout are unusually large and are so designed as to be of the wipe or sliding type,

(To be Continued)



DIESEL ENGINES FOR OUR SUBMARINES

CURIOUS ADMISSION BY THE SECRETARY OF THE NAVY

IT was not so many months ago that the "powers that be" invited the Swiss "Navy" to be represented at the Panama-Pacific Exhibition opening ceremony, and now we learn that an expert has been sent to Switzerland to take up with the inventor the Diesel-type submarine engine, because of the unsatisfactory results obtained with the engines in existing American submersible craft.

We cull our information from the *N. Y. Times*, which in its issue of December 11th, gives the following extract as being part of a statement made to the House Naval Committee the previous day by Secretary Daniels:

"We have sent an expert to Switzerland to take up with the inventor of the Diesel engine, burning oil rather than gasoline for internal combustion. If we can solve these problems [the latter also refers to the electric part of the machinery, but does not concern us at the moment.—Ed.] we ought to authorize up to 50 more submarines."

In the first place, we would point out that the inventor of the Diesel engine, Dr. Rudolph Diesel, of Munich, Germany, died on the 29th of September, 1913. Furthermore, the only firm at present constructing Diesel engines in Switzerland is Sulzer Bros., of Zurich, who have had comparatively little experience in the high-speed type of Diesel engine suitable for submarines and have only built a few sets, one of which is now at the Brooklyn Navy Yard.

This concern principally constructs Diesel engines for stationary work, which are vastly different engineering problems from submarine machinery, although they designed and built the slow-speed Diesel motors of the twin-screw ship Monte Penedo, owned by the Hamburg-American Company and now lying in New York. This boat, by the way, is by the proof of continuous long service, the only really successful high-powered *two-stroke* Diesel-engined mercantile vessel in service. Sulzers have also engined several small commercial craft which have been running well.

From results attained in actual practice, and from our knowledge of the Diesel engine, we are convinced that the Navy Department will continue to have trouble with Diesel engines so long as they stick to the two-stroke type, and that the latter will take very many years to perfect. The British Admiralty, who have more submarines than any other navy, exclusively fit four-stroke type Diesels, while although the Maschinenfabrik Augsburg Nurnberg build both two and four-stroke motors, with the exception of a couple of sets, we understand that the German Admiralty only allow the M. A. N. four-stroke Diesels to be installed in their submarines, although quite a number of M. A. N. four-stroke motors are fitted, but M. A. N. two-stroke sets are sold to other navies—

therefore self-cleaning. The magneto will generate when run in either direction. The type BC-2 magneto lists at \$30 and will charge a 6-volt battery at a 5-ampere rate. The type BC-1 magneto lists at \$50 and will charge the 6-volt battery at a 10-ampere rate.

[The fittings used for illustration purposes were manufactured by Hector MacRae, of Baltimore.—Ed.]

Verbum sat sapienti. Again the A. B. Diesels Motorer, of Stockholm, who for commercial ship purposes construct two-stroke Diesels, have adopted the four-stroke cycle for submarine work.

There can be no doubt but that the two-stroke Diesel engine is still in the experimental stage, but the four-stroke type has proved in actual service that it is a success, and dozens of ships so fitted have given splendid results to their owners. We do not wish to dwell here upon the reasons thereof, but briefly give the main facts. Submarine Diesels must be of the high-speed type because of the weight and power ratio, and so they must turn at 350-400 r.p.m. With two-stroke Diesel engines enormous heat is developed in the cylinders, the mean temperature being 1,113° Fahr., and this produces cracked cylinder heads, liners, etc. The cylinders also are subjected to enormous pressures 300 to 400 times every minute, and the same pressures severely punish the main bearings and thus present lubrication difficulties and troubles. Now, with four-stroke engines, the enormous heat and bearing strains are relieved every other revolution, because of the free, or scavenging stroke, which brings down the mean temperature to 896° Fahr., and by adopting this principle many engineering problems are eliminated. The only advantage offered by the two-stroke cycle is that greater power can be developed per bore and stroke, although, as yet, not for sustained periods, and for this reliability has to suffer.

When it was decided to install Diesel machinery in the big tank-ship Maumee, the Navy Department sent an Engineer Lieutenant to the M. A. N. works at Nuremburg and to Blohm and Voss at Hamburg to study the large marine Diesel engines which they had in their shops, and the ultimate result was the adoption of an M. A. N. two-stroke license, and as is well known two 2,500-h.p. engines are now under construction at the Brooklyn Navy Yard, and we prophesy considerable difficulty and trouble with these motors before they are successfully running in the Maumee. To us it appears that the success of the new submarine tender Fulton is mainly due to the fact that heat stresses and troubles are avoided by running the engine considerably below its full power. For its bore, stroke and speed, it could give over 1,300-h.p., but is run at 1,000-h.p. so it will be realized that its mean indicated pressure is very low.

We cannot see on what grounds the Navy Department adopted a marine *two-stroke* license, because neither the M. A. N. or Blohm & Voss had then fitted a large ocean-going ship with Diesel engines, and so had no marine success to offer as an inducement. As a matter of fact, the M. A. N. fitted two small ships, the Quevilly and the Russ, with two-stroke Diesel engines, and in each case the non-success of the machinery necessitated

the engines being removed. We can only think that the favorable running of these motors on the test bed caused too hasty a conclusion to be made. Yarrows of Glasgow, who have a M. A. N. two-stroke license, actually ordered four-stroke Burmeister & Wain Diesel motors for the two destroyers that they are building for the Japanese Navy. This inference needs reflection.

Again, we venture to suggest that a safer and much wiser policy would have been to have sent their expert also to Burmeister & Wain, of Copenhagen, Werkspoor Company, of Amsterdam, Nobels, of St. Petersburg, or to Vickers, of Barrow, who have made the marine Diesel engine the commercial success that it is today. Still it

is never too late to mend, and in the interests of our Navy, we look forward to Secretary Daniels making deeper investigations on the subject than he apparently has yet done. It was indiscriminate observations and too hasty conclusions that very nearly "killed" the Diesel engine as a commercial ship proposition in America and Great Britain, and it is to be hoped that these pitfalls will in future be avoided by our Navy. True it is that many of the world's cleverest engineers at first fully believed that the two-stroke motor was to be the Diesel of the future; at any rate it certainly is not the Diesel of the present.

d d d

AMERICA'S BIGGEST MOTOR BOAT

THE NEW 1,000-H.P. SUBMARINE TENDER FULTON

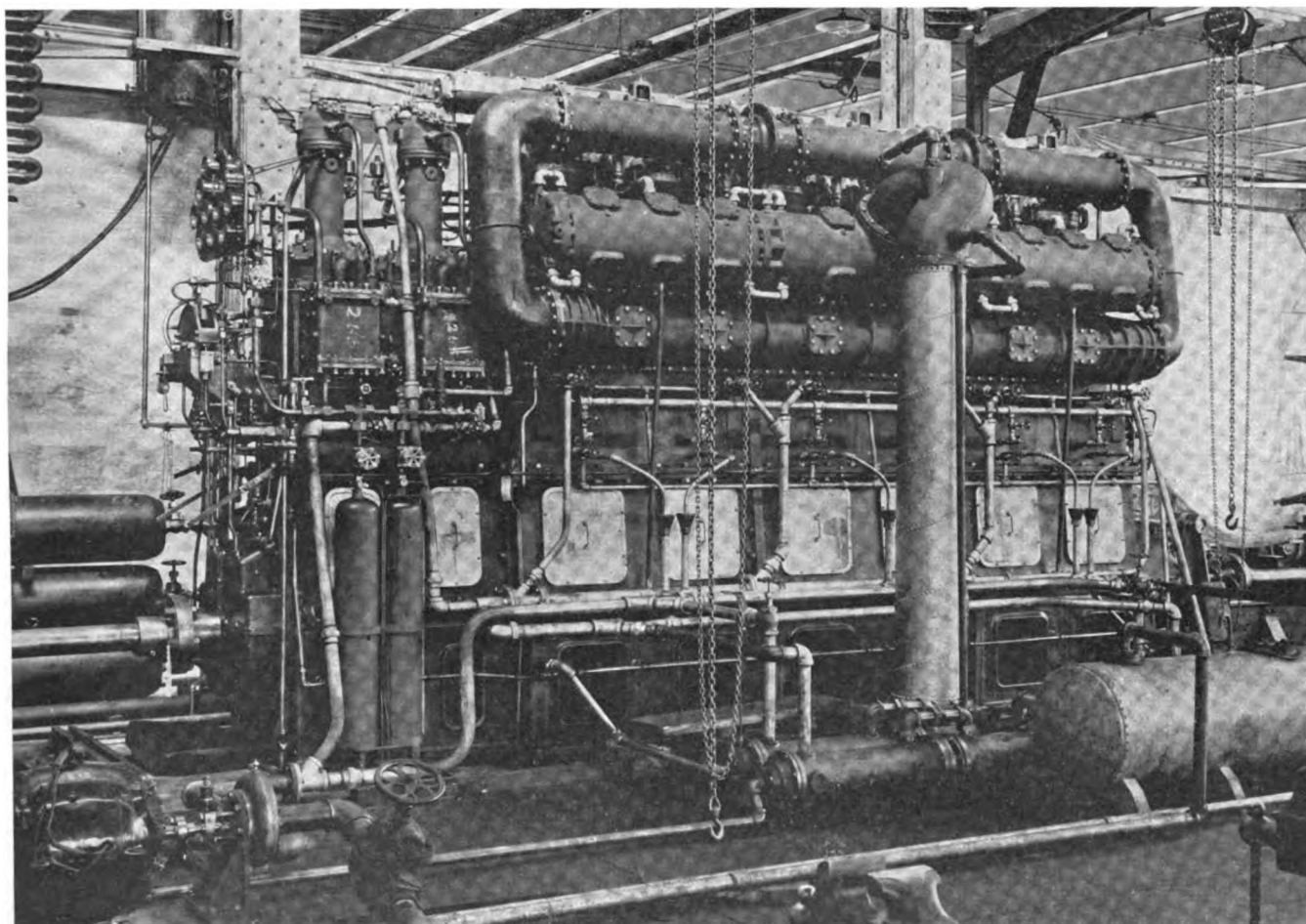
THERE are several remarkable facts in connection with the submarine tender *Fulton*, which has just been added to the U. S. Navy. Firstly, she is double the power of any motor ship yet constructed in this country, secondly, she is the first Diesel-driven boat (not counting submarines) to be acquired by our Navy Department, and thirdly, she is almost the first two-cycle-type Diesel-engined vessel of her power to have proved very successful, although upon the latter feature it is a little too premature to become too assured, owing to the short time that she has been in service, and the result of the first year's working will be watched with the greatest interest by all concerned. However, we were informed by the Navy Department that during all the official acceptance trials the performance of the engine was excellent, so the New London Ship and Engine Company are to be congratulated

on having accomplished what many of the greatest European engineers, have, as yet, apparently been unable to do. At the same time we do not mean to infer that there is no other successful marine Diesel engine, because ships fitted with four-stroke motors such as the Burmeister & Wain, Werkspoor, Nobel and Kolomnaer, have given splendid reliability during years of ocean-going service. No doubt the result of these trials will do much to promote the adoption and construction of the Diesel engine in America.

The *Fulton*, which was designed by Messrs. Cox & Stevens, of New York, and the New London people, was built under subcontract from the latter concern by the Fore River Ship Building Company, and is just as striking in appearance as any modern yacht; in fact, may be considered quite a handsome and seaworthy



The Two-Hundred-and-Twenty-Six-Foot Submarine Tender *Fulton*—America's Biggest Motor Boat



The Six-Cylinder 14¼ In. x 23½ In. Niseco-Diesel Motor of the Fulton

vessel. Her duties are to act as a mother-ship, upon which the officers and crew of the submarine flotilla may live when not actually cruising in the submarines, to act as a repair boat, also as a fuel and store ship. On the water-line she is 216 feet long by 226½ feet over all, with 35 feet moulded breadth, 24 feet 3 inches moulded depth, and 12 feet 11½ inches draught, and her total complement is 190 officers and men.

Her engine is a six-cylinder, 1,000-h.p. Niseco two-stroke type reversible Diesel, built under M. A. N. license at Groton, Conn. Introduced into the design of the engine were the ideas of the New London Company's own engineers. The cylinder bore is 14¼ inches by 23½ inches stroke.

The design of this vessel was a matter that required most careful study in order to meet the drastic requirements of the Navy Department, and on October 31st, of this year, this vessel was officially tested by the U. S. Naval Board of Inspection and Survey for Ships. She was first standardized on the Provincetown course, so as to determine the speed corresponding to the number of revolutions made by the engine. Five different speeds were used in this standardization. The highest speed on the average of five runs was 12.78 knots, corresponding to 259.4 r.p.m. The guaranteed speed was 12.25 knots, thus showing that the ship exceeded her guarantee by one-half knot.

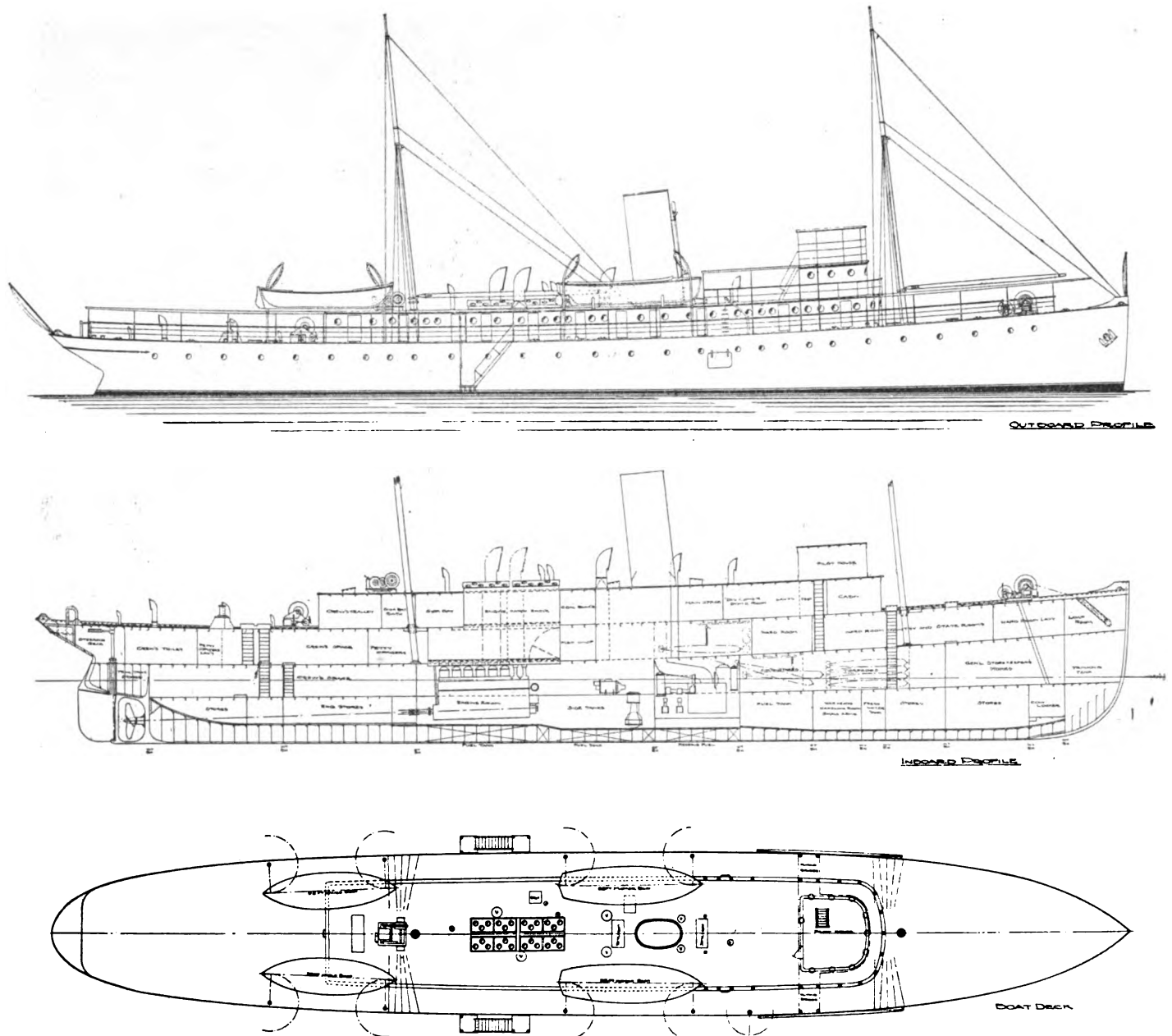
The standardization trials were followed by anchor tests and manoeuvring trials. With the ship running full speed ahead, the signal was sent to the engine room

to reverse. The time required to fully reverse the engine was 12 seconds. The time required to bring the ship to a dead stop in the water was 45 seconds. Other manoeuvring trials, such as the determination of turning circle, manoeuvring of helm under various conditions, etc., were also carried out with most satisfactory results.

These trials were followed by a four-hours' test at a cruising speed of 11 knots. The object of this test was to determine the amount of fuel used both by the engine and by the boiler, the latter being for auxiliary purposes. The speed made during this trial was 11.09 knots. The boiler used 37.8 gallons of fuel per hour, while the Diesel engine used 47.3 gallons per hour. During the test, the following auxiliaries were in operation: Turbo-generator, electric lights, ventilation, sanitary pump, fuel oil pump, evaporator, fresh-water distiller and circulation pumps, ice machine, pumps for main engine.

On November 1st, an eight-hours' full power test was made. The guaranteed speed was 12.25 knots. The average speed for the eight hours was 12.35 knots. The average r.p.m. was 249.49. The average fuel consumption of the main engine was 66.72 gallons per hour. The auxiliary boiler consumption was 23.31 gallons per hour. Fuel oil was used having a density of 31° Baume. It will be apparent that considerable economies could be effected by adopting the Werkspoor-Diesel practice of firing the auxiliary boiler by the engine exhaust gases.

During all of the above mentioned tests the performance of the engine was perfect. At no time was it shut



Outboard and Inboard Profile, and Boat Deck Plans of the Tender Fulton

down, nor was there the slightest evidence of undue heating, unusual noise, or other derangement. In view of the fact that this is the first marine Diesel engine of this power to be built in the United States, and installed in a large ship, the performance is regarded as highly satisfactory. At the same time, it must be remembered that for commercial purposes a marine Diesel engine must be capable of running two and three weeks continuously at full power, which not more than one high-powered two-stroke engine ship has proved capable of doing.

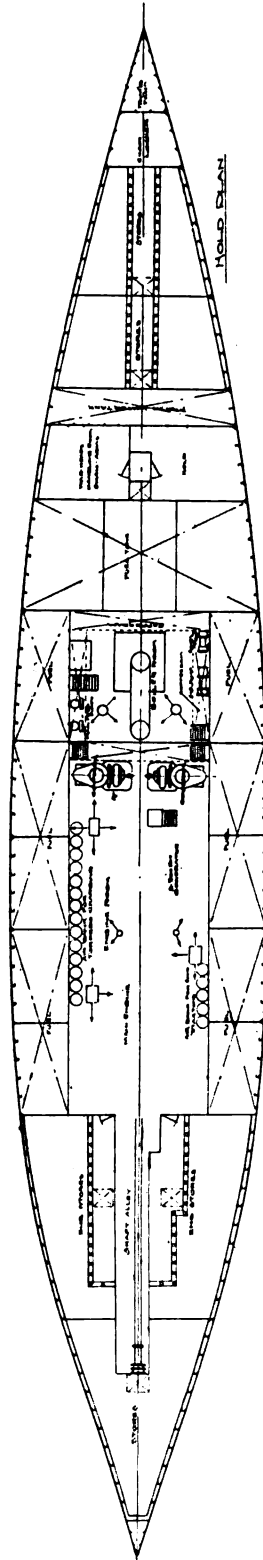
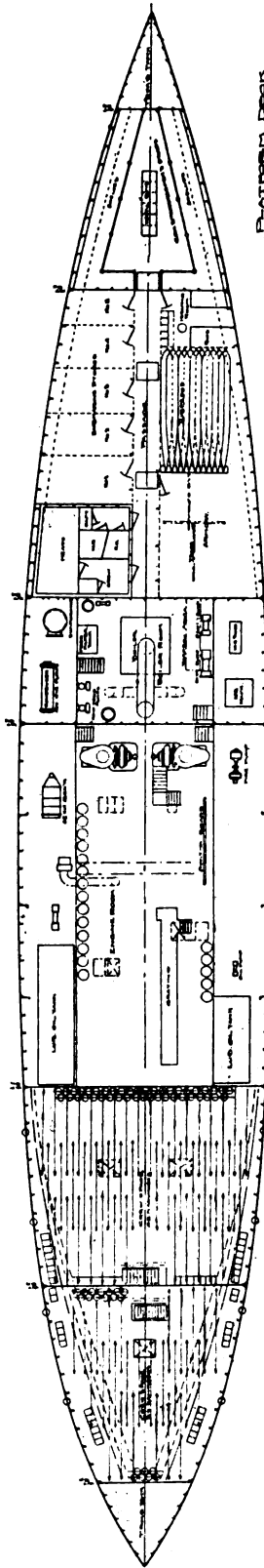
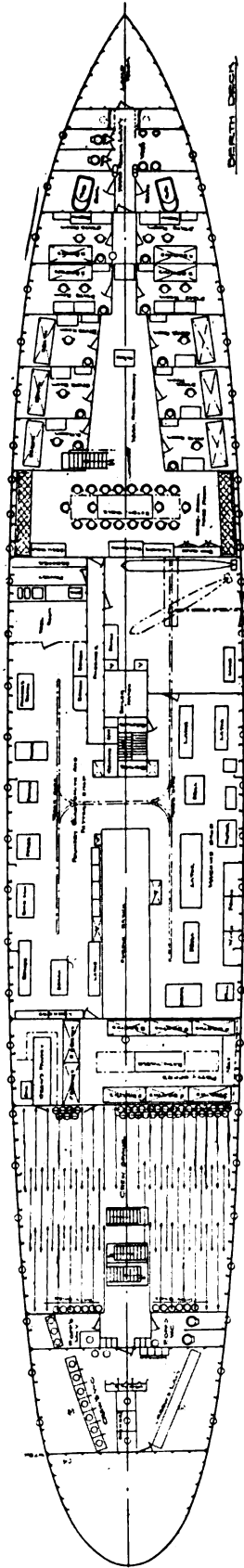
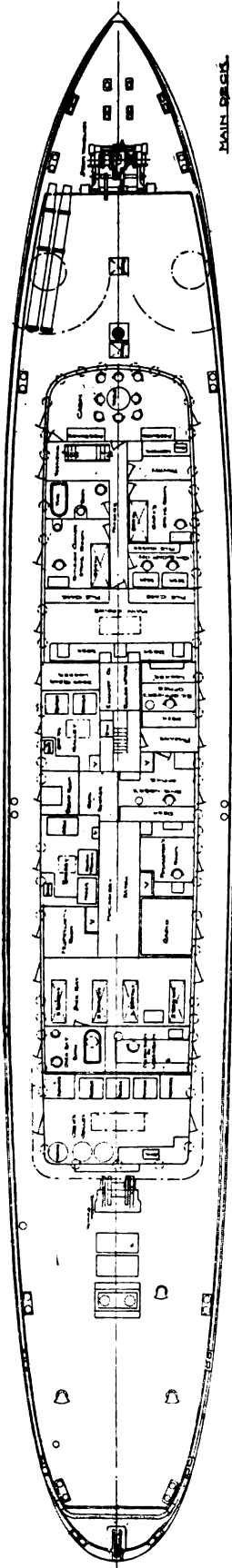
With the amount of fuel carried in the ship, it would be possible for her to cruise a total distance of at least 10,000 miles. As compared with the fuel consumption of a steam vessel, the Fulton, on a given amount of fuel, could travel four to five times the distance than could such coal-fired steam vessel. The saving in fuel bills, we are advised, is enormous. There is also a great saving in the number of men required to operate the machinery.

Adding together the saving in fuel, engine room personnel, and the gain in extra carrying capacity or increased radius, the enormous commercial advantages due to the use of heavy-oil engines with a yacht of this size at once becomes apparent. The all-round advantages to a yachtsman prove without doubt that coal-burning, or oil-fired steam machinery have absolutely no comparison, particularly where space considerations and running costs are concerned.

The vessel has a complete upper deck, a complete berth deck, and platform decks at the ends. Upon the upper deck is a continuous steel deckhouse, with a pilot-house on top of the forward end of the same. There are two polemasts with derrick booms served by winches.

The internal arrangement is as follows:

The double bottom spaces are utilized to carry fuel oil and reserve feed water—an economical feature not possible with a coal-burning vessel. The hold contains fuel oil tanks, storerooms, and ammunition room. On the



Accommodation Plans of the Fulton

platform deck are storerooms and torpedo magazine forward, and crew's space aft. Over the engine room on the berth deck is a machine shop, with a torpedo testing room immediately forward. The deckhouse contains galleys, bakery, wireless room, sick-bay, and various offices.

The quarters for officers and crew are arranged as follows: Commanding officer and division commander in forward end of the deckhouse; wardroom officers on the berth-deck forward; petty officers on the berth-deck aft; crew on the berth-deck aft and on the platform-deck aft. The machinery is arranged amidships.

The vessel is lighted throughout by electricity, and heated by steam. The steam for heating, as well as for operating the anchor-windlass, steering engine and towing machine, is furnished by a small oil-burning boiler forward of the main engine. The machine shop is equipped with the necessary lathes, drill presses, shapers, milling machines, etc., for making usual routine repairs on submarines. In addition, the foundry and blacksmith shop contain a furnace, and blacksmith and foundry outfit. There are installed cargo-ports, through which torpedoes may be passed into or out of the vessel.

Regarding the main engine, as before mentioned, this is a six-cylinder, $14\frac{1}{4}$ inches by $23\frac{1}{2}$ inches Nlsec-M. A. N. model of the two-stroke type turning at 260 r.p.m. The lower part of the pistons are stepped, forming scavenging pumps, the latter being used for clearing out the exhaust gases at the end of each stroke and leaving the cylinder charged with pure atmospheric air. At one end of the Nlsec engine, and operated off the main crank shaft, are two two-stage air compressors for fuel injection, starting and reversing. The engine is controlled by a hand-wheel at the forward end. On a 48 hours' shop test, the average b.h.p. developed was 906.37 on a fuel consumption of 467.68 lb per hour, or 0.501 lb per b.h.p.-hour, and a lubricating oil consumption of 125 gallons per 48 hours. The total amount of fuel used in the 48 hours' test was 3,161.6 gallons. Shorter runs were made at varying powers from 200 to 1,100-h.p. and there was evidently a considerable amount of reserve power. All auxiliaries are driven by independent motors, and are more than is customary, because of the peculiar requirements of the service for which the Fulton has been designed.



CORRESPONDENCE

SKIMMERS VERSUS SEA-BOATS

The Editor THE RUDDER,
Sir:

I have read with much interest and some mild amusement an article by Count Mankowski, entitled: "My Reply to the Commodore." Although very nicely written, his "reply" lacks one vital thing: it isn't a "reply." The Count's lines run smoothly, like Ankle Deep, but to continue the simile the Commodore's timely and sensible suggestions on hydroplane racing are still out in front, like the Commodore's boats.

Count Mankowski says: "At Lake George and Buffalo I had no chance to show what I could do with the 'little ones.'"

As I drove Baby Speed Demon II and the Commodore drove Baby Reliance V in a 50-mile wind at Buffalo we both had ample opportunity to see what Ankle Deep could do to the "little ones" in rough weather. The "little ones" finished first, second and third (third being Buffalo Enquirer, a sister to Reliance and Demon), with Ankle Deep a poor fourth. This was on the roughest racing day of all last season. The three "little ones" finished in shape to run the race right over again, if that had been necessary, as soon as the gasoline tanks could be refilled. Poor Ankle Deep was less fortunate, for the wracking in the heavy sea resulted in a broken gasoline pipe and a fire that ended her career, to the great regret of all who have had the pleasure of competing with the genial Count.

At Lake George, Ankle Deep was beaten decisively three days in succession by all the "little ones," Reliance, Demon and Enquirer.

I have been looking up motor-boat racing data of the past three years, and feel that, after all, the best evidence on the comparative merits of the "little ones," as Count Mankowski styles the famous "Babies," and

the "Big Boats" of the Ankle Deep class, is contained in plain facts and figures. May I offer the "deadly parallel"? No further argument is necessary.

BABY RELIANCE V AND BABY SPEED DEMON II

ANKLE DEEP

Seasons 1912, 1913, 1914, won Webb Trophy and Western Championship and 20, 26, 32 and 40-foot Championships at Davenport, Iowa. First race of the B. I. T. Trophy, 1912. International Mile Trials.

E. R. Thomas Trophy, 2 years in succession, 1912 and 1913.

International Interlake Championship. Buffalo, Chamber of Commerce Trophy, 2 years in succession, 1912 and 1913.

Mile Trials, Buffalo, 1912 and 1913. First in all classes at Buffalo, 1912, 1913 and 1914.

Chicago, 1912, Weckler Trophy, 40 foot class.

Chicago, Henry B. Clarke Trophy, 32 foot class.

Chicago, Wrigley Trophy, 40 foot and under Free-for-All.

Chicago, Hotel Sherman Trophy won in 20, 32 and 40 foot classes at Chicago Regatta.

40 foot Championship of America and Gold Challenge Cup at Lake George, 1914.

One-Mile Championship of America at Lake George, 1914.

First in every race at Buffalo Regatta, 1914, including Chamber of Commerce Trophy, Commodore Connors' Trophy, Blackton Trophy (which was turned over to 2nd boat).

And many other Trophies not above mentioned.

Only trophy that is on record as being won by above boat is The Gold Challenge Cup and Championship of America, 1913, at Thousand Islands.

Note.—Baby Reliance and Baby Speed Demon did not compete in this event.

Yours truly,

ROBERT EDGREN.

December 16, 1914.

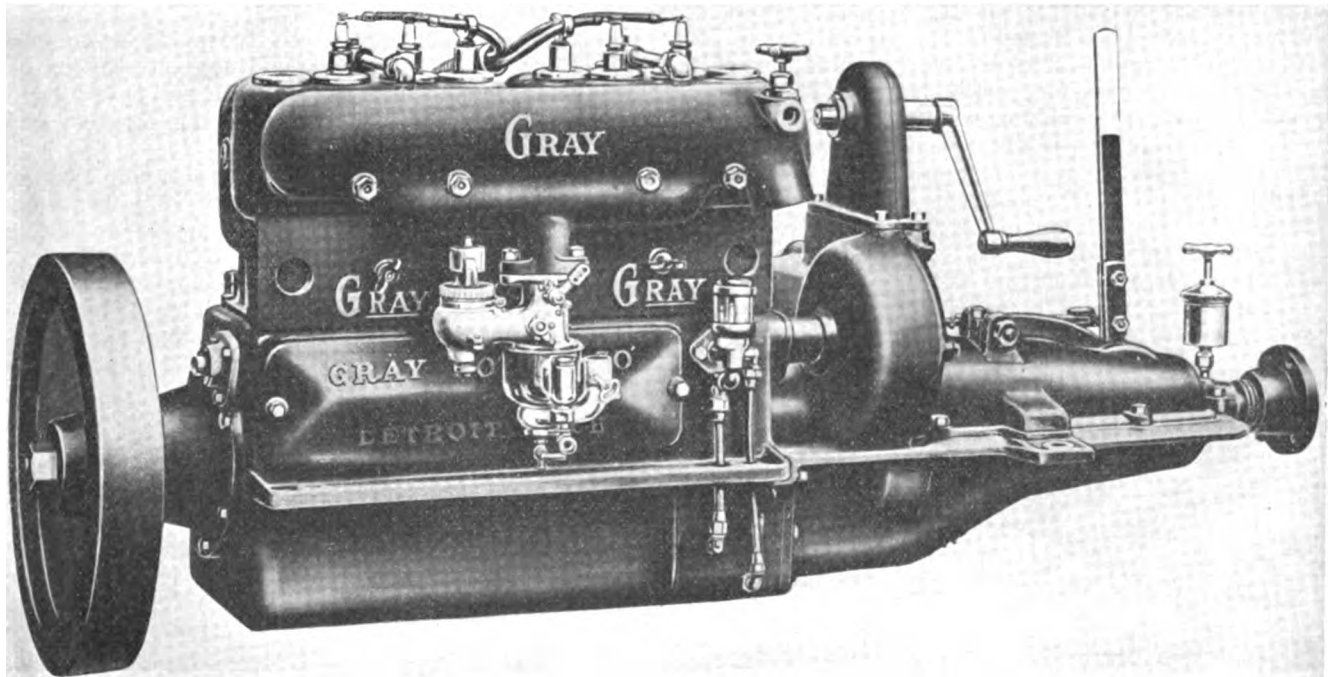
A NEAT RUNABOUT POWER PLANT

THE 1915 PRODUCTION OF THE GRAY MOTOR COMPANY—ACCESSIBILITY, SILENT CHAIN DRIVE, AND EXCESS OF POWER ARE AMONG ITS LEADING FEATURES

FOR their 1915 model, the Gray Motor Company, of Detroit, decided, after very careful consideration and forethought regarding the tendency of demand for the coming season, that a four-stroke type runabout and cruiser motor plant of medium power, but capable of considerable flexibility of running speed, was just the outfit that is required by marine motorists all over the world. Thus their new production is a four-cylinder set rated at 16-20-h.p., and all those fans who visit the New York Motor Boat Show on January 30th to February 6th, at Madison Square Garden, should not fail to make a personal inspection of this model at their stand, where it is making its first public debut. Those whom time and distance prevent their seeing the exhibition will obtain

and the combined inlet and water-cooled exhaust manifold. Except for the sparking plugs and the compression relief cocks, the engine is entirely free of other mechanism, so that there is arranged a large crank case inspection door on either side, both of which can be removed by unscrewing a couple of nuts. As a matter of fact, in testing the accessibility of one of these engines, it was completely disassembled with the use of only three standard double-ended wrenches, and the average marine motorist knows what a bother it is when there are about twenty different sized nuts on a motor and the number of spanners that are handy limited in number, so this little study of minor detail will be appreciated.

As the after main bearing is carried in a detachable



The New Gray Runabout Engine

a comprehensive idea of the design and construction of the new Gray engine from the following description:

It is a four-cylinder motor, $3\frac{3}{4}$ inches bore by $4\frac{1}{2}$ inches stroke, with a speed variation of 200 to 1,500 r.p.m. Although rated at 16-20-n.h.p., no less than 21-b.h.p. is developed at 1,000 r.p.m. and $25\frac{1}{2}$ -b.h.p. at 1,500 r.p.m., so that the actual cost per h.p. is really much less than would at first be assumed, which is a great point in favor of the purchaser, as will be understood. The cylinders are of the inverted-L-head type, cast in pairs with enclosed valve operating gear. This arrangement enables the magneto and water-cooling pump to be mounted on the starboard side and driven by a silent chain drive off the crank shaft at the after end of the engine. On the opposite side are the lubricating oil gauges, the carbureter

disc in the box-type crank case, it is possible to endwise remove the crank shaft without disturbing the mechanical parts of the motor, otherwise than the other main bearing; but care should be taken to see that there is no bulkhead to the boat just aft of the engine. The cam shaft is arranged in a similar manner. Not only is the small lay-shaft just referred to driven by Coventy-type silent chain, but this method of transmission has also been adopted for the cam shaft operation. One continuous chain drives the cam shaft from a sprocket on the main shaft, while another sprocket carries the chain that actuates the pump and magneto shaft, as previously mentioned. Over this gearing is a rear starter and for this a third chain sprocket is fitted, and the design allows of an electric self-starter being fixed if desirable. The

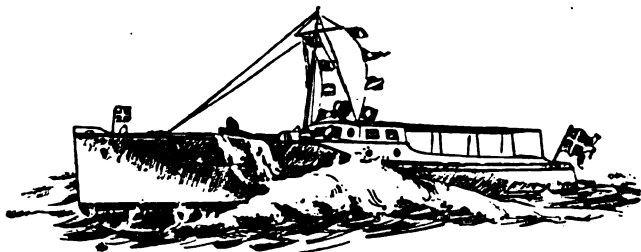
advantage of chain drive was discussed in the December issue of *THE RUDDER*.

Particular attention was paid to the lubricating arrangements when designing this plant, and the system used is positive pressure feed from a plunger pump, with adjustable sight feeds. Even the valve tappets work in an oil bath and while the covering plates prevent leakage there are drains for the return of excess oil to the reservoir. In the rear and forward main bearing housings there are interior pockets which ensure maintenance of the supply of oil. The forward bearing is also provided with an oil packing ring and excess of oil from here drains into the gear casing and lubricates the chain drive and sprockets, whence there is a further drain back to the reservoir. The actual work of the pump is to suck the oil from the reservoir, deliver it to the sight feed, thence to the crank case, where it is picked up by the connecting rods and splashed over the moving parts, constant level being obtained by dividing up the lower half of the crank case into separate chambers, each with an overflow.

NORWEGIAN NAVAL MOTOR BOAT

IN view of the successful use to which about 150 motor craft have been placed in the British Isles in connection with patrol and despatch work around the coasts, and the adoption of armed motor boats in Belgium and Germany during the existing war, no doubt the design given on this page of a newly designed Norwegian naval boat will be of particular interest, especially as it was designed by Mr. R. G. Furuholm, who for a time was with Messrs. Tams, Lemoine & Crane, of New York. This little craft is for use as a tender to the torpedo boats when they are practicing at sea.

She is to be 40 feet long, water-line, by 7 feet extreme breadth, and a six-cylinder, 65-h.p. Brooke kerosene



motor is expected to give her a speed of 15 knots. Her hull will be singly planked with $\frac{7}{8}$ -inch Columbian pine on oak frames and keel, while the coamings and deck-house will be of the same fairly light wood, with a teak raised deck forward.

Her deck arrangement, as the sketch depicts, has been laid out with a view of making above all else a good heavy weather boat; one that can hold the seas with the torpedo boats of the navy. A low and enclosed deck-house amidships forms a steering room with all the engine and other controls fitted on a bulkhead therein. Aft of this, extending nearly to the stern, is a large cockpit for the accommodation of officials watching the operations of the fleet.

BABY DORIS

ONE of Canada's fastest motor boats is an American-Canadian production. We refer to the little Baby Doris, a 25-foot by 5 $\frac{1}{4}$ -foot Chris Smith-designed single-step

hydroplane, built in 1914 for Mr. W. H. Cleland, of Hamilton, Ont., by Mr. John Morris, of the same town, and powered with a four-cylinder, 90-n.h.p. Van Blerck motor, developing about 107-b.h.p. Although a speed of 42 miles an hour is claimed for her, it is also said that she planes at the same speed with six persons aboard. If she can do this, she certainly is a remarkable boat.

Her planking and decks are of mahogany, brass screwed and bronze bolted to white oak frames. Well forward on the fore deck is a searchlight, supplied with electric current from a storage battery, which also supplies current for the electric running lights and sig-



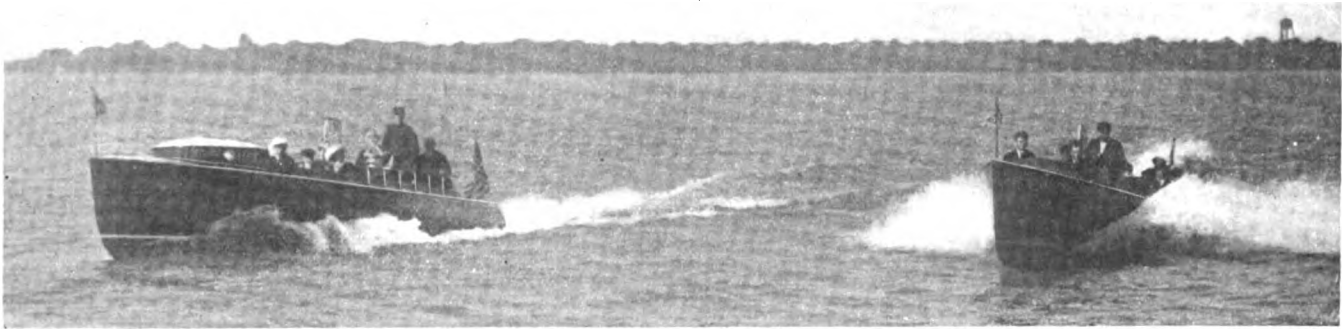
nalizing horn. The engine compartment is completely closed, the hatches being removable, to facilitate the fitting of exhaust stacks to the motor, and is ventilated by two brass cowls on the deck over the forward end of the motor.

By installing the engine well forward, ample and commodious cockpit is permitted, which is 8 feet long by 5 feet wide, with a carrying capacity of six passengers in comfort. The propeller shaft runs through the bottom of the boat in the step and carries a Columbian 18-inch by 28-inch, three-bladed wheel. The gasoline tanks are under the after deck, and supply an auxiliary tank on the bulkhead by air pressure.

ZUMA, A CUBAN TOWBOAT

FOR eight years the 14-h.p. Wolverine engine in the towboat Zuma, the owners state, has been working so perfectly that it has not suffered the slightest breakdown. The illustration shows this little craft at work, towing a barge laden with 20,000 feet of lumber which she loads from a schooner offshore. The Zuma has towed as much as 45,000 feet of timber with success. She is of copper-sheathed cedar construction, 30 feet in length, by 7 feet breadth, with 4 feet depth, and the Wolverine propelling machinery was installed in 1906, at Matanzas, Cuba.





The Bo'sun

The Chinook

THE NEW AND THE OLD

ILLUSTRATING THE DEVELOPMENT OF DISPLACEMENT HULL DESIGN

THE two displacement boats shown in the illustrations are two runabouts from the drawing board of the same designer, constructed by the same builder, engined by the same firm and owned by the same motor-boatist; but special interest is added by reason of the fact that the craft shown on the right of the above picture and on the left in the lower one, is five years old, while the other is almost a new boat, having been completed during the season just past. They show how definitely design has developed and improved during the last five years. The older boat, it will be noticed, plows along, throwing up wide wings of spray and water, while the other gently and cleanly glides through the sea.

The newest of the two is the Bo'sun, a 45-footer, with 6 feet breadth, and was built for Commodore C. B. Lockwood, of Sandusky who, by the way, is a close friend of the Oldman, by the Church Boat Company, of Lockwood, and powered with a six-cylinder, 5½ inches by 6 inches, 100-n.h.p. Van Blerck motor, which gives her, we are advised, a speed of 27 m.p.h. The veteran boat is the Chinook, a 40-footer, with 6½ feet breadth.

Until recently she had another motor of about the same size, but the gain with the more modern equipment is said to be between 6 and 7 miles an hour, which illustrates how engines also have developed.

NEW YORK MOTOR-BOAT SHOW

MOTOR-BOAT fans within reasonable distance of New York should not fail to visit the Motor-Boat Exhibition, which will be held at Madison Square Garden from Saturday, January 30th, to February 6th inclusive. Come along to THE RUDDER booth and we shall be delighted to see you. For hints on navigation call upon the Oldman. If you desire to purchase a boat or engine outfit and are in doubt, Mr. Fred. W. Goeller and Mr. T. Orchard Lisle, our staff naval architect and marine engineer, respectively, will only be too delighted in assisting you in your purchase. Their most extensive and unique experiences are at your disposal. RUDDER subscribers who cannot get to the show will be able to read all about the exhibits in THE RUDDER, which will publish a full report.



The Chinook

The Bo'sun

NEW CRUISER FOR LAKE ERIE

CRESCUS, A FIFTY-FIVE-FOOT MATTHEWS-BUILT HEAVY WEATHER CRAFT

APROPOS of our recent advice to order boats before the advent of the new year, it is interesting to note that at least one owner had the construction of his new craft commenced nice and early with the result that she will be completed in the early months, thus Mr. Geo. H. Ketcham, of Toledo, Ohio, the owner in question, will be able to obtain the benefit of the delicious Spring air. In his case, this is a very great advantage, for Mr. Ketcham has for several years been in poor health, and has had to retire from active business. As he seemed unable to get well from operations and pills his medical attendants advised a natural tonic, namely, cruising on the water. This he did aboard a small cruiser last season with successful results, and this induced him to order a larger and more commodious yacht.

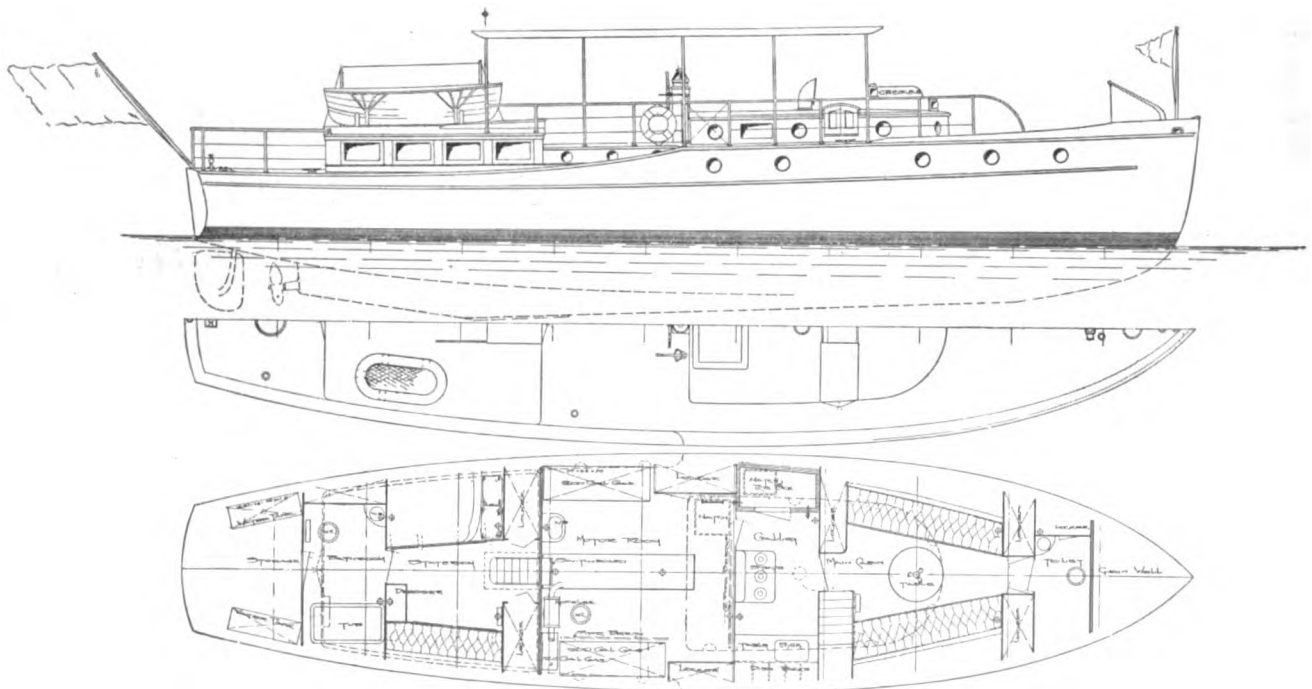
Cresceus, as the boat is called, was named after Mr. Ketcham's famous horse of that name, which at one time held the world's trotting speed record. The designers and builders, The Matthews Boat Company, of Port Clinton, Ohio, were given the order on the condition that they produce a boat that could go out in any kind of weather on the Great Lakes, and be perfectly safe and comfortable, speed being an altogether secondary feature. With this in view, the boat was built with a breadth of 13 feet moulded, and a draught of 4 feet 6 inches. The scantlings are very heavy, the frames being large and closely spaced, and the stringer construction particularly substantial. The boat is planked in copper sheathed yellow pine below the water-line, white Virginia cedar above, and the general finish of the boat is to be kept as plain as possible, so as to reduce the

upkeep expense, and have the boat easily taken care of, with the result that a most useful sort of craft is being produced.

There is a roomy bridge deck with comfortable seating, and an unobstructed view ahead, also a divan seat over the after housing. Below decks the accommodation is arranged as follows: The dining saloon is placed forward and fitted with two large hanging lockers, ornamental buffet, seats with storage space under, special Matthews' upholstered pipe berths over, making comfortable sleeping accommodations in this compartment for four people should the emergency arise. At the forward end the toilet is adjoining. The general finish of the dining saloon is in cream enamel with mahogany trim. At the after end of this compartment are steps leading to bridge and an entrance into the galley.

The galley extends the full width of the boat and is made large to give good elbow room for the most essential member of the crew, i. e., the cook, and there is 7½ feet headroom. The refrigerator is of large size and filling from deck.

It is interesting to mention that the engine room has been made fireproof by lining it with steel-fitting corrugated steel floors, and it is located practically amidships. In heavy copper tanks, on either side, are 400 gallons of gasolene. All motor controls are brought alongside steering wheel on deck, for one-man operation. The power consists of one of the new Sterling six-cylinder, 5½ inches by 8 inches engine. This motor is entirely enclosed with built-in electric starter and bracket on after end for 32-volt electric generator with silent



Profile, Deck and Accommodation Plans of the Yacht Cresceus

chain drive, and a large capacity electric battery set is provided. Special Matthews electrical equipment, as follows, is arranged for:

A bilge and air pumping set. The water pump is so arranged as to deliver water on deck for washing down. Another unique feature is that there is a connection whereby the water may be pumped through the motor so that same may be cooled off after a long day's run. As all Florida boat owners know, this is quite unusual, as generally after a run is over, the engine retains its heat so long that it makes the engine room very uncomfortable. Other electric features on board the boat are a special capstan on the forward deck. This is a lightweight equip-

ment, with all moving parts of the motor enclosed. Another feature that will be used on the deck is an electric boat-hoisting rig. The boat is fitted with two watertight bulkheads, one located forward and the other aft of the engine room.

The after portion of the boat is given over to the owner's sleeping quarters, and arranged with a large and comfortable stateroom having a large double berth, sofa berth, hanging lockers, dresser, etc. Adjoining this, is a bathroom, finished in cream enamel, and fitted with tub having hot and cold water connections, connections to sea water, lavatory, flushing closet, linen locker, etc. Space for trunks is arranged under the after deck.



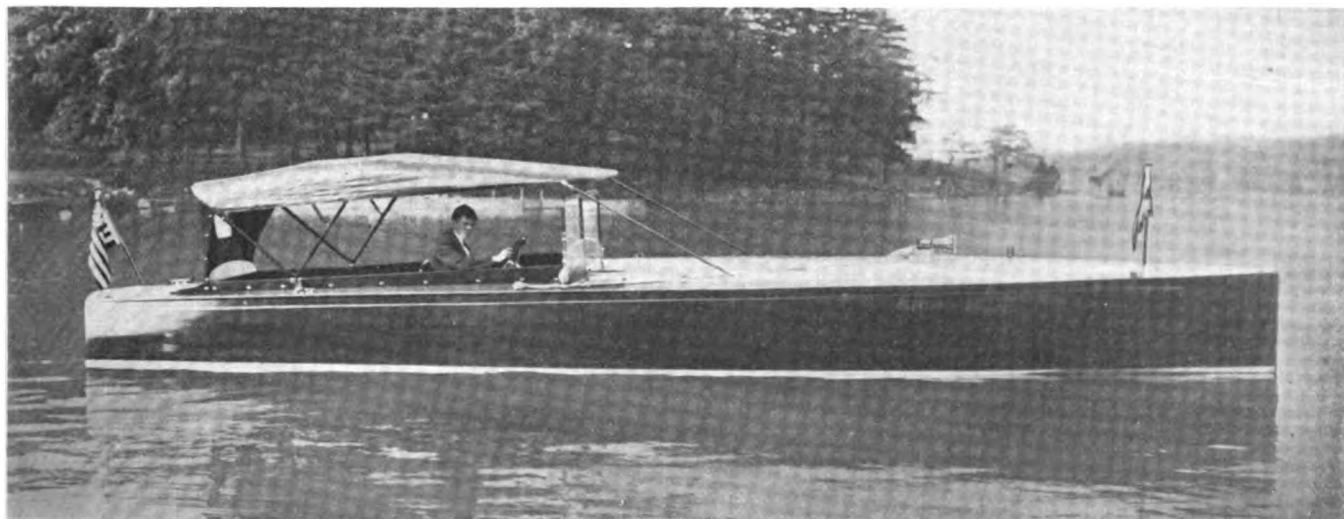
SEMI-DISPLACEMENT HACKER RUNABOUT

AN INTERESTING DEVELOPMENT OF THE HIGH-SPEED V-BOTTOM LAUNCH

BY reason of the most successful results obtained, much of late has been written about fast runabout launches of the semi-displacement, or bow-wave-collecting type, and we have previously shown how this class of hull design was originally developed from a combination of the V-bottom hull, the Crane, and the Thornycroft hydroplanes, and how it evolved itself into a design nearly as efficient as the pure hydroplane in smooth water, and as seaworthy, even if not more so, than the round-bottom displacement hull in rough seas; and further, more efficient than the hydroplane in anything but calm water. Yet, curiously enough, little had been done in this country until recently to produce this stepless type, which

ment of the V-bottom principle, with, we understand, excellent results from a speed and seaworthy point of view. One of the troubles of V-bottomed boats has been that it has been difficult to make them handsome, but Mr. Hacker has certainly produced a very attractive-looking launch, and were it not for the chime-piece forward it would be difficult to tell from a casual glance that Show Me III, the boat illustrated, is otherwise than a round-bottomed displacement hull and even this chime-piece is not noticeable when the boat is at rest, except from the bow view.

As the designers have requested us not to publish her lines, we must content ourselves with describing



The Hacker "Semi-Displacement" Runabout Show Me III

lends itself to further improvements as standard practice, although indications are not wanting that this will shortly be the position. With regard to boats of this type, we would point out to intending owners and builders, that to get the most satisfactory results, the total weight of hull and machinery, without crew, should be within 35 lb per brake-horsepower, and as near 30 lb as is possible.

Lately some interesting boats of the fast runabout class have been brought out by the John L. Hacker Boat Company, of Albany, and the design of these craft are somewhat on the lines of the bow-wave-collecting type, only the Crane and Thornycroft elements have not been introduced, therefore making the design purely a develop-

ment briefly. The sections below the chime are hollowed all the way from the bow to about the stern, where they flatten out. The chime forward runs out about 18 inches at the stern, and crosses the water-line at one-third the distance from the bow, the deepest point being just amidships, with a very slight rise to the transom. Above the chime, to get away from the square-box appearance of the average V-bottom hull, the sections forward are hollowed, giving a flare similar to that of an ordinary round-bottomed boat. This gradually disappears towards the stern where the upper portion of the hull is rounded, giving a slight tumble-home to the after section.

One feature which is quite unlike the latest general

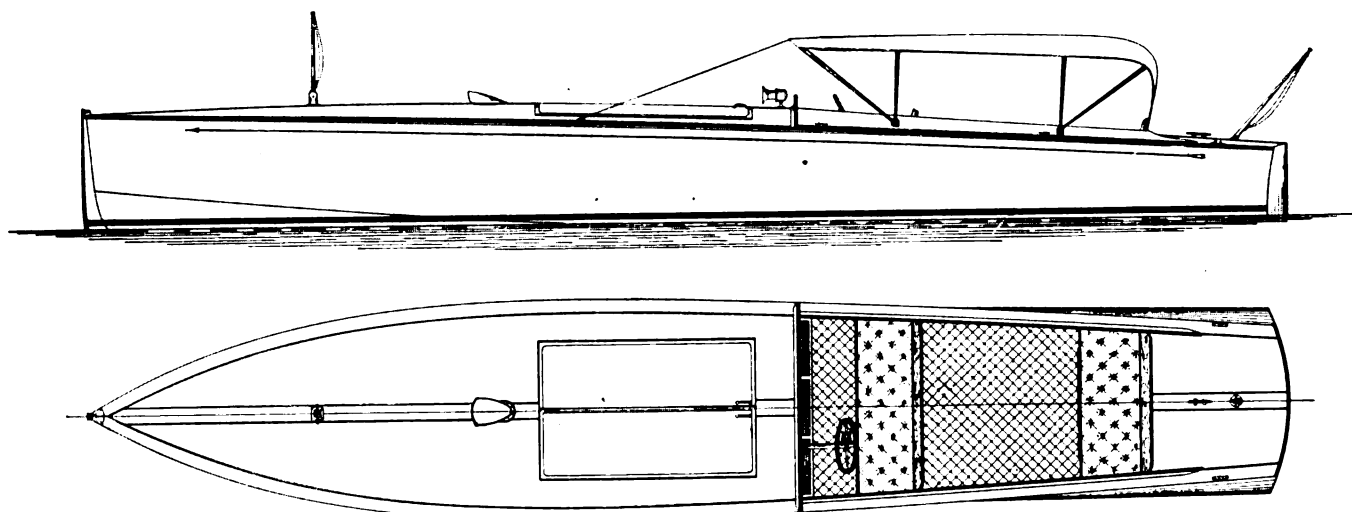
practice in this type of craft is the rabbet line, the deepest part of which is near the stem, with a gradual rise all the way to the transom. The usual practice has been to carry it nearly parallel to the load water-line to a point somewhere near the midship section, and then curve upwards to the stern.

Show Me III, which is owned by Mr. W. K. Bixby and used on Lake George, is 30 feet long by 5 feet 10 inches breadth, with about 2 feet 8 inches freeboard at the stem, and 1 foot 8 inches freeboard at the stern. The planking is of mahogany, copper-riveted, on oak frames, with mahogany transom, white oak keel and stem, the latter being reinforced with an oak knee.

Her engine is a six-cylinder, $5\frac{1}{2}$ inches by 6 inches, 1911 model, developing, we are informed by the hull designers, about 95-h.p. at 1,200 r.p.m., compared with 125-h.p. of the 1914 model at the same speed. This particular motor was used in a boat that was sunk and afterwards fished out of the lake, passed to the Hacker Company for repairs, and the new hull was built for it. Driven off the engine, there is an electric starting and lighting system.

With machinery and equipment, but without crew, the complete weight is about 4,000 lb, or just over 42 lb per horsepower, so that the speed attained—almost 33 miles an hour—may indeed be considered good, in fact, it is more than good. In other words, it is remarkable. The speed was made over a mile course on Lake George, taken from objects on the shore, and the time each direction was 1 minute 50 seconds, or 32.72 m.p.h., so we are inclined to think that either the engine develops a little more power than estimated, or else the course was slightly short; but this bears no reflection on the fact that the Show Me III is a good and serviceable type of fast boat.

We understand that the data regarding the speed checks up remarkably conservative in comparison with two duplicate hulls and 1914 model engines, of the same make but with slightly higher compression than have the regular stock models. This refers to the Mystery, owned by Mr. Vincent Astor, the speed of which is declared as 36.8 m.p.h., and the Roamer, owned by Mr. E. Holley, that is said to have a speed of 35.6 m.p.h.



Profile and Plan of the Hacker Runabout

BUSINESS AND THE WAR

THE impression that European wars have put a sudden stop to the exportation of American-made marine motors for either pleasure or commercial craft, is far from the facts, even as to the countries directly engaged in the wars, according to R. V. Warman, director of the export-sales department of the Scripps Motor Company, Detroit, Michigan.

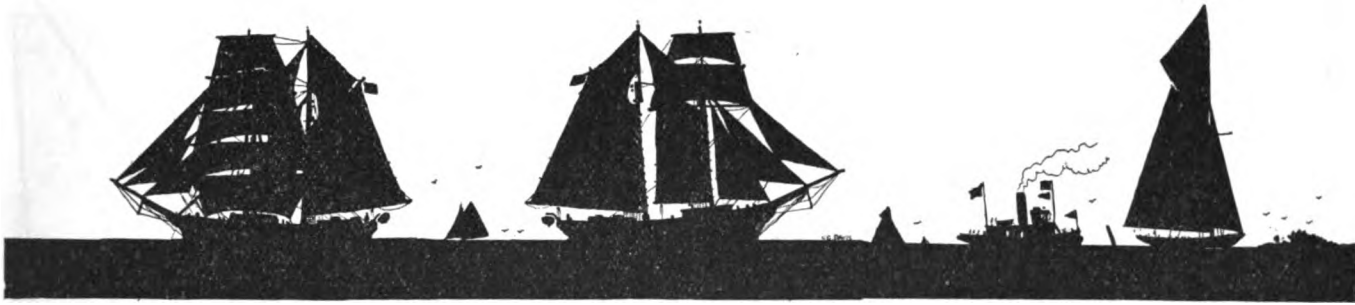
"Germany, France, Belgium and Austria are the only countries to which we are not now exporting our motors, despite the war," Mr. Warman says, "and even from France and Germany we have received a number of inquiries,—five or six, I believe, to be exact—asking terms for agencies or for delivery of our marine power plants, immediately upon cessation of hostilities. This may appear as though our correspondents there are building a long ways ahead, but it indicates that, contrary to what seems to be a general impression here, England's war slogan of "Business as usual" is being applied in practice in Germany and France as well.

"As to Russia, England and Italy, we are filling orders from these countries now, and so far as I am able to

judge, I believe our business for 1915 in these countries will probably exceed that of last year, and last year was the best we have had so far. In Australia, where our motors have developed a heavy demand, orders have not been affected at all."

He advises us, we are glad to say, that the demand for American marine plants continues to such an extent abroad that the Scripps Company in the last few weeks has enlarged and strengthened its facilities for supplying and further cultivating this market. Mr. Warman, for a number of years the Scripps export-sales manager, with offices in New York, goes to Detroit to become the head of the enlarged export department, effective January 1st. This change will make it possible to handle all inquiries and business of the export trade direct from the factory offices.

"But in the strengthening of our export department we are not by any means directing all our attention to the European markets. Brazil and other South American countries have favored our American-built marine plants increasingly with their orders."



SAILS

Charles G. Davis

PART IV

IN one respect a man has a free hand at deciding upon what shaped sail he wants for his boat, but in another there are a few natural laws, their principles as simple as that which operates a weather vane and yet as exacting as all nature's laws are—this is the law of balance, which must be observed.

He may make his sails long and low or high and narrow, but their center of effort, that mysterious "center" that confuses so many amateurs, must be in its proper relation to the center of lateral resistance of the hull.

If you were to try to push a heavy beam lying on a perfectly smooth floor, you would not be surprised if you were to push the beam near one end if that end swung around away from you; you would expect it. You would try to push as near the middle as possible so it would not turn. Now the center of effort is the same as that place where you pushed on the log and the center of lateral resistance is just what its name says it is, the center where it evenly resists being pushed sideways.

The center of lateral resistance of a boat is that point where, if a line were made fast, she would tow evenly sideways through the water. A knowledge of its fore-and-aft position so determined is sufficient to be able to design a sail plan that will balance it. The center of the sails must be not quite directly over it, but just a few inches ahead of it, more or less, as the boat be bluff-bowed or fine. As a bluff-bowed boat heels over and moves ahead, she piles the water up under the lee bow and this resistance requires a certain amount of side push from the forward sails to balance it.

If the center of such a boat's sails were directly over the center of lateral resistance figured as she stands upright, she would luff so hard you could not keep her out of the wind.

The finding of the center of effort of a sail plan is a simple example in triangles. The center of effort or center of gravity, for both mean the same thing, of a jib, for instance as in Fig. 12, is found by measuring up from the middle of the foot of the jib one-third the distance to the head, there is its center of effort.

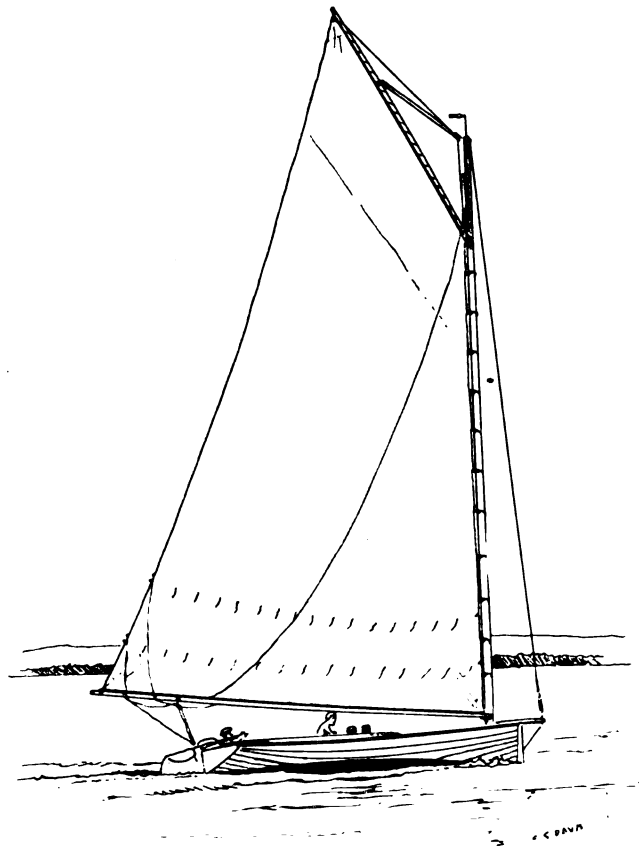
Graphically, it may be found with no calculations whatever. Cut the shape of the sail out of cardboard. Hang it up by a pin in one corner. Drop a plumb line from this pin and mark where it crosses the sail. Then hang it up by another corner and where the plumb line crosses the first one is the center of gravity. This

method may be used on any shape of sail—mainsail, jib, topsail, etc.

Another way is to draw a line from the middle of the foot of the jib to the head as in Fig. 12, and another line from half-way up the luff or hoist of the jib to the clew. Where these two lines cross is the center of effort, the same spot as found in Fig. 12, and practically the same as the plumb-bob method.

Its area in square feet is found by multiplying the length of the luff in feet by one-half the distance to C, measured across at *right angles* to the luff.

The mainsail may be calculated as if it were two triangles, if one is not versed in figures.



The Tall Sail on Presto

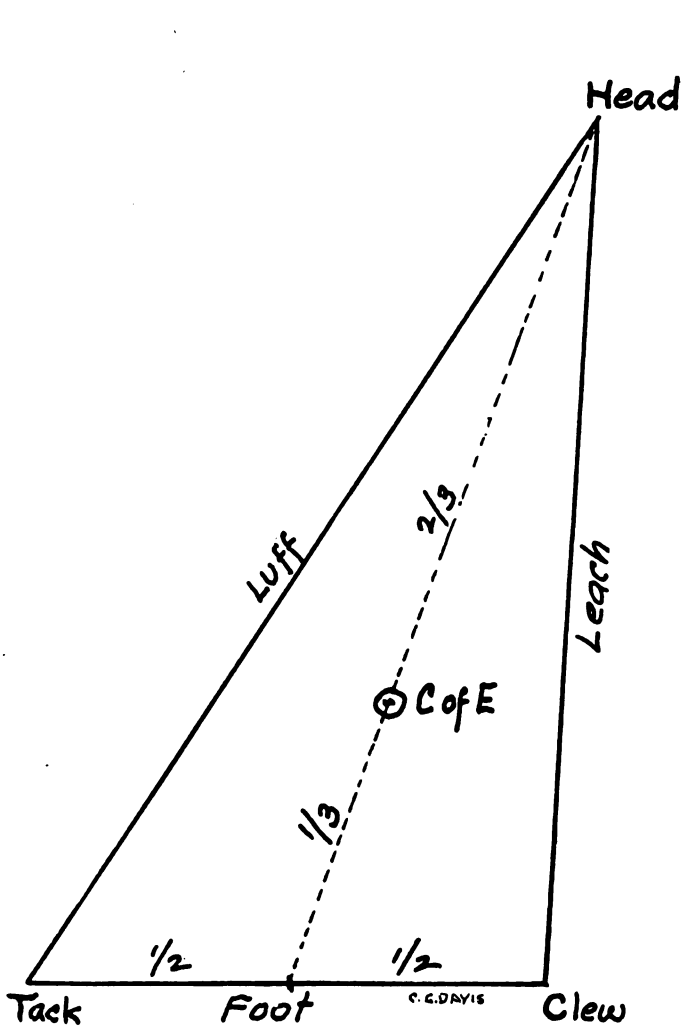


Fig. 12

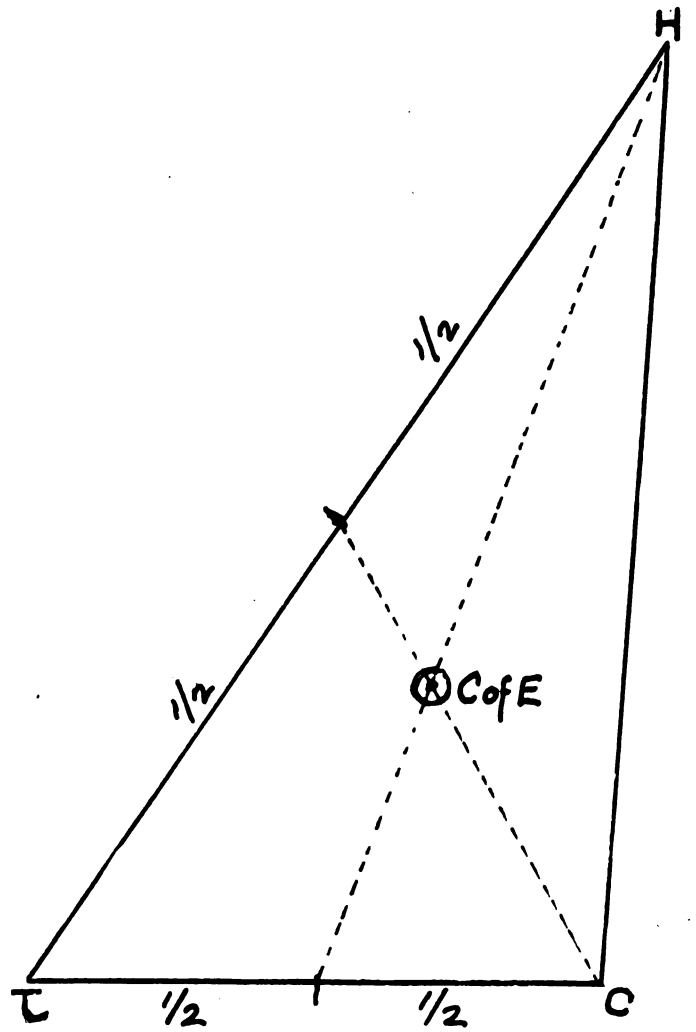


Fig. 13

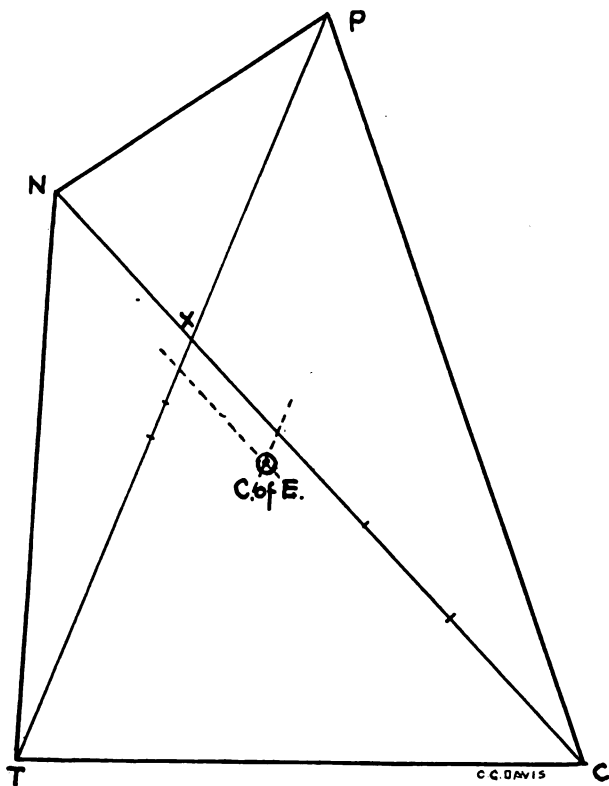


Fig. 15

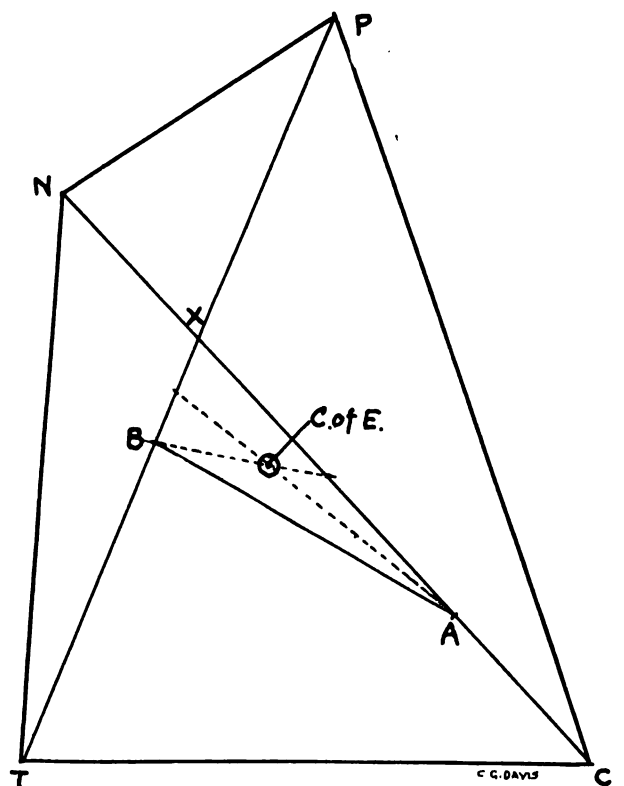


Fig. 16

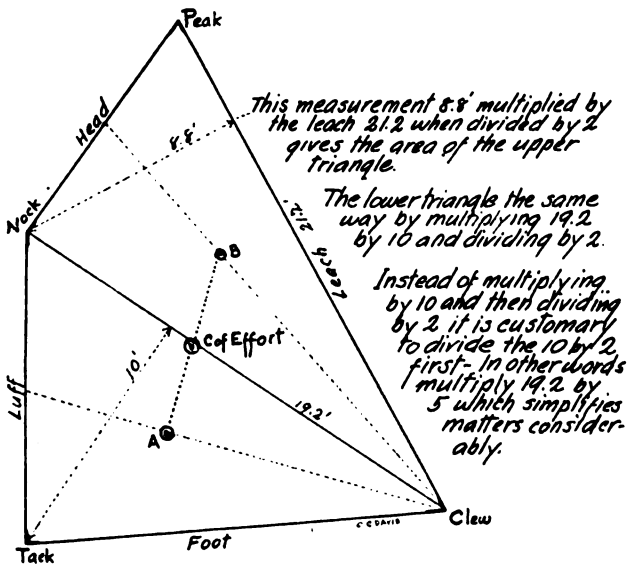


Fig. 14

Divide the mainsail into two triangles, Fig. 14, by drawing a line from the throat to the clew. Find the center of each of these triangles the same as you did for the jib. This gives you two centers, A in the lower triangle, B in the upper.

To find the common center, as it is called, draw a line connecting these two. Somewhere on this line proportional to their areas is this common center. If both were of the same area, the center would be midway. To calculate it you must know the area of each triangle. There are two dimensions in figuring areas of triangles, length and breadth, but they must be measured at right angles to each other. The area of a triangle is just one-half of the product obtained by multiplying the length of the longest side of the triangle by the greatest breadth measured at right angles to it. The three illustrations given show how the areas of the angles equal one-half of the area of length and breadth, no matter what the shape may be or where the greatest breadth is measured. The lower triangle of our sail equals 96 square feet, the upper one 93.3. Calculating from the center of the lower triangle set down the figure 96 and multiply it by nothing; under it write the upper triangle and multiply it by the distance between the centers A and B, in this case 7 feet. The product, 653.1, divided by the sum of both triangles,

189.3, gives the distance the center of effort of the whole sail is above A, measured along the dotted line to B.

There is a graphic way of laying out the center of effort that is more difficult to describe than to do. Draw two lines from corner to corner, as shown in Fig. 15. Measure off the distance N-X, and set it off on the line up from C, and the same with the distance P-X, setting it off from T. Divide the distances from these points to X into three equal parts and through the inner third mark (the nearest to X), draw lines parallel to the two diagonal lines first drawn and where they cross you have the center of effort.

Another way of finding this center of effort is to draw the two diagonal lines as in Fig. 15. Set off the distance from N notch to X, up along the line from C (clew). And from T (tack), measure up the distance P (peak) to X. Draw a line A B, as in Fig. 16, and you have a triangle in the middle of the sail. The center of this is found by drawing a line from halfway between A and B to X and halfway between A and X to B. Where they cross is the center of effort of the sail.

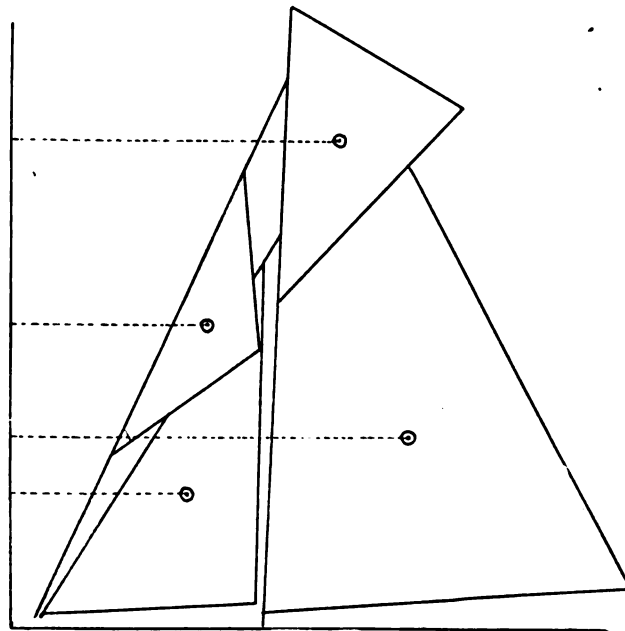


Fig. 15

To find the center of effort of a mainsail and jib combined, or with clubtopsail and jib, as in Fig. 17, the operation is merely a repetition of the calculation you have made for finding the center of the mainsail by dividing it into two triangles. In this all the centers are measured from a vertical line drawn up through the center of the mainsail; this is done to reduce the calculations to small figures. The result would be the same if, as in Fig. 18, all the centers were measured from a perpendicular line ahead of the boat. In the same manner, if desired, the height of this center can be calculated by measuring from the water-line up to each center, as in Fig. 19, multiplying by the areas of each sail and dividing the results.

For a schooner or yawl sail plan, the center of effort is found the same way. Yacht designers generally figure the distance the center of each sail is forward or aft of the center of lateral resistance. It seems more complicated to the novice to do it this way, but when you get used to it you will find it is as simple as the other methods.

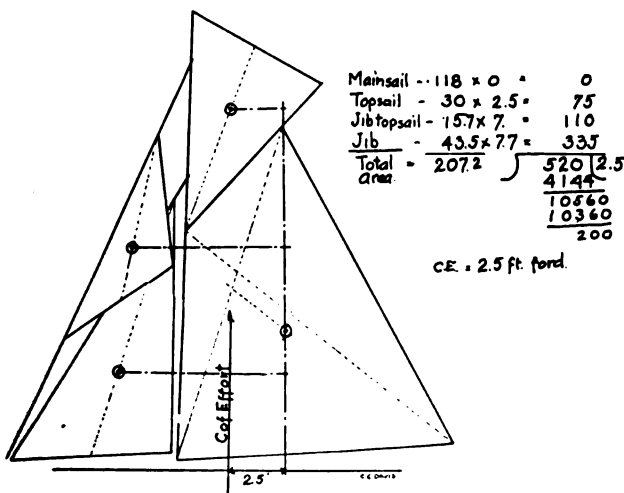
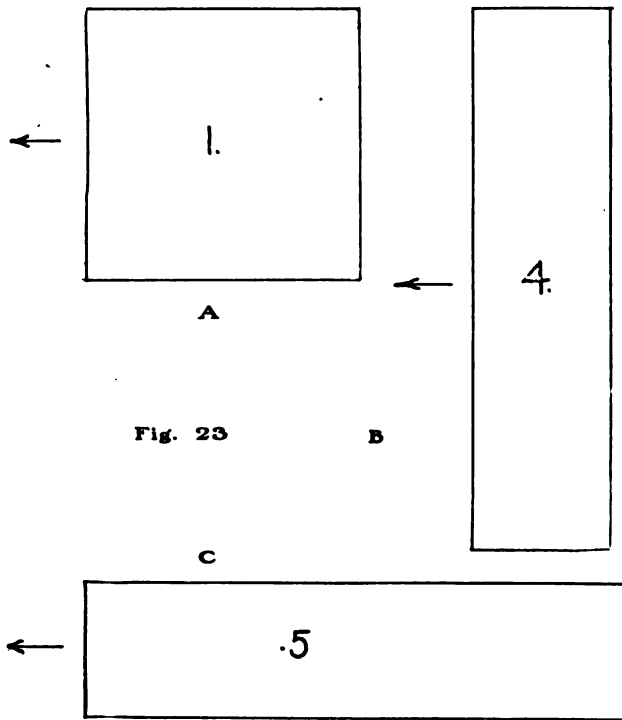


Fig. 17

Here (see Fig. 20), we have the center of the mainsail aft of the vertical line drawn up through the center of lateral resistance, while the jib and staysail are forward. In calculating these the product of the mainsail area multiplied by its moment (as the distance from the line to the center of effort is called) being aft, is subtracted from the sum of the products of the jib and staysail multiplied by their moments. This difference is then divided by the total sail area, as in Fig. 17, and the quotient is the distance the center of effort of the whole sail plan is forward or aft of the vertical line, according to whether the products of the headsails or that of the mainsail be the greater. The importance of understanding this question of balance between the centers is considerable. You realize what is taking place when a boat begins to steer hard and know the remedy.

Take as an example a jib and mainsail sloop: She hangs beautifully at first and steers easily. After a month or so the owner finds that his boat is carrying



a hard helm, and I have seen several men go to the sail loft and have their boat's mainsails recut to clear their heads; the booms had come down as the canvas stretched, they said. As a matter of fact, trimming down hard of the mainsheet and hammering the boat through heavy weather had stretched the headstay and bobstay, letting the masthead aft and this in turn lowered the boom-end considerably, as you can see by a glance at Fig. 22. It also moved the center of effort far enough aft to cause a hard helm. All that was needed was to set up on the headstay and pull the mast forward where it was intended to be.

The owners of the Boston raceabouts, realizing the nicety of balance that could be obtained by a slight shift of the mast, used to fit their masts in a slot in the deck so they could be shifted forward or aft, until a perfect balance was struck. Their chain plates to receive the shrouds consisted of an angle-iron at the deck edge, with a row of holes to bolt the turnbuckles to, permitting quite a range of adjustment to the shrouds.

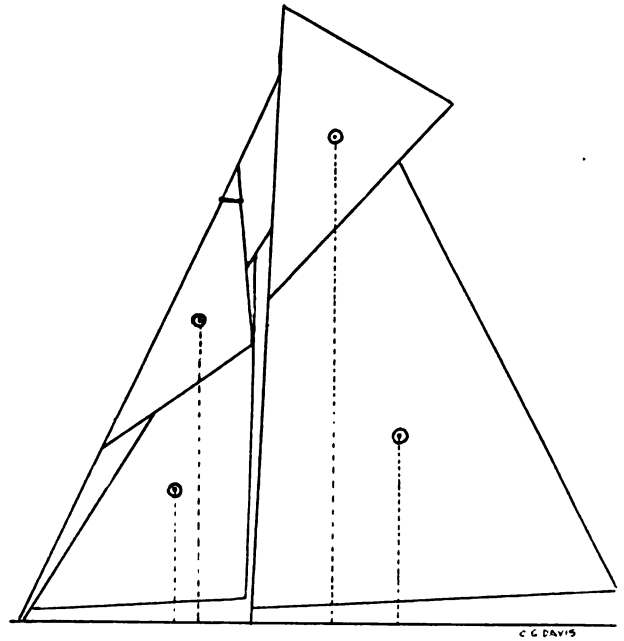


Fig. 19

For light airs the mainboom gooseneck was shoved up the mast a couple of feet, and in heavy weather it was dropped down—this was done because the sail area was limited to a certain number of square feet.

Where the areas are thus limited, the problem of selecting the best proportioned sail for the local wind conditions becomes important and past experience has shown that the high narrow rig with its long cutting edge, just as in the aeroplane and racing propeller blade, is the most efficient. The lifting or propeller reaction of the air upon a surface depends upon the amount of air displaced or acted upon by it in a unit of time. In Fig. 23 the figures in the planes, A, B and C, represent their respective lifting values, all having the same number of square feet. By this we see that C with its long cutting edge has four times the lifting value of B.

When we come to apply this principle to sails, we

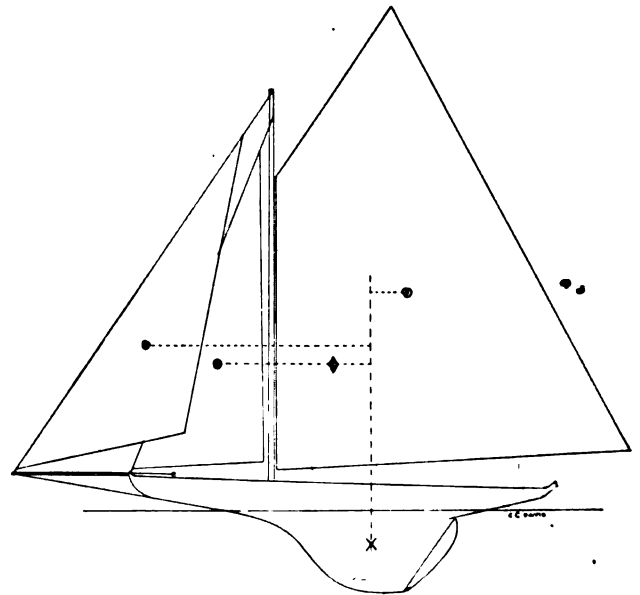


Fig. 20

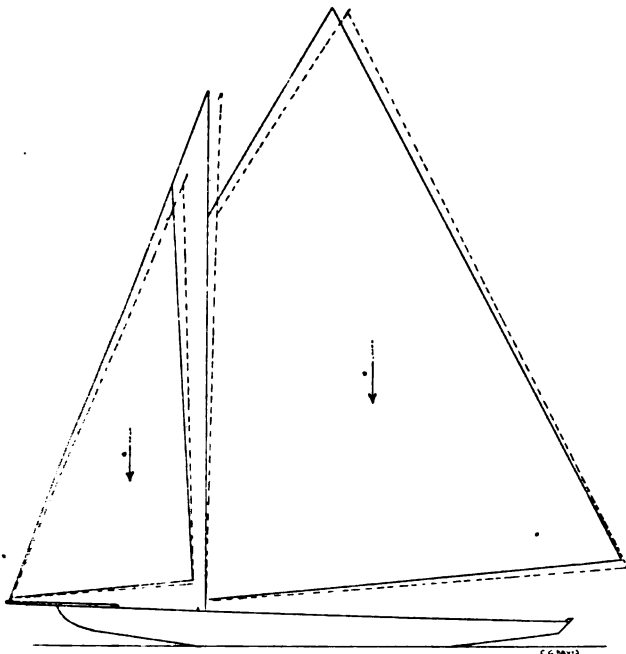
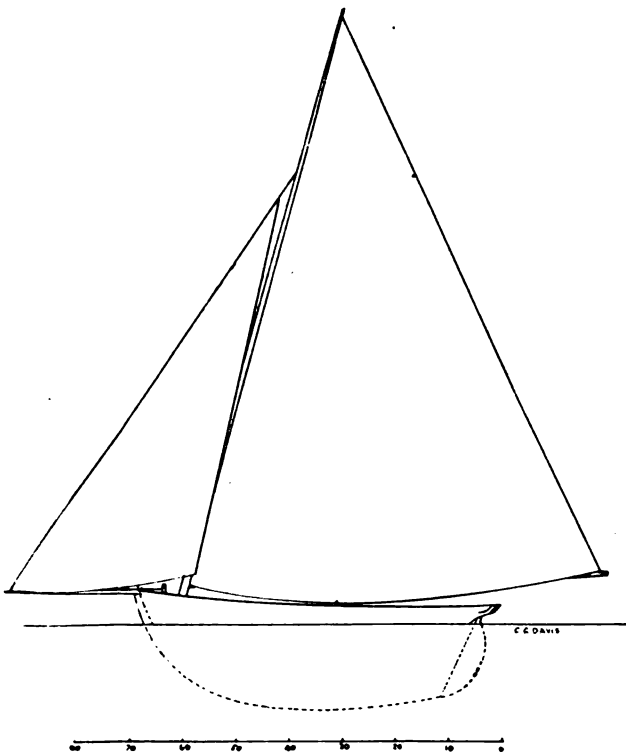


Fig. 22

find there are other limiting features to be considered. The flexibility of the sail which forms the plane acted upon by the wind, requires a certain breadth along the boom to be able to hold the gaff in where it belongs.

One of the narrowest, loftiest rigs I can remember was on the sandbag catboats Presto, Tattler and Phyllis—to bring their gaffs in so the sail aloft was pulling, the



Rig of a Bermuda Boat

foot was swigged down to the end of a wide horse, so the foot of the sail was flat as a sheet of tin.

The old Connecticut sharpie rig was a high, narrow one of two sails and so was the famous Block Island rig.

Bermuda boats have a tall leg-o'-mutton rig hove flat with a sprit-like boom set taut with a tackle part way up the sail, similar to the sharpie.

The Sonder boats carried rigs much shorter on the foot than the length of the boat, and nearly all the fast boats, we find, have this same characteristic, so when it is scientifically backed up by flying machine demonstrations, there is little room to doubt the efficiency of the narrow rig.

In Europe today, the racing rig on the small boat has developed in an excessively tall, narrow leg-o'-mutton sail, with a polemast trussed with spreaders to prevent its bending and made automatic in its adjustment of the sails by a light wire headstay. By hauling on this and keeping the mast straight, the bag in the luff is retained, or by slacking this headstay, the masthead is allowed to bend aft and the sail flattens itself out. The shape of the sails has undergone a great many changes—all an evolution from the squaresail—but for yacht work, for handiness and all-around weatherliness, the present shaped mainsail is the best.

As the model of the boat has changed from time to time, the shape of the sail has been changed also. To illustrate this point, look at the shape of the sails used on the yachts of 1850, with their short gaffs. Boats in their days did not have lead keels; they carried inside ballast and did not have the stability a heavy lead keel gave to carry a square-headed sail.

The small sandbaggers of a few years later, however, had a radically different sail—a very square-headed sail. They, by piling many sandbags on the weather deck edge, had excessive stability. Today, we have a modification of the two. Our racers of today carry a lead bulb keel, hung low under the hull, and the tendency year by year has been to a higher, narrower rig. The early fin-keelers, such as the Larchmont 21-footers, Houri, Celia, Vaquero and Adelaide, had a low rig, long on the foot to keep the center of pressure low down, but this rig has gradually developed into a narrow, high one.

Mr. C. W. Foster, of Boston, an enthusiastic owner of Sonder boats, eliminated all doubt as to which was the best sail for a Sonder boat by having a turntable built upon his lawn and on this testing out various shaped sails until he evolved one that gave more push than any of the others, and judging from his success, his efforts in this were rewarded. Sails have been used before on turntables, but for a far different purpose. In the days when steam plants were a luxury, Peter Sherwood ran a sawmill at New Rochelle, N. Y., which received its power from a large turntable built on the roof of a two-story shop located in the rear of what used to be the old Bedeau property on Center Avenue, near the Trinity Schoolhouse.

A ring of small sails, luffing, pulling and jibing, was a common sight to the school children, and it was one of these sails whose use was abandoned when a steam plant was installed, that was the first sail Captain Thomas R. Webber, builder of many sailboats, had for his first real sailboat.

(To be Continued)

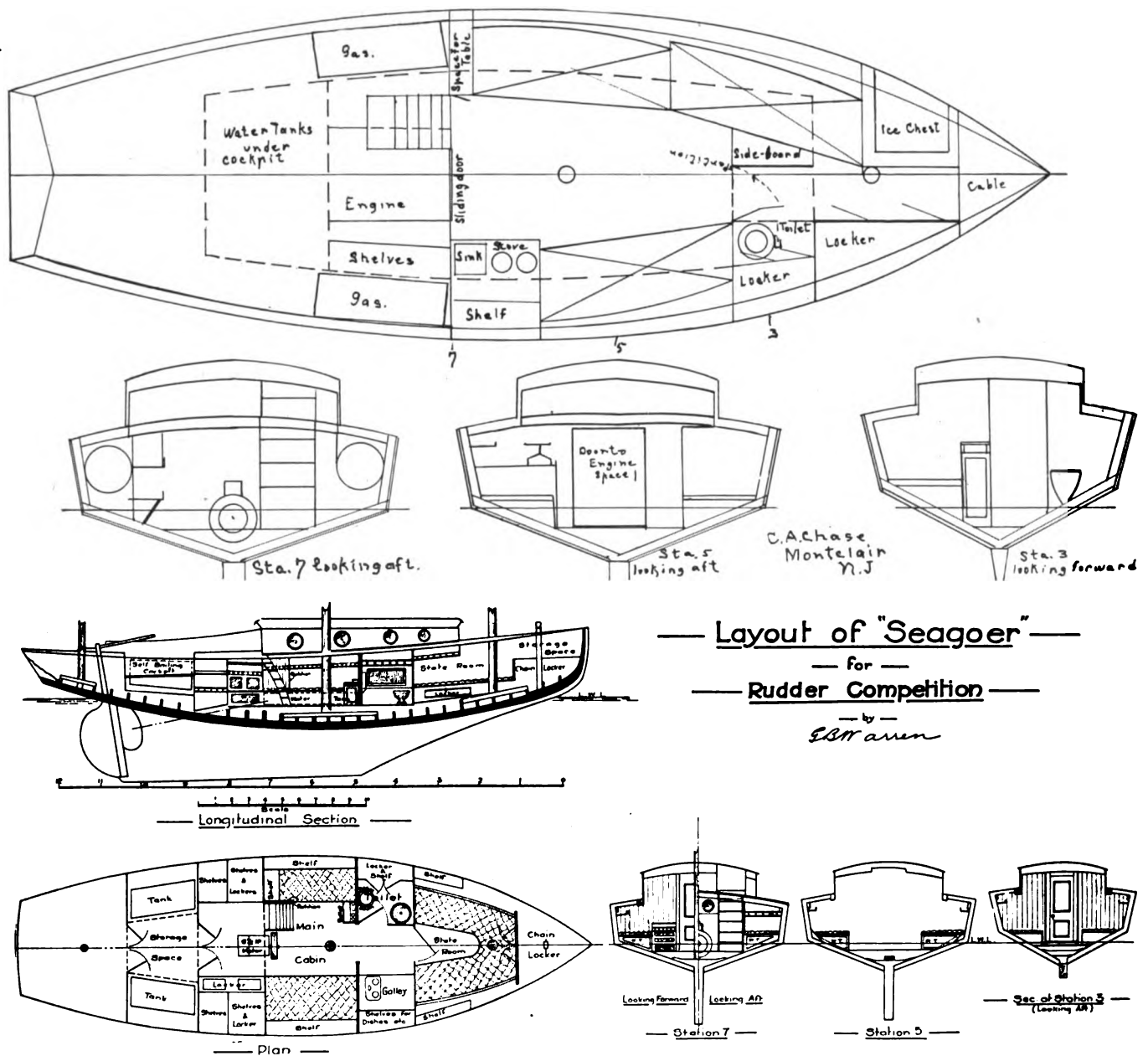
CABIN LAYOUT FOR SEAGOER

SOMETIME back we offered a prize for a cabin layout for the V-bottom cruiser Seagoer, and in response received a few replies. One from England, one from British Columbia, another from New Jersey and one from New York. The latter, a rough sketch, was the best of the lot, and the only layout that came near being what we wanted. This I had redrawn, adding a few ideas to it out of my own collection, and we now offer it as the best solution of the puzzle.

It must be recalled that Seagoer is what her name

implies—a vessel designed to make long voyages or cruises in open water, and her accommodations must be planned to meet such service. Especially must they be planned to give the maximum comfort in boisterous weather. If she was designed for ditch crawling or pond pleasuring, you might ignore these precautions, but you certainly cannot in a seagoing ship.

The first essential is to have your galley in such a place as will permit of your cooking or at least of heating water at any and all times. To make long passages in



Accommodation Plans for Seagoer. Above, Submitted by C. A. Chase, Montclair, N. J. Below, Submitted by G. B. Warren, Vancouver, B. C.

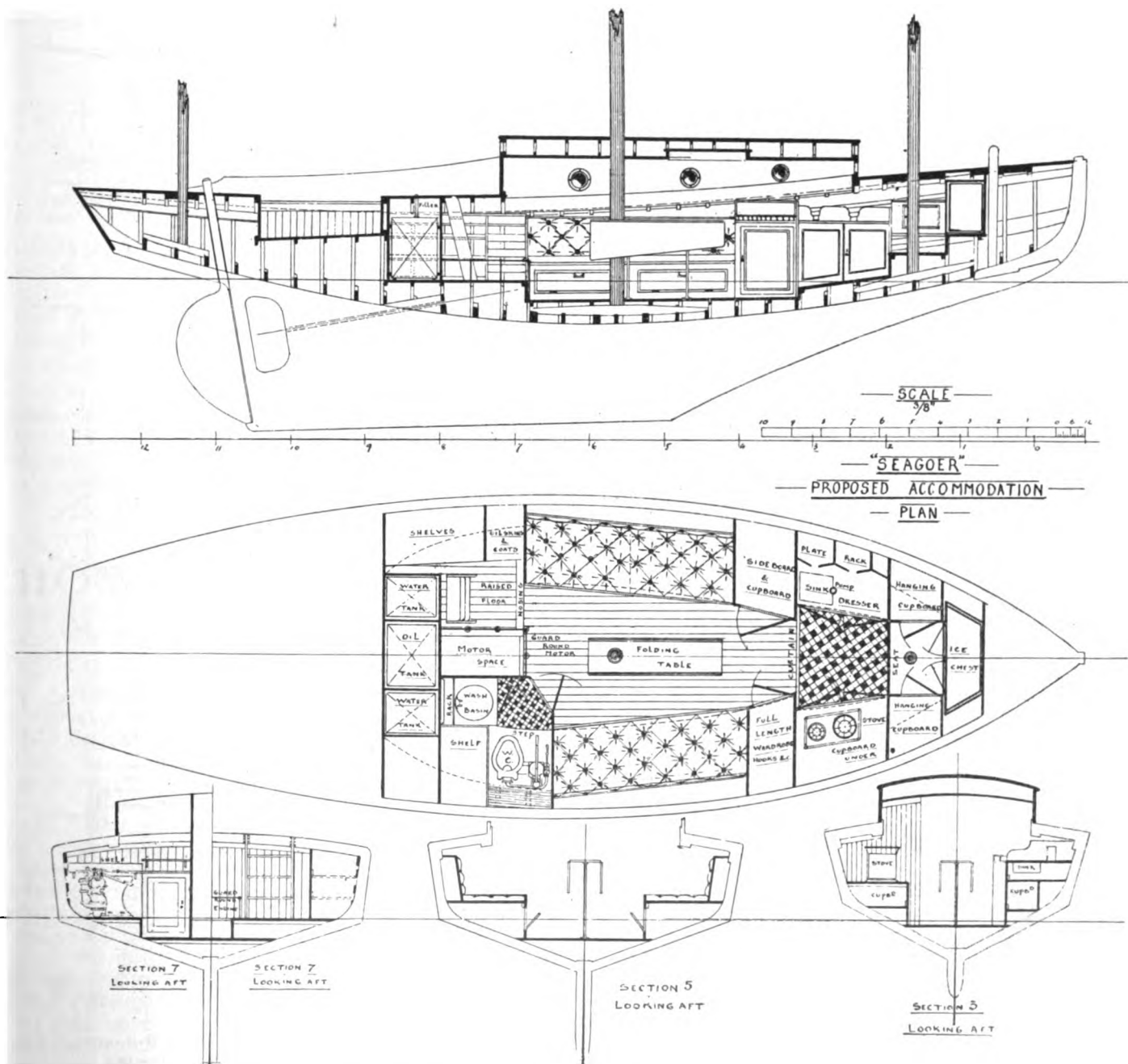
small craft, not only must the boat be able to stand up to the work, but the crew, and unless men are well fed and kept dry below, they lose their willingness and nerve. The other day a yachtsman brought me the layout of a 70-footer, designed for sea-going. In this plan both engine room and galley were stowed into the fore part of the vessel. I pointed out the inadvisability of such positions, and explained to him the impossibility of keeping men in either place when the ship was battered down in rough weather. Aside from that fact, a motor for driving a vessel should never be placed forward of amidships. Especially is this true in an auxiliary craft. An engine room forward means bad sea action and noise, smell and filth all through the boat.

Ventilation is an essential for engine and cook room. How is it possible to obtain ventilation forward unless by having some form of an opening? No man, I don't

care how seaproof his stomach may be, can stand being confined in galley or engine room without being constantly fed with fresh air. Again, all refuse and rubbish has to be carried aft to be thrown overboard, meaning that if the galley is forward, it must be carried through the living quarters.

Again, every man who has been confined for days in a small vessel exposed to rough going knows that all the loose dunnage on board will gradually drift forward and collect in what is the driest part of the boat. This is usually underneath the fore deck, the only dry place after a spell of bad going. If you have a fore galley, this ruck of dunnage gets mixed up with the pots and pans and sometimes with the stew. Therefore, the galley must be as far aft as possible, where at all times ventilation can be had.

In small craft intended for sea voyaging, I am opposed



Accommodation Plan for Seagoer Submitted by P. A. Duckworth Southampton, England

THE RUDDER

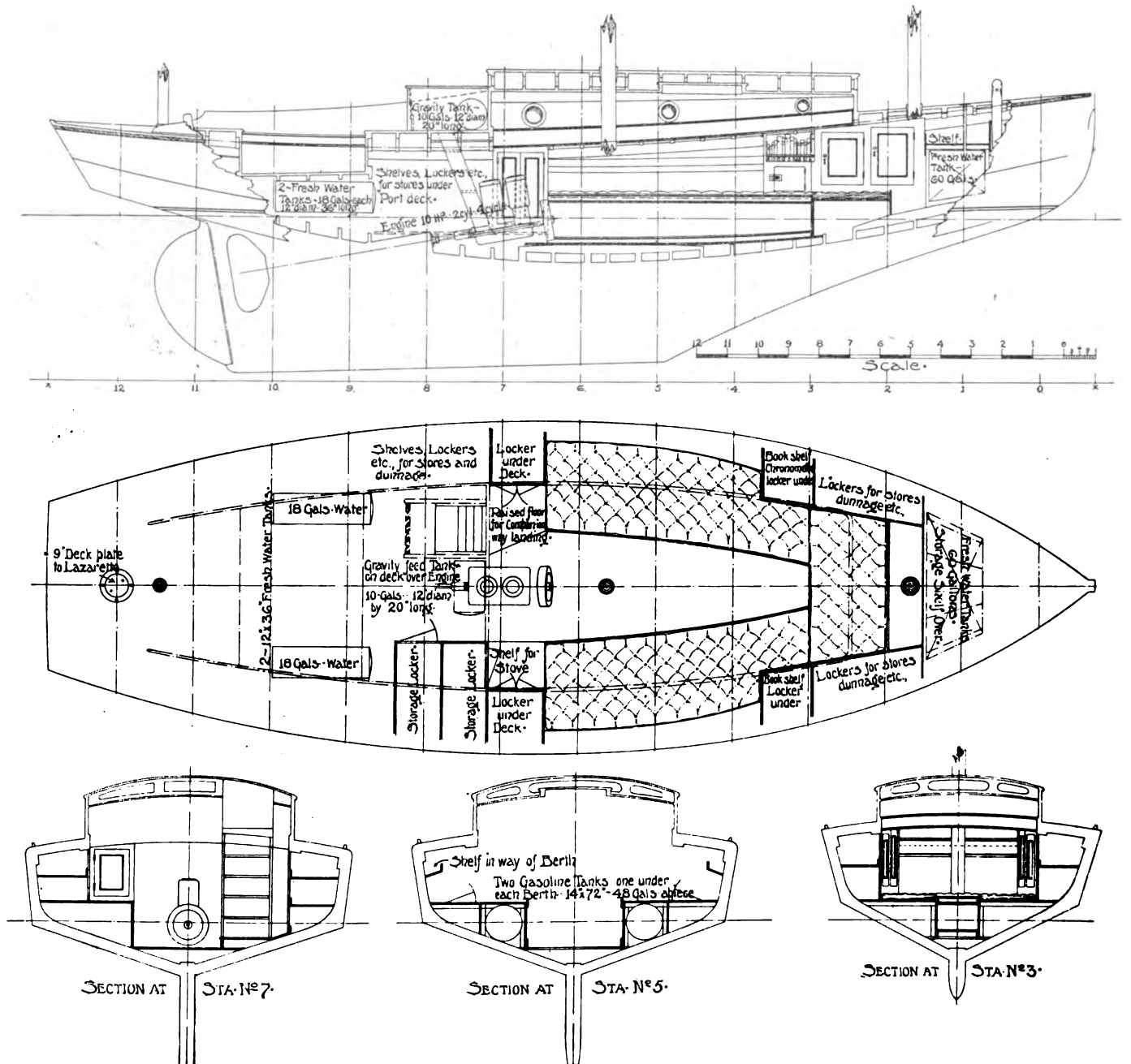
to having toilets with outboard openings. It is far better to use a commode.

To place the motor in Seagoer was a problem. We recognized the necessity of placing it as far aft as possible, but this could not be done owing to the excessive rake of the shaft. Motors should, for continuous service, never be bedded with a rake; they should be set on the water-line plane. The cause of trouble with motors is the setting at an angle, thus not only bringing an unnatural strain on all the moving parts, but preventing the proper circulation of the cooling water. This is of scant importance where a motor is run for a few hours, but when brought to continuous service for days, it soon affects its efficiency. In a second drawing we have

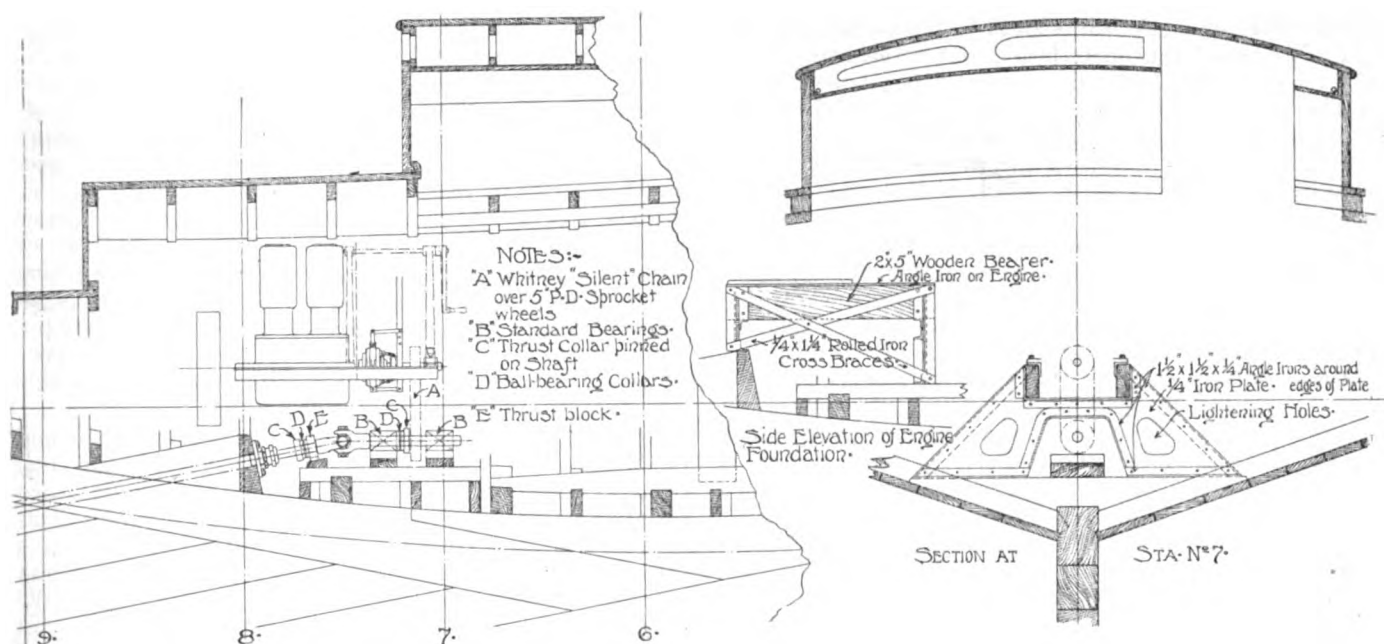
shown how to overcome this and how to get the motor clean away under the bridge deck.

The fuel tanks are under the bedplaces, throwing the weight low down and off the line of the keel; this is conducive to steadiness. The pressure feed is led to a small tank in cockpit. The total fuel, 106 gallons, would give a cruising radius under power of about 800 miles. The water supply is sufficient to last four men 30 days. Gasolene tanks should never be placed anywhere that the whole tank cannot be quickly exposed and examined. Fuel tanks should never be placed in the bow of a vessel or under cockpit floors. The motor should never be fed by gravity from the main fuel tanks.

Lockers or rooms closing with doors, if possible,



Seagoer Accommodation Plan as Redrawn and Traced by F. W. Goeller, Jr., from Plan Submitted by R. A. Gordon, New York City. This, with the Engine Installed as on the Following Page, is the Best Layout Possible to Get in This Boat



It is Absolutely Essential, if the Engine is to be Installed as Above, to Have All the Bearings, Thrust and Ball-Bearing Collars as Shown. The Universal Joint Would Not Last a Day Without the Thrust Bearings and Ball-Bearing Collars Either Side of It. To Make the Foundation Entirely of Wood Would Practically Close Up Under the Engine and Prevent Access to These Parts, Therefore the Iron Foundation is Best.—(Fred W. Goeller, Jr.)

should not be placed in small seagoing craft. Everything should be left open and if possible slatted both top and bottom partitions. The enemy you have continually to fight is dampness. All shelves should be tilted, so as to keep the contents from being dumped out when rolling or knocked down.

The objection to a w.c. holds good in regard to a sink. Twice I have been badly flooded in boats by the outlet of a sink being left open. Every hole bored in the side of your boat either above or below the water-line, is a menace, and the fewer you have to watch the better.

If you have plumbing, all the intakes and outlets should be manifolded and have one intake or one discharge.

The price of safety at sea in any vessel is eternal vigilance, and this is especially true of small craft, and it means the constant supervision of every opening, for if the water is kept out the boat can face with impunity any weather. So long as she is dry within, no power on earth can harm her. But aside from safety, the voyager wants a reasonable amount of comfort, and that means a dry place to sleep and warm food to swallow. In Seagoer we have solved the problem of ventilation, and this plan will do much to dispose of the other problems.

HOW TO BUILD THE FLATTIE JUNCO

Fred W. Goeller, Jr.

PART II—(Concluded)

LAST month we had reached the putting on of the side planks and fastening them. Of course, at this stage the side frames are not in yet, and as there is no better time, they should be done. With a 1/4-inch piece of cedar or pine a template can be made so that it fits the inside of the planking and is notched over the nailing strip. This is the easiest and quickest way to do, as it is easier to pare off the light template than it is to cut the oak frame. When this fits nicely, mark it out on a piece of 7/8-inch oak. The frames are 1 inch at the head and 1 1/4 inches at the heel, so mark off these distances and join them with a curved line, so as to make it about as shown in the construction section. Each side frame is fastened to the bottom frame and there should be a screw through the planking and nailing strip into it—the side frame—as well as through the lap, as mentioned before. It is not necessary at this time to fasten the plank to the upper end of the frame, but wait until

the clamp is to go in, when a single fastening will do the trick.

When the side frames are all in, the whole boat—as far as it has progressed—is then removed from the stocks and turned bottom up. Any unevenness on the bottom frames may then be planed off, and also finish up the garboard so that the edge is fair with the line of the frames, so that the bottom planking, when on, fits tightly and evenly all along, and we are ready to put on the bottom planking.

Starting in the center, take two 1/2-inch oak planks and place them so that the seam is down the center line of the boat, and cut out of each for the centerboard slot. These two planks should be tapered, say, to about 4 1/2 inches at both ends, and about 6 inches wide amidships. In fact, all the planks should be about the same as this, due to the curve of the bottom.

Before fastening these in place a thin strip of cotton

laid in plenty of white lead should be placed on the backbone all around the centerboard slot to insure a tight job, and to prevent leaking.

Then put on the two centerboards, and the best way to fasten them, in my opinion, is to use screws so that they may be drawn down tightly around the slot, which is the most likely place in the whole boat to leak, and the hardest to remedy if once it occurs.

The rest of the planking is quite simple and is fastened either with screws, nailed or riveted as you see fit. Personally, I like brass screws or copper rivets, but these are not necessary, as there is enough wood in the frames for a nail to hold as long as the boat will last.

When it is all on, plane off the edges where they lap over the sides and sternboard, and turn the boat right side up again. It would not pay at this stage of the game to caulk the bottom, as the hammering on the deck is likely to work some of it out and then it has to be done over again.

The boat being turned right side up again, put in three or four braces, about 6 inches below the deck, from side to side, to hold the shape, and then remove the moulds.

Now is the time to get out the deck beams. They are sawn from $\frac{7}{8}$ -inch oak, the same as the bottom frames, except that instead of the crown of the latter, they are cut to a camber of 2 inches in 5 feet 2 inches—all alike, $1\frac{1}{4}$ inches deep.

There will be some scrap, so take a piece $1\frac{1}{4}$ inches deep as a template and put in the clamp, of yellow pine $1\frac{1}{2}$ inches square, tapered to about 1 inch by $1\frac{1}{4}$ inches deep at the ends, using the template, and fasten the clamp in position just far enough below the top of the side plank so that when the deck beams are in, their top edge is even with the former.

This fastening should be a rivet, going from the outside plank, through the heads of the frames and set up on the inside of the clamp over a large washer. The clamps are fastened together with a breast hook forward and to the sternboard by a knee as shown.

The deck beams are then put in and fastened to the side frames and to the clamp. There is a deck beam on every frame, and as this leaves a large space forward, a mast partner, $1\frac{1}{4}$ inches thick and about 9 inches wide is put in with its top flush with the deck beam and fastened to it and resting forward on the breast hook and well fastened to the latter. As an extra precaution, a knee is put in as shown, fitted against the partner and the deck beam, and well fastened to both.

In the way of the cockpit a temporary stringer is placed under the beams with supports down to the bottom, which is left in until the deck is on and the coaming in place, when it is removed and two supports 1-inch square are placed on the alternating beams, starting from the stern.

It will be noticed that the cockpit comes to a point at the forward end and filling pieces cut to the right curve should be fitted and fastened between the deck beams and flush with the top of them. These are put in so that the ends of the deck planking have a solid landing and a place to be fastened to, and also to fasten the coaming to.

Where the mooring and halyard cleats come, and as shown in the way of the mainsheet traveller, blocks should be fitted between the beams and well fastened, and galvanized stove bolts used for these fittings, set up on washers under these blocks.

As it would make a very poor job to use narrow strips in the middle, forward, where the mast hole would cut some of them entirely away, use a piece of $\frac{1}{2}$ -inch oak, at least 8 inches wide, in one length from the stem to the cockpit. Fasten it down well to the mast partner and to all the beams, particularly along the edges to prevent their curling up.

The rest of the deck is also $\frac{1}{2}$ -inch thick in narrow widths—not over $2\frac{1}{2}$ inches wide—of either cedar or white pine, and is laid straight, fore-'n'-aft, working from either side of the king plank—the oak center-plank forward. The ends may overlap the sides and cockpit, and can be finished off after the whole deck has been finished. Use a $1\frac{1}{4}$ -inch galvanized wire nail to fasten the deck on, countersinking all the heads.

With this done it would then be well to calk and putty the bottom. Then putty up all the cracks and nail holes in the deck so that it is smooth and even—planing off any uneven seams—and give it a coat of paint. This paint need not be very thick, and is to act more as a filler than anything else. When it is thoroughly dry, mix up some thick paint and put it on evenly all over the deck, and as soon as it is on, put on the canvas. Do not wet the canvas either before or while you are putting it on, but stretch it as tightly as you can and tack with copper tacks all around the edge. The canvas is turned over the edge of the deck and tacked there, and not on top. When the canvas is on, rub it all over, so that it beds down into the heavy paint. Then sponge it over and apply a coat of paint on top. The dampening is not done to stretch the canvas, but to make the paint fill up the canvas better. It is quite a job to paint on dry canvas, as the paint does not go down between the threads as it should, but merely forms a coating on top which in time cracks and peels off. The wetting prevents this.

A $1\frac{1}{4}$ -inch yellow pine half-round is then put all around the outside of the boat at the deck line, to cover up where the canvas ends. It may be either painted or varnished, as you choose.

A half-round piece would not look well across the sternboard, besides interfering with the rudder, so the canvas is tacked down on top and a $\frac{1}{2}$ -inch covering strip, about $1\frac{1}{2}$ inches wide, is fastened across to cover this. (See illustration of the completed boat.)

The coaming is then bent around and fastened in place. I believe I omitted to mention that the canvas is turned down inside the coaming and tacked, so when putting on the latter, put some white lead between it and the deck.

The coaming should go in cold—without steaming—but if you are afraid to tackle it, saturate the wood thoroughly with water, either hot or cold, and it then may be done more readily.

It has been found that a boat nail will hold in end wood as well as a screw, so nail the coaming in place, first boring and countersinking for the heads in the oak (coaming) and starting the holes for the nails in the deck beams with a gimlet bit to prevent splitting.

Forward, of course, the lower edge of the coaming is fastened securely, but to hold the upper edge, it will be necessary to have some sort of block to fasten both ends to. A knee, as shown, forms as neat a way as possible to hold the coaming together, and by boring three or four holes in and putting belaying pins in them, you have a pin rail, for halyards if you want to use them, that can't be beat.

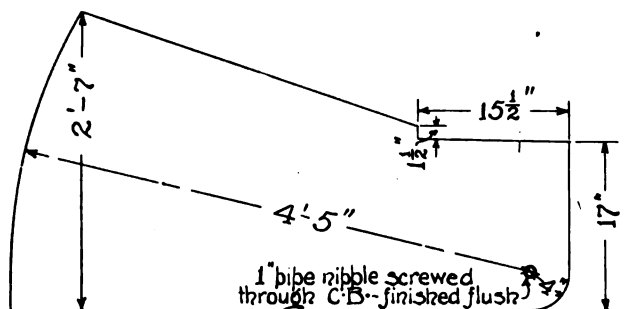
The boat should then be painted thoroughly inside, three or four coats, if it has not already been done. Then put in the flooring. This is of $\frac{5}{8}$ -inch pine 3 inches wide, with $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch space between, and it is only necessary to run it, say, about one frame beyond the ends of the cockpit, and out as far as shown. It is nailed directly onto the floor frames with $1\frac{1}{2}$ -inch galvanized wire boat nails.

A cap is also put across the aft end of the cockpit $\frac{1}{2}$ -inch thick and 2 inches wide, to cover up the end of the canvas. In the corners brass coaming braces are fastened onto this and to the coaming to hold it steady.

The mainsheet traveller cleats and fairleads are then fastened in place and also a round brass plate at the mast hole to cover the tacks and also to help prevent splitting the king plank when driving in the mast wedges.

The skag of $1\frac{1}{4}$ -inch yellow pine, about 4 feet 4 inches long, cut out to fit the round of the bottom—fore-'n'-aft—and tapered to an inch along the lower edge, is fastened in place. This may be done with bolts, long nails or long screws, countersunk, any or all of which should be long enough to enter the backbone sufficiently to make a good solid job.

The next step is to make the rudder and centerboard. The rudder is of oak $1\frac{1}{4}$ -inch thick, along the forward edge and tapered to about $\frac{5}{8}$ -inch along the aft edge. This tapering should only start where the second piece



Dimensions for Centerboard

forming the rudder ends. (See illustration.) Two cheek blocks are fastened on, one on either side, and the filling piece between on top, and this forms the head into which the tiller is inserted.

The tiller is about 4 feet 3 inches long and should be made from straight grained oak or ash. There should be a small shoulder on it to prevent slipping clean through the rudder head. The inboard end is tapered to about an inch and a space for, say, 12 inches rounded where you grip it. A small wooden ball may be dowed on the end to prevent your hand from slipping off.

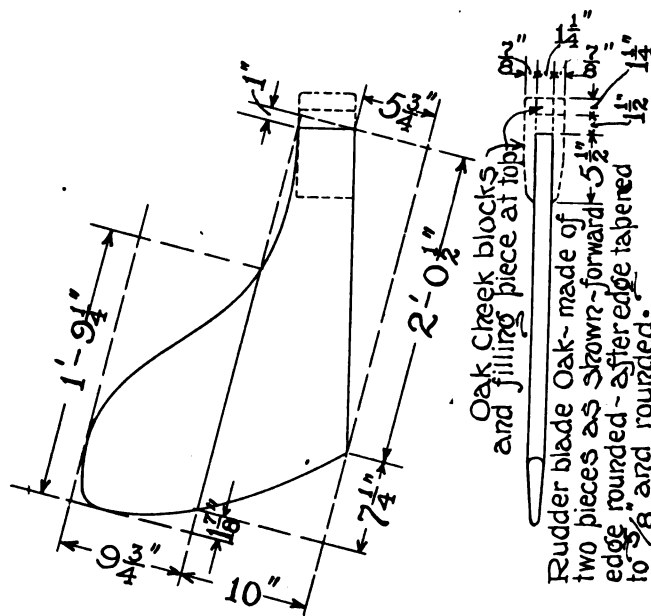
The centerboard is made of $\frac{7}{8}$ -inch yellow pine of pieces not over 6 inches wide, well dowed together. When it is fastened and cut out to the shape shown, there are bound to be rough edges and uneven places, and when they have all been planed off the board will be finished to about $\frac{3}{4}$ -inch thick, which is the correct dimension. Four inches up, and in from the bottom and the forward end, bore a hole for the pin. Into this screw a 1-inch pipe nipple and file off the ends, so that they are just flush with the board. Then round off the corner as shown, so that the board can drop down when the bolt is in. In the centerboard trunk bore a 1-inch hole 4 inches up from the outside of the planking, and $4\frac{3}{4}$ inches aft from the after side of the forward head-ledge or centerboard post.

Put the board in place and put a 1-inch bolt through the trunk and centerboard with a large washer under either head and set it up tight enough to partially sink the washers into the trunk.

When the board is up in position, bore a small hole just above the trunk cap, into which a long nail or pin can be put to hold it up when the boat is at anchor.

There will have to be a pennant on to haul it up when down. To fasten this to the board, take two brass or copper plates, let into the board one on either side—with about $1\frac{1}{4}$ inches projecting beyond the top of the board. Rivet them on and put a heavy rivet through a thimble and rivet the two projecting ends together with the thimble between. The pennant may then be spliced over this thimble and you will have a neat businesslike job.

The rudder is hung as shown on stock fittings; the lower with the conventional straps riveted both on the rudder and on the skag. To make the upper one, use the regular strap riveted on the rudder and an eyebolt set up on a block between the knees on the inside of the sternboard.



Dimensions for the Rudder

This completes the hull, all except the finishing up of the painting, which should now be done.

The spars are all of spruce—solid—made to the dimensions shown on the sail plan. They may be made from straight joists—only try and get them, particularly the mast, with the heart in the center.

There is only one stay—the headstay—and if you are not up to the job of splicing the eye to fit over the mast head and for the turnbuckle at the lower end, most any place where they supply the wire will have it done for you if you supply the length between eyes. They can also make the peak bridle, too.

The blocks and rigging specifications were all shown on the sail plan, and are so simple that any further explanation or description is superfluous. The sail, of course, you will have to get from a sailmaker, and bending it on is a simple job.

When everything is done, there remains but the start of a season's pleasure and it is our belief that this new boat will prove a worthy rival to the good old Lark in speed as well as popularity.

(The End)



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



THE SALTER'S POINT Y. C.

ONE more yacht club, the principal aim of which is to support the racing of small boats, has come into being with the Salter's Point Y. C. This has its station at the Western side of the entrance to Buzzards Bay, and a 500-foot breakwater, now under construction, will afford visitors an excellent harbor with good holding ground, for boats drawing less than 10 feet. An outer harbor, with full shelter, save from the Southeast to Southwest winds, is also available at this place within the curve of the land terminating at the Dumpling Rocks Lighthouse, with water enough for large vessels.

The club has organized two special classes of sailing dories, the 14-foot and the 17-foot, respectively, and there will be racing every Saturday and on special days all through the season of 1915.

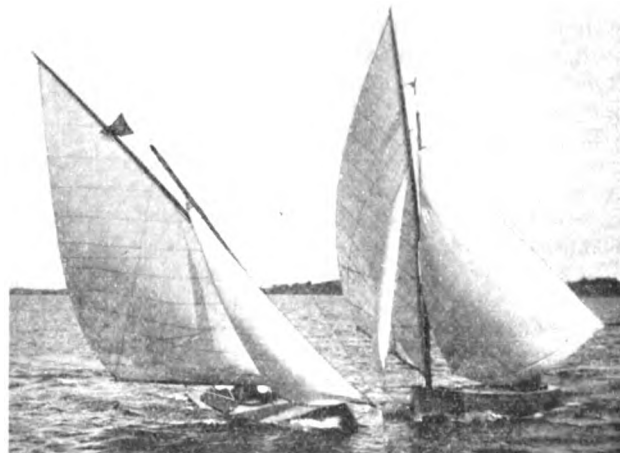
A well-planned clubhouse and an enthusiastic membership have combined with a capital racing spirit to give the new club a strong start.

The officers are: Commodore, Emerson G. Taylor; vice-commodore, Arthur A. Houghton; secretary-treasurer, John W. Paul.



RUDDER SAILING DINGHY

A NUMBER of dinghys have been built from the plans printed in THE RUDDER for December, 1909. The one

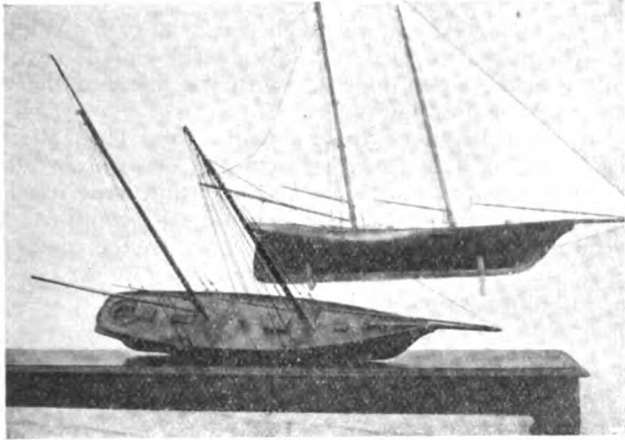


Rudder Dinghy at Gronigen, Holland. Owned by Mr. M. Bakker

shown in the picture was built by Mr. M. Bakker, in Holland, and is sailed in one of the many lakes of that country. Her owner fitted her with a bowsprit and jib and informs us that the extra sail improves her sailing. The issue of THE RUDDER containing the lines of these boats being out of print, we will shortly get out another design.



One of The Rudder Fourteen-Foot Dinghys. Designed by Chas. D. Mower. Taken Off the Island Heights Y. C., Toms River, N. J. This Boat is Carried on the Davits of Yacht Arawan. The Man Steering is One of the Quartermasters of the Nautical Troop of Philadelphia Boy Scouts



Old Model of the Schooner Yacht America

MODEL OF AMERICA

IN the March RUDDER is an account of the America's trip to England in 1851, which is very interesting reading, and as I have a model of her that was purchased by my late father a good many years ago in England, I am sending you some photos of same, which I thought might interest you. I suppose the model must have been made in England, and has been in the family over 50 years. One Admiral Ross, who saw the model hanging in my room some years ago, informed me that he knew the America well and said the model was very good in every particular, and I understood him to say that he was on the Queen's yacht at the time of the race. I need hardly say that I look forward with pleasure for each RUDDER as it comes along, and can say that I have been taking the paper since the days that it was called the *Rudder, Sail and Paddle*. She has certainly grown some since then.

Tasmania.

T. C. ARCHER.



Boy's Mosquito Boat at Petrograd, Russia



La Cigale. R. Y. S. Lt. Col. A. M. B. Gage, Owner. Designed by C. E. Nicholson, Built by Camper & Nicholson. Length O. A. 122.2 Ft., L. W. L. 100 Ft., Breadth 23.72 Ft., Draught 13 Ft. 295 Tons. Power Two Parsons Paraffin Engines 65-H.P. Each. Speed in Dead Calm 8 Knots

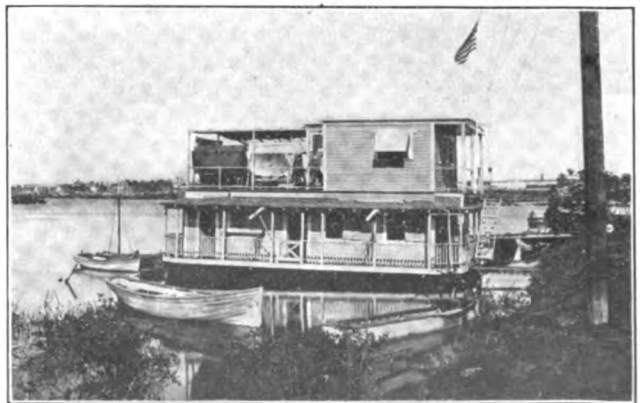
FROM AN OLD HAND

I AM today signing on two hands for the 1915 voyage of the old packet. One sailed with you last voyage, but the other is, I think, a new hand.

Mr. Seaver, when in reaching distance of salt water, was an enthusiastic supporter of the sport. Being now where the normal barometer reading is between 28 and 29, he has aided materially in the construction of Lake Junaluska, an artificial pond covering about 300 acres.

We have been around for an inexpensive boat suitable to the conditions here and have decided on Junco as probably filling the bill. We hope next season to open the Junaluska Y. C. with a one-design class consisting of two Juncos.

The other hand, like myself, is a Chesapeake man. The first sailing craft either of us handled was very similar to the Sand Pup, a picture of which appeared



Rudder Station and Home of F. H. Johnson, San Juan, Porto Rico. The Only Houseboat on the Island. The Average Yearly Temperature Here Is 80° Although It Is a Bit Cooler in the Mountains

in a recent issue of *THE RUDDER*. Her name was *Jobat*, and she was jointly owned and jointly built by us from a variety of materials. The sides were $\frac{7}{8}$ -inch yellow pine from a linoleum crate; the bottom planking ranged from $\frac{3}{4}$ -inch white pine to $1\frac{1}{2}$ -inch red oak. Since a very dull hatchet and an equally dull compass saw were our only tools, the seams were very irregular and so wide in places that it became necessary to nail $\frac{1}{2}$ -inch rope in them. No doubt this would have seemed hopeless to the average builder, but we had learned a trick from the oystermen, so, with a paddle, we spread coal-tar over her inside and out—filling all the seams—to a thickness of about $\frac{1}{16}$ of an inch and then dusted powdered lime on it until it would absorb no more. When she was ready to go overboard, she was as slick as a whistle and did not leak a drop for five years.

Three cents' worth of wire nails completed the hardware bill and the tar required cost ten cents. The lime was left from whitewashing fences and the outside coat was red paint from the barn. She carried a sprit rig, the mast and sprit being of yellow pine whittled out with pocket-knives, and the first sail of burlap, but later we substituted twill cotton. She was 7 feet over all, with about 18 inches breadth, and cost 13 cents to build, exclusive of the new sail, the cost of which I have forgotten. Not a palatial craft, truly, but she afforded two boys a great deal of fun. When I hear yachting bemoaned as a costly sport I cannot repress a smile.

J. S. BOHANNAN.

THE WEE PUP

IN January, 1906, we published a story by Winfield M. Thompson entitled, "A Successful Small Tender." This was the story, together with the lines, of the now famous *Wee Pup*.

A great many of these tenders were built all over the world, in fact, so great was the demand for them that our supply of back numbers of this issue has long since been exhausted. The demand still continues and to meet this, we are reprinting herewith the main features, sufficient for any one to build to.

The dimensions worked out as follows:

Length on top, 7 feet 6 inches.

Length on bottom, 6 feet 4 inches.

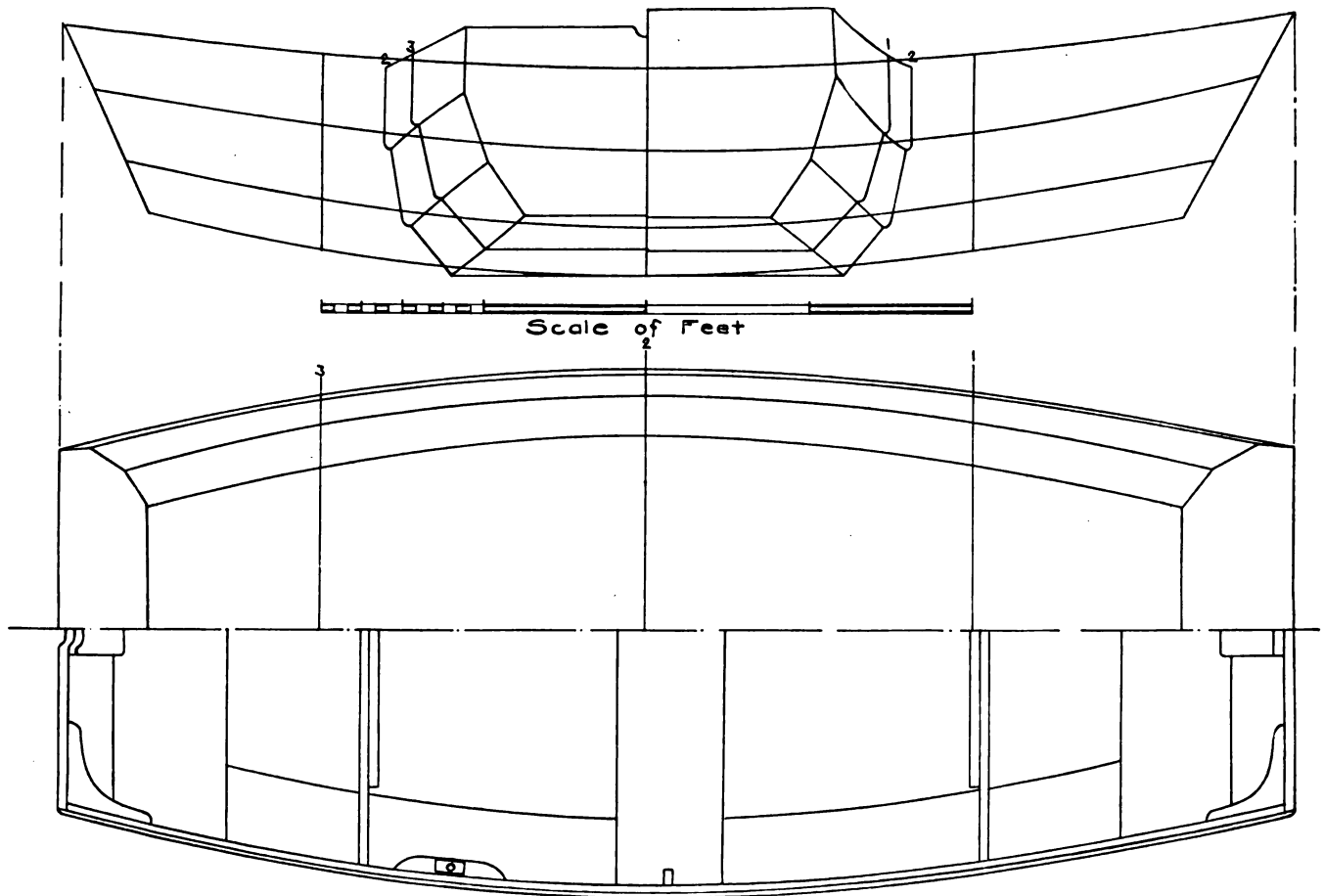
Width at ends: top, 26 inches; bottom, 18 inches.

Width amidships: top, 39 inches; bottom, 29 inches.

Freeboard at ends (from base line): bow, 20 inches; stern, 19 inches.

Freeboard amidships, $15\frac{1}{2}$ inches.

The material used in her construction was light but strong pine, $\frac{1}{2}$ -inch for planking; oak for frames and ends, the latter $\frac{5}{8}$ -inch reinforced by a strip up and down the middle; seats pine, $\frac{1}{2}$ -inch, and the knees at the rail, bow and stern, of beech. The bumping strip around the upper edge of the top plank, was of hard pine, $\frac{1}{2}$ -inch. The fastenings were brass screws. A galvanized ring-bolt was fixed to the middle of the bow, and to this was attached a short painter. A pair of 6-foot pine oars and galvanized oarlocks are included in the outfit.



Lines of Wee Pup

ROUND THE CLUBHOUSE FIRE

IN this issue I have started in to lead you to the waters of knowledge in that part of the fountain bordered by the art of navigation. But once your feet are on the margin of the pelucid current you must yourself do the stooping or drinking. In other words, if you don't take sufficient interest in gaining knowledge to undertake to teach yourself I can do nothing for you. All I can do is to show you how to learn; beyond that, my powers, or the powers of any teacher do not extend. But where I leave off is the place for you to begin. As soon as you go over Lesson One I want you to take a compass, or what is called a dumb card will do, and practice taking bearings. You can do this in your own home in a warm room, or you can do it on the roof, or in the middle of a pond or anywhere that you can see distinct objects. In this way you will not only learn to take bearing, but you will learn the compass card in a much more agreeable way than sitting down and acquiring the knowledge parrot fashion. Of course if you don't take an interest in learning the art or just interest enough to read over what is written, you will never become a navigator, and it will be your loss, not mine.

* * *

What is the use of learning to navigate? What is the use of learning anything? Is the acquisition of any knowledge outside of such as is necessary to procuring a living of any value? Why learn something that has no pecuniary weight and can only be employed in your case as an amusement? If so, why learn to play billiards, cards, or bowl? Many spend all their Winter evenings playing cards or bowling, doing the same thing over and over again, night after night, year after year. If pleasure can be found in following these monotonous pastimes, how much more enjoyment is to be had by engaging in an amusement like navigating with its thousand complications and variations. The reward of knowledge is knowledge. It is life within life: the stream flowing and refreshing the vale. The Arabian who in the ancient tale discovered the talisman, and by its occult powers penetrated the treasure house of the Genii, best typifies he who seeks a broader understanding of nature and nature's activities. Wandering from room to room, fascinated and dazzled by the resplendent display of flashing gems and glittering metals, the intruder forgot family, friends, hunger, thirst, cold and heat. All was lost in the intense desire to view what lay in the next room. So the pleasure of knowledge grows upon the seeker, repaying him a thousandfold for his labors of acquisition.

* * *

After reading my story of Reginald and Hamilton in last issue a lady wrote to say she could understand why young Highdigger could not get rid of his roll. She had the same experience. The following is an extract from her letter:

"Having promised my son a power boat on his twenty-first birthday we went to buy one, thinking of course one could be purchased like a car. We hunted the city from one end to the other and every-

where we got the same story: 'Had none in stock but could have one ordered in a few months,' but he wanted one right away, so we bought one second hand. Why don't these people have some boats ready to sell? A boy does not want to wait to have one built."

* * *

The reason is that the boat business as carried on today is a joke. Eighty per cent of the hulls used for pleasure craft are built in little shops by men who live from hand to mouth, and never have enough capital to buy more than one keg of nails at a time. If a concern does manage to get enough money together to set up and finish a few hulls, they usually build from the designs of Bill Chisel or Jack File who work in the shop, the consequence is that the finished product looks like a cross between a hen-house and a tugboat. There are a few good boats built but they are expensive mahogany affairs slathered over with brass and only fit to be used on fresh water lakes or a river where they can be kept in a house and wiped down morn and eve. Where, today, can a man find, ready to put into the water, a sensible seaworthy boat for a reasonable price?

* * *

If the sport is to be kept going we must have boats, well designed, well built, ready-to-wear boats. It will never become popular with the multitude if it is going to be catered to in the hand-to-mouth style. Yachting is not, as many suppose, a rich man's sport. It used to be, but today the bulk of the men enjoying the pastime are anything but rich. It is to the ones of moderate means that we must look for our buyers. These people want a boat, not a toy, not a tub, not a brass bound basket, but a substantial good-looking craft in which they can find the maximum amount of pleasure with the minimum amount of labor and expense.

* * *

Several hot letters have fallen in our trenches, fired from the mortars of our German readers. What called out this volley was our saying that the men on the yacht Erin had gone home to fight for the freedom of Europe. Wars such as the one now being waged in Europe are inevitable. They always have been and always will be so long as the world is peopled with distinct races and separate nations. It is the same old story of one nation striving for universal dominion and the other nations opposing it. It was waged between Assyria and Egypt, Persia and Greece, Rome and Carthage in the ancient days. Spain had the fever and brought Europe into the field against her pretensions, then France under the Grand Monarch and the Little Corporal suffered the same mania to direct her arms against the Western world, and today the Germanic race are trying the old game over again. But war is a national action, not an individual affair. There is no reason why men, because their flags are locked in sanguinary contest, should resort to individual abuse. War is a sport, the greatest of all sports, and should be played just as any other sport is. I believe in war: it

is a splendid thing for the nation no matter how cruel and distressing it may be to the individual. No people ever grew great through peace, any more than a tree grows tough and knarled by being sheltered from the wind and cold. It is the battle with sleet and blast, the wrestle with the gale that throws the steel heart into the oak. War will only cease when one nation is supreme; until that time the doors of the temple will float on easy hinges and be as often open as closed. A race cannot pause or step back, it must constantly advance.

"For onwards, always onwards, with a wake of blood and tears, The Empire must be worried through the great to greater years: Till the race shall lose its motive, and the world shall lock its fate,

In a covenant of language and a concurrence of state."

* * *

For the last year we have had from all over the world multitudinous calls for information covering auxiliary cruisers varying in length from 25 to 50 feet. This Winter the cry has been for nothing else, and several dozen are building. Among these on the stocks are at least a dozen Seagoers and Sea Birds. There is nothing handier for cruising than a 35-foot yawl-rigged boat, and the more of these we build the better for the sport. There is also a craze for V-bottoms and these are being built far and wide. But let me caution those who build this type of boat. Stick to the old and well-worn shape and don't try any personal fandangoes. Don't alter the dead rise, don't change the sweep or round off the sharp edge of the chimes. Much of the seaworthiness and dry-going of this type lies in the sweep and sharpness of the chime. Of course we will admit without cross examination that many of you know more than the generations of seamen who developed the model, but in this case it is advisable to confine the exhibition of your superior accomplishments to verbosity, and allow the same old craft to be built and sailed.

* * *

The main guy to the average cruiser is the cabin. Here he packs in all his pet ideas and must have his own little fads. You can do what you like with the deck and the bottom, but he will have his own way below stairs. But you cannot lay out cabins and get what's wanted from knowledge gained behind a window pane, yet most of it is done by people whose experience is gained indoors sailing over sheets of paper with pencil and ruler. The first thing to consider in laying out a cabin is the climate in which the boat is to be used. A cabin that would be comfortable in the Mediterranean or Florida Straits would be a miserable wetness in the North Sea or the Gulf of St. Lawrence. What might suffice for good sleeping and feeding in the Mississippi River would make a poor barrack for a hungry and tired man off Monomoy

or Frying Pan Shoals. The two main things to be first sought are dryness and ventilation. It is easy to get one without the other; but the problem is to obtain both at the same time. The plan shown in this issue is our attempt to conquer the puzzle; look it over and see if you can amend or improve.

* * *

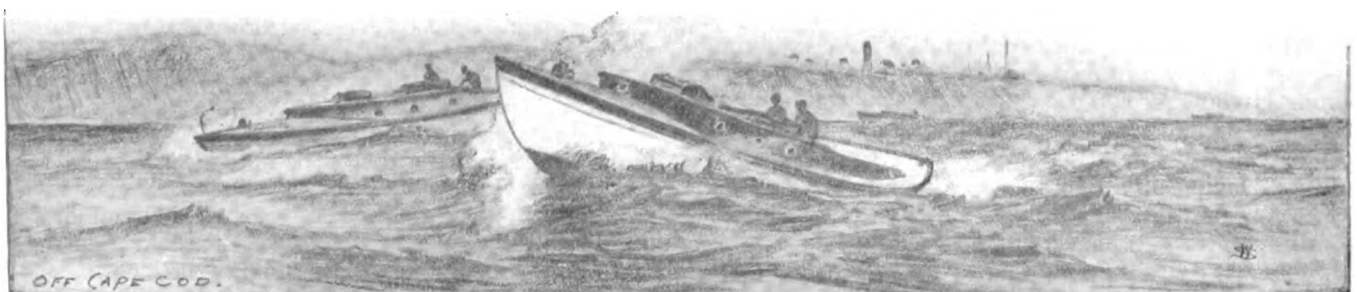
Again out of the depths I cry unto you to buckle on your armor and battle for the sport. Like all human institutions, a sport has its waves of progression and retrogression, and the changes do good, although at the time they seem to be inflicting harm. On the backwash of the down wave, a lot of dead wood and old rubbish is carried out to sea, never more to return. But it is our duty to see that no good clean stuff gets caught in the undertow, and is lost to the sport. If at present we were only losing ditch mariners and piazza sailors, no one would mourn, but unfortunately some real live men are deserting, men to whom the sport in the past is much beholden for its success and progress. If we cannot hold or bring back these darlings of our crew, we must enlist and train some new fellows to take their places. We must get the young, the growing boys to join our forces. Let every club start a campaign for that purpose and interest these young fellows. What is wanted is a one-design sailboat racing fleet; get one and bring in the boys.

* * *

Just to help the game along, I will make the navigating boys a bit offer. We have a book showing how to make a sextant, being lucid directions for building a rough cheap instrument for taking angles. This instrument, when finished, while not up to one bearing a Kew certificate, is much better than anything owned by Columbus, De Gama or Magellan when making their famous voyages. If you build one it will teach you the theory and practice of the instrument, and possibly incite you to buy a real sextant and learn to navigate with it. If you send me 25 cents to pay packing and postage, I will mail you one of these books and you can go to work on the job.

* * *

Some of you who have nothing much to do evenings and own pen, ink and paper, might write in and suggest where to cruise next Summer. Many men would like to cruise if they only knew where to go, so if you are an old voyager, chock-a-block with knowledge of strange waters and unvisited lands, why not sit down, take pen in hand and lay out a cruise for your fellow sports? Make your communication not longer than five hundred words and if possible give a table of distances from port to port. Send it in; we will print it, but be sure and only write on one side of the paper.



THE RUDDER

Engineering
Library

GENERAL LIBRARY

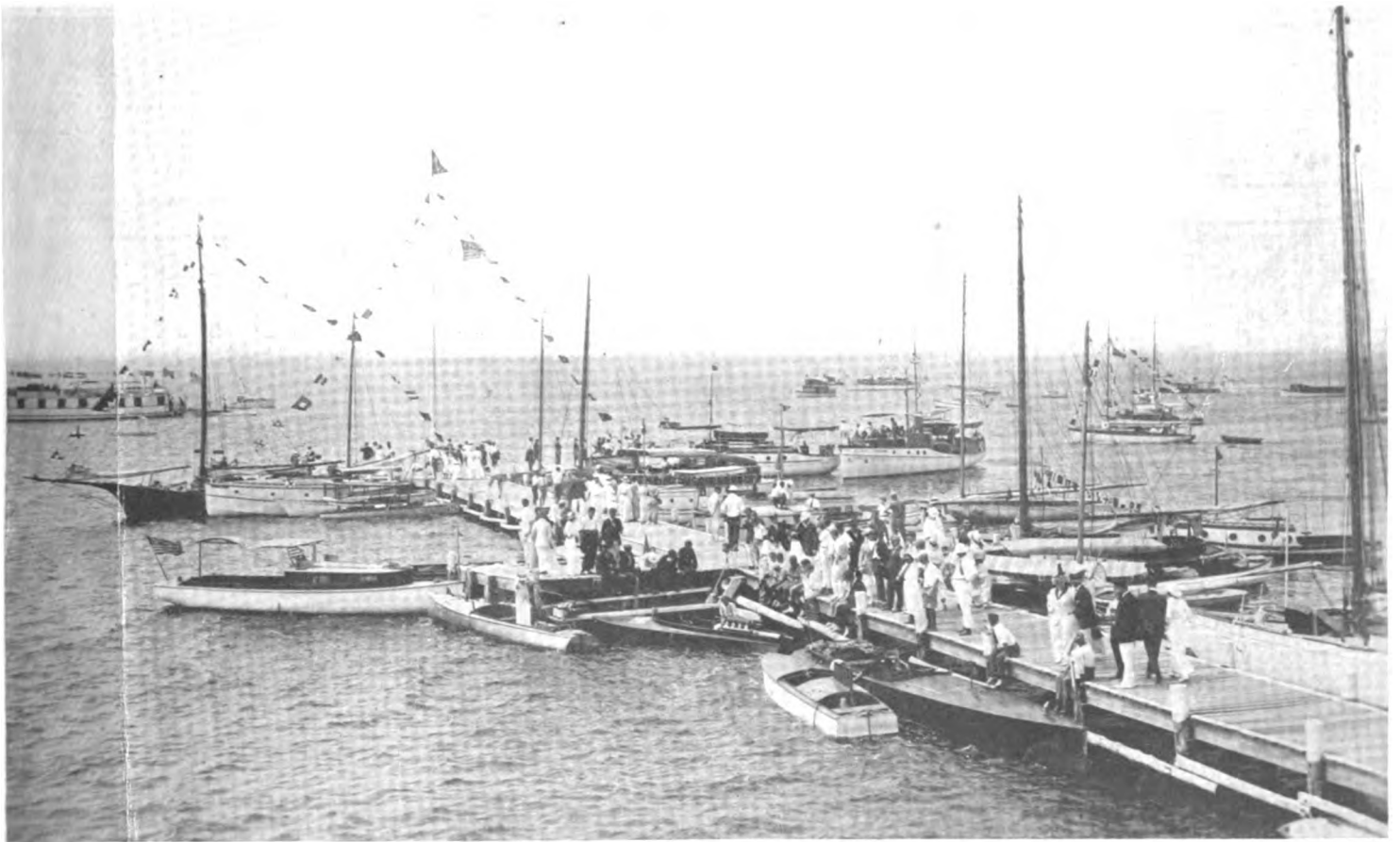
FEB 11 1915

Vol. XXXI

1915

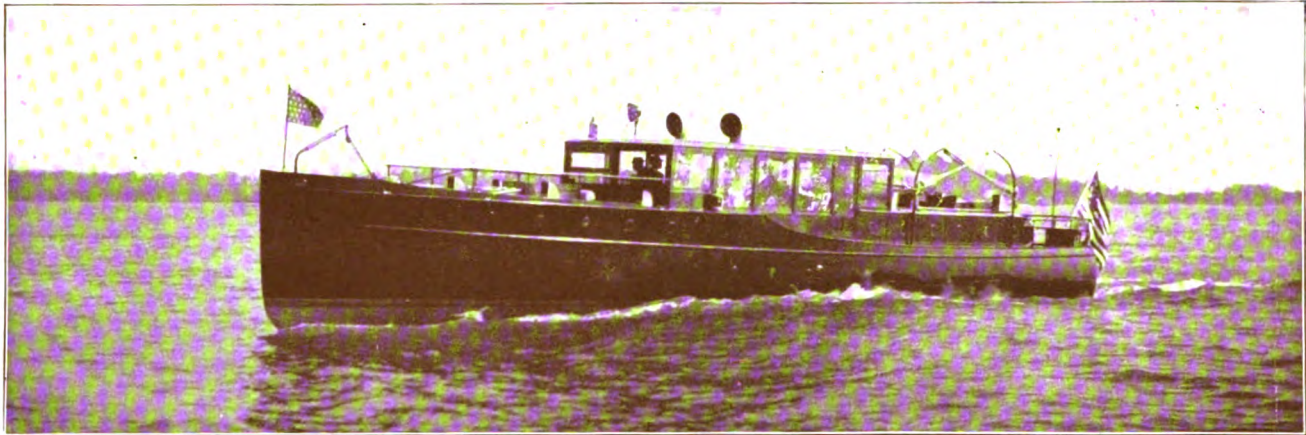
FEBRUARY, 1915

No. 2



PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents



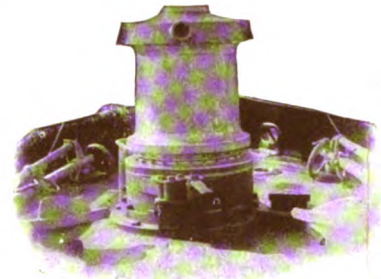
66' x 10½' x 3½' High-Speed Cruiser CELETTY. Speed, 20 miles per hour. Two medium-duty 8-cylinder 5½ x 6¾" STERLING motors installed. Motors equipped with deck controls, electric starters, and built for hard service.

A successful type of boat, that has been becoming more and more popular. The following wire received from the owner, is another demonstration of Matthews' Service.

Am on my way to Florida. The more I see of CELETTY, the more I am pleased with her. She is complete in every detail.

C. S. Cummings,
Delaware City, Del.

The Matthews Boat Co. Cruising Boats of Quality **Port Clinton, O.**



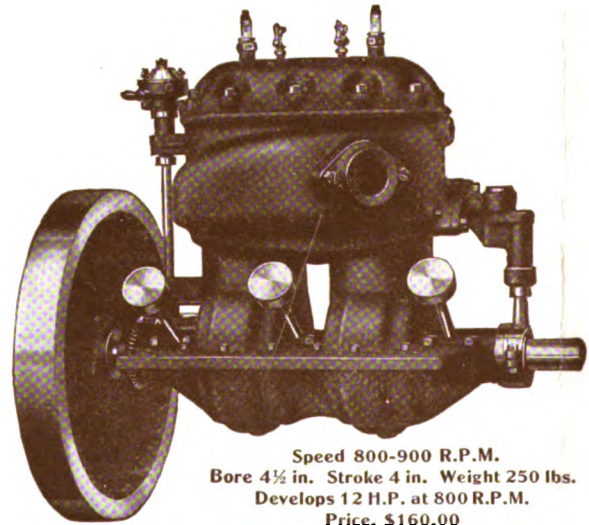
WRITE FOR BULLETINS
THE MATTHEWS
Electric Power Canstun
Electric Power Bilge Pump
Electric Power Air Pump
Electric Power Gasoline Pump
Electric Power Tender Hoist
Exhaust Hot Water Heaters for Motor Boats, 4-cycle
Engines for Small Tenders, Automatic Direct Connected
Light Plants.

The Matchless "Eagle" at a Matchless Price

New 12-H.P. Model 2-O High-Speed En-Bloc Motor

WE WANT you to know us in the same way that other successful dealers know us. We want you to become a part of our large, live organization. It will add to your income and convince you that a good Engine business is profitable, more so today than ever before, because the more engines we build the better they are and more attractive the price.

In the EAGLE line you will find a two-cycle engine for every marine purpose—18 models to choose from, and each type is specially designed to meet the various requirements.



Speed 800-900 R.P.M.
Bore 4½ in. Stroke 4 in. Weight 250 lbs.
Develops 12 H.P. at 800 R.P.M.
Price, \$160.00

1914 "Eagle" 2-O 12-H.P. High-Speed Model

Model 2-O is of the same general design as the 7-H.P. 2-K Model which proved such a sensation in competition during past season. Our tests on the "2-O" model exceeded our expectations as to Horse-Power development. It was designed to develop 12 H.P. at 800 revolutions. The result of tests shows it develops 14 H.P. at 800 revolutions. This model fitted in a 20-ft. boat with square stern and round bottom with 4½ ft. beam drove a three-blade 18x22 in. Hyde Propeller at 830 R.P.M. The boat with engine and two passengers weighed 1,250 pounds.



The Standard Company
Torrington, Conn., U. S. A.

The Rudder

Vol. XXXI

FEBRUARY, 1915

No. 2

RATHER

THERE had been plenty of tough sailing all day, the wind doing its duty on the Nor'east—kicking up a big sea—and the yacht chasing before under close-reefed mainsail and bobbed jib. We were glad to get into shelter behind the Glen Cove breakwater, and let our anchor go. The boys bundled up the sails in short order, and giving her plenty of cable, sought below, where Billy was at work getting supper.

The cabin house leaked right over the table; and, as it happened to rain down right at my favorite spot, when I shook my oilers I took the coat on deck and spread it over where the hole was supposed to be; then we had supper, the big dish being a pan of steamed clams.

After this was over, we put the dishes in a bucket and shoved them out into the cockpit, to let the rain try its hand at dish-washing; and then each man brought out his pipe, and picking out a soft spot, went in for a good smoke.

After a spell of silence, Hank started in to sing, and as we had nothing better to do, we joined in the chorus. In the middle of one of these roars I heard something grind up against the bows.

"Listen! What's that?" I exclaimed.

"Sounds like a boat," answered Billy. "You'd better look out for your oiler—there's a couple of oyster sloops anchored astern of us."

Just as I was getting up to take a look out of the companion, there came a swish-swish along the deck, and the muffled tread of a pair of rubber boots. In a moment or so, one of these entered the opening and landed on the first step. "Why, hullo, Captain Jim," I shouted, when the body that owned it came in sight. "What are you doing over here?"

"Jest a-clammin', Lem, jest a-clammin'. How's y'rself and all the folks? Seen yer comin' in. The Harriet's astern, thar. My, but you've got a nice cabin here—darn if it ain't"—and Captain Jim seated himself on the lower step of the ladder and looked around.

"Yes, it's pretty nice, but the roof leaks like a sieve," I replied, wiping a drop off my nose.

"'Pears to; 'pears to. You had oughter use some of this here bottom paint onto it; it's fust class. I've got it onto the Harriet's, and she ain't leaked a drop since I done it," exclaimed the Captain. "Yer ain't got no ter-backer to spare, have you, Lem?"

"Yes, plenty, Captain Jim; help yourself," and I shoved the box over. The old man helped himself to

a handful, filling his pipe, and then stowing the balance in his pocket.

"How's clammin', Captain Jim?" asked Billy, from his perch up against the bulkhead.

"Fair to middlin', Billy, fair to middlin'. 'Tain't what he used to be. Time was when I've raked twenty bushel a day out this here bay, an' didn't do no day's work, neither."

"Great Scott, Captain Jim, twenty bushel!" exclaimed Billy. "Why, that's a skiff load!"

"Yes, pretty nigh; but clams was thick then. You don't recommember old Ike Scouner, did you, Lem?"

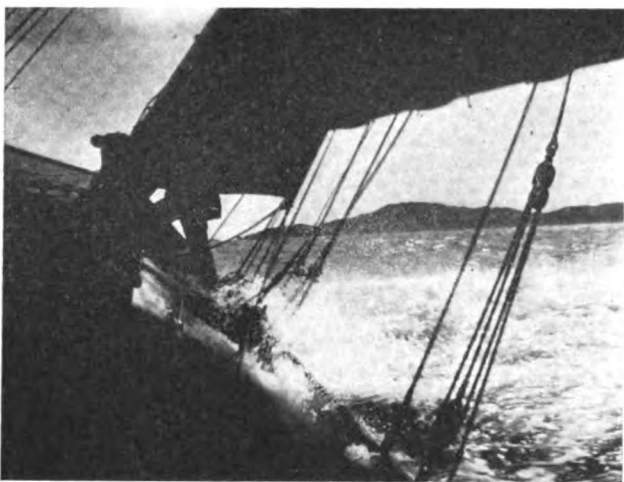
"No, Captain Jim; I guess he was around before my time."

"Yes, 'pears to me her wur. Well, me and old Ike, we went out a-clammin'. Well, Ike, he was a kinder queer old fellow—I never seen nobody 'zackly like him. He was the dundest, meanest old cuss that ever stepped in a boat. When I weren't no older than Billy be, I took a job on a market sloop Ike Scouner run between this here bay and York. There weren't no steamboats, 'cept few, and no steam cars runnin', and all the farm stuff used to be took to York on sloops. We runned twice a week.

"Well, old Ike, he was so durn mean, that he used to salt the stew, so me and the other man what sailed with him couldn't eat too much of it. He wanted to make us thirsty, so we'd fill up on water. He 'lowed a man could live on water—though I'll take my oath I never seen him touch it hisself. One day we come out from Roslyn—we use t' land up thar by the mill—and sailed out with a fair wind. Thar weren't no fog in the bay; but, my, when we got by the Old Hen, weren't it thick. Them days there weren't no light onto Execution Reef, but old Ike could go anywheres, no matter how thick it be. He knew this here Sound just the same as you know yer own house.

"'Better anchor, Cap'n Ike,' says Noch Smith, the other man, when he see it shet down so close. 'Anchor be d—', says Cap'n Ike. 'Jim,' he yells, 'jump up and shake our the tops'l; I ain't afraid of no fog, I ain't,' he says.

"Well, I went up the riggin', and when I gets up to the eyes on it, I'll be durned if I could see the deck, that fog was that thick." Here Billy in the corner sighed, and Captain Jim filled a fresh pipe, and then went on:



There Had Been Plenty of Tough Sailing that Day

"Well, when I cast off the lashings, I yelled to Noch to h'ist away, and he done it, and I came down on deck. Cap'n Ike was helpin' Noch to haul out the sheet, but it 'peared to be foul somewheres.

"Let go them halyards,' again says Cap'n Ike. I done it, but the sheet wouldn't budge.

"It's stuck in the sheave,' says Noch. 'Get out on the gaft, Jim, and shake it loose.'

"Well, I went aloft and straddled the gaft. It was slippery as an old tide log, and just as I got her loose I lost my holt and fell off. I gave a yell, and thought sure I'd be killed, but as I sit here, Lem, I come down on deck just as slow and easy and landed on my feet without a jolt—the fog was that thick yer couldn't fall through it. I sailed down through it just the same as a tin plate goes to the bottom when you drop it overboard," and Captain Jim explained with his hand how he'd zigzagged down.

"Captain Jim?" said Billy, after a moment's silence.

"Well, Billy?"

"Will you have a drink of real good whiskey?"

"Ain't too much botherin' of yer, Billy, I will. I ain't takin' much, now—'cept a little for the agey. Now, this here doctor up to Roslyn—I disremember the name—told me—"

"But how about the fog, Captain Jim?" I interrupted, passing over the glass.

"Oh, I was telling you that. Pretty good stuff, Billy. Well, when I came down on deck, too easy-like, neither Cap'n Ike nor Noch see me, and they was thinkin' I'd gone overboard. I was standin' right by the mast and heard them talkin' about it. Noch was for puttin' over the boat and lookin' for me, but Cap'n Ike 'lowed it weren't no use; best let me swim ashore. Then I come up on 'em.

"What in h—I was yer yellin' for?" shouted old Ike. 'Me and Noch thought yer was overboard.'

"Fell off the gaft,' I says.

"Fell off the gaft? Where to?' says they both to one'st.

"Right onter the deck,' says I.

"You're a liar, Jim,' says Cap'n Ike.

"All right,' says I, and then I told him 'bout comin' down. Then Noch he dared me I dursn't do it again, an' I done it. Then Noch he went up and done it. The fog was getting thicker, and it took him 'most a minute

to fall down. Old Ike, he seen us do it 'most a dozen times, then he says:

"Gosh, I never seen no fog thick as this before, 'cept one'st, when the old Amanada got stuck into it at the Gate. Guess I'll go up and try how it feels to slide down. Here, Jim, you take the tiller an' keep her the way she's goin'.' So old Ike he climbs aloft, and after a yellin' to us to look out and catch him, lets go his hold. We couldn't see nothin', of course, the fog bein' so thick, but he was built with a pretty full starn, an' so, 'stead o' comin' down as me an' Noch did, he stuck fast, an' couldn't move, until he kicked the fog in under him away. Then he come down, little by little. Fust we seen o' him was his legs a-danglin' down, by the second reef p'int. He was a-cussin' an' kickin' like a mule mired in the swamp.

"Noch, he yelled to him to take hold of the p'int an' pull hissself down. Just as he done this the sloop run clear out o' the fog bank, an' old Ike come down with a run, an' bumped starn fust, right on top o' the cabin house.

"This here roof o' yourn leaking made me think on it, Lem. Well, I guess I'd better be gettin'," and Captain Jim arose from the step and made ready to depart.

"Have another drink, Captain Jim?" I asked.

The old man took it, and then after a good-night all round, went up the companion, and in a few moments we heard the tick-tick of his oars astern.

After some minutes of silence I went out on deck and took a look round, gave her a little more cable, kicked the dinghy away from the overhang, and then went below.

Billy and Hank had turned in, and I quickly followed, after dousing the glim.

"Lem?" came Billy's voice out of the darkness on the port side.

"Well, what is it, Billy?" I inquired.

"Don't you think your old friend, Captain Jim, is something of a liar?"



I Gave Her a Little More Cable

SIMPLE NAVIGATION

SECOND LESSON

FIRST provide yourself with a pair of drawing compasses or pair of dividers, a parallel rule, a dumb compass card and a chart of some local water. These things you can obtain from Negus, 140 Water Street, New York City. This firm also makes a protractor which you will find useful and convenient.

I want you to take the drawing compass and describe on a sheet of paper a circle having a diameter of six inches, each inch to represent a mile. In the exact center of this, place a small circle or something to represent a tower. The outer edge of this circle make a double line representing a road or track; this track will be approximately 20 miles around and lie at every point 3 miles from the tower. At the upper center of the edge of the circle place a mark N, this is the North point and from it the tower bears South.

Facing the tower, compass in hand, you begin to walk around the circle towards the left, after walking a certain time look at your compass and take the bearing of the tower. You find it bears South-West. Consequently you have walked four points of the compass, one-eighth of the circle, or two and one-half miles. Continuing your walk until the tower bears West or eight points from the starting point, how far have you walked? Then going on further it bears North, and you know you are halfway around the circle. When it bears East you are three-quarters of the distance or 15 miles.

Now let us reverse this. You take your stand at the top of the tower, and I, carrying a large flag, will walk around the circular track. By watching your compass and taking the position of my flag from time to time you can tell just how many miles I have covered and where I am standing at any time.

Having navigated on land, let us take to the water, embarking with our compass and other apparatus. In the first place we must admit that there is no such thing as an absolutely flat plain on the face of the earth, nor is there such a thing as a straight line. The surface of all plains are convex and all straight lines are segments of circles, but for our purpose, earth

surfaces are absolutely flat and lines are absolutely straight.

So that the portion of the earth surface consisting of water bordered by land upon which we are about to embark is an absolutely flat disc, and it is to the sight circular. The width of this circle depends upon the height from which we view it. The higher our eye, the greater the circle.

From the deck of an ordinary sized yacht, a man standing can see about five miles on every side. If he climb the mast he can see further, and if he continue to climb, at a certain height an observer could see one-half the world, just as we see one-half of the moon. At the edge of this circle, the water or land appears to touch the sky. This line where the sky and water appear to meet is called the horizon.

Plate 1 shows a vessel in the center of such a circle. The horizon surrounding her is at a distance of five miles or ten from one side to the other. Now if this vessel remain stationary, the horizon will remain the same, and an observer on her would continue to see the same space of water, but if she moved in any direction it would instantly change, and the observer would see a fresh space in the direction in which she moved and fail to see all that he had seen previously in the direction from which she moved.

In Plate 2 the vessel has moved from circle *A*, ten miles into circle *B*, and her surroundings are new. The space of water which the observer viewed when at *A*

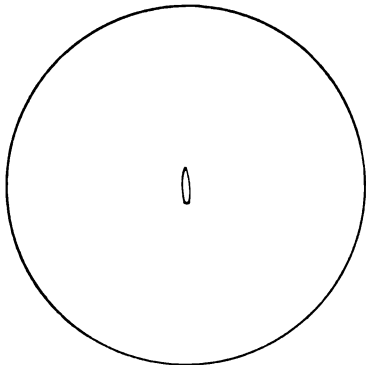


Plate 1

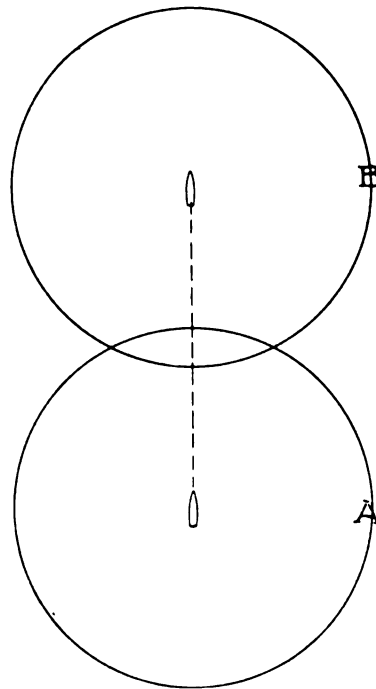
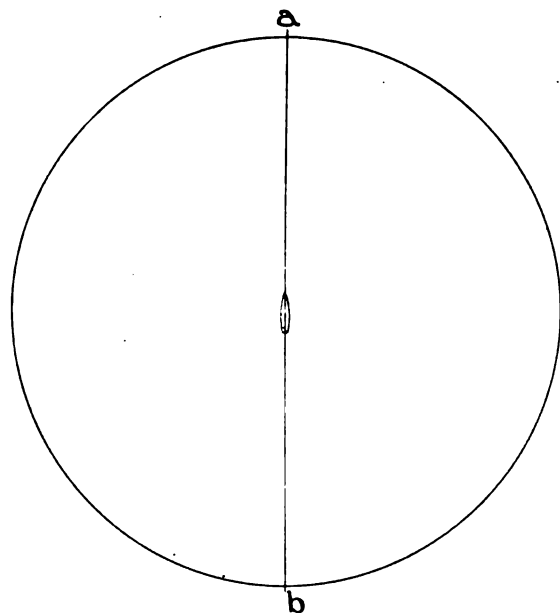
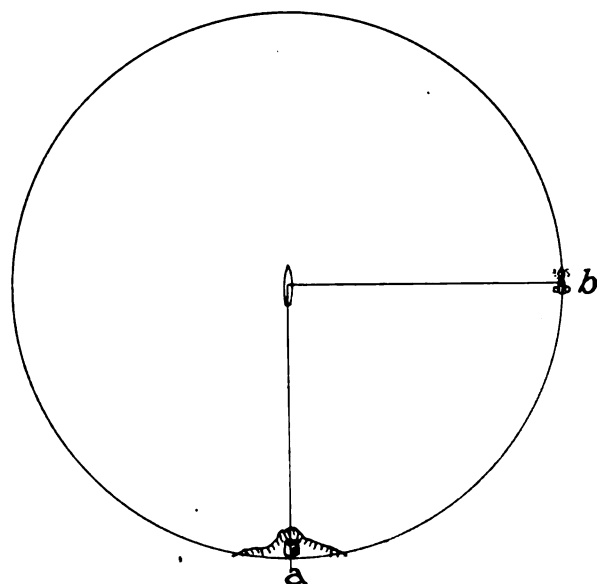


Plate 2



No. 3



No. 5

is below the horizon and he cannot see it. This is owing to the curvature of the earth's surface cutting off the view.

If a vessel be centered in such a circle of water and no stationary object is in sight and the heavenly orbs are invisible, it would be impossible for an observer to tell in which direction his vessel was moving, but as we are going to navigate where objects are in sight, it is necessary that we understand the method of employing them, so as to tell in which direction the vessel is moving, and where she is situated at any time.

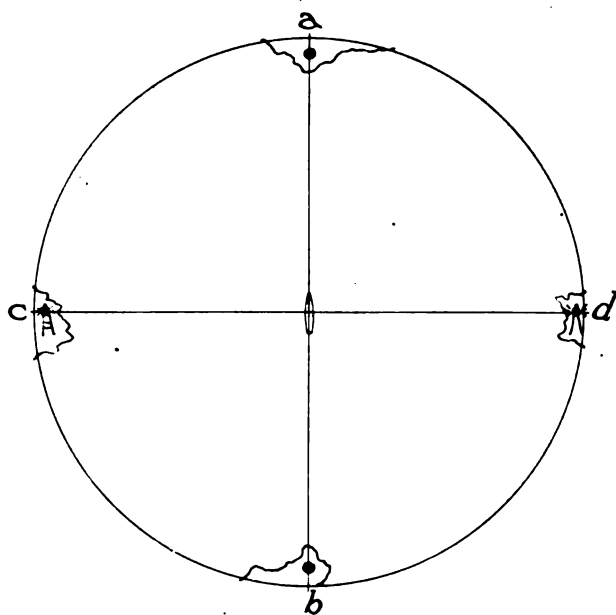
Take diagram No. 3; here we have a space of water with a vessel in the center. Her navigator knows she is somewhere between *A* and *B*, but whereabouts? He takes the bearing of *A* and finds it bears North and that *B* bears South. In diagram No. 4 he has also taken the bearings of *D* and *C*. He finds *D* bears East and *C* bears West. Drawing these two lines on his chart he

knows that where they cross must be the position of his vessel.

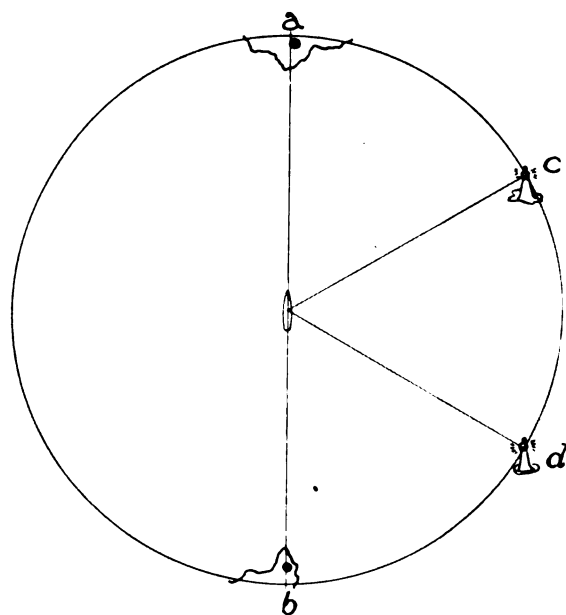
Because from no other spot on the earth's surface can those four objects, *A*, *B*, *C* and *D*, bear North, South, East and West.

But unfortunately for the navigator, he is seldom so situated as to have four objects to take the bearings of. Sometimes he has only two or one. This of course makes the finding of his vessel's position more difficult. In diagram No. 5 he has two objects, one bearing South and one bearing East. In diagram No. 6 he has four objects, but only two are really necessary.

In Plate 7 we have a channel or water passage between two bodies of land. The vessel *A* is sailing along the middle of the channel and her navigator can see from his deck five miles on every side. This permits of his seeing land. He can plainly distinguish the two points, one to port and one to starboard. Ahead and astern he can see nothing but water. After sailing ahead for



No. 4



No. 6

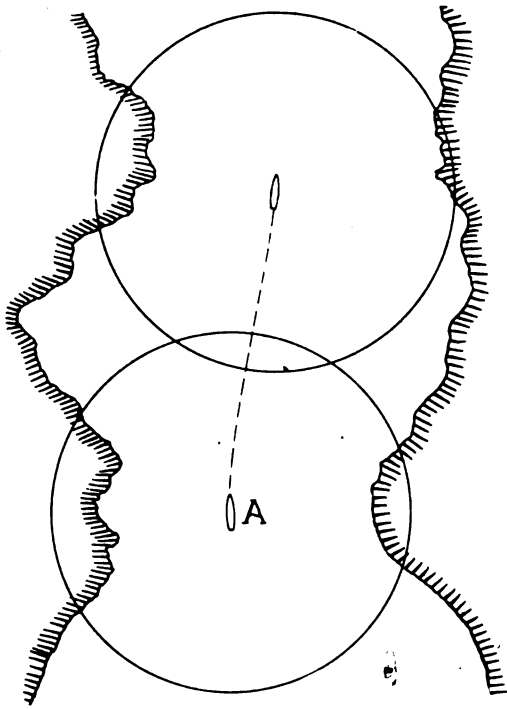


Plate 7

12 miles he sees another portion of the land. On one side a bold headland, on the other side just a glimpse of the higher points of the shore. In order to know that he is proceeding in the right direction, and in safe water, it is necessary for him to keep posted as to the exact position of his vessel. To do this he must make out what these points of land are. For this purpose he has a map or chart as it is called by seamen.

On these charts for the proper guidance of the mariner, the shore line is depicted, and all prominent objects like hills, headlands, towers, lighthouses, etc. are shown. While a part of one shore may look like a part of another there is never exactly the same combination of natural objects, but even if there is a close resemblance, it will always be easy to locate the particular place by the presence of artificial objects.

It is for this purpose and in order not to confuse the navigator, that lighthouse towers are painted differently, and at night show various lights. The shores most likely to be mistaken are those of a low sandy nature, such as the beaches along certain parts of our coast, and great care should for this reason be exercised when approaching them.

Let us suppose that a vessel is moving in a channel as shown in Plate 8. The land on either side is visible, also, the high point *D* astern. The navigator looking on his chart sees that on Cape *A* there is a lighthouse; there is also a lighthouse on the island *B*. As he can see both of these towers he knows that his vessel is in the channel somewhere between *A* and *B*. But where?

If he possesses a finely trained eye such as many seamen have, he can gauge the distance by observation, but if he wants to know exactly his position he must find two other objects, one ahead and one astern. He can see the point *D* and let us suppose that the island *C* is very high, and that he can see that also. Then he would know that his vessel is on a line between *C* and *D*; as she is also on a line between *A* and *B* she must be where the two lines cross. Taking the chart he draws a straight line con-

necting *C* and *D*, and *A* and *B*. Where these lines cross is his vessel's position.

For if the vessel move ahead she will no longer be on the line between *A* and *B*. By this it will be seen that navigating in such waters where objects are constantly visible on all sides is very simple as no compass is needed, the only necessary instrument being a chart, ruler and pencil.

It is seldom that the navigator is so favorably placed; more often he is situated as shown in Plate 9. Here he has the land on one side only. Consequently he must use his compass and take bearings of the different objects. We also see by this diagram that he has two horizons. The one on the land being a greater distance than the one out to sea. This is owing to the height of the shore enabling him to see objects at a greater distance.

On Plate 10 his vessel is passing along shore or coasting as it is called, and has arrived at a spot where he can see two towers, *A* and *B*. Now it will be seen that she is not directly between these towers, but offshore so that they lie at an angle to the course he is pursuing. Consequently he cannot—as he did on Plate 8—draw a straight line between them. So he has to find at what angle they bear from his vessel. How is he to find this angle? With his compass card, which is a simple device for measuring angles, being itself a combination of angles.

We will suppose his vessel is heading due North. Standing in the middle of his compass he looks towards the edge of the card, and opposite to the mark N. W. or N. 45° West, he sees the tower *A*. Then turning somewhere astern he looks towards the edge of the card, and where it is marked S. W. or S. 45° West he sees the tower *B*. The navigator now has the bearings of these two objects.

A bears N. W. or N. 45° W.

B bears S. W. or S. 45° W.

With these two bearings the navigator goes below and

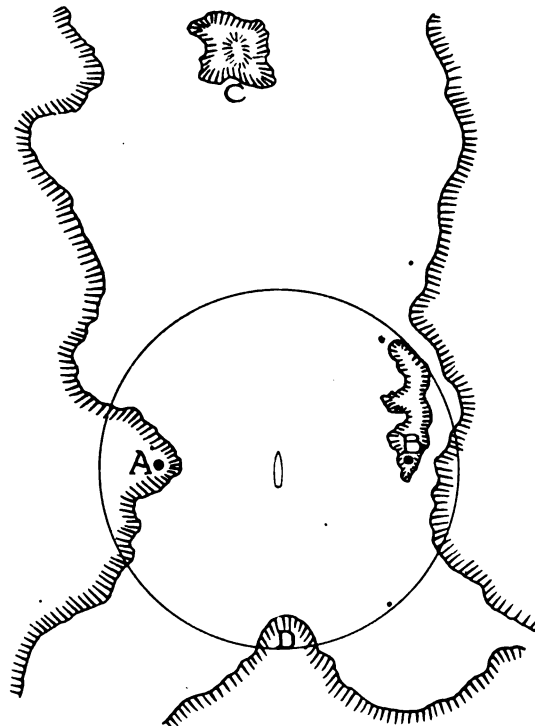


Plate 8

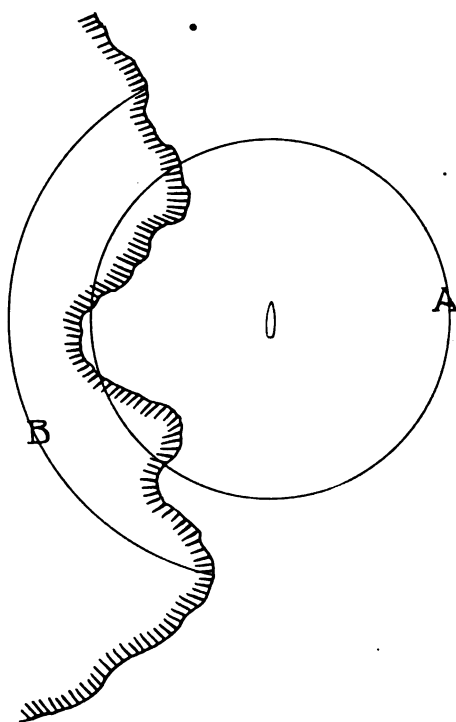


Plate 9

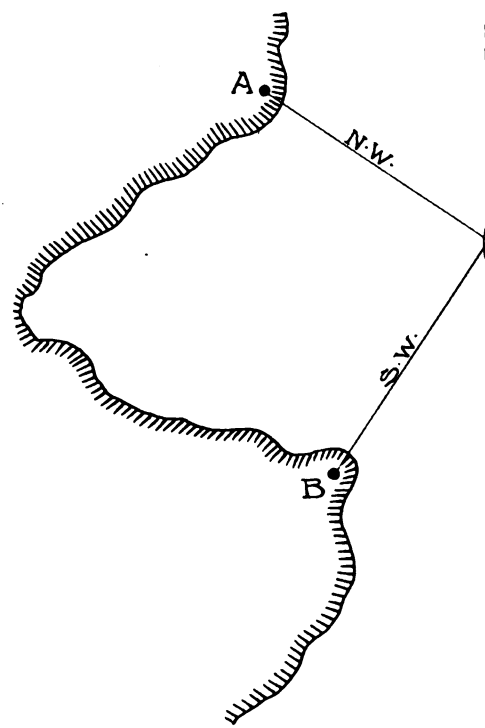


Plate 10

taking the chart and ruler, proceeds to draw two lines. One from the tower *A* running S. E. and N. W. and one from the tower *B* running N. E. and S. W. Extending these lines far enough, they intersect. The point of intersection is the position of the vessel's compass when the bearings were taken. It will be seen that the vessel cannot be at any other spot providing the bearings were taken accurately and the lines carefully drawn.

If you want to learn don't read this over and then drop it. Get a chart of some Sound, Strait, Lake, or any water whose fairway is not too wide. Lay this chart flat on a large table. Cut out a small cardboard shape

of a boat. Move this boat about on the chart, and with a compass (dumb card) take the bearings of the different objects shown on the chart. You will find on the chart what is called a *Compass Rose*. This is the representation of a compass card printed on the chart. You can use this to correctly set your Dumb Card. Negus makes what is called a *Protractor*. This is a dumb card made of a transparent material which you will find exceedingly useful, both in studying navigation and practicing it. By using this you can do away with the rose and the rulers when navigating, but when learning on a chart on a table, I advise using the rose and the rulers.

(To be Continued)



IN THE WAR ZONE

IN the past Summer I have made again my yearly trip with my yacht *Kromhout VIII*, and this time we went to the Northern waters, accompanied by the usual "amateur" crew, among whom, as you probably remember, the well-known Amsterdam painter, Mr. E. M. Eden, is found as a rule.

During the trip to Gothenburg we had to struggle with exceptionally bad weather and the *Kromhout VIII* proved again her marvelous qualities as a seaworthy motor boat. Mr. Eden made a painting of the ship in a strong headsea, a photo of which I beg to send you under separate cover.

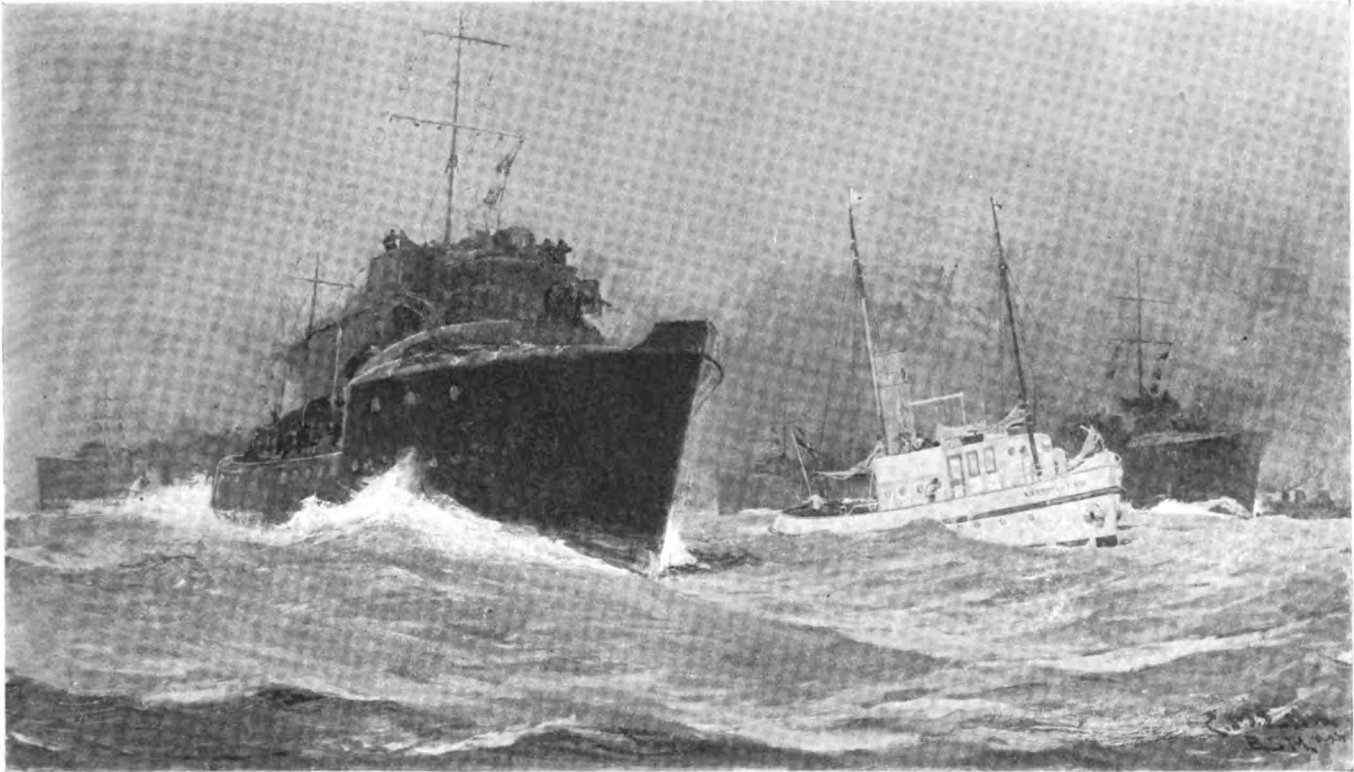
During our most interesting voyage through the Göta-canal, we were surprised by the sudden outbreak of the European War, and I made haste to return to Holland in order to be near my affairs in the prevailing serious circumstances, whereas I left my boat to the care of part of the crew in Sweden.

However, as in the beginning of September there was not yet the least prospect of a soon ending of the war,

I resolved, in view of the great difficulties connected in laying up the *Kromhout VIII*, during the whole Winter in Sweden, to take her back and I left Amsterdam on the 4th of September per steamer *James J. Dickson*, for Gothenburg, where the *Kromhout VIII* awaited my arrival. I embarked immediately and the following morning we left for the Limfjord, which we entered after a very stormy passage.

On the 8th we left the West entrance of the Limfjord to cross the North Sea. When parting the pilot gave us the hopeful information that all the water from there unto the Dutch territorial waters was covered with floating mines. Nevertheless, we proceeded, although much annoyed about what might happen.

We were just thinking that the dangers of bad weather, floating mines and meetings with men-of-war were passed, when on Thursday, September 10th, at 8 o'clock a. m., ship's position, long. $6^{\circ} 3'$, lat. $64^{\circ} 4'$, steering S.W. $\frac{1}{4}$ W. magn. for the entrance of the *Zuiderzee* between *Terschelling* and *Vlieland*, I saw a four-funnel



Kromhout VIII Hailed by British Torpedo-Boat Destroyers in the North Sea

cruiser at the port side aft giving a signal. Although we were flying the neutral flag of Holland, we did not feel quite happy at this sight; a shot is soon fired nowadays and 50 continual hours on the bridge had taken our nerves a bit away. In a moment, it was a bit foggy, we were between many destroyers of the British fleet, one of them, the Linnet, came quite close and her officers and crew watched us carefully, several guns directed towards us.

I cannot help saying that I did not enjoy this moment very much.

I had a document from the British and German Consuls in Amsterdam, stating who I was and for what reason I was crossing the North Sea under the present circumstances and had the said papers ready to show, but nobody asked us and in less than 10 minutes the fleet was out of sight in Westerly direction. When they

were out of sight, we all recognized that neither the war ships nor we had said a word and that we had quite forgotten to dip the ensign. My friend, Mr. Eden, made an excellent painting also of the moment we were between the destroyers and I add a copy of same to the photo already mentioned, which may interest you perhaps sufficiently to be reproduced in your magazine.

We have a very bad time here. Every paper announces new losses of lives in West and East Europe. Trade is practically stopped even in this neutral country. Hundred thousands of Belgians, amounting to 10% of Holland population, are residing here, the greater part of them absolutely without means of living, making everything more difficult where we ourselves have so many unemployed.

May peace soon come.

D. GOEDKOOP, JR.



Sutter Basin, a Pacific Coast Monoplane. Power 6-Cylinder 5½ In. x 6 In. 45-75-H.P. Sterling Engine. Speed 31 Miles per Hour. Mr Silva Owner

CRUISER FOR THE WEST COAST OF SOUTH AMERICA

THE General Castilla was built for the President of the Republic of Peru. This boat is of the raised deck cruiser type, 42 feet over all, 9 feet 6 inches breadth, 3 feet draught. She is equipped with a four-cylinder, four-cycle Speedway, of 38-48-h.p., which gives her a speed of 12 miles per hour.

The boat was shipped on the steamship Crofton Hall, of the New York and South American Line, sailing from New York.

This boat is lashed securely to a heavy cradle, and crated over completely for protection in shipment while en route on the long voyage from New York to Peru. It will be stowed in the hold of the steamer.

In order to protect the boat thoroughly for the long trip around through the Straits of Magellan, it was necessary to crate the boat and build the crate substantially, so that the boat could be loaded through the hatch of the steamer. The hatch is 35 feet 6 inches long by 14 feet wide. To get this large crate, which we believe is the largest crate of this kind ever built on a boat, through the hatch it was necessary to lower it into the hatch at an angle of 45°, so the strength necessary for the

crate can be readily appreciated. This boat in the crate weighed in the neighborhood of ten to twelve tons.

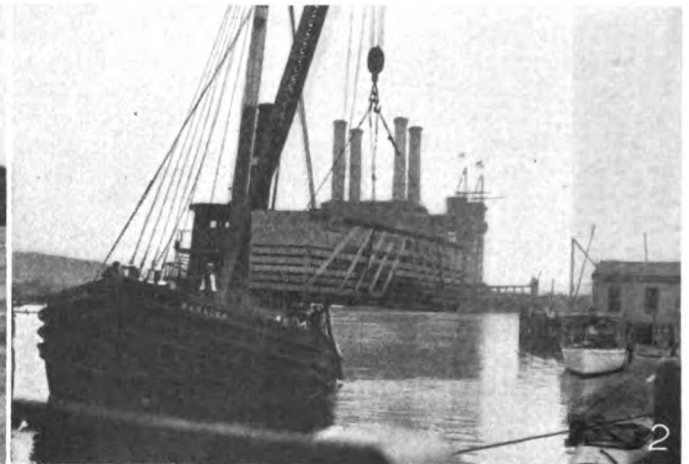
Photograph No. 1 shows the boat in commission and underway.

Photograph No. 2, the boat being packed up at the Works, Morris Heights, aboard the steam lighter, Manager.

Photograph No. 3 shows the boat lifted in the slings of the lighter, at an angle required to put it in the steamer's hatch.


Photograph No. 4 shows the crate going down through the hatch at the angle required. The dimensions of the crate are: length 43 feet, width 10 feet 6 inches, height 10 feet 4 inches.

This boat was designed by the Gas Engine & Power Company, and Charles L. Seabury & Company, of New York City, and is the fourth boat of this type built by this company. The other three were built for well-known yachtsmen,—Vagabond, for Mrs. J. C. Campbell; Spray, for Mr. Henry B. Joy, and Tsana III, for Mr. H. W. Worden, who now has the boat in use in the inland waters of France.



The General Castilla on Her Trial Trip and Being Shipped to South America

MODERN MARINE MOTORS



by
T. ORCHARD LISLE, A.M.I.MAR.E

WANTED

A NEW INTERNATIONAL MOTOR-BOAT RACING AUTHORITY

IN the past a few feeble attempts have been made to form a central organization to control international motor-boat racing, but nothing really successful has been done, and there is not the slightest doubt but that a stage has been reached at which it is highly desirable to form a new International motor-boat racing authority for the formation and control of rules that shall be recognized and adhered to by associations and clubs of all countries concerned, so far as international events are concerned.

At present there are only two International concerns, namely, the "Association International of Yachting and Automobiling," which confines itself principally to the annual Monaco meeting, and the International Committee, which handles the B. I. Trophy Races. The rules made by the former are in many ways somewhat obsolete, and in addition to allowing cash prizes, which clashes with the attitude of most American clubs, and the A. P. B. A., are not suitable for general adoption. The International Committee is composed of a representative from the Royal Motor Yacht Club of England, the Motor Boat Club of America, the Automobile Club of France and the Kaiserlicher Yacht Club, and does not concern itself with anything outside of the B. I. Trophy event each year.

What is wanted to promote International racing is an experienced association who can use the knowledge and judgment derived from extensive racing in forming a series of new rules, and it should be known as "The

International Amateur Motor-Boat Racing Association." It should be composed of three representatives from each of the following countries:—England, America, Germany, France, and one from both Canada and Australia. The principal motor boating countries are thus covered. Other countries could be admitted at the discretion of the committee.

In order to make the Association really representative of each country, the three delegates from each should be selected from the leading clubs. For instance, the American section could be composed of a member of the American Power Boat Association, the Motor Boat Club of America and the New York Yacht Club.

England, for instance, would be represented by members of the Royal Motor Yacht Club, the British Motor Boat Club and the Scottish Marine Motor Club, while Germany would appoint members of the German Motor Yacht Association, the Kaiserlicher Motor Yacht Club and the German Motor Boat Club. The same idea would be carried out by France, Canada and Australia.

In order that the sport may be commenced as soon as the war is over, endeavors should at once be made to communicate with the clubs concerned, and if possible arrange a meeting in New York at an early date. New York could be the temporary, or even permanent, headquarters, and is especially suitable now as America is strictly neutral. Who will make the first move?



CAUSE AND REMEDIES FOR SLACK BUSINESS

SOME SIDELIGHTS ON THE PRESENT POSITION—TWO MILLION DOLLARS' WORTH OF OVERSEAS BUSINESS

A PUBLICATION dealing with a definite sport such as motor boating and motor yachting, or the industries connected therein, is always in a better position to

become acquainted with the state of business, so far as that particular trade is concerned, than is any individual manufacturing firm. Some engine manufacturing con-



Gretchen, Mr. E. F. Dold and Nosidda, Mr. Addison T. Vars, Two Fast Sterling-Engined Runabouts on the Niagara River at Buffalo

cerns or builders are apt to judge business conditions in general by the state of their own order books, regardless of good publicity, and view affairs in a pessimistic or optimistical attitude accordingly, which perhaps one can well understand, whereas a magazine like THE RUDDER is in closer touch with what everyone is doing, both users and makers, and so is able to view the situation from quite a different and broader standpoint. Hence, it is that, helped to a great extent by the unique worldwide circulation of THE RUDDER, we are more in the position to indicate where and in what manner orders are to be obtained.

Not for one moment will we deny that in the engine, boat and accessory market business of late has been otherwise than busy, particularly in orders from foreign parts, but there is a cause and a remedy for this. The initial cause was, of course, the war in Europe, but this reason, owing to a mild panic, was allowed to have too much influence from the start, not only in the motor-boat industry, but in nearly all industries, including users who suspended their orders. In the motor-boat trade, many manufacturers, in the endeavor to reduce overhead expenses, cut off, or temporarily destroyed their "business-gauge-glass" within one week of declaration of war, and some of these are still without this valuable indicator. By this we mean their advertisements in foreign publications, and in American magazines that pay special attention to readers abroad. Such are the manufacturers' main means of really judging business conditions in places thousands of miles away; yet at one hasty sweep, this was self-destroyed, to of course, the advantage of British traders who apparently were not dismayed by the war.

Far better had any radical step like this been done, say, two months after the war, and even then only with careful discrimination. The damage now done had best be rectified at the earliest possible moment and there is no better medium than THE RUDDER for the purpose. Those firms who wisely waited for the war and business to become more settled before interfering with their own carefully prepared previous policy, are now reaping a reward in the shape of substantial orders from abroad, including some from owners in the belligerent nations, which orders had been temporarily suspended, and we could cite several instances, one of which was given on page 24 of our January issue. It should be borne in mind that apart from producing orders that otherwise may not exist, discriminate advertising forms an indispensable gauge for following the rise and fall of business, and it is as necessary to the manufacturers as is a gauge to the engineer for watching the rise and fall of steam pressure. Cut out either and disaster will surely follow. From reports and enquiries received, motor boat and engine business in Australia, South Africa, etc., is much more flourishing than it is in this country, so until things are rosier at home, it is up to Americans to make sure of getting the orders through recognized good mediums, such as THE RUDDER. But how can the buyer in Timbuctoo be expected to know about the engine made in Buffalo unless it is advertised where he can see it.

What needs most careful reflection is that during all this slack period the Diesel engine has made headway—not furiously, but steadily, particularly in America. One domestic firm not long established, have on order, apart from much U. S. Naval work, over 70 four-cycle type *marine* motors of from 180-h.p. to 240-b.h.p.,

including a four-cylinder engine of 200-240-b.h.p. for the Pacific Towboat Company, of Seattle. During the few years this concern has been in operation they have built, or are building on order a total of 40,000-h.p.—a record that few old established gasoline engine concerns could show. This would tend to illustrate that quite a new industry is springing up, otherwise the war-slump in gasoline motors would also have meant a corresponding slump in Diesel engines. We, and other journals, have been accused of unduly boosting Diesel engines, but this is a paralogism and is entirely unwarranted, as, with our contemporaries, we have merely recorded a certain amount of progress that has been made in America and overseas with a type of internal-combustion engine that, by the way, tends to oust steam machinery for the propulsion of large yachts, unless a new and improved propulsive power is discovered.

At the present time, or in the near future, the reversible Diesel engine need not seriously be regarded as a competitor of the average sized gasoline marine motor, but a rival only in the highest powers (which cases are exceptional) for it cannot, as yet, be economically manufactured in small sizes, that is to say, at a sufficiently low cost for it to compete on price with kerosene, gasoline or hot-bulb motors, as the smaller the Diesel the higher the price per horsepower becomes. But it would not be fair to the annals of internal-combustion engineering, or to the memory of a famous inventor, to omit to record on paper some of the remarkable developments and progress that is taking place with that class of power. It is the hot-bulb engine of 6 to 200-h.p. that the gasoline engine maker has to watch carefully, for it is a most formidable competitor, especially in commercial boat circles. The hot-bulb engine is even challenging the Diesel engine in powers up to 500-h.p. on both the East and West coasts.

At the same time the fact that there would seem to be plenty of orders available in new fields for four-stroke Diesel engines of 150-h.p. and up—cases where steam would otherwise be fitted—the present time apparently would be an opportune one for some more of our leading gasoline engine builders to turn their attention to its manufacture as a sideline. Only two tenders were received for the recent large submarine engine appropriation by the Navy Department, and it seems that many more sets will soon be asked for. It seems likely, too, that most big ocean-going liners, and coastal passenger ships will follow the lead of the "Orduna," "Transylvania," etc., and have auxiliary Diesel-driven emergency lighting and wireless sets installed on their boat-decks. Apparently here are chances for business, and the success, or failure, of those who already have started can be made use of so far as the types and construction are concerned. These are merely suggestions offered in good faith.

To return to the former subject: there is one all-important matter and that is—are American marine motor manufacturers going to let the overseas business, for which they and THE RUDDER have been working hard for years, slip out of their hands without a struggle? Our marine gasoline engine and motor-boat exports for the year ending June, 1914, were valued at over two million dollars, or to be exact, \$2,108,948.00. If this is lost, years of work will be necessary to regain it.



CELERITY

A HIGH-SPEED CRUISER OF UNUSUAL DESIGN

FOR a high-speed motor yacht it will be at once realized that the Celerity, which is illustrated on this page, is a vessel in which many novel and unusual features are incorporated. In the first place, she has a large glass-enclosed deck amidship, secondly, she possesses well over the freeboard customary with a boat of her length, and thirdly, her speed makes her of outstanding interest.

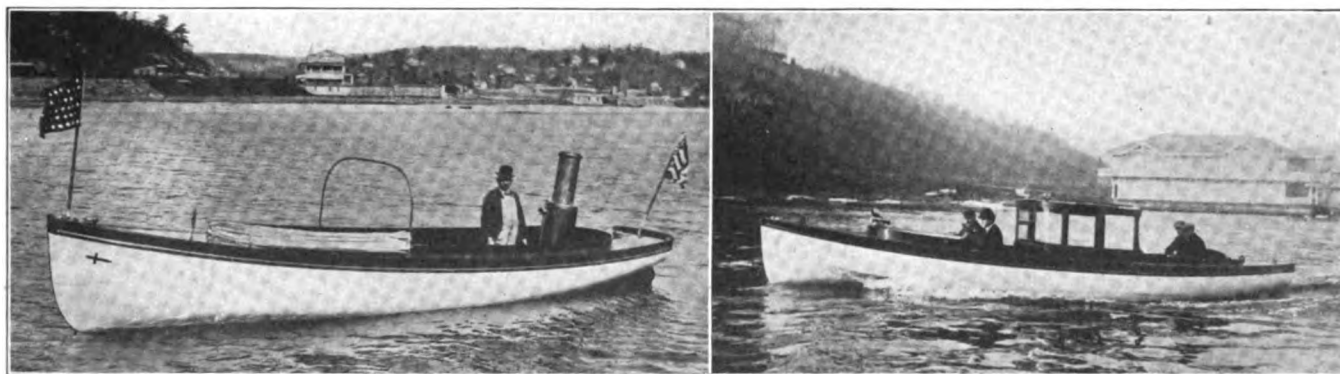
From experience in the South, her owner, Mr. C. S. Cummings, of St. Louis and Atlantic City, found that the greatest drawback to the usual Florida cruiser is that at times sitting on deck is very uncomfortable on account of the evening chill, and in wet weather it is practically necessary to stay below deck. The idea of the enclosed deck was taken from the Shadow, a yacht previously built by The Matthews Company. The windows are all of the drop or hinge type, so that plenty of ventilation can be had when desired. The helmsman and members of the owner's party are entirely sheltered in case of rough weather, and with practically no danger from the windows being broken on account of heavy seas, special weather cloths being provided for this purpose.

Her length is 66 feet by 10½ feet breadth, with 3½ feet draught, and she is equipped with two specially-built eight-cylinder 5½ inches by 6¾ inches Sterling gasolene engines of 110-h.p., turning at 800 r.p.m., this power

giving the Celerity a speed of 20 m.p.h. By turning the motors faster, as in the case of the Eleanore, a craft of similar dimensions, this speed could, of course, have been exceeded, but this was not required.

She was delivered in November last, and on the cruise to Florida, there were many opportunities of testing her seaworthy qualities, and her owner is said to be convinced that the type is thoroughly practical and safe. Regarding her accommodation, this was laid out in accordance with Mr. Cumming's ideas, and as the space in the various compartments is rather restricted, it was found necessary to use much ingenuity to make everything accessible and easily handled, thus some features of the layout are quite new.

As is the case with other recent Matthews craft, considerable electrical equipment is used on the Celerity, and both the propelling engines are fitted with electric self-starters, while an automatic electrical-driven pump charges the 450-gallon gravity-feed fuel tank from the 750-gallon tank under the after deck. In addition there is an electric lighting plant, and a bilge pump. Throughout the entire boat every care has been taken to make her most comfortable for cruising purposes, and she is a class of yacht that her owner may well be proud of, and is an example of the Matthews-Sterling combination.



BEFORE AND AFTER

QUITE an interesting and clever conversion has just been made with the old naphtha launch of the steam yacht Nirvana owned by ex-Senator Nelson W. Aldrich, by the Gas Engine & Power Company and Chas. L. Seabury & Co., of Morris Heights, New York City. This little boat was built by them in 1902, and some years ago had the naphtha engine removed and replaced with a two-cycle motor, but the hull was not changed. However, she was recently sent to the above yard to be reconstructed and equipped with a modern four-cycle Speedway engine, because the Nirvana is leaving for Southern waters, and it was not possible to build a regular 35-foot Speedway power tender in so short a period.

The tender recently left the builder's yard a new

boat to all appearances, as the illustration shows. In place of the old 6 to 7-mile open naphtha launch, we have a 13 to 14-mile up-to-date yacht tender. The engine is installed under hinged covers forward, and there is an independent steersman's cockpit forward of an enclosed passenger cockpit that has plate-glass windows and there is a crew's cockpit aft. The change is remarkable; the launch went into the shop a 1902 model, and left a month later, a strictly 1915 model, a new bow, a new arrangement, a glass cabin and a new stern having been added. Few people realize just what is possible in remodeling and reconstruction of boats until they see an example of this kind.

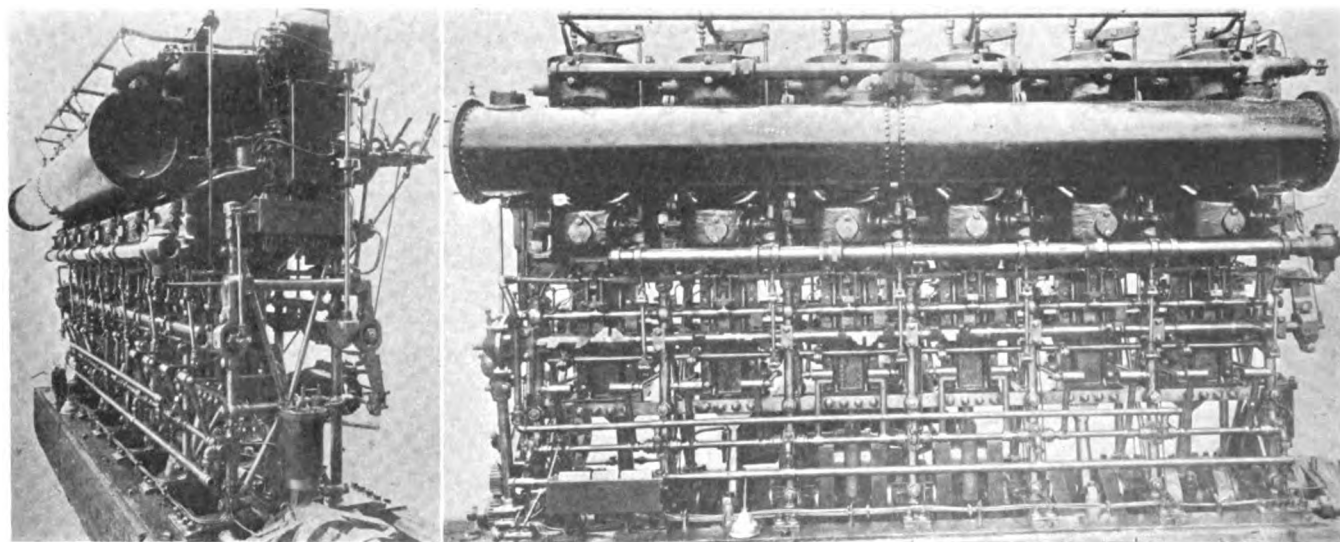
YACHT ENGINES OF HIGH POWER

A DOUBLE-ACTING AND REVERSIBLE GASOLENE MOTOR OF 500-B.H.P.

IT is possible at the present day to have a gasolene-equipped twin-screw yacht of 1,000-h.p., or 500-b.h.p. per shaft, equivalent to about 1,250-i.h.p., for a steam plant, and this is not generally known, although it is fairly common knowledge that yachts of over that power have heavy-oil engines installed. To the Standard Motor Construction Company, of Jersey City, credit is due for the production of gasolene engines of this power, which are the highest powered motors of their type yet built, although it is fairly well known that a 500-h.p. marine distillate engine was recently completed on the Pacific Coast for driving a ferry vessel. But the latter machine was non-reversible and of heavy design, thus hardly suitable for yacht propulsion so cannot enter the discussion, whereas the Standard 500-h.p. engine, which we illustrate, is double-acting and direct-reversible, thus is a distinct advance in engineering construction. The only other instance on record of a gasolene motor

This 500-h.p. engine is a six-double-acting-cylinder model of the cross-head type, with $12\frac{1}{2}$ inches bore by $12\frac{1}{2}$ inches stroke, turning at 250 to 275 r.p.m. on the four-stroke cycle. So far as we can trace, it has not been previously described and illustrated, and knowledge of its existence will no doubt come more or less as a surprise to many. The open crank-pit design has been adopted, and as there is no cast-iron frame, the cylinders are carried on 14 steel columns, 7 per side, which are made rigid by cross and diagonal bracing columns. The main columns are carried from the bed-plate to lugs on the bottoms of the cylinders.

As the inlet and exhaust valves are on opposite sides, both the upper and lower portion of the cylinders are of T-form, so each cylinder is really I-shaped. Although there are 12 inlet and 12 exhaust valves to be operated, it has been found necessary to fit but one cam shaft per side of the engine. Each cam, when in action,

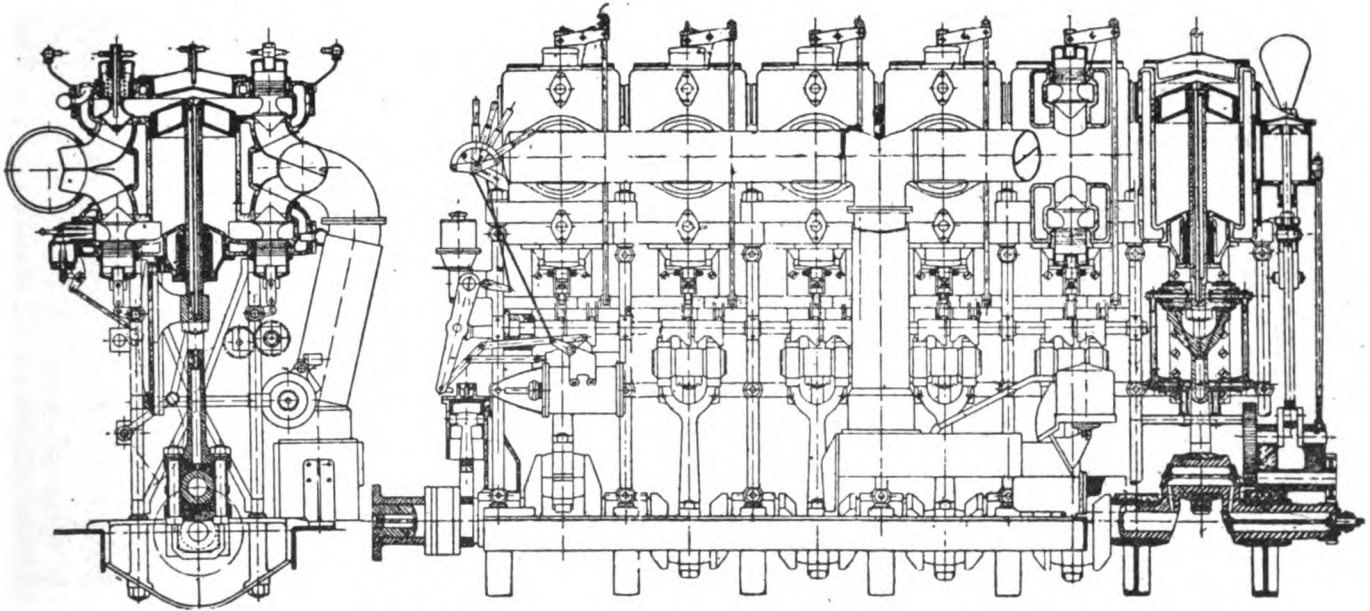


The 500-H.P. Standard Direct-Reversible. Double-Act

of such high power is the power plant of the old Russian racing boat Zariza, and this was an engine of high speed, also unsuitable for a yacht. Therefore, the Standard Company must also be credited with having made the 1,000-h.p. gasolene yacht practical.

It was several years ago that the first of these engines successfully completed their test-bed trials, several sets having been purchased for submarines by the Japanese Government, and as they were for naval purposes secrecy has been maintained regarding them. Since then an engine of the same design and power has been fitted in a yacht owned by Mr. James Corrigan, of Cleveland. This boat is 95 feet long by 16 feet breadth, with 5 feet draught, and was built in 1904 by The Electric Launch Company, of Bayonne. She was originally fitted with a Standard $10\frac{1}{2}$ inches by $10\frac{1}{2}$ inches, 300-h.p. gasolene engine of very similar design, the higher powered unit being installed several years afterwards.

trips a bell-crank on an intermediate shaft, and it is by the tripping of these bell cranks that the rockers (inlet) and tappets (exhaust) are independently operated, for only one set of 12 cams is in operation at any one moment. Two distinct sets of cams on each shaft are provided in order to enable the motor to run ahead or astern, the impulse for reversing being effected by compressed air. In order to bring the astern cams into correct relation with the opening of the valves, they are moved laterally by a system of links at the after end of the engine. Air for reversing is admitted only to the underside of the pistons, that is to say, into the lower combustion chambers, through independent valves in the exhaust-valve pockets, and for these there is a link control. Although the inlet valves are of the ordinary interchangeable mushroom type, there is a neat and interesting feature in connection with their design and construction. In place of the usual stems they have small trunks, which



Cross Section and General Arrangement of the Standard Double-Acting Gasoline Motor

are fitted with compression rings working in guides. Those along the top of the cylinders are directly actuated by rockers, while those on the underside are operated through the intervention of shoes and short push pieces. There is one large fuel induction distributor fed by the carbureter and extending along its entire interior length is a diametral baffle-plate, which prevents carburetion troubles that otherwise might occur. The conical shape of the valve-heads assists the flow of the gas mixture into the cylinders, and the discharge of the exhaust gases, also avoids the formation of eddies and strong minus pressures.

We now come to the order of firing the cylinders, and to describe this we will refer to the upper combustion chambers as A's and the lower chambers as B's, and it will be noticed that the explosions follow a beautifully arranged sequence up and down, backwards and forwards until all 12 explosions have taken place. The order is as follows: 1a, 2b, 4a, 6b, 2a, 3b, 6a, 5b, 3a, 1b, 5a, 4b and 1a. To best follow this cycle a diagram should be sketched on paper.

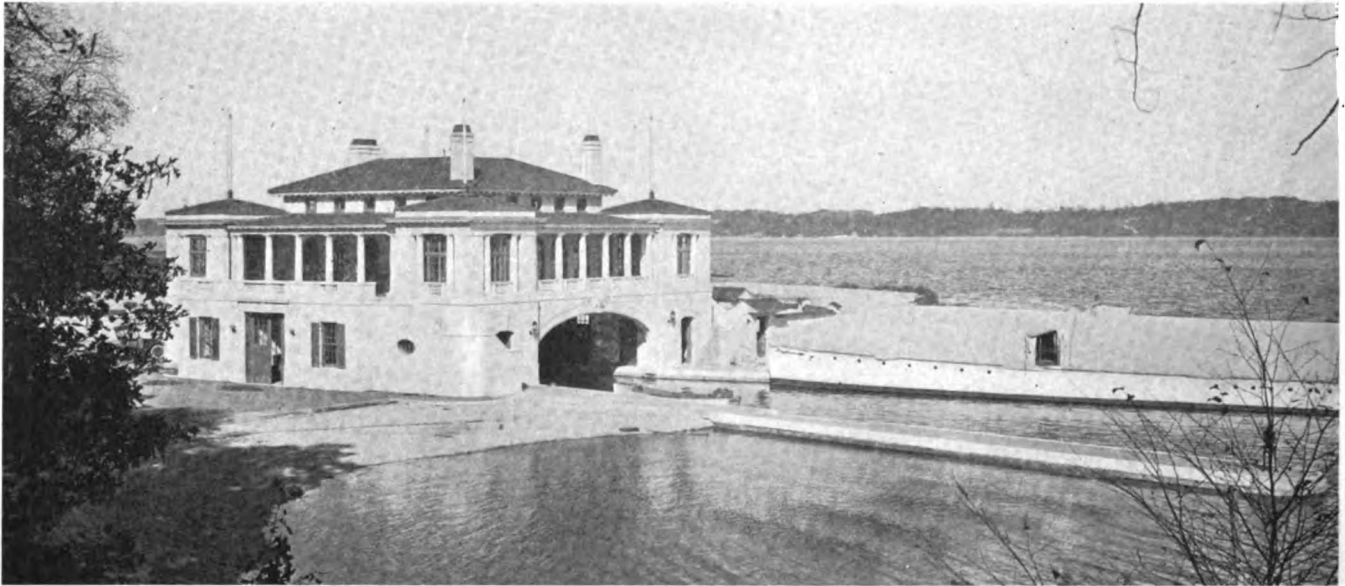
Owing to the high temperatures on either side of the pistons and which also applies to the piston rods, a

thorough system of water-cooling of these two moving parts is arranged, both inlet and outlet pipes being swivelled to the cross-head, there being a cross-head and guide to absorb all side thrusts of the pistons and connecting rods. The double-acting design, of course, calls for each piston-rod to work through a stuffing-box, which is well water-cooled. Lubrication is effected by means of forced feed pumps which deliver the oil under pressure through oil pipes to the cross-head pins and wrist pin brasses down through the connecting rod to the crank pin bearings. Main bearings have individual pressure feeds. Water circulates through the hollow crank shaft, and so keeps the bearing cool.

Off the after end of the crank shaft is driven a neat air-compressor with automatic cut-in and cut-out for charging and maintaining the pressure in the reversing air storage tanks. At the forward end of the motor is a big, slow-speed, double-acting plunger circulating pump operated at a speed which the best principles of pump practice have determined to be the right ratio to the engine speed. The weight of the 500-h.p. double-acting engine is 18,000 lb. The makers of this motor are also completing a four-cylinder marine Diesel engine.



Smoke. Length Over All 32 Ft., Breadth 7 Ft., Draught 2 Ft. 8 In. Power 4-Cylinder $4\frac{1}{2}$ In. x $5\frac{1}{2}$ In. 20-30-H.P. Sterling Engine. Speed 13 Miles per Hour. Allerton & Brophy, Owners. Designed by John R. Brophy



Commodore Blackton's New Boathouse at Oyster Bay

A PALATIAL MARINE GARAGE

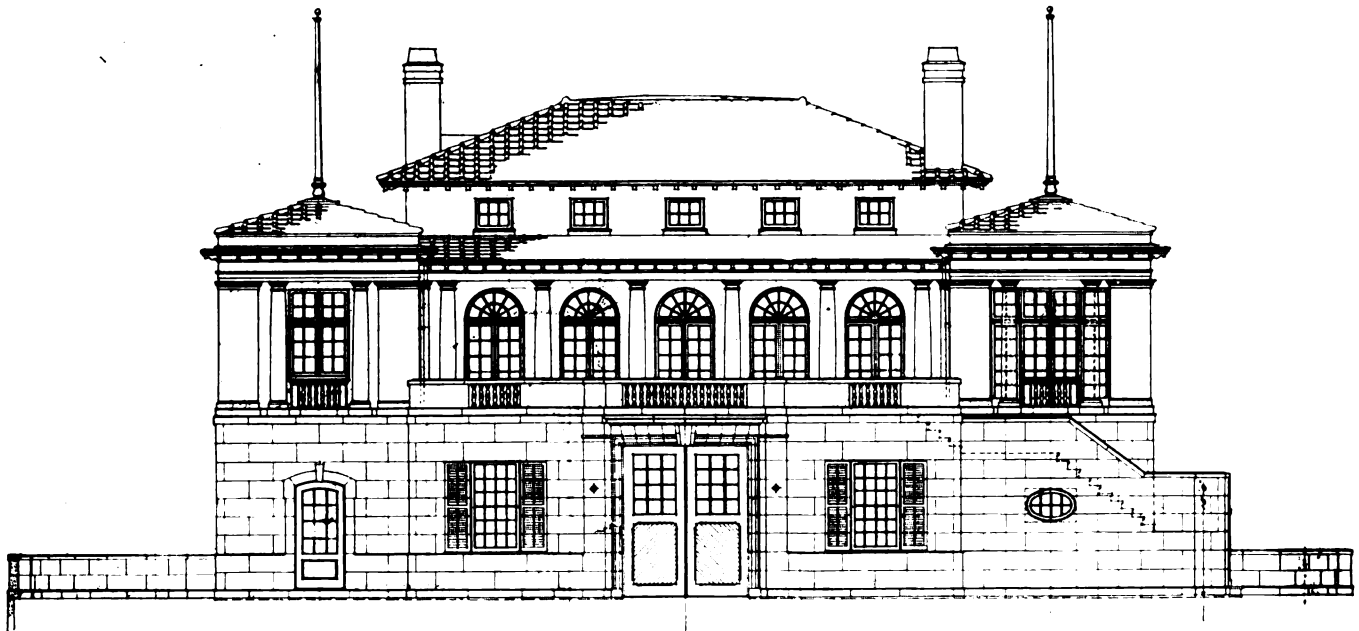
THE NEW BOATHOUSE ATTACHED TO THE SUMMER HOME OF COMMODORE BLACKTON

WITH the increasing use of the power-boat has arrived the necessity of properly equipped "marine garages," especially in cases where an owner has several or more motor boats and yachts of varying types and sizes to accommodate during the Winter season and to moor with protection from the elements in the Summer months at such times as when not actually cruising.

What probably is the only motor-boathouse in the world of so elaborate design and construction has lately been erected on the estate at Oyster Bay, Long Island, of Mr. J. Stuart Blackton, Commodore of the Motor Boat Club of America, and of the Atlantic Y. C. The general design of the edifice is Italian and was carried out from plans of Hoppin & Koen, architects, New York City, and

the effect is certainly very handsome, as well as practical, although difficulties were met with in connection with the erection of the dock, owing to the rise and fall of the tide having to be overcome. Consequently, the boathouse is capable of berthing Mr. Blackton's largest motor yacht at all states of the tide. The basement is built of granite with white stucco over hollow tiles above and the entire building is fireproof.

On the ground floor the central space is occupied by a large wet dock 56 feet long by 34 feet wide, with two long jetties at the entrance. On either side of the dock are floor spaces for storing boats—six all told—and the ceiling is well equipped with proper hoisting tackle, while there also is a slip-way. There is quite an amount of



The Entrance from the Land

accommodation for the staff, etc., on this floor, including two bedrooms, kitchen, lavatories, boiler room, fuel room, workshop, with an entrance hall, ladies' room and cloak room for Mr. and Mrs. Blackton and guests.

On the floor above there is a fine dancing room, which also can be used as a smoking room or studio. It is beautifully fitted up, as will be seen by the illustration, and the effect of the latticed walls and draped ceiling is somewhat of a conservatory, particularly when all the large French windows are open. All the electric light fittings are arranged with growing ferns and flowers, this in itself giving a charming effect. Outside, on the same floor, are two covered terraces, one uncovered veranda, three loggias, and a pantry.

To give an idea of the work that had to be carried out by the builders, the Eliot C. Brown Company, we may say that a 90-foot channel was dredged from a point

were then pumped dry and all faces exposed to the action of water were faced with granite, the same having a minimum thickness of 6 inches, 25% being headers running back into the concrete from 1 to 3 feet. These successive steps were then filled with concrete until this U portion was complete.

The work at this time was entirely offshore and upon completion of the U-shape portion, piling was driven in the surrounding area to carry the foundation walls proper of the boathouse. The entire area around the boathouse was then filled in, the piles being cut off at low water, and after placing a heavy reinforced mat over the pile-work, the foundations of the house were built directly on top of the same. This mat was left perforated in order that the tide, in rising and falling, would have free access to all parts under the building and eliminate any danger of air pockets forming. At all points where



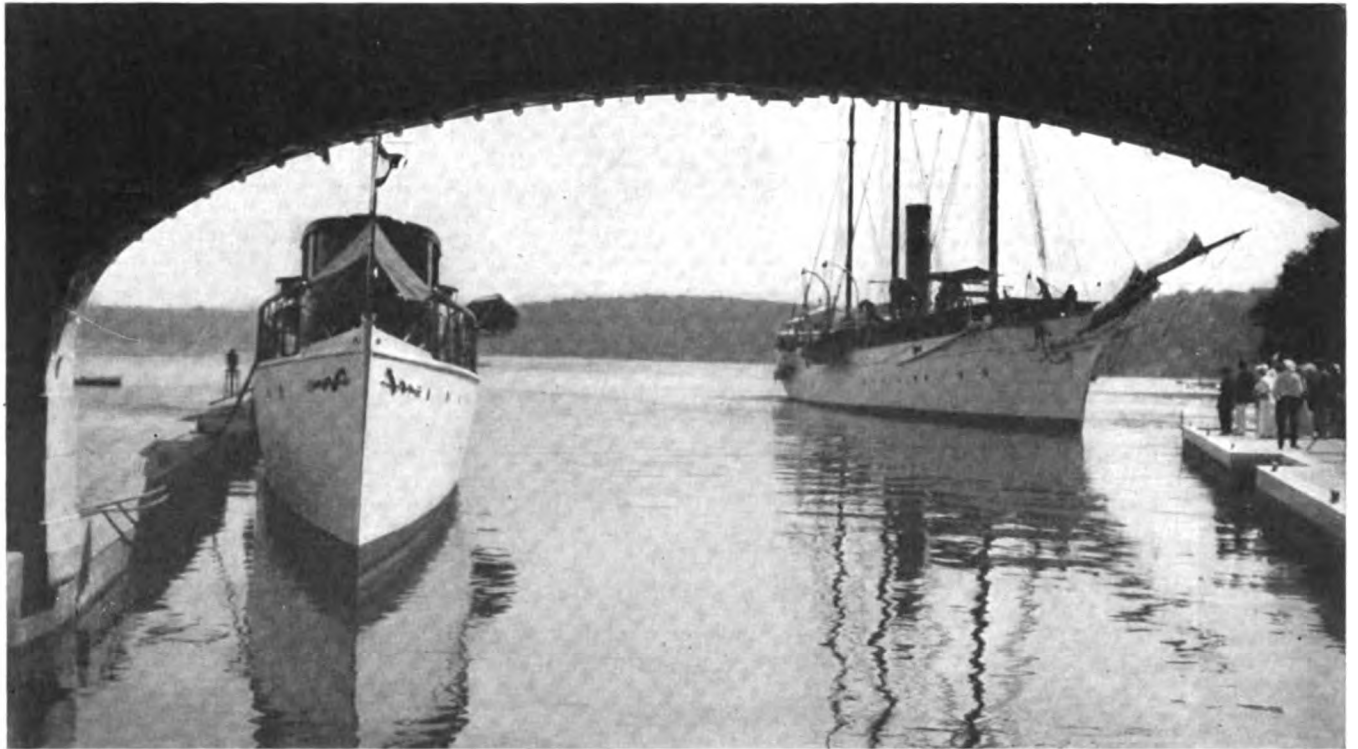
The Ballroom Over the Dock

approximately 1,000 feet offshore into, and including the position of the boathouse. The deepest foundation consisted of the two piers, each 136 feet long, and the continuation of these in the shape of a U, which formed the basin inside the boathouse, 56 feet long by 34 feet wide. Piling was driven around the proposed position of this entire submerged U, and, after sections had been taken of the bottom, form-work was built completely above high water, and upon completion, lowered with the tide and then jacked down into place. The bottom of this form-work in the slip outside the boathouse was from 18 feet to 20 feet below low water, and inside the building was from 12 feet to 15 feet below low water. The entire portion was 10 feet thick and was filled with concrete to a point 2 feet below extreme low water, tremie tubes being used for this purpose. The forms

the deep U-shape portion joined the foundations proper, the two were tied together by railroad rails. The carrying out of this work involved the following quantities:

Dredging.....	50,000	cubic yards
Back fill around boathouse and outside of slip	20,000	“ “
Piles	800	
Concrete	3,600	“ “
Granite	655	tons

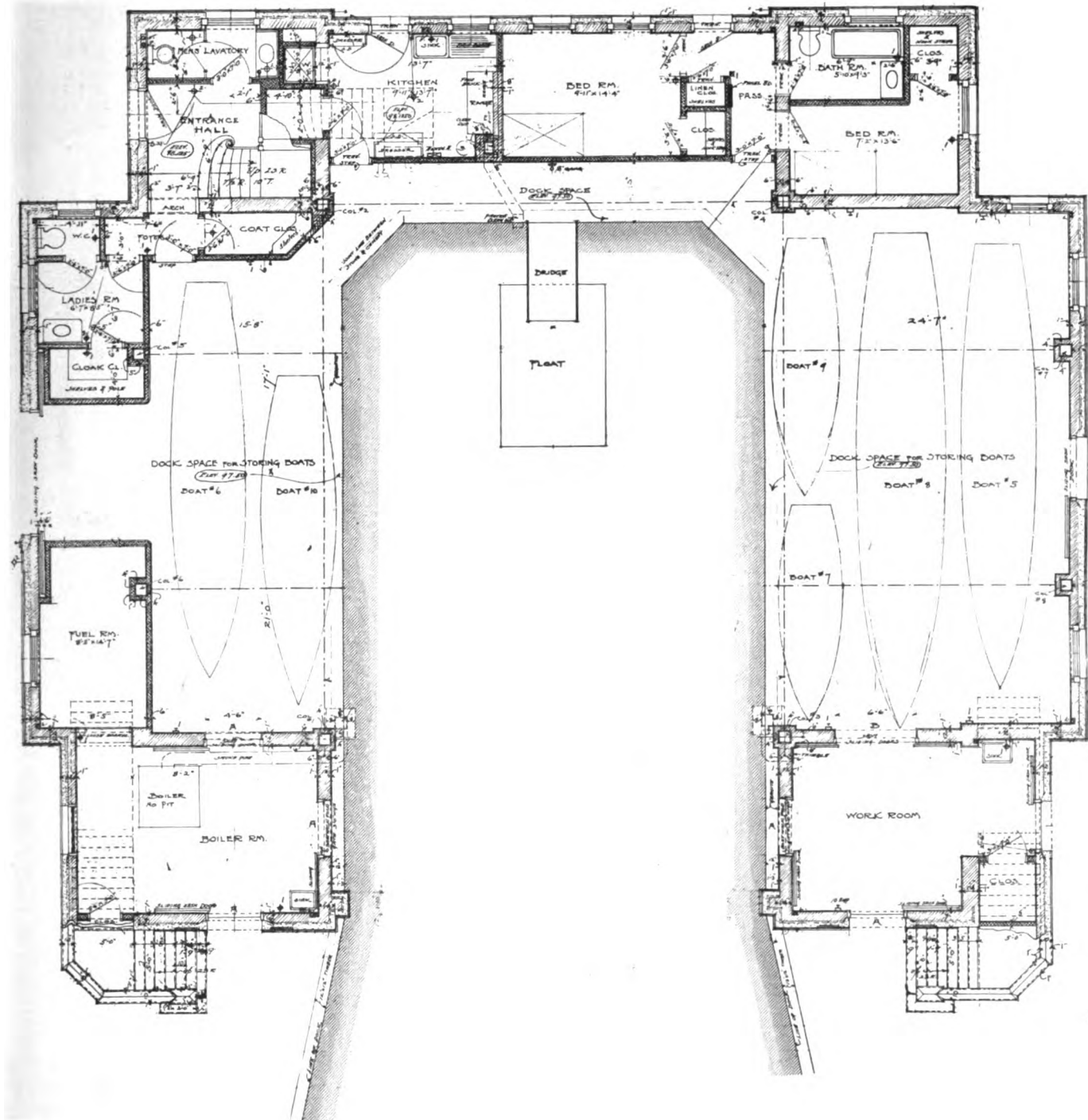
It is interesting to note that on account of the method of assembling the form-work complete before lowering same for deep sections and the use of handle nuts on all ties, this entire work was carried to completion without the necessity of any divers. Alongside the boathouse is a sandy bathing beach.



View from the Interior of the Dock. The Vessels are Mr. Blackton's One-Hundred-and-Thirty-One-Foot Express Cruiser Arrow and One-Hundred-and-Eighty-Five-Foot Steam Yacht Sagamore



Entrance from the Water



Main Floor Plan of Mr. Blackton's Boathouse



Autan. Engine 25-H.P. Ideal. Andrew Paterson, Owner. Designed by Fred. W Goeller, Jr. See Page 515, November Issue, for Full Plans and Description

MASON-JAGER FORTY

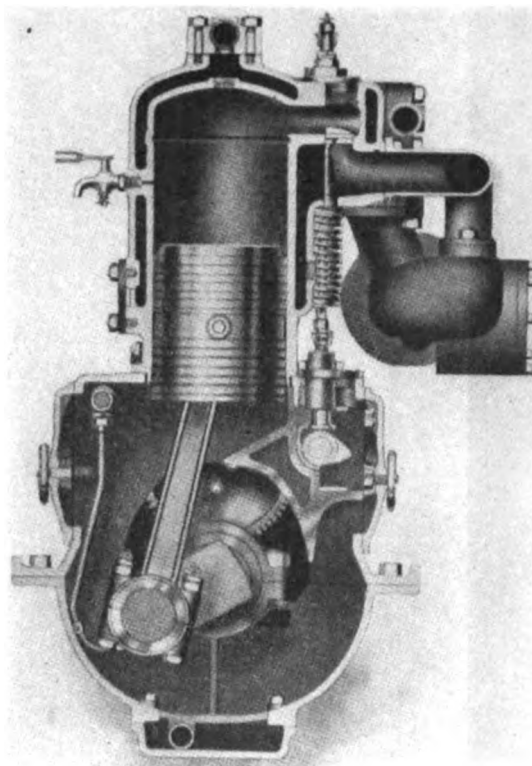
A MARINE GASOLENE ENGINE OF CONSIDERABLE FLEXIBILITY

QUITE recently the Jager engine became known as the Mason-Jager, and naturally this change caused considerable interest to be evinced, particularly as the head of the Chas. J. Jager Company had been associated with the construction of gasolene and kerosene motors for about twenty years. The main reason of this step was that, due to increased business, there arose a lack of facilities to properly handle the enlarged output, so a manufacturing arrangement was made with the Mason Machine Works, of Taunton, Mass., one of the most prominent foundry and machine shops in New England territory, with Mr. Chas. J. Jager as supervisor of the building of all marine and electric generating sets. Located as the works are, adjacent to tide water at the head of Mt. Hope Bay, the facilities for production and delivery are excellent, and the conditions far more favorable to a big output than previously.

As an additional unit to their range of two-stroke and four-stroke marine motors a new 40-h.p. medium-duty gasolene engine of the four-stroke type has just been placed on the market. The main idea of this model is to take the place of the heavy-duty plant for the cruiser, or work-boat, calling for high power without the large amount of space and weight required by the slow-speed, heavy-duty installation. At the same time it is designed for hard work, yet by reason of its excellent flexibility, it is capable of being driven continuously at high speeds. But it must not be in any sense regarded as a racing boat type of motor, and it would seem that the designer's scheme of providing a smooth-running, powerful and virtually noiseless outfit of medium weight and speed has successfully been accomplished, and while refinements of detail have been incorporated, there are no "finicky" parts that are likely to require constant attention and replacement. In other words, the design embodies the good features of modern marine engineering practice without the faults, this being obtained by conservative application of novel features and careful study of yachting conditions.

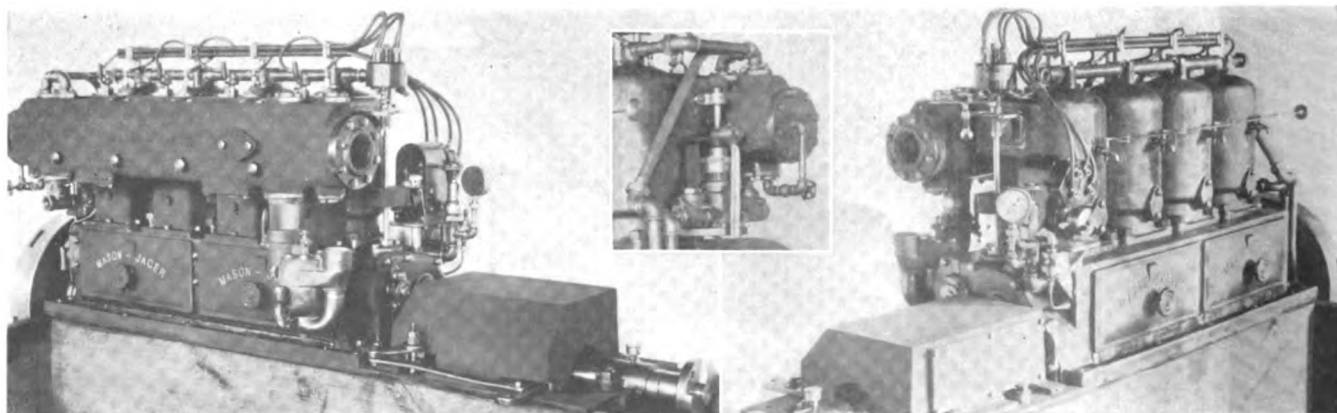
The new Mason-Jager "forty" has, we understand, a speed range of 200 to 1,750 r.p.m., under easy control of

the operator, provided, of course, the correct size of wheel is fitted. At 650 r.p.m., 32-b.h.p. is developed, and the power increases to the maximum speed. There are four cylinders of the inverted L-head type, each cast separately, with integral valve boxes and with detachable



Sectional View

enclosing covers to the valve tappets, and the bore is $5\frac{1}{4}$ inches by 7 inches stroke. As a general rule, a cast-iron crank case is employed, and this is in two halves, the lower carrying the main bearings and engine-bearer



Port and Starboard Views of the Mason-Jager Forty. The Inset Shows the Water-Cooling Arrangements

lugs, while the upper half supports the cylinders. On either side of the upper half are two large inspection doors, one to the cams and the other to the crank-chamber. To the lower section there is also a detachable drainage sump, into which the surplus lubricating oil flows before it is re-pumped to the cooler, filter and the working parts.

It will be noticed that on the port side of the engine there is a combined water-cooled inlet and exhaust manifold, and while the induction piping is thereby warmed, the water-cooling prevents it getting hotter than is desirable. Dual high-tension ignition is fitted and the magneto and distributor for the batteries are mounted at the after end of the motor, the distributor shaft, which is driven off the cam shaft, operating the magneto by gearing. Close by is the lubricating-oil pump, with its sight dial-type gauge. At the forward end of the engine is a plunger-type water-circulating pump, which delivers first to the oil-cooling filter, then to the cylinder jackets, and finally to the exhaust manifold, so that uniform cooling of the entire engine should be maintained. This arrangement of engine-auxiliary fittings leaves the starboard side of the motor entirely free, except for the compression

relief and test cocks, which are neatly connected together by a lever device so that all can be opened or shut at once—an idea that we do not recollect having seen before with any engine.

Regarding the cam shaft, this runs in five bearings and can be removed without disturbing its associated parts—a good accessibility feature. The spiral-gear-drive for the cam shaft is entirely enclosed and lubricated under pressure. Another accessibility feature is to be found with the main bearings, which are in halves, white-metal lined, and can be removed through the crank-chamber doors without disturbing the cylinders—which is proper marine engineering practice. Lubrication is carried out by pressure feed through tubes, which are readily removable, to the principal bearings, while the wrist-pins are bored hollow and drilled with transverse oil passages. As before mentioned, the oil pressure can be ascertained by the dial gauge and then regulated by means of the by-pass. Each time the oil circulates it is water-cooled and filtered by means of the device previously referred to. The reverse gear is of the Jager expanding-clutch design, having heavy spur gearing which is locked when in the ahead position.

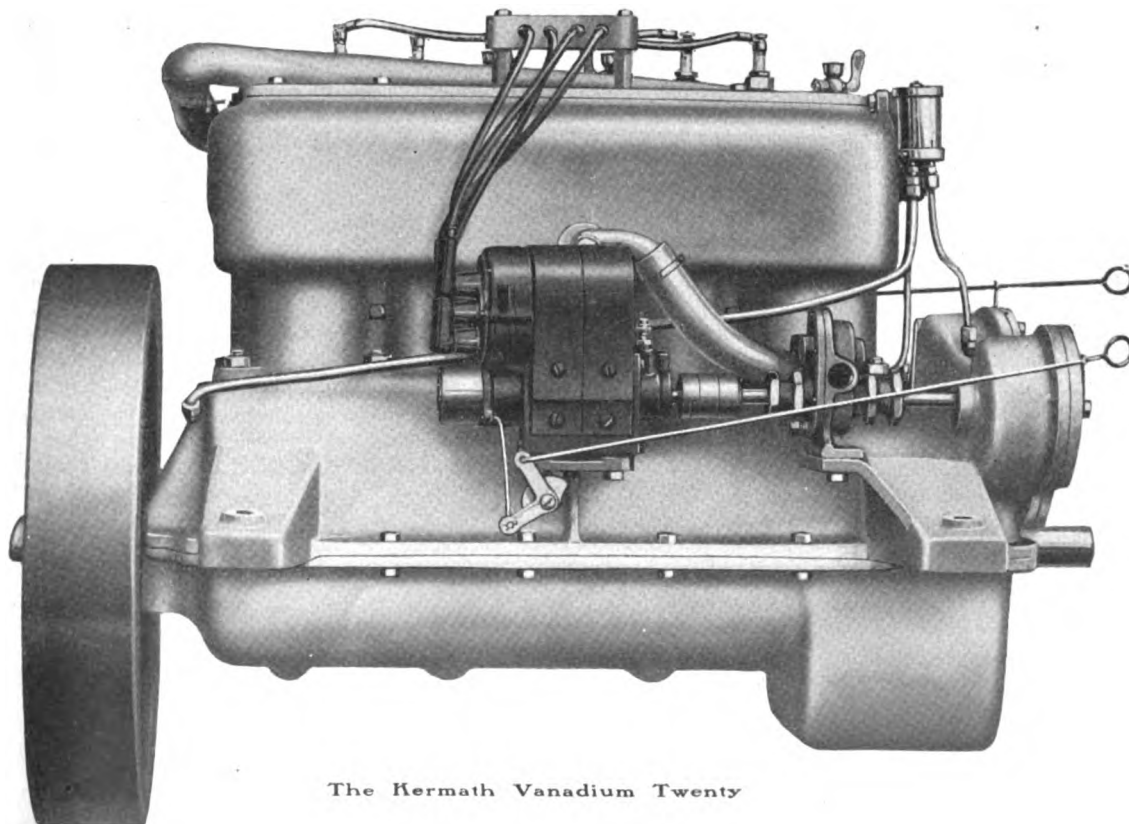


KERMATH VANADIUM TWENTY

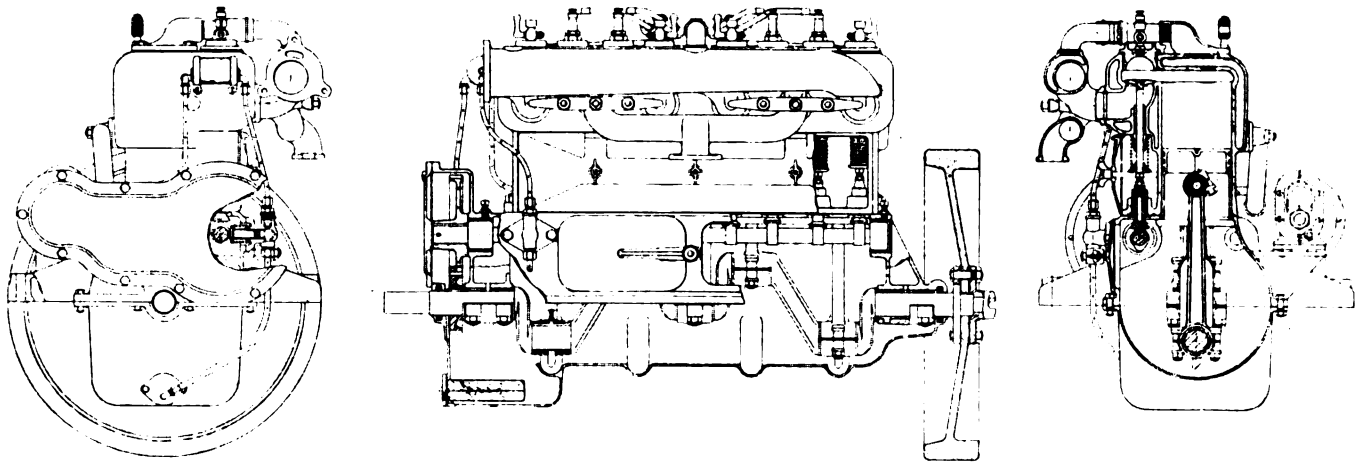
DETAILS OF THE SECOND MODEL BROUGHT OUT BY THE KERMATH MANUFACTURING COMPANY UNDER A QUANTITY PRODUCTION POLICY

FOR close upon five years the Kermath Manufacturing Company, of Detroit, have devoted their factory to the production of one-sized marine motors; and this policy, because of economical manufacturing possibilities, has enabled them to market their 12-14-h.p. set at an exceedingly low price, but naturally, the use for an engine of

one power is to an extent limited, and the steady, constant call from users and dealers for a plant of greater power has forced the makers to increase their facilities and place a new model upon the market under similar "quantity-manufacturing" conditions, although without interfering with the output of the former design.



The Kermath Vanadium Twenty



General Arrangements and Section of the New Kermath Twenty

The new motor is also a four-cylinder monobloc model of the four-stroke class, but of 20-h.p. and is known as the "Vanadium Twenty," by reason of the chrome vanadium drop-steel forgings used in the crank shaft and connecting-rod construction. Its bore is 4 inches by 4 inches stroke, and at 650 r.p.m. 16-b.h.p. is developed, 18-b.h.p. at 800 r.p.m., 21-b.h.p. at 1,000 r.p.m., and 25 $\frac{3}{4}$ -b.h.p. at 1,200 r.p.m., while the average fuel consumption is 1 $\frac{1}{2}$ gallons of gasolene per hour. It can be throttled down to 180 r.p.m. The over-all length is 2 feet 10 inches by 17 inches high from the crank shaft center, and its weight with aluminum crank case is 340 lb. With a cast-iron crank-chamber this weight is increased by 70 lb. Including an angle-steel extension base, reverse gear, ball thrust bearings, dual-type magneto, etc., the price of the complete power plant ready for installation is \$375; but with less equipment, the cost is lower. The makers figure out the best cruiser propeller to be one of 20-inch diameter by 24-inch pitch, with large blade area (three blades); but smaller wheels for speed launches and runabouts. These figures will be useful to all those who contemplate fitting sets in their boats.

In many ways the new engine resembles its smaller predecessor, and it is obvious that the results of experience with the "twelve" have been incorporated into the design and construction of the "twenty." The cylinders are of the inverted L-type, and, as before stated, are cast monobloc, with the valves side by side on the starboard side of the motor. Over the valve tappets there is one long enclosing door, which can easily be taken off for adjusting the tappets by unscrewing two thumb screws. On the opposite side of the cylinders are arranged the rotary water-circulating pump and magneto, these being driven by the same lay-shaft.

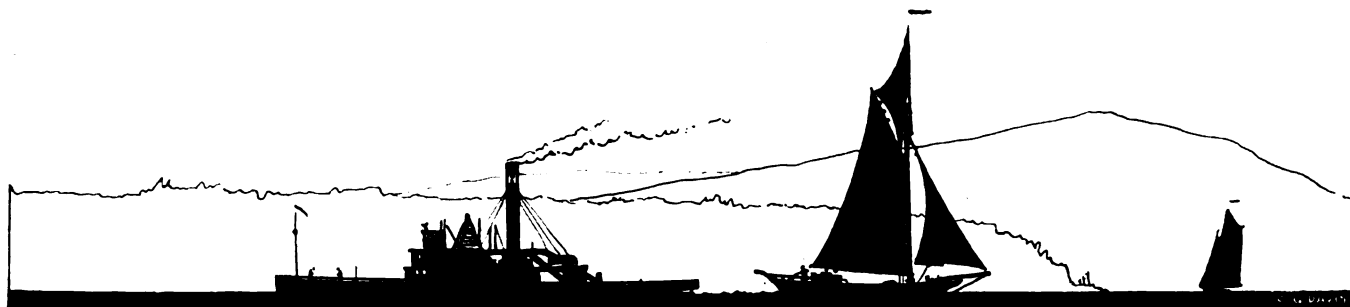
It was the designer's intention to produce a power plant that would stand continuous service at any of its designed running speeds, so the lengths of the center, forward and after main-bearings are 3 $\frac{1}{2}$ inches, 2 $\frac{1}{2}$ inches and 3 inches, respectively, by 1 $\frac{3}{8}$ inches diameter, while the connecting-rod bearings are 2 $\frac{1}{4}$ inches long by 1 $\frac{3}{8}$ inches diameter. The cam shaft is a one-piece drop-forging out of low carbon steel and hardened.

Turning to the lubricating system, this consists of a reservoir in the engine base, a float-feed to determine quantity of oil in the reservoir, a plunger pump to mechanically maintain oil level in oil pockets, and a large sight-feed glass to indicate the pump's operation and the proper maintenance of an unchecked supply. A large screen is provided in the oil reservoir, which filters all oil before it enters the pump so that clean oil is always assured in the lubrication of the motor parts. It should be explained that the oil is pumped from the reservoir to the sight-feed glass mounted on the top of the rear cylinder, and from this point the oil flows to the forward part of the engine into the pockets provided under the connecting-rods, where the oil is picked up by splash system by steel dippers on the ends of the connecting-rods. As each pocket is filled by the oil flow, it overflows consecutively from No. 1 to 2, 3 and 4, and is then returned to the reservoir. Another oil lead from the sight-feed glass constantly carries a bath of oil over the timing gears. The pump itself is of bronze, with a steel piston.

Finally, it may be mentioned that the water-jacketed exhaust manifold and the intake manifold are cast integral. This eliminates all heat in a cabin boat or a bulkhead-type launch, but at the same time the intake manifold is heated to a point where the greatest efficiency possible is obtained from low-grade gasolene fuel. The manifolds are held in position by dog-clamps.



A Twenty-Foot Old Town Canoe Installed with a 60-H.P. Gray Motor. She is Said to Have Made 16 $\frac{1}{2}$ Miles an Hour over a Measured Course on the Bush River Her Owner is Mr. O. Crawford Smith, of Baltimore, Md.



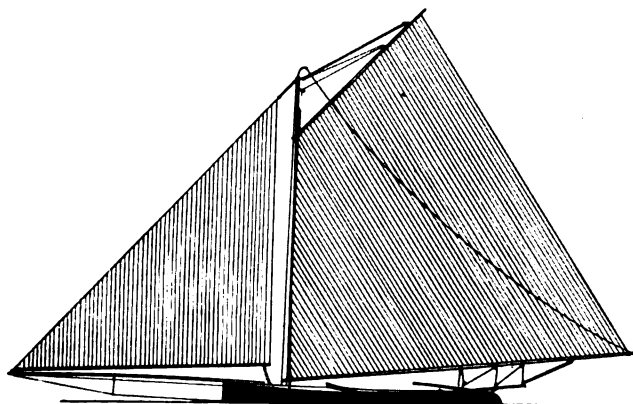
SAILS

Charles G. Davis

PART V

THE proper shape, make and handling of the headsails comes next in importance to the mainsail. It must not only be a good setting sail in itself, but it must do so without backwinding and so impairing the utility of the mainsail. The two must work in harmony.

In America, the single jib with its lower section removable and called the bonnet, was in favor for a great many years. It was not until about 1888 the craze for the cutter rig spread among yachtsmen in this country and the double headsails, consisting of a staysail hoisted on a stay that set up to the gammon iron at the stem head, and a jib at the end of the bowsprit came into use to any extent. Yachts up to that time had followed the packet sloop and fishing smack rig, using one big jib.



Sail Plan of Sandbag Sloop Dare Devil

The advantages of the double head rig as used on cutters, were the fact that the headsails, being in two pieces, it was much easier to reduce the area by taking in one of them; that the jib being hooked to an iron ring, or traveler as it was called, encircling the bowsprit could be hauled out without having a man go out on the bowsprit, and in taking in the jib, its tack could be hauled in to the stem head and the jib unhooked without a man leaving the deck. An even more important feature for seagoing work was the fact that the staysail was set on a forestay, that, should the bowsprit be carried away, would hold the mast secure and the whole rig would not go by the board, overboard.

But when the owners of sloops imitated this rig they

only copied half of it. The best features they omitted; they shackled their jibs to the end of the bowsprit, and to stow that sail one had to lay out on the bowsprit and generally got soaked in doing so.

Many sloops with a small single jib, when altered to a double head rig, had two narrow slats of canvas too long and narrow to be of any use as driving sails. Regardless of this fact many sloops were so altered. The charm of being able to say a man owned a cutter proved too much for those who yachted for style without understanding the fitness of the rig as applied to their particular boat.

Sandbaggers carried the single jib to the extreme in the 70's. Boats like the famous Dare Devil, 28 feet long, had a sail plan 72 feet on the base from the end of her 40-foot mainboom to the end of her bowsprit. The jib was 30 feet on the foot and the same on the leech; her mainsail hoisting 28 feet. Most of these boats had the foot of the jib laced to a long, thin jibboom, with double jib sheets rove through sister blocks, or where lightness was desired, *lignum vitæ* bull's eyes were used. The tack of the jib was shackled to an eye-bolt on top of the bowsprit eye-band or wythe. All the racers had jibs with hemp ropes set flying. The boat's mast was stepped with a decided rake aft and held, when the jib was lowered, by a light wire stay. The jib when set was hoisted hard enough to slacken this stay, but even then the luff of the jib was inclined to sag off a little. Boats in those days carried no backstays; when the mainsheet was flattened down it was supposed to tighten the luff of the jib.

Marine hardware was at that time very crude. Blacksmiths forged eye-bands or wythes as they were called, and goosenecks, but you could not go to a store and buy them. Some had a long-necked eye-bolt on top of the bowsprit to take the tack of the jib and around the shank of this eye-bolt a swiveled clevis was fitted, into which an eye-bolt in the end of the jibboom toggled.

Larger sloops had these jibbooms swiveled to a gooseneck that slid back and forth on an iron horse and traveler on top of the bowsprit. This slide allowed the jib to come down all the way when lowered; this the jib would not do otherwise, the jib being set on hanks hooked to the jibstay, as the distance *A* to *B* will not reach to *C*, the end of the bowsprit by the distance *C* to *D*, Fig. 31. The slide must be the length, *C* to *D*, to let the point *B* forward that much. The sandbagger's jibs being set flying, came down with no trouble except to muzzle them

down and prevent their getting overboard and wet. There was in those days, as there is yet, considerable argument as to the advantages or disadvantages of a jibboom or a loose footed jib. A jib is, just as the lug sail or the felucca sail on an Arab dhow, a lifting sail; and many claim that the boom on the foot of a jib destroys this lifting effect by preventing the wind's free

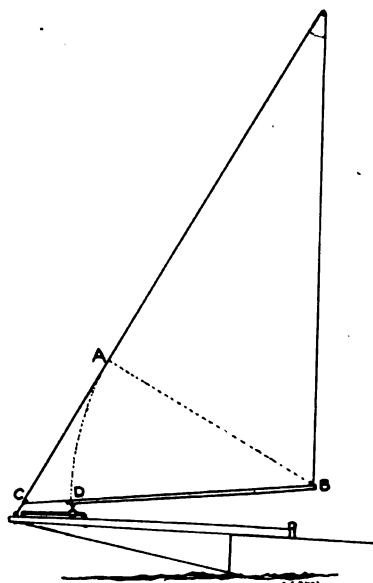


Fig. 35

flow out of the foot of the sail. That was why the English cutters always had "loose footed" mainsails.

A far more vital point however was the proper curve or draft in the sail. The same parabolic curve should be in the jib as in the mainsail. This, in the vertical seamed jib, as in the mainsail, was obtained by cutting

the cloth with a full roach on the luff, by broadseaming and by being roped full along the luff rope. You can sew a sail to a rope in such a way that the sail is tightly stretched along the rope, or "full it" by gathering the sail cloth up so it is slack, though of course it doesn't show wrinkles along the rope.

Where a jib is cut with cloths running up and down parallel to the after leech, the diagonal cut across the goods along the stay or luff, being on the bias, is very easily stretched, and here is where in roping a jib, the cloth must be sewed slack or "fulled."

The greatest strain on such a jib comes across the weakest edge of the cloth, the hoist, and yet if this be reversed and the gores put along the leech and foot, they go out of shape and a hard spot from clew to luff cuts the sail into two bags. The leech and foot are the edges that must be a perfect flattened curve, as the proper escape for the wind is all important, and to obtain this flattened curve, various compromises have been tried, as shown in Figs. 36, 37, 38 and 39.

Wire luff ropes have almost entirely superseded the hemp ones in modern yacht sails, as that has far less stretch, and the continual strain on a luff rope of a jib is quite severe. The proper making of a jib is important, but to set it properly is of equal importance and a point not understood as it should be. The object of a jib is not to be a bag to catch wind, but a fair curve along the luff with a perfectly flat smooth leech, so after the wind has pushed the sail all it could, the wind has a free chance to escape. Any part of the after flow of the jib that offers resistance to this free flow of the wind is worse than useless; it is a hindrance.

In many cases a perfectly good jib is not sheeted so it gives the greatest amount of forward pull on account of the angle the jib sheets are fitted, most of them being too close in toward the mast. In a fore-and-aft direction, the jib sheets should put just a trifle more strain on the foot

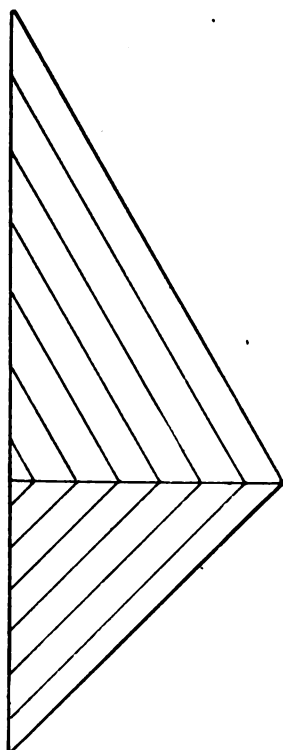


Fig. 36

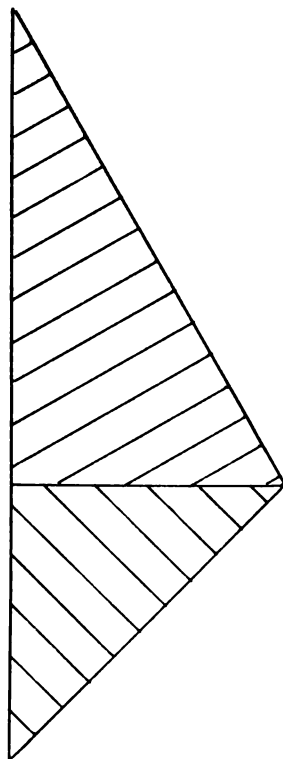


Fig. 37

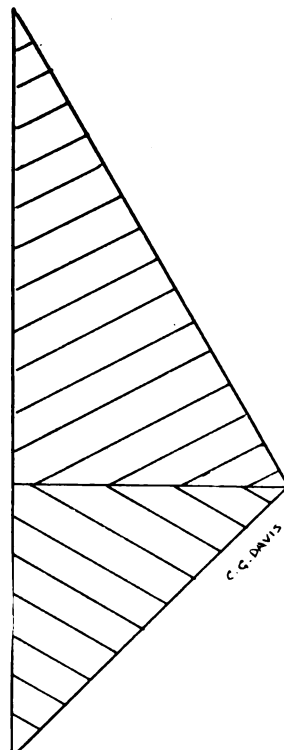


Fig. 38

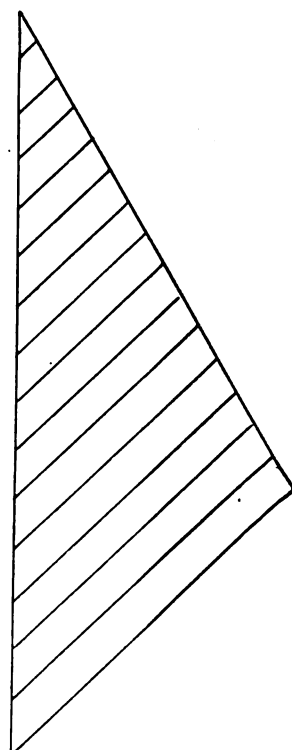


Fig. 39

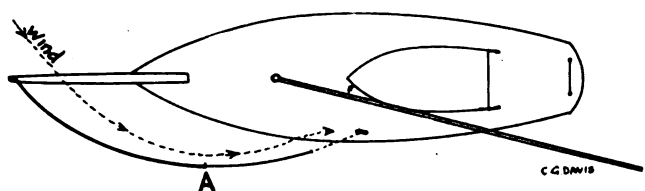


Fig. 40

of the jib, pulling it flat aft, than it does on the after leech. As to how wide the sheets should lead, they should be so that the jib's luff begins to flutter just before the luff of the mainsail, when both sails are flattened down for windward work.

Sheets too far forward are bad; they pull the after leech of the sail so tight the whole after edge forms a back sail; sheets too far aft free this leech and lose some of the jib's power by the flowing up and fluttering of loose cloths in the leech.

The after leech of the jib should approximate the same curve as the mainsail's surface as you look at a boat from the lee quarter.

Too wide a lead on the jib sheet is better than one too narrow, for the latter pulls the after edge of the jib in so it forms a curve which pushes the boat astern, while the curve in the luff is attempting to push her ahead. To stop a boat, to "heave to" as it is called, the jib is pulled

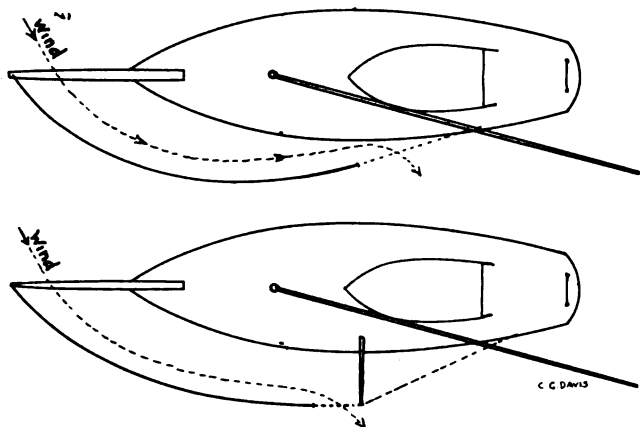


Fig. 41

in amidships or to windward and you certainly are not trying to stop your boat, so look carefully to see that the jib sheets lead properly, for you not only lose power in the jib, but by interfering or backwinding hurt the mainsail as well.

One would think when a man has a racing sloop where the trim of jib and mainsail are as perfect as can be made by properly adjusted trim of the sheets, that when he came to set a balloon jib he would know how to set and sheet it, but there are many who don't. Hoisting the sail up tight does not make it pull. It is then the adjusting of them to the proper angle in relation to the strength and direction of the wind that makes the boat go faster or slower.

Here again as in the jib, the greatest evil is in pulling the after edge of the jib in so it makes a back sail. These very light cloths are more inclined to bag than the heavier working sails, and greater care is needed in handling them. It is not so much the size of the balloon sail as it

is the number of square feet in that sail that are pulling to advantage, especially on a reach.

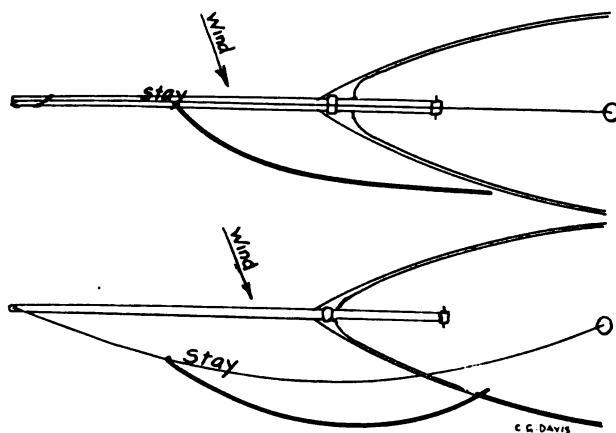
You often see a sloop with the wind abeam in a hard blow where half of the balloon jib is a back sail, that much of it from the extreme outer point of the bag in the middle of the sail is pulled in again towards the center of the boat so the wind has to come in around its edge.

If the canvas in such a sail could be cut off at A, Fig. 40, at which point the wind has exerted all the forward push possible, the resistance of all that wind against the rest of the sail would be avoided and the boat would go just so much faster.

Many boats on a hard reach need this bag in their headsails to help steer them; but an evil, as I call defects in a boat's design, should not be remedied by adding another evil in the sails to balance it. If you want a racer correct the first evil by resteping the mast.

Where the hull, as many are, is too narrow to properly sheet the balloon, an outrigger to spread the width of the balloon jib-sheet lead, will result in an increase in speed, Fig. 41.

This was done in the 34-raters class of 1895. On Dragoon an oak board could be slipped under cleats on deck and the balloon jib sheet rove through bull's-eyes either 4 feet or 6 feet out from the lee rail. In classes



Figs. 42 and 43

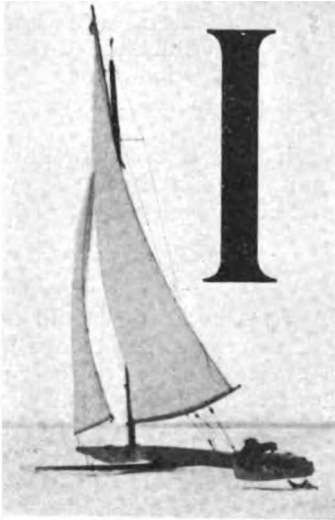
where outriggers are, as is sometimes the case, prohibited, a man sitting to leeward can hold this sheet out with one foot and so increase the pulling power of the balloon jib.

It looks as if a boat were traveling fast and artists delight in drawing the luff of the balloon jib arched away off to leeward, but every foot the stay sags off means a tremendous loss of power. Remember it's the curve in the luff that drives the boat ahead. So set the weather backstays and runners up hard and try to hold the luff of the jib in a straight line. When this is done, the jib makes a good propelling curve, as in Fig. 42; but if the stay slacks off to leeward the luff, instead of holding this curve, sags off from A, where the stay should be, to B in Fig. 43 so that the sail is nothing but a saucer-shaped surface that pushes back as much as it does forward and the sail merely drags the boat's head off to leeward.

This often occurs on a reach with a hard wind abeam. Many yachtsmen make the mistake of carrying too much sail in a hard beam wind. Burying the lee rail so everything is dragging through the water to leeward, tearing it into foam, does not necessarily mean the boat is going the fastest she is capable of.

(To be Continued)

ICE-YACHTING



ICE-YACHTING never was in a more flourishing condition than it is today. It has been just twenty-two years since I shipped under the Oldman on THE RUDDER and many changes and improvements in construction and rig have taken place. The races are handled in a more shipshape manner and they have stopped exaggerating the fast times made, except in some remote and unimportant localities. The cat ice-yacht for smaller boats meets with favor in America as well as in

Russia and Sweden. I was in luck to get my ice-yacht story from Russia, and a fine lot of photographs, a week or two before the war.

To sum up, the conditions throughout the country last Winter, at various points, follow:

The racing and ice were fine for many weeks at Long Branch and Red Bank, N. J. They had a limited amount at Port Washington, Long Island, and at Orange Lake, N. Y., the Eastern winners being the Imp, Blanche and Knickerbocker. The conditions in the Middle West were fair, soft ice and lack of wind during the big meets being the principal drawbacks. The Princess won at the North-Western Association meet at Oshkosh, Wis., and also at the Kalamazoo (Mich.) Club meet. These are the two principal events of the Western ice-yachtsman.

Another winner at the North-Western meet, who won several events, was the 300-foot Debutante, built by

Buckhout, of Poughkeepsie, and the duplicate of Butler Duncan's Whirlwind, of Manhasset Club, on Long Island Sound. The Debutante was equipped (see photograph)

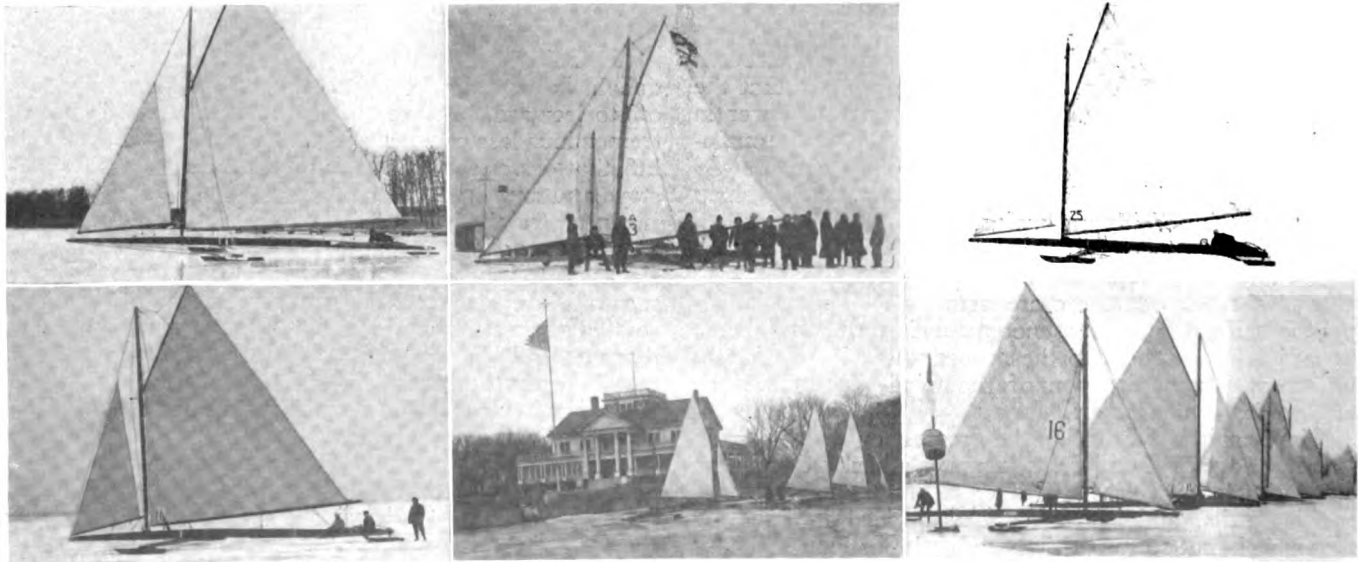


The 'Buckstaff' Mainsheet Winch

with the new mainsheet take-in. This is the best thing that has ever appeared in that line. This evolution came from the brain of Vice-President John Buckstaff, of the North-Western Association.

During the races of the North-Western Association, last Winter at Oshkosh, some of the boats dropped and took up different crews during the race. This is entirely wrong, and I am glad to know that that practice will be stopped at their meet of this year. Your starting crew, intact, must be brought back to the finish line and remain with the ice-yacht during all of the race.

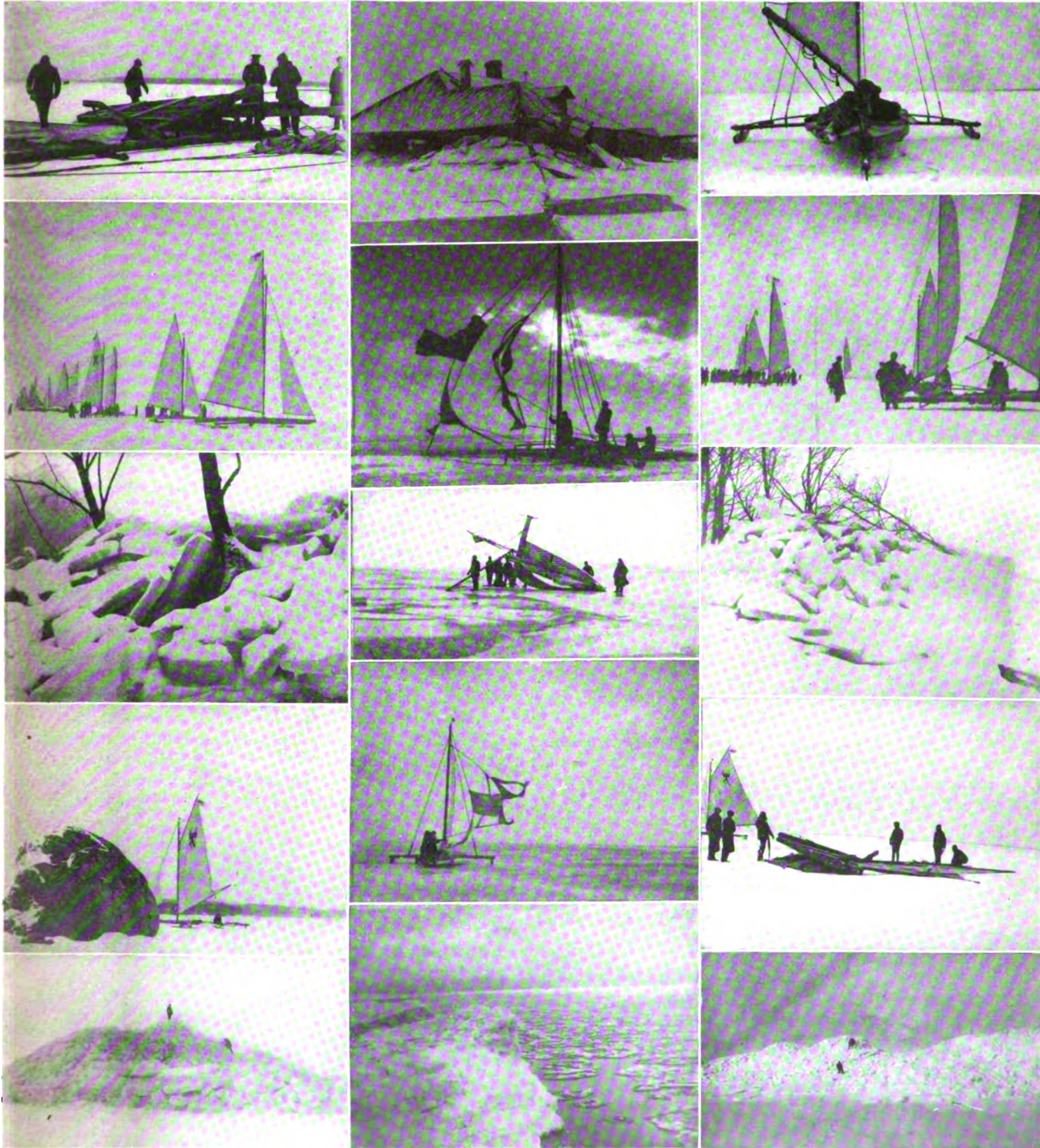
A well-known ice-yacht club on the Sound has in its printed rules: "The helmsman must be an amateur and a member of a recognized yacht club." Well, all last Winter they had a well-known professional from New Jersey sailing their boats and tuning them up. His name has appeared in THE RUDDER for several years as one of the most proficient and squarest professional ice-yacht



Scenes at the North-Western Association's Meet at Oshkosh, Wis.

handlers in the East. It would be advisable, I think, for that club to remove this rule from its book, as it is now void. Speaking of professionals, most of those in the East I know well, and you cannot find a finer or squarer lot of men in the ice-yacht game. It is all piffle not having them in races. By all means have them and learn something of their experience while racing with them. Where, in the United States, can you find more

competent racing men and harder to beat than ex-Commodore Olin, of Kalamazoo, Captain "Lash" Price, of Long Branch, or Mr. Dougherty, of the Shrewsbury? They are not professionals simply because they have been well endowed with this world's goods. Have no foolish scruples about racing with professional ice-yacht sailors; they are fine, reliable, and good company. Go with them and learn how to race an ice-yacht.



Photos Taken by Nic Velten and the Staff Photographer of the "Rulevoy" of Scenes and Ice-Yachting in Russia

On Long Island Sound ice-yachting is confined to Manhasset Bay, Long Island. Here is the home of the Manhasset Bay Ice-Yachting Association, composed of the Knickerbocker, Manhasset and Port Washington clubs. The greater part of the boats of the Association being of the modern up-to-date 300-square foot class. The Knickerbocker, owned by Henry Stephenson, again won the Championship of the Association. The big event of the season was the Associate Race, held on Saturday afternoon, March 14th.

The start was made at 3:03 p. m., and the following, smartest, boat from the fleet of each club, faced the line: Knickerbocker, of Knickerbocker Club, Henry Stephenson, owner, sailed by Wolson Dusingberre; Whirlwind, Butler Duncan, owner, sailed by James O'Brien, and Whiz, of Port Washington Club, sailed by her owner, N. H. Vanderwall, all amateurs. The time was as follows: 18 miles, triangular, 4 rounds; Knickerbocker, 28 minutes 3 seconds; Whirlwind, 29 minutes 12 seconds.

Knickerbocker won the championship in 1912 and 1914, there being no racing in 1913, thus giving her two legs on the massive silver trophy. The men who take the lead in this Association are: Henry Stephenson, W. Butler Duncan, James W. Alker, James O'Brien and William Gardner.

I was fortunate to obtain from my esteemed friend, Nic Velten, of the Imperial River Y. C., St. Petersburg, Russia, a splendid lot of photographs taken by him and one of the staff of the Rulevoy, the leading yachting magazine of Russia. Since this letter was written, war was declared, and the name of the city of St. Petersburg was changed to Petrograd. Mr. Velten's story follows:

"Last Winter was exceptionally unfavorable for ice-boating. Till the beginning of January we had no thaw and during that time only two or three enthusiasts ran their boats now and then along the banks of the river and bay on a narrow streak of ice, which had formed itself from the rising water.

"After the New Year the weather changed and strong West winds set in, brought very warm weather and inundations, which usually take place in September and October, before the ice comes. This year the rivers and bay some 20 miles beyond Crondstadt were already covered with ice, when the spell of windy weather set it. You can picture to yourself, therefore, the strength of the wind causing an inundation through a pressure on the open water some 40 to 50 miles away from the town. The water rose one day up to 7 feet

above its normal height and caused much havoc in the suburbs. The ice was already so strong, that it did not break up, except on the shallows. I am sending you some photos illustrating the ice pressure along the Northern coast.

"Our annual regatta took place on January 19th.

"In the morning the wind was strong and at the time of the start, had increased to a gale. Four boats had got to the start, which was some three miles away from the club, but only one, closely reefed and without a jib, finished the course of 10 miles, triangular, in two rounds. The others all had some mishap; one capsized and was driven in this state for nearly a mile, dragging the steersman, who was holding on to the mainsheet, wanting to stop the ice-boat; another broke her mast, boom and gaff; after clearing the mast, etc., the crew stood up on the boat and drove before the wind up to the clubhouse, at a good speed. A strong boat of an old type tore her sails to tatters. I am sending you some photos of this exceptional event.

"A regatta was arranged three weeks later, but had to be postponed till the next Sunday on account of lack of wind. A week later on Sunday, the same thing happened and the regatta has been put off for another week.

"It has been decided this year that an ice-boat championship is to be fought out every year between Stockholm, Petersburg and Riga. This season the championship had to take place in Stockholm, but the warm weather melted all the ice and the regatta could not take place. Next year it will be held in Riga and in 1916, probably in Petersburg."

* * *

Situated on Mystic Lake, in Metropolitan Park, near Boston, Mass., is the Medford Ice-Yacht Club, which is a branch of the noted Medford Boat Club. The club has 150 members and the ice-boats are divided into three classes, viz.: 300-square feet, 250-square feet, and 150-square feet. The entire fleet consists of thirty boats, a number of which are from RUDDER designs. C. Andrews Fiske is one of their leading racing men and owns several speedy winners. One of the new and handsomest built boats of the 300-square foot class is owned by Ray Pigeon, of the Pigeon-Fraser Hollow Spar Company, and is called the Christal. This season several cats of the 250-square foot class are building from October RUDDER design. The Medfords have a fine clubhouse as well as commodious storage house for the ice-yachts, situated a short distance from the club. H. PERCY ASHLEY.



Line Up for the Start—Medford Ice-Yacht Club, Mystic Lake, Metropolitan Park, near Boston, Mass.

to same we beg to say that we had a similar letter from Mr. Meyer, and we advised him that we knew of no club using a flag just as described by him. In looking through our files, however, we find that there are a few clubs that use a fouled anchor and two stars. It is nothing new; in fact, most of them are old clubs and have not as yet fallen into line with the larger clubs in using uniform officers' flags with thirteen stars and an anchor. The clubs we find that use two stars and an anchor are: The Staten Island Y. C., the Seawanhaka, Harlem Y. C., Lake Champlain Y. C., Northport Y. C., South Bay Y. C., but no two of these use the stars in exactly the same position. The tendency, we believe, now is for all clubs to use the pennant for the club signal; the swallow-tail flag, or burgee, for the private signal; the rectangular flags for officers' signals, and it seems to us that more and more the clubs are all falling in line, using uniform officers' flags, copying that of the N. Y. Y. C.

ANNIN & Co.



Photo by Cottrell

At the Annual Regatta of the Pensacola Y. C., Glendoveer, Winner of the Long-Distance Race from New Orleans, La., to Pensacola, Fla., at the Wharf, to the Left. All Kinds of Boats are Here Represented—Offshore Cruiser, Speed Boat, Run about, Sailboat and Flying Boat



A Group of Christchurch Yachtsmen Taken on the Naval Reserve, Christchurch, N. Z. H. Helford, Photo.

A MANUFACTURER'S VIEW OF A. P. B. A. RATING

On page 10 of the January RUDDER, the article "Engine Rating" is a move in the right direction and we hope you can see your way clear to make this a live issue and follow it up to a finish.

This would do more to cleaning up and eliminating a lot of dishonest engine builders than anything we know of. The claims, ratings, etc., of some builders are certainly ridiculous. If they could be made good, it would be simply marvelous.

C. S. SNYDER, *President.*
Wolverine Motor Works.



Transporting a Sailboat on the Ice in Russia





Georgia G, Owned by F. J. Lovering, San Juan, P. R.

BUILT FROM PLAN IN RUDDER

ENCLOSED please find a photo of the power boat Elk, owned by D. J. Keane, Commodore of the California Y. C. She is a reproduction and enlargement of the plans of the Victory III, designed by F. W. Goeller, Jr., and reproduced in the October, 1912, issue.

The lines are the same, only drawn out and finished aft in a compromise stern instead of the square stern shown. The finished dimensions were: length o. a., 36 feet; breadth, extreme, 10 feet 6 inches; draught, 3 feet



The Sea into Which the Genesee Dinghys are Sometimes Launched

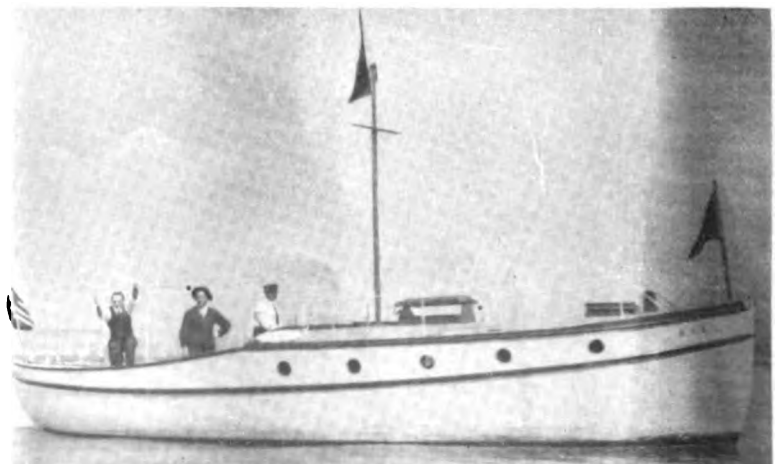
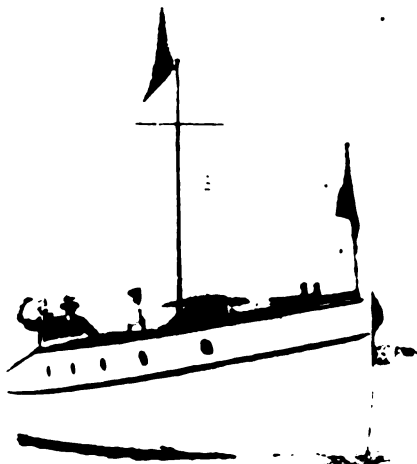


6 inches; headroom, 6 feet 1 inch. A California Standard engine, 20-h.p., drives her better than 11 miles.

The arrangement plan and bridge deck were kept the same length, the cockpit being 4 feet longer. The scantlings are considerably heavier than usual, the keel being 6 inches by 8 inches, of Tasmanian iron-wood, the frames of white oak, $2\frac{1}{4}$ inches square, spaced 8 inches center to center, except in the way of the engine, where they are spaced 6 inches apart.

The finish is of Philippine mahogany and oak polished. She is considered by our yachtsmen as a well designed and comfortable cruiser.

D. J. KEANE.



Thirty-Eight-Footer Built from Plans Published in "The Rudder"

ROUND THE CLUBHOUSE FIRE

SEVERAL men have written asking what about the race to San Francisco and if I am running the affair. There is no race scheduled to San Francisco; there is a cruise and I have nothing whatever to do with its management. It is certainly not very complimentary to my age and experience to suppose me capable of laying out such an assinine performance. I'll admit ignorance of many things, but I do know something about long races and the geography of the American coast and West Indian seas. It is only necessary to placard the ignorance and stupidity of the people who laid out this course to notice that one of the ports of stop is Key West. Who ever heard of going to Colon by the way of Key West? Possibly these people did not know it, but Key West lies to the West of Colon. When the fleet has arrived at Key West, what course is it going to take to reach Colon? Round Cape San Antonio, or back through the Old Bahama Channel? It certainly can't hop over Cuba. Either way you go you will have a strong current against you. Have any of these course-makers ever butted around Cape San Antonio against the Stream, or made the run from that place against wind and current to Old Providence? One night in the Stream off the West end of Cuba in a breeze of wind, or a day or two in the trough of the Caribbean will be enough for any good stomach to stand. I advise the owners to take the committee with them; it will surely be their last offense.

* * *

I asked one of the ditch sailors why the boats were to be sent down along the coast. His answer was, because "It is safer." That showed the man's utter ignorance of what he was talking about. Anybody who has had any experience knows that the safest place for any vessel, unless she is overloaded, is offshore, not along shore. It is particularly so when navigating the Florida straits and the West Indies, as among the corals there are no offshore soundings to warn the mariner. On the course laid off the navigator will have the current against him for hundreds of miles and in order to escape this set he must hug the reefs in places where the counter set is not over a mile wide. It is extremely dangerous to do this at night, especially if it is calm. Instead of increasing the safety of the trip by keeping close to the coast, they have increased the dangers tenfold. The proper course to Colon lies outside of the Bahamas, through Crooked Island Channel, and thence by the Windward Passage. In this way the reef navigation is shortened, and after rounding Cape Maysi the wind, sea and current is brought aft, making an easy run to Colon. That is the course I laid out when several years ago, I proposed a race to 'Frisco, and so far as my experience goes, is the safest and most comfortable road for getting to the Isthmus. Of course, if the parlor mariners and ditch sailors who are running this cruise and who couldn't be enticed outside Sandy Hook in a small boat know better, it is for me to go forward and belay.

* * *

Not content with picking out the worst course, the ditch sailors have selected a date for starting the race

that will bring you into the hurricane belt just at the time when you are likely to catch one. The last of September and the first part of October are prolific of bad weather and hurricanes. I was reading the other day of the hurricane that swept the Bahamas and Florida coast in 1837, and it was some wind. Now, by going outside the Bahamas, you keep clear of the usual track of these visitors. I'll be shot if I want to tackle a hurricane or heavy gale in the Florida Straits or in any of those reef-bound channels. Give me open water with a chance to run or drift. The cruise should be set for the last of October or first of November, if pulled off in the Fall.

* * *

Another thing, did it occur to these people who laid out this cruise, that stopping in eight or ten ports largely increases the risk and brings trouble to the navigator? Making strange ports at any time is no cheerful task, and, when racing, especially at night, it is considerable of a strain on the nerves of a navigator. It also injects a lot of luck into the performance. A man who makes a port in the daylight will possibly gain hours over the fellow who arrives off the bar in the dark and has to wait until dawn before going in. How are you going to keep a crew? If bad weather is hit the first leg, half the crew will desert at port No. 1. If they don't desert, they will go ashore, get drunk, mess up their livers, and be no use for several days. A week at sea you can break a crew in and make them fit, but this installment plan business only stirs up their livers and makes them worse and well, and well and worse, again.

* * *

What I object to, and the rest of the deep-water racing men object to, now and always is having people who don't take part in these races and have no knowledge or experience in overshire racing, butting in and running these events. We don't interfere with their ditch races and pond regattas; why should they interfere with our contests? But this has been the history of what is known as the American Power-Boat Association, a constant meddling and messing with the sport at the dictation of some clique, interest or half-baked navigator. When we started the Association in this office, for here it originated, it was with the idea that it would direct and conserve the sport for the sake of the whole sport, but instead of that it has simply been run as a side show for some clique to boom its business interest, or some office philosopher to exploit his ideas. It has never even had the guts to stand up and fight for honest records, and if it had not been for THE RUDDER calling the speed fakers aft, nothing would have been done to stop that form of lying. Two years ago the Yachtsman's Club turned over the Bermuda race to its management—I don't know by whose permission, certainly not mine—and the Association put it out of business. It has constantly altered the measurement rules at the behest of interested parties so as to give their particular favorites a chance to win, and this cruise to 'Frisco is laid out with the intention of throwing the prizes into the hands of a light,

high-speed type which is exactly the kind of craft these long runs are not intended to encourage. My advice to the long-distance men is to chuck the A. P. B. A. over the side, and organize an Association to take care of these long events, made up of men who sail in them, and who consequently know a hand spike from a fiddle block.

* * *

Now, having had a whack at the Association, I am going to ride down the legislature—another specimen of amalgamated human stupidity. In this country we are constantly pestered by lawmakers who pass, or attempt to pass, all kind of ridiculous bills, restricting somebody from doing something they want to do, or to oblige somebody to do something they don't want to do. One man wants to restrict your drinking, another your smoking, another your—well, never mind, it is always some interference with the citizens' personal affairs. Consequence is that in no country in the world is there so little personal liberty as in these United States. Lately a bill has been put through the House at Washington called H. R. 6143, having for its object the making of more business for the courts and lawyers. If this bill passes in its present shape, it will make you, as owner of a yacht, liable for damages if any person, either one of your crew or guest, is killed on your vessel. So far as merchant vessels are concerned we have nothing to say, but it is nonsense to cover pleasure vessels with such a measure. If I go aboard a steamer and pay my fare, by that very act I confer an obligation on the owner, and he is bounden to care for and protect me, but if I board a yacht as a guest, it is I who am under obligation to the owner, and there is no reason why, if I fall overboard and get drowned, my estate should have the right to sue him for damages. If this law goes through it will kill yacht racing, as no man will want to run the risk of being sued every time he drowns a guest or bats one of his crew over the head with a tiller. All hands better write to his Senator or the President and have Bill H. R. 6143 amended so as to shut out pleasure vessels.

* * *

But while we don't want to pay for drowning our guests or crews, we do want to do all in our power to make voyaging on yachts safe. There have been several bad accidents on power craft and recently one caught fire in the Carolina Sound and all on board except one female were lost. I am willing to wage that the primary cause of that disaster was riveted tanks and the secondary, somebody smoking. What I want to call your attention to is the necessity of proper fire precautions. If you have a crew they should be broken into a fire

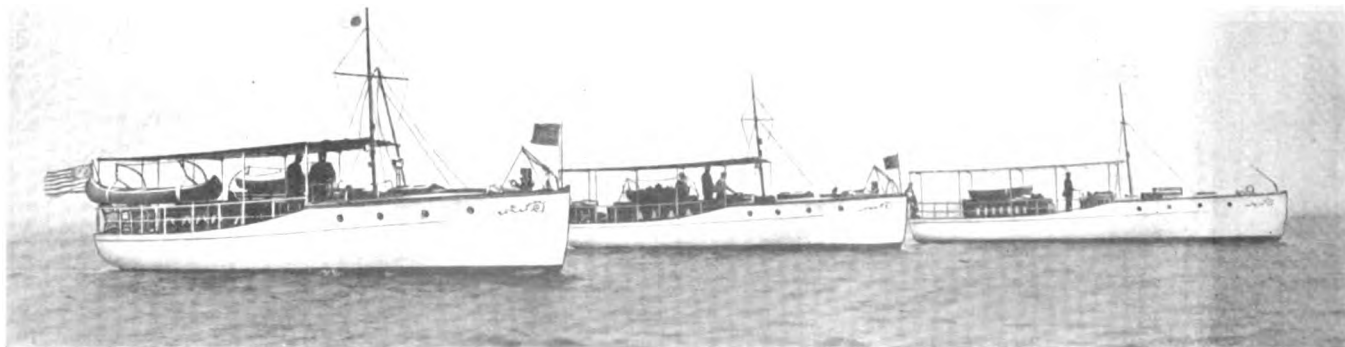
drill, so when the time comes they will do what ought to be done, and above all, keep your fire apparatus in place and condition. Fire extinguishers are the thing, but where are they? All down below, on many boats. Keep one, at least, of your Pyrene guns on deck, where you can get it. Half the boats I go on have all the extinguishers on the bulkhead below, so if the engine room caught fire you couldn't get one. Again, where are the life-preservers—jammed in aft, or under the anchor and chains in the fore-peak? I was talking the other night with a man who makes life-saving mattresses and cushions, and we agreed that they are the real thing. If the Titanic had been equipped with these Ilana-silk mattresses, two-thirds of the passengers would have been saved. On a mattress you can keep out of the water and not be chafed to death as you are with one of those cork straight-jackets. Two floatable cockpit cushions are worth more when the sudden blow comes than a hundred life-preservers stowed below.

* * *

My harangue on the subject of ready-to-wear boats has brought in several comments and inquiries. Several builders have written in, asking what to build. My advice is to turn out a cabin power cruiser, 25 feet over all, and another 35 feet over all, 16-foot cat and 22-foot, and some good sensible rowboats designed to carry portable motors. There is a large demand for such craft, the present craft being too weakly constructed aft, and not having sufficient bearing to carry the weight of the motors. There is a considerable and increasing demand for auxiliary cabin cats, a boat with a good-sized motor and about a two-reef-sized sail. A small cabin cruiser like Sardine would sell if the price is kept down, as she is just the thing for a couple of boys or men to cruise in. Toppan, of Boston, gets out a small open boat that, for the money, is the best thing I have seen. A cabin boat larger, but built in the same plain, strong fashion, would fill the bill. The Elco people tell me they will have a fleet of cruisettes ready to deliver in the Spring.

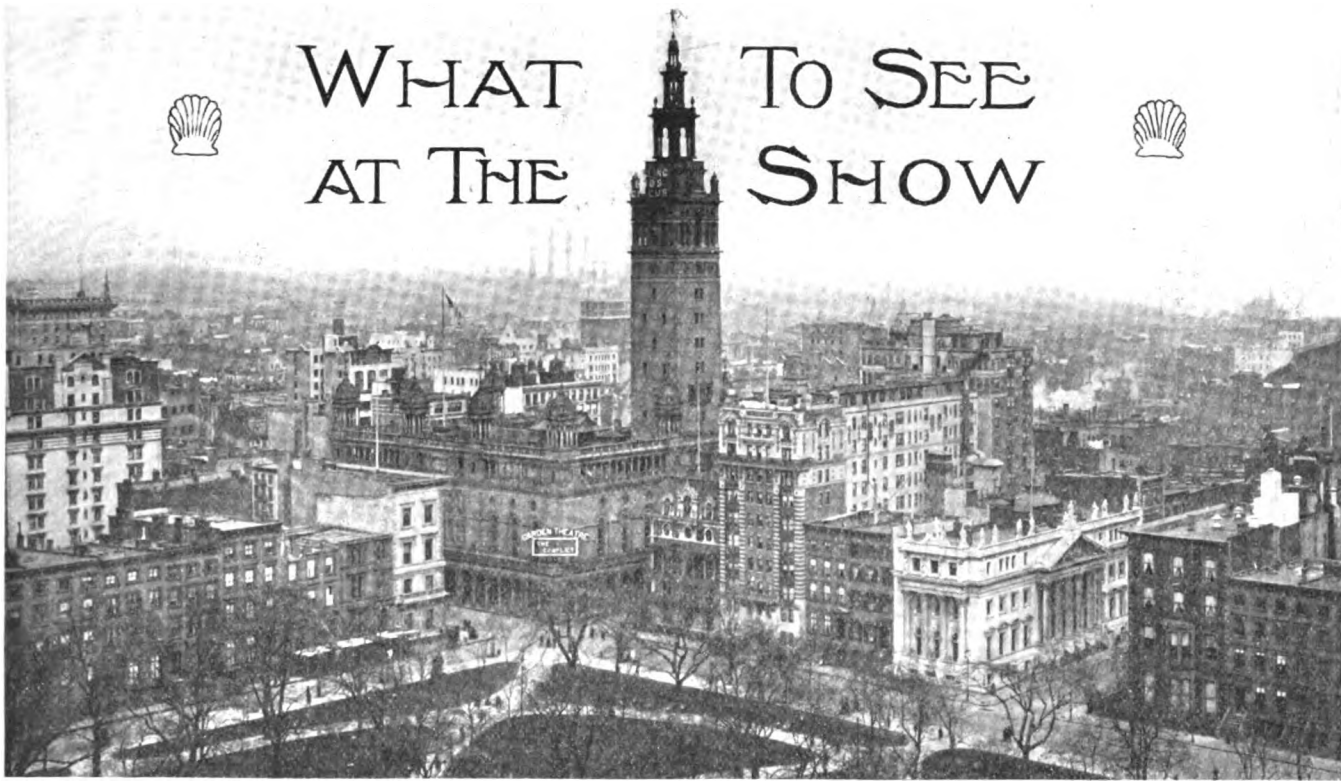
* * *

The report of the Commissioners of Navigation for 1914 shows that there are under United States flag 1,566 documented yachts. Sailing yachts, 223; steam yachts, 1,307; houseboats, 360. Under steam yachts is included all yachts driven by power, either steam, gasolene or any fuel. Boston has 127 hailing from it; New York, 461; Philadelphia, 93; Seattle, 57; San Francisco, 10. Total number of metal-built yachts is 198. Last year's total was 1,559, a gain of 7.



Three of the "Elco" Forty-Five-Foot Cruisers

WHAT TO SEE AT THE SHOW



DETAILS OF THE EXHIBITS AT MADISON SQUARE GARDEN, NEW YORK

ONCE more Madison Square Garden has become the center of attraction of power-boat men the world over, and the anticipated pleasures, with which the speed bugs and cruising fans have been awaiting the greatest motor-boat show of all, have been more than fully realized, for there is displayed every type of the modern boat-builder's creative art, also results from the brains of our cleverest marine motor engineers, not to mention the ingenious accessory devices that are to be found in profusion in the galleries. The entire industry is fully represented at the Eleventh Annual Exhibition, which opened to the throng that had gathered outside the doors on January 30th, under the auspices of the National Association of Boat & Engine Manufacturers. The 1915 show reveals the fact that boats and engines to suit the pocket of either the clerk or millionaire, also the grades between, are to be seen; in fact, there is something for everybody who loves the water. One thing above all must be emphasized, and that is, as just stated—the show is well representative of the American motor-boat industry, whose talents and productions are second to none. One could take each exhibit and dwell upon it at length with pride and delight, and in some cases with envy; but, alas, space and time prevent the realization of such a step,

so we must content ourselves with but a brief description of the various exhibits in alphabetical order.

BERRY BROS.

Varnish is always a most important thing to study, particularly where a boat is to be used in salt water, as a poor composition will turn white. Messrs. Berry Bros. are showing some handsome panels finished with their products, also a novel mechanical device for demonstrating its leading features.

BILLINGS-CHAPIN COMPANY

This concern also displays varnish, which is known as "Spar-Var," and at their booth, No. 57, can be seen a line of deck paint, marine white, anti-fouling copper paint and marine enamels. Their U. S. N. deck paint motion display sign attracts immediate attention, even from a distance.

BOSCH MAGNETO COMPANY

The exhibit of the Bosch Magneto Company is the largest that has ever been made by them; in fact, it is the biggest exhibit in the accessory section of this or any other motor-boat show held in 1915, covering an area of 280 square feet. There are two marine motors, one equipped with their own electric lighting and self-starting system, and the other with the Rushmore lighting and starting outfit. In addition they have a large display of ignition apparatus, specially arranged for motor-boat work.



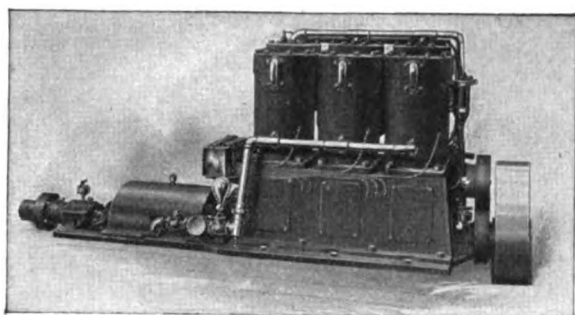
Mr. K. W. Dyer, of
Frisbie Motor Co.

BRIDGEPORT MOTOR COMPANY



Mr. H. Brautigam,
Bridgeport Motor
Co.

No fewer than thirteen different models of marine motors are shown by the Bridgeport Motor Company, incorporating a line of single and double-cylinder, non-backfiring engines; single and double-cylinder, high-power speed models, and the new four-stroke type heavy-duty 36-h.p. power plant. The two-cycle outfits remain much the same in design as those of 1914, including the patented vapor rectifier which has been retained. This fitting overcomes the possibility of base explosion, removing the last troublesome feature known to two-cycle marine engines. It also enables, it is claimed, an extremely wide range of speed control without readjusting the fuel supply, whether under load or running light. The four-stroke model is exhibited for the first time. It is the results of three years' development and experimenting. All working parts, save for the pistons and connecting-rods, are

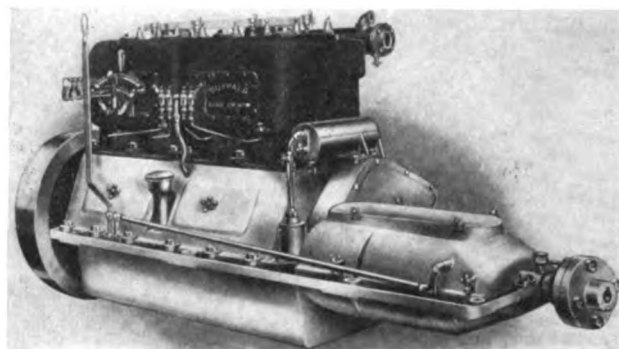


The New Bridgeport 36-H.P. Four-Stroke Engine

externally located. The cam shaft, gears, valve-lifters, etc., are all where they may be instantly uncovered and removed in a few minutes, and the design is such that this motor has the appearance of being the inclosed type, with the added advantage of being very accessible. It is built with three cylinders, $7\frac{1}{2}$ inches bore with 9 inches stroke, carrying a horsepower rating of 36 at 375 r.p.m.

BUFFALO MOTOR COMPANY

A new four-cylinder model, built in two sizes, expressly to fill the needs of cruising boats and large runabouts, is the special feature of the Buffalo exhibit, and this engine makes its first appearance at the New York show. Its two sizes are designed to cover the requirements of a very large variety of boats. The smaller size is rated at 40-60-h.p., depending upon the speed at which the engine is operated. Bore 5 inches, stroke 7 inches, weight with aluminum base and crank chamber, 1,100 lb, and with iron base and crank chamber, 1,400 lb, speed 600 to 900 r.p.m. The larger size is 50-68-h.p., bore $6\frac{3}{4}$ inches, stroke 9 inches, weight with aluminum base and crank chamber, 1,600 lb, with iron base and crank chamber, 2,100 lb, 500 to 800 r.p.m. The smaller size only is shown. The aim of the designers of this engine was to combine steady reliable qualities with reasonable high speed and light weight.

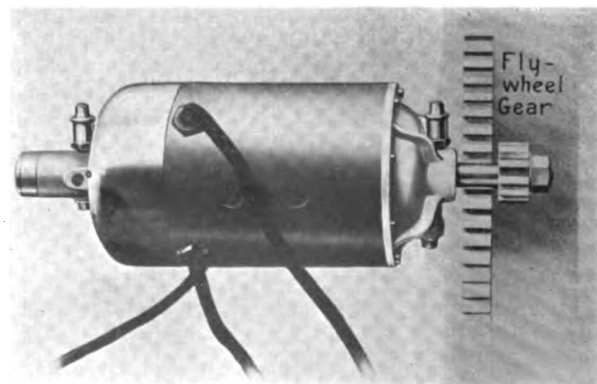


The New 40-60-H.P. Buffalo

Another feature of the Buffalo exhibit is a heavy-duty model designed for work-boats. This engine is rated at 85-100-h.p., and ranks among the big engines at the show. Its bore is 10 inches and stroke 12 inches. Its construction is massive throughout. The other Buffalo exhibits include one of the 16-20-h.p. automarine models built for light runabouts, and a 25-30-h.p. of the same type. The engines suitable for small boats are represented by a 5-6-h.p. medium-speed plant, and the medium-powered, heavy-duty type by the 13-15-h.p., and a 26-30-h.p., heavy-duty motor.

CAPE COD POWER DORY COMPANY

Although they do not show all their boats, a fairly representative line is displayed by the Cape Cod Power Dory Company. They have been building the past year a 24-foot dory-type cabin cruiser, which is used almost entirely for a day boat, although it is comfortable for sleeping. This little cruiser is designed especially for seagoing purposes, although she is comparatively shallow draught. The forward part of the boat is decked over, leaving a cabin over 6 feet in length with large lockered berths on each side. Nearly amidships is located a cockpit, which is 6 feet 3 inches long and about the same width, with ample seats lockered on either side. This cockpit being very nearly amidships brings the load of passengers just right where they ought to be. She will seat six or eight people very comfortably. Next aft of the cockpit is the engine compartment, which is housed in under a little cuddy fitted with a disappearing cabin door. This puts the motor right where it ought to be in a small boat of this kind. The motor installed in this show boat is a two-cylinder, 8-10-h.p. Other boats



Bosch Electric Engine Starter. (See Previous Page)

of interest that they exhibit include a 20-foot seagoing dory, a 17-foot sailing dory, a 16-foot lake and river shallow-draught boat, and a 14-foot flat-bottomed craft, designed specially for outboard motors.

A. S. CAMPBELL COMPANY

At booths 14 and 15, the A. S. Campbell Company are showing a good number of improvements in motor-boat fixtures, including the "wire-less" searchlight, which unquestionably is one of the biggest "hits" that they have to offer.

CARLYLE-JOHNSON MACHINE COMPANY

Reverse gears and the little Bud-E marine motor form an attractive exhibit at the booth of Messrs. Carlyle-Johnson Machine Company. The Johnson reverse gear is, of course, very well known, and improvements are constantly being made with the progress of time. It reverses at two-thirds the forward speed and all gears are idle except when reversing. The forward drive is direct, no gears being employed, and no power consumed, so it can be thrown from full speed forward into the reverse without injury.

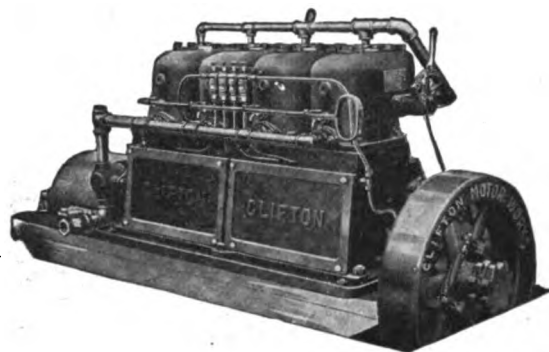
GEO. B. CARPENTER & Co.

Accessories in bewildering numbers and kinds are to be seen at the stand of Messrs. Carpenter & Co.; in fact, every fitting for a boat or yacht whether she be sail, steam, motor or oar-propelled. Among the new devices is the Carpenter mooring bit, which is designed to handle the dock lines of motor boats and take the place of the ordinary style cleat and is much more attractive. The post and pin are made in one piece, so that there is no chance for the pin to work loose. Another novelty is their electric post light, that has been designed for high-grade runabouts. It combines the Class 2 bow-light and snubbing post in one. Although heavy enough to hold a mooring line, it is neater than an ordinary bow light.

One of their principal exhibits is the engine hand-starter, which contains a number of unique and desirable features of construction and design. It is made with an adjustable arm so as to allow the crank to be placed in any convenient position. The crank is fitted with a safety device to prevent injury of the operator from backfiring of the motor. The sprockets are made of steel with cut teeth, insuring silent operation. The only moving part, when the engine is running, is the flange coupling contained within the lower ratchet sprocket. This lower ratchet sprocket is combined with a flange coupling so that it can be placed between the engine and reverse gear, taking up but very little space; in addition to saving the customer the cost of an extra coupling.

CLIFTON MOTOR WORKS

For many years a good reputation of marine gasolene engines has been held by the Clifton Motor Works and visitors to their stand who make a thorough inspection of their 20-h.p., four-cylinder, 5-inch bore by 6-inch stroke marine heavy-duty motor will well understand the reason of this reputation. It is of the four-stroke enclosed type, with L-headed cylinders, having the valves on one side in a get-at-able manner. In addition, they are exhibiting three Carlisle & Finch searchlights—a 9-inch, a 19-inch, and a 12-inch diameter respectively.



The Clifton Co.'s Exhibit

DAVID B. CROCKETT COMPANY

The well-known varnish concern of David B. Crockett & Co. occupy space 26 in the balcony. They will be pleased to meet their old friends and customers, and again demonstrate to them their spar composition, for exterior marine work, preservative for cabin finishing and waterproof floor finish for cabin floors.

THE DEBEVOISE COMPANY

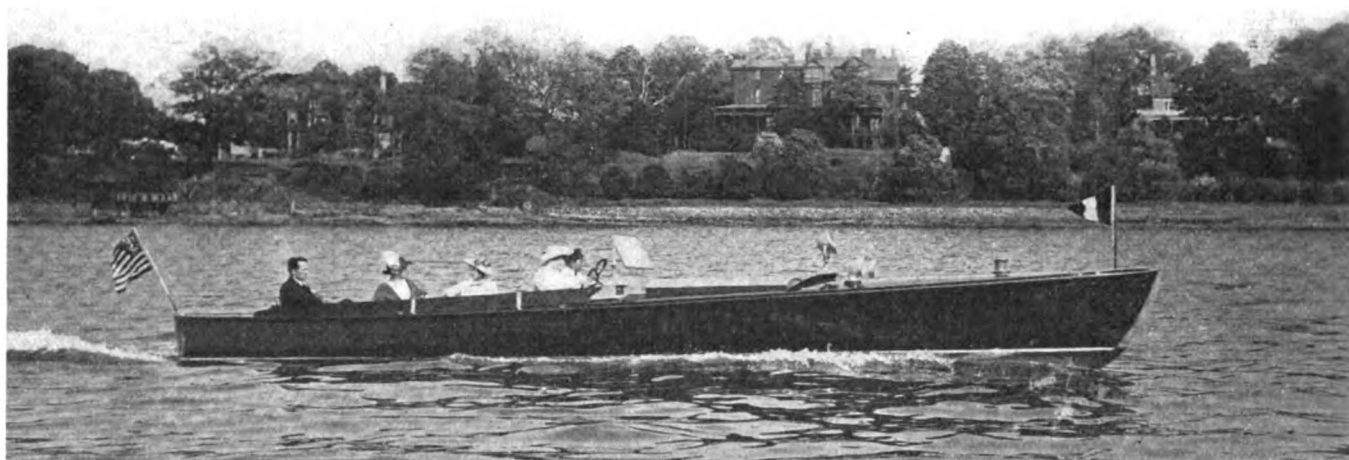
The special exhibit of the Debevoise Company is a marine flat white, a paint that is declared to remain white without blistering, cracking or peeling, so should be ideal for power-boat and yacht use. Also at the end of the season the surface is in the condition for repainting without burning or scraping.

THE ELCO COMPANY



Mr. H. R. Sutphen,
of Elco Co.

One of the finest boat exhibits in the building can be seen at the stand of the Elco Company. For several years this company has specialized in Elco express launches which will serve on the water as a high-grade automobile does on land. For 1915, they are offering a new 30-foot Elco express of 6 feet breadth, giving large seating capacity. This boat is equipped with a 65-h.p., four-cylinder, new design of Elco motor, which power enables the boat to maintain a speed of 22 miles an hour, which the company guarantees. The 36-foot Elco express for 1915 is equipped with a six-cylinder, 100-h.p. Elco express engine, with which power the boat is guaranteed to have a speed of 26 miles an hour. The hull is finished throughout with mahogany. The 1915 model is similar to the boat exhibited last year but refined in details of hull construction and equipment. Special attention has been paid to the details of equipment, such as the aluminum cowl and engine hatches, the engine being located forward. This boat is equipped with a foot-pedal reverse, and a new type of steering gear, which permits of easy steering with perfect safety at high speeds. The seating arrangements provide for eight or ten in comfortable wicker chairs. Their new express engine is of 5 9/16-inch bore by 6-inch stroke. The best of construction and material is employed throughout in the building of these engines and among their many special features is a removable cylinder head with copper asbestos gasket. By removing



The 36-Ft. Elco Express Runabout on Trials Before the Opening of the Show. She is Powered with the New 100-H.P. Elco Motor. Speed (Guaranteed) 26 Miles per Hour

the cylinder head the valves and the tops of the pistons are accessible and carbon can be easily removed.

ELECTRIC TACHOMETER COMPANY

Every power boat should be fitted with an engine revolution counter, and once an owner has had one he will never again be without. In Booth 18, the Electric Tachometer Company have on view a complete line of these instruments. Their particular model is known as the Hopkins Electric Tachometer, which consists of a small direct-current magneto generator and an indicating electrical voltmeter (instrument) of the highest grade obtainable. The two parts of the system are connected by a twin (two-wire) insulated cable. When a system of coils is rotated within a permanent magnetic field, an electric voltage or potential is generated in direct proportion to

the speed of rotation of the moving coils. It is therefore possible to calibrate the electrical voltmeter in terms of speed; in this instance revolutions per minute of the engine.

EVINRUDE MOTOR COMPANY

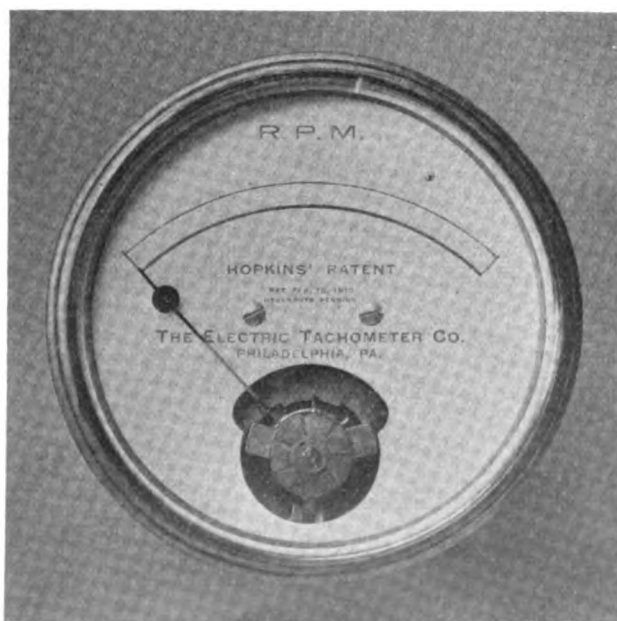
Seeing that almost every yachtsman has a dinghy equipped with one of the little Evinrude outboard motors, and how familiar are rowboat men with this muscle saver, a visit to Madison Square Garden would be incomplete without seeing the recent improvements made to their outfits by the Evinrude Motor Company. They are showing a large number of their latest engines, two outboard-motor-equipped boats and a canoe. When you see one you will want it. They are no trouble to install, and cheap to run.

THE FAIRBANKS COMPANY

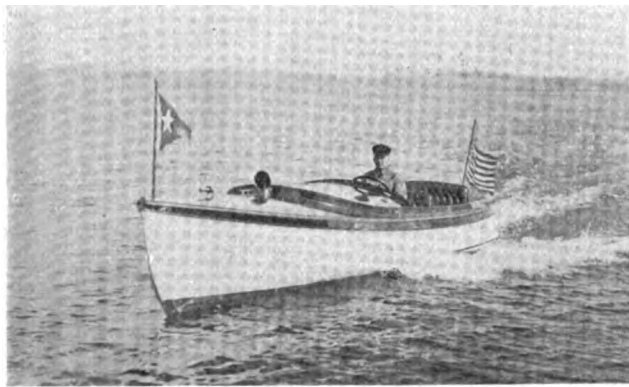
Here are exhibited the Fairbanks Company's 1915 engine models, and a special feature of the new design is the cylinder heads are both water and air-cooled, while the main bearings are steel armored and pressed into the bearings housings. Carburetion is accomplished by two distinct carbureters, one for gasolene and the other for kerosene. The kerosene carbureter is located on the starboard side of the engine attached to the by-pass port leading from the engine base to the cylinder, and the fuel is carried from the by-pass directly into the cylinder.

FAY & BOWEN

One of the largest exhibits is that of Fay & Bowen, who are showing five four-cylinder motors, one six-cylinder engine, one two-cylinder motor, a single-cylinder outfit, and one cruiser electric-lighting set. They also exhibit a 26-foot runabout, and a junior-runabout. The latter is a new boat shown for the first time. The original model was built and thoroughly tested during the Fall of 1914. It is specially intended to meet the demand for a modern autotype boat with full equipment. It is roomy, seaworthy, very easily handled and has remarkable speed for its power.



Dial of the Hopkins Revolution Counter



One of the Attractive Launches Shown by Fay & Bowen, Showing How She Looks Afloat

This boat is 24 feet long by 5 feet breadth, and is built after the raised sheer type. It carries a Fay & Bowen, $3\frac{1}{2}$ by 5, four-cylinder, four-cycle motor, and the makers guarantee an actual speed of 16 real miles an hour. The equipment includes reverse gear, Bosch magneto, the latest Wilcox & Crittenden auto-steering control, electric horn, electric lights, fire extinguisher, cushions, upholstered lazybacks, and linoleum on floor. The bulkhead carries the starting crank, regulator for the Rayfield carbureter, indicator showing amount of gasolene in tank, and a control for shutting off the fuel. The forward seat is divided, making two separate seats and permitting easy access to cockpit. The boat is copper and brass fastened, has full mahogany finish, and bronze rudder and strut.

THE FERRO MACHINE & FOUNDRY COMPANY

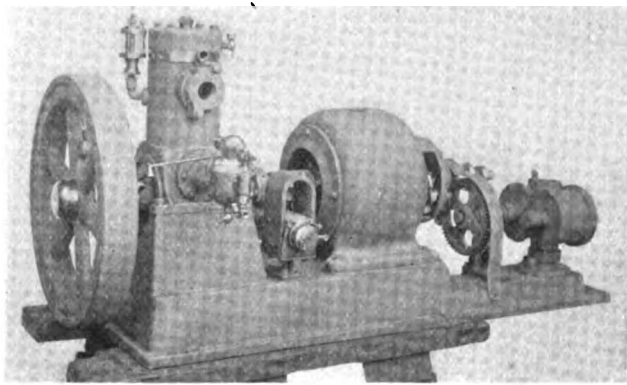


Mr. Crispin Oglebay,
of the Ferro Co.

The entire Ferro line is on exhibit and naturally is attracting much attention, especially as there are several pretty girls distributing literature regarding Ferro products, and they also demonstrate the ease with which a motor can be attached to the stern of an ordinary rowboat. The canoe attachment, or well, which has been designed for the convenience of boat builders or canoe users, is exhibited, showing how Ferro power can be utilized in a canoe. A varying speed of from 3 to 12 miles an hour can be obtained, and while in the canoe, a person can attach or detach the motor without defacing the canoe in any way. Thier new four-cycle engine also is well worth seeing.

FULTON MANUFACTURING COMPANY

Foremost at the exhibit of the Fulton Manufacturing Company is a four-cylinder, 70-h.p., marine Diesel engine of the four-cycle type, similar in design to the 50-h.p. model that we described early last year in THE Rudder. They also show a four-cylinder, four-cycle, 30-40-h.p., high-speed gasolene engine with Leece-Neville electric starting and lighting plant, a 24-h.p. heavy-duty, four-cycle motor, a number of lower-powered self-sparking, two-cycle marine engines, a 20-foot Seabright motor dory and last, but not least, a 25-foot Niagara runabout, so it will be realized that here is a most comprehensive exhibit.



The Fay & Bowen Lighting and Pumping Set.
Handy for a Sailboat or Power Yacht

GAS ENGINE & POWER COMPANY



Mr. J. J. Amory, of
Gas Engine &
Power Co.

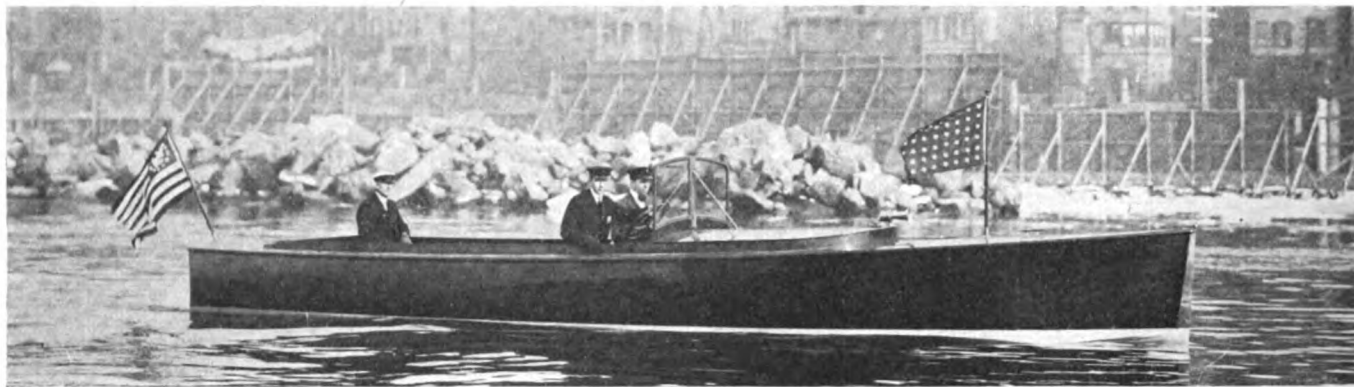
The exhibit of the Gas Engine & Power Company, and Charles L. Seabury & Co., Consolidated, occupies the same space at the Madison Square Garden this year, as before. The exhibition consists of three boats, three Speedway engines and a Speedway alcohol range. One of the boats, the Speejacks, is about the largest boat shown at the Garden, and is a feature of the exhibition. She has been built for Mr. A. Y. Gowen, of Cleveland, Ohio, who owned the former 77-foot express cruiser Speejacks, and now owned by Mr. S. B. Eagan, of Buffalo, N. Y. She has a speed of 25 miles per hour, is 50 feet long, with a breadth of 8 feet, and a draught of 3 feet 3 inches. The planking is two thicknesses of cedar, copper fastened to oak stem, frames, keel and sternpost. The boat is essentially a high-speed, seagoing runabout, with a standing roof, and glass enclosure forward. The motor, an eight-cylinder, 260-h.p. Speedway, is installed under hinged covers forward. The forward bulkhead is fitted with the steering gear, reverse levers and necessary switches, gauges, etc., and the cockpit is arranged for wicker chairs. The after thwartship seat extends on either side, making a comfortable lounging place. There is a toilet, a sink, and oil-stove under the forward seat, a wash-basin on the port side of the cockpit, a dining table aft, and lockers along each side of the cockpit. The motor is fitted with a Bijur electric self-starter and lighting outfit. Complete control of the boat is arranged at the steersman's seat. The other two boats are runabouts, the large one is of 40-h.p., and is 32 feet long, while the second is 25 feet long, with a 28-h.p. motor, and represents a new type of "Speedabout."

CHAS. H. GILLESPIE & SONS

This year Messrs. C. H. Gillespie & Sons are making their booth strictly a reception room, open to their friends in the trade and their customers, and so are merely showing a few panels finished with their varnish; also they are distributing, gratis, a tide chart for the year 1915. Call and get one!

GORDON PROPELLER COMPANY

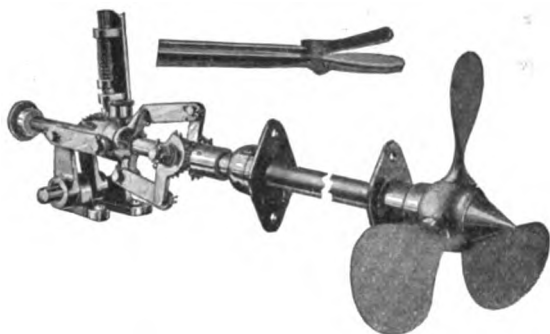
Booth 61, in the balcony, contains the exhibit of the Gordon Propeller Company, Cleveland, Ohio. The



How the Speedabout Looks in the Water—A Picture Snapped Before the Boat was Sent to Madison Square Garden

Upson-Walton Company, of Cleveland, have been running this concern during the past Summer under the old firm name, having leased the patent rights and entire plant. The propeller company had been in receivership for about two years and nothing much was done. Since taking hold, the new management has made many improvements for the betterment of the propeller, strength-

by $4\frac{1}{2}$ inches, cylinders cast two en bloc. The two-cylinder is rated 8 to 10-h.p., and the four-cylinder 16 to 20-h.p. The design and construction of this model is intended to give absolute satisfaction to the most fastidious user. One Gray exhibit not to be overlooked is their outboard motor, which uses flexible shaft drive instead of gears, is better known among users this year than last, yet is creating just as much interest as last year.



The Gordon Propeller

ening various parts, adding ball chase rings at the control to permit ease of operation, as well as control the thrust from the propeller proper, and the blades have all been strengthened by the addition of more metal at the base, as will be realized when making an inspection.

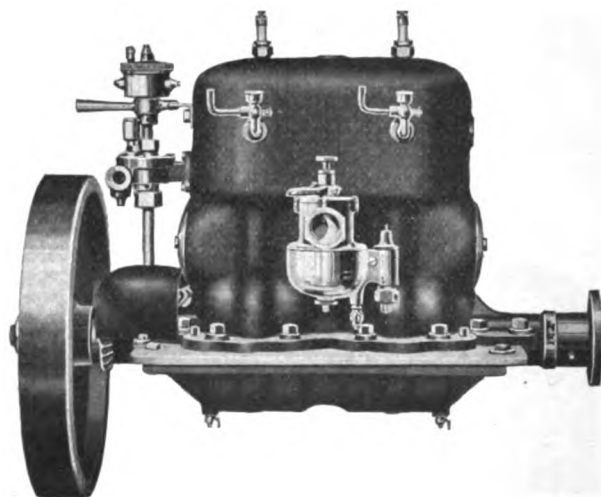
The improvements, of course, increase the manufacturing cost of the Gordon wheel, but the price has, nevertheless, been lowered. The exhibit also shows the "no-bind" stuffing-box and strut, invented some time ago by Mr. J. O. Smith.

GRAY MOTOR COMPANY



Mr. O. J. Mulford,
of Gray Motor
Co.

The standardized line of Gray two-cycle engines are to be found in the usual space occupied by the Gray Motor Company, in Block F, and the "Baby Grand," which was brought out last year with the idea of furnishing at a not prohibitive price, a high-grade, lightweight, powerful and dependable tender engine, suitable for smart tenders, is one of the bright spots in the Gray Exhibit. The new two and four-cylinder Model "D" engines are creating most favorable comment. These engines are $3\frac{3}{4}$ inches

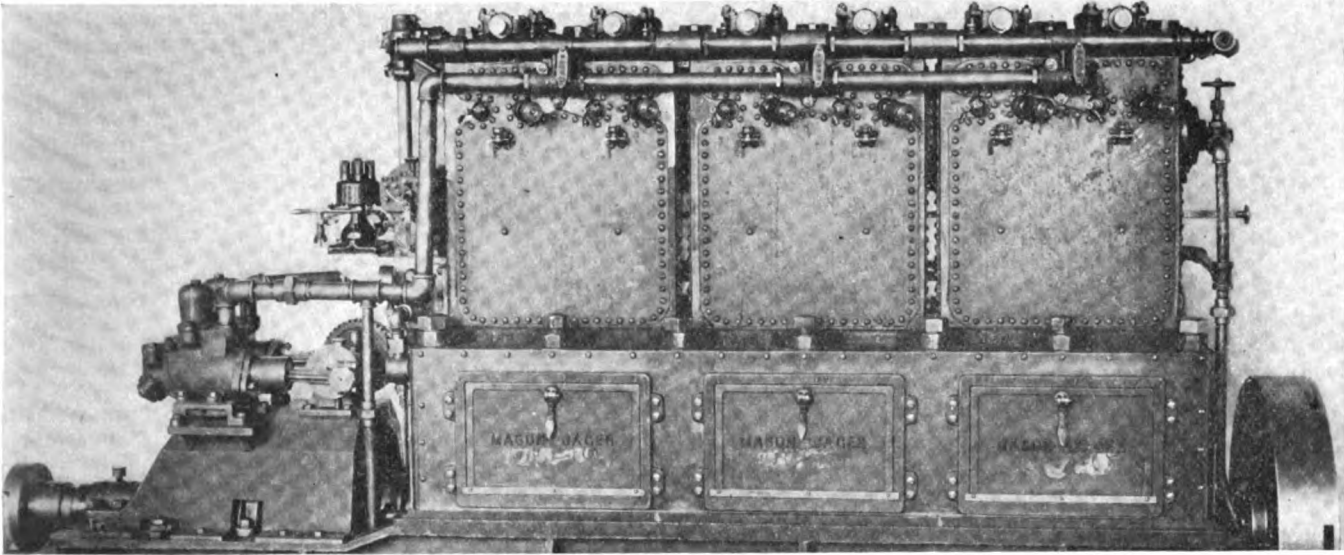


The Neat 6-H.P. Gray Power Plant

The provision for the rudder in the curve tube ahead of the propeller is a great aid in steering in this design. The curve tube makes it impossible to break a propeller or tear the stern of the boat out through striking an obstruction. Another interesting feature of the Gray exhibit is the Crescent air starter attached to a four-cylinder Model "C" engine. Thousands of these starters are used on motor cars as well as in boats.

HOLMES MOTOR COMPANY

Located to the left of the main entrance on the ground floor, where the Standard Motor Construction Company's exhibit used to be, is the booth of the Holmes Motor Company, who are exhibiting one of their 36-foot lifeboat cruisers equipped with a six-cylinder Holmes motor. In these days of "Safety First," this craft naturally attracts considerable interest. She is self-righting, self-bailing and non-sinkable, just the same as the regular Government lifeboats.



The New Big Mason-Jager Type P

THE JAGER ENGINE COMPANY

One of the most interesting gasolene engines at the show is the new Type P Mason-Jager, shown by the Jager Engine Company on the main floor. In addition there are six other engines, each representing a distinct line of service. The new Model P has six cylinders, $6\frac{3}{4}$ inches bore by $9\frac{1}{4}$ inches stroke, rated at 100-h.p., at 650 r.p.m. The cylinders are cast in pairs, with open water-jackets on three sides so that a symmetrical and uniform thickness in the interior walls and valve chests is developed under the closest inspection. Copper plates cover the water-jackets, giving the engine a finely finished appearance.

The important detail of valve mechanism is very well worked out along novel lines. Valves are overhead, with four valves in each cylinder, two inlet and two exhaust, working in steel removable cages screwed into the water-jacket cylinder heads, the valves having cast-iron heads on steel stems. The valves are $2\frac{1}{4}$ inches in diameter, and are used in pairs to develop maximum valve opening and the least risk of warping under the heat of high-speed work. The valve operating mechanism itself is absolutely new in design, having a short rocker shaft, driven from the crank shaft to the valve stems, with very large bearing areas and short, direct movements of the working parts. This results in very quiet action, and makes overhauling of any part of the valve gear extremely simple and accessible. The very large valve opening and the overhead design is a combination of the best possible feature of engine building. One of the other new models exhibited is described elsewhere in this issue of THE RUDDER.

JANNEY, STEINMETZ & Co.

Those who believe in safety first, also those who don't, should always pay careful attention to the fuel tank installation, and thus avoid danger of fire. Above all, we recommend seamless steel tanks for cruising boats. Examples of cold-drawn seamless gasolene tanks are shown by Janney, Steinmetz & Co., on the balcony. These

seamless tanks are especially valuable to the auxiliary power sailboats, as they will stand the hard usage of the rolling of the vessel and buffeting of the waves, which has so thoroughly been demonstrated. The foreign elements in the gasolene have no effect upon the tin with which these tanks are thoroughly coated, and therefore, the trouble of sediment in the tank, which is caused by the action of the foreign elements on the zinc in the galvanizing, is entirely eliminated.

THE S. M. JONES COMPANY



Mr. Percy Jones, of
S. M. Jones Co.

This company are exhibiting on the main floor and are showing a two-cylinder, 4 inches by 6 inches, 10-h.p. Ralaco engine; a four-cylinder, 4 inches by 6 inches, 20-h.p. engine, and for the first time in New York, are showing their latest model, namely, the six-cylinder, 5 inches by 7 inches, 45-h.p. engine. This motor is similar in design to all Ralaco engines, with the exception that it is equipped with two independent sets of jump-spark plugs, it has two carbureters, and although rated only at 45-h.p., will pull better than 50-h.p. on the brake at 500 r.p.m. They also exhibit one of their six-cylinder, 7 inches by 9 inches, 75-h.p. engines, as was fully described in THE RUDDER a few months ago.

KERMATH MANUFACTURING COMPANY

The most important engine on view at the stand of the Kermath Manufacturing Company is the new "Vanadium-Twenty," which is fully described and illustrated elsewhere in this issue, and we suggest reference to the pages in question, where all details are plainly given. Also shown is the 1915 model of the 12-h.p. Kermath outfit, and various mechanical parts. This engine also was fully described in this magazine a few months ago.

LAMB ENGINE COMPANY

This is one of the exhibits that will appeal to the "engine-man," that is to say, the power-boatist that runs his own boat, for whom the Lamb Engine Company well cater. Their line is as follows: Lambkin high-speed runabout model, four-cylinder, 20-30-h.p.; six-cylinder, 35-50-h.p. Medium-duty model, four-cylinder, 24-h.p.; six-cylinder, 40-h.p. Medium-heavy-duty model, two-cylinder, 15-h.p.; four-cylinder, 30-h.p.; six-cylinder, 45-h.p. Heavy-duty model, four-cylinder, 40-h.p.; six-cylinder, 60-h.p. The Lambkin-model engines are of the high-speed, lightweight runabout type, cylinders cast en bloc in pairs, $3\frac{3}{4}$ inches by $5\frac{3}{4}$ inches, normal speed 800-1,200 r.p.m.

LUDERS MARINE CONSTRUCTION COMPANY

For their exhibit, the Luders Company have selected a type of cruiser that on a small scale exemplifies the type of boat they have featured for the last few years. A boat combining seaworthiness, comfort, appearance and speed. With a length of 50 feet comfortable accommodation is obtained for a party of four people, exclusive of the crew; this being done without any sacrifice of privacy in the following manner: The boat is arranged with the living quarters aft; the crew and engine quarters being forward, the two sections being separated by a watertight bulkhead. The owner's quarters are entered from a side companionway into a mahogany finished vestibule. This vestibule in turn opening on the owner's stateroom, which is arranged with two beds, mahogany bureau, mirror and wardrobe. A properly appointed toilet room also connects with this vestibule. Going forward from the vestibule the main saloon is entered. The galley is immediately forward of the dining room and is unusually generous in size for

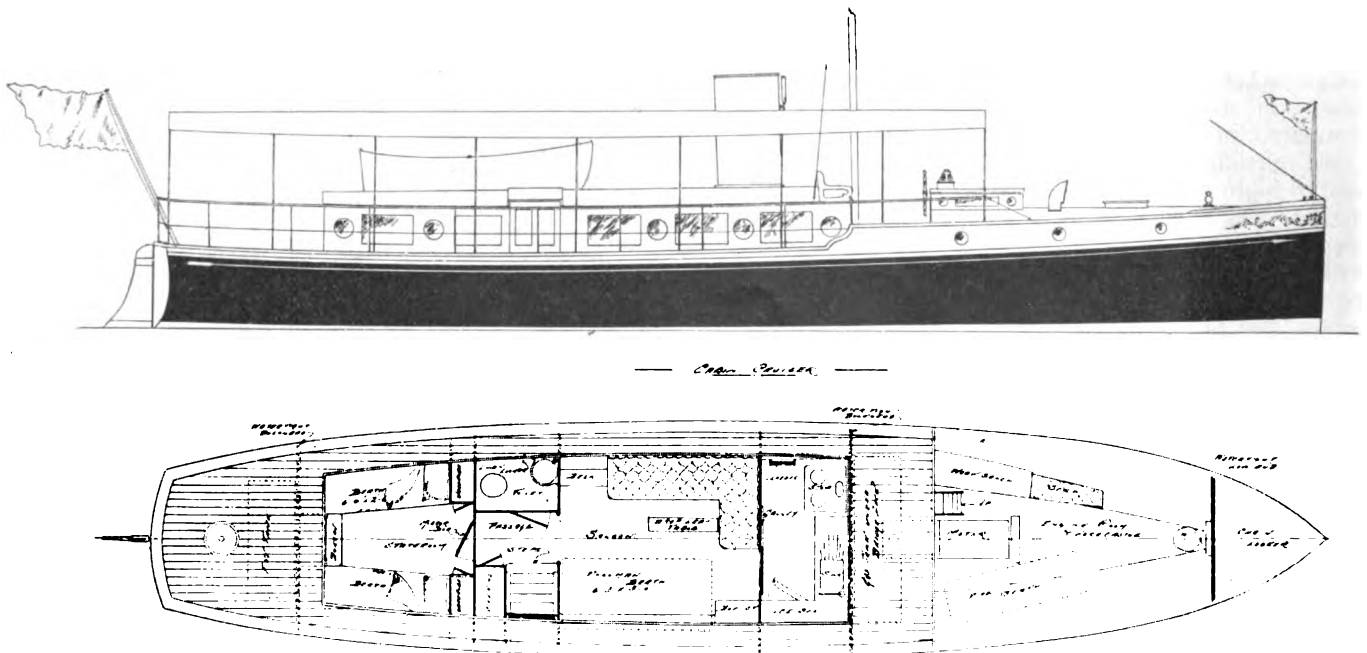
a 50-foot boat. It has a hatchway and ladder for exit to the deck. In fact, it will be noted that each compartment has two independent means of escape. A little forward of amidship, with its reverse gear under bridge deck, is located a 25-35-h.p., four-cylinder Sterling. Accommodation for two men is provided in the forward part of the boat, toilet and wash-basin being properly installed. The speed is 12 m.p.h., and the equipment and upholstery of the cabins, etc., is in first-class style and is well arranged.

HECTOR MACRAE

Complete "Champion" lighting outfits of the electric type are exhibited by Hector MacRae, including a complete working outfit of the 6-150 type. This, they find, is the most popular size, and the one that suits the general run of 50-foot cruisers or about that length. It is exhibited just as it would be in a boat: the dynamo charging the battery, the lights burning, etc. The set consists of battery, dynamo and switchboard. The most unique and useful feature of the switchboard is the circuit-breaker.

CHAS. P. MCCLELLAN

No modern runabout or open launch is complete without an auto-top, so a visit to the show would be incomplete without pausing a while at the booth of Chas. P. McClellan, where auto-tops of the latest design are well illustrated in substance. There are also to be seen here, spray hoods, life-preserver cushions, and boat covers. The sliding hoods are so constructed that the hoods slide on rods attached to the washboard; which allows the frame to slide forward and to aft, making a neat furl around the washboard. All fixtures connecting the frame to slide rods are lever locked, allowing the hoods to be removed in a minute, no nuts, pins, or screws used.



Profile and Accommodation Plans of the Luders Fifty-Foot Cruiser—One of the Biggest Boats at the Show

MIANUS MOTOR WORKS



Mr. G. Gray, of
Mianus Motor Works

A very attractive engine display has been made by the Mianus Motor Works, there being ten two-cycle type marine sets, and three four-cycle outfits on view. The latter seem to be attracting the most attention, as their construction is quite a new departure for this concern. The two-cycle engines are similar in design to the 1914 model, there being very little change in the design, except for a few minor improvements.

MORRISTOWN BOAT & ENGINE COMPANY



Mr. G. Kirchof,
of Morristown
Engine Co.

At the booth of the Morristown Boat & Engine Company the following interesting marine motors can be seen: One Type F, four-cylinder, four-cycle, 25-h.p. engine, $4\frac{1}{2}$ inches bore by 5 inches stroke, with integral reverse gear, dual magneto and aluminum base; one Type T, three-cylinder, two cycle, 15-h.p., 4 inches bore by 4 inches stroke engine with attached reverse gear, At-water-Kent ignition and force-feed oiler; one Type T, three-cylinder, two-cycle, 6-h.p., 3 inches bore by 3 inches stroke with attached reverse gear; one Type T, two-cylinder, two-cycle, 4-h.p. engine, 3 inches bore by 3 inches stroke. In a recent issue of THE RUDDER we fully described the new four-cycle engine referred to above.

MURRAY & TREGURTHA



Mr. J. A. Murray, of
Murray & Tregurtha

Only two marine engines are being exhibited by Murray & Tregurtha. One of these is, however, built in sizes from 4 to 60-h.p., in two, three and four-cylinder models, while the other is constructed in sizes from 60-h.p. to 200-h.p., in four, five and six-cylinders. The latter type are built with an air-starting device, and can be arranged to have air-reversing as well. Besides the regular engines just referred to, the firm turn out two sizes of high-speed motors and two sizes of independent electric generating sets, also steam outfits, including several sizes and models of steam engines, and the well-known Tregurtha water-tube boiler, not to mention the famous Viper-type hydroplanes, of which photographs are shown.

NEW LONDON SHIP & ENGINE COMPANY

As may be expected, the New London concern have on view one of their four-stroke-type Diesel engines. It is a four-cylinder, single-acting model of 100-120-h.p.,

very simple and rugged in construction, designed to stand continuous and severe duty. A sister motor is now fitted in the yacht Idealia, in place of the original two-stroke-type Diesel engine.

PALMER BROS.

This well-known firm of two-stroke gasolene and kerosene engine manufacturers, who hail from Cos Cob, Conn., have on view about forty engines altogether, and on no account should a protracted visit to this booth be omitted. To the unfortunates who cannot get to the show, a catalog will be mailed upon writing to the head offices.

PENROSE MOTOR COMPANY

The exhibit of the Penrose Motor Company consists of one single-cylinder, 4-h.p. marine engine equipment, a two-cylinder, 8-h.p. engine and one half-section of the Model E, which clearly shows the working parts of this original and unique motor.



PYRENE MANUFACTURING COMPANY

Due to its successful use in connection with fires on the water and on land, the construction of the Pyrene fire-extinguisher needs no description here, as it is well known by all marine motorists. At space 29, the latest type extinguishers, with brackets for attaching the same to boats, etc., are shown, while demonstrations are given showing the scientific principle by which it extinguishes fire. This is done by bringing the liquid in contact with heat, generating a very heavy white gas. This gas blanket spreads over the burning material, excluding the oxygen of the air and smothering the fire. Visitors to the show need have no fear of fire while the demonstrators of Pyrene are about. It gets the fire under at the start.

RELIANCE MOTOR BOAT COMPANY

An exact duplicate of Mr. J. F. Betz's Cinderella-type speed-boat Adagadai, which has a speed of 38 m.p.h., is being shown by the Reliance Company. It is built of mahogany with "lazyback" seats, and the power plant consists of a four-cylinder, 100-h.p. Sterling motor, which is fitted with an electric starting and lighting outfit.

SIMMONS & SLADE

A natty little craft can be seen at the booth of Simmons & Slade. She is a 14-footer, specially designed for both outboard motor and sail. The hull is built of $\frac{3}{4}$ -inch white cedar planking, copper-fastened with a keel of white oak—frames and bedlocks of the same material. Frames are $\frac{3}{4}$ -inch by $\frac{3}{4}$ -inch, and space 8 inches center to center. The deck is of white pine, covered with canvas. The trim and seats are of mahogany, with brass fittings. Varnish is the inside finish, while the hull is painted white with a carmine stripe from bow to stern. Green copper paint is used on the bottom. Under the deck are two lockers for storing the motor, the sail and rudder. There is a centerboard sufficiently large to make the boat a practical sailboat, and the mast and sprit are

constructed of spruce and joined in the center so as to be easily stowed under the seat when not in use. A pair of oars and oarlocks are also provided for rowing.

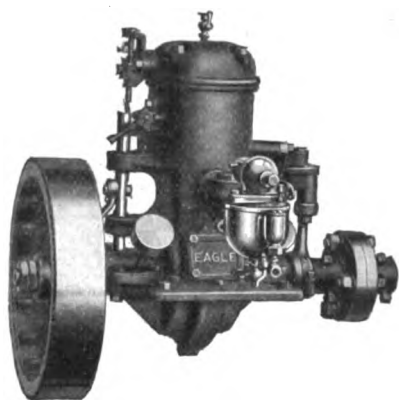
SMITH & MEEKER ENGINEERING COMPANY

Various types and sizes of the Edison storage battery, Edison primary battery, and Edison ignition battery, incandescent and arc searchlights, direct-connected gasoline generating sets, a complete switchboard for Mr. C. A. Davol's new power yacht Paragon, and a full line of marine fixtures, are being exhibited by the Smith & Meeker Engineering Co.

SNOW & PETRELLI MANUFACTURING COMPANY

Joe's reverse gears and rear-starters form the exhibit of the Snow & Petrelli Manufacturing Company. There are shown gears adapted for every type of boat, including small, compact, high-power gears for medium and high-speed motors, special racing gears, and one-way clutches for extreme high-speed boats and hydroplanes, as well as big, husky "Duplex Drive" gears for slow-running, heavy-duty motors. The failure of a "junk" gear to reverse at the desired moment has caused many a disaster, therefore an inspection of this booth will amply repay an owner.

THE STANDARD COMPANY



Eagle-5-H.P. Model

The leading Eagle engine shown by the Standard Company is a new model, which has been designed especially for the large variety of fishing boats requiring moderate power, but its very neat design and compact construction makes it equally suitable for any other type of small boat in which high speed is not an essential. The bore is $4\frac{1}{8}$ inches, stroke 4 inches, develops $3\frac{1}{2}$ -h.p. at 450 r.p.m., 5-h.p. at 800 r.p.m., and weighs but 165 lb. By fitting the proper size propellers it can be used as either a heavy-duty or medium-speed engine. The design also allows operating it as either a two-port or three-port engine, and can be equipped for either make-and-break or jump-spark ignition. For open boats which are subjected to rain, fog and spray, the make-and-break engine is specially suitable by reason of its "non-short-circuiting" sparking device. The stationary electrode is wound with sheet mica and then forced into a taper-bored steel bushing. The mica is thus compressed so that there is no possibility of any moisture reaching the electrode itself to cause a short circuit. The magneto, when fitted, is gear-driven, mounted on a bracket and attached to the base of

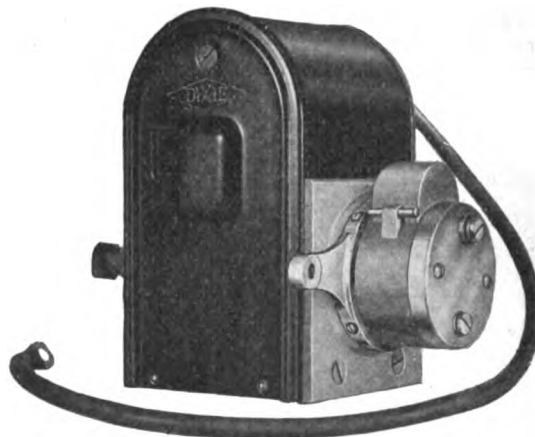


Mr. Hammond, of the Standard Co.

the engine. By fitting a very simple kerosene attachment the "L," as well as any other heavy-duty or medium-duty Eagle, can be converted to a kerosene engine without in any way affecting its operation on gasoline.

SUMTER ELECTRIC COMPANY

This is one of the concerns that specialize in electrical ignition apparatus, and are renowned for the Dixie-type magneto, which they have on exhibition. At space 4 they also show their low-tension magnetos and a complete line of high-tension magnetos for marine engines. The Dixie model will be of particular interest as it is of the



Dixie Model Magneto. Shown by the Sumter Electric Company

type adopted as standard equipment for the Overland, the Indian motorcycle and many other leading automobiles and motorcycles. It is oil and waterproof, and is therefore particularly adapted to marine work. The marine models have no moving wire, and the breaker points do not revolve, and consequently are easily seen and adjusted while running. There are many other features that have been developed especially for marine work to be seen.

C. C. SMITH BOAT & ENGINE COMPANY

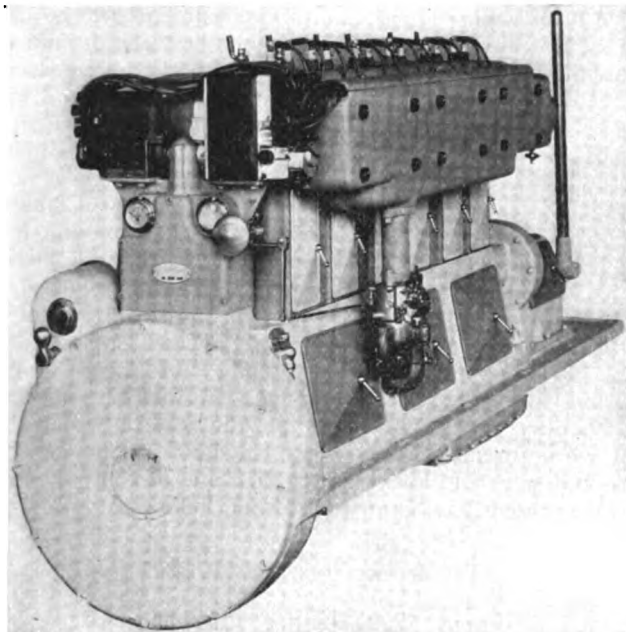
The famous Baby Speed Demon, owned by Mrs. Paula Blackton, is on view at Chris. Smith's booth. Fresh from racing in Florida, she looks spick and span.

EDWARD SMITH & CO.

Edward Smith & Co.'s exhibit is located on the Mezzanine Floor, to the left when entering the Garden. Their booth displays a fine line of varnish and a cordial invitation is extended to all visitors. The background of the booth displays a fine marine scene of the Panama Exposition, and a tank of real water represents the lagoon upon which cruises a modern, fully-equipped motor boat. The boat is electrically propelled and lighted and carries a flashing searchlight. The boat is finished as a practical demonstration of the use of Edward Smith & Company's "Spar Coating" and "Yacht White." The cabin with "I. X. L. No. 1," interior varnish. There is also a submarine boat which sports about, coated with "Marinite," the varnish for submerged work.

STERLING ENGINE COMPANY

Although Sterling engines are to be found in many of the boats on exhibition at other booths, the Sterling Company also have a large space, in which they feature their 12-15-h.p., two-cylinder, heavy-duty motor; 17-25-



One of the Numerous Sterling Engines—The Six-Cylinder 5½ In. by 8 In. Model

h.p. runabout motor; the new eight-cylinder, 150-h.p. express cruiser engine, and a new 5½ inches by 8 inches, heavy-duty motor, which will evidently excite considerable attraction at both shows. Its running is absolutely quiet, the cylinders being square en bloc, and the entire motor is of very straight lines, having all mechanical parts enclosed.

SMITH-SERREL COMPANY

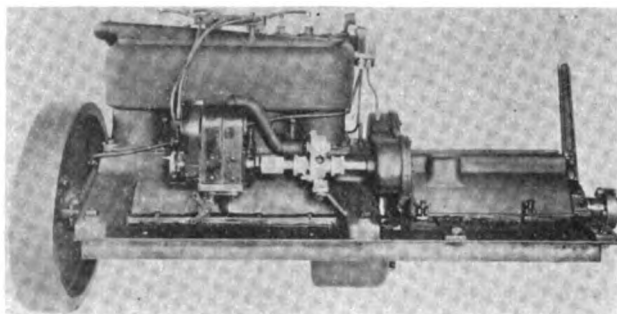
A complete line of Francke flexible couplings, suitable for all sizes of motor-boat installations, are shown by the Smith-Serrel Company. In addition to this they exhibit a model which demonstrates the freedom from misalignment strains obtained by the use of a flexible coupling in place of an ordinary rigid coupling.

STANLEY & PATTERSON

This electrical concern exhibits a line of battery sets and general ignition supplies.

SCRIPPS MOTOR COMPANY

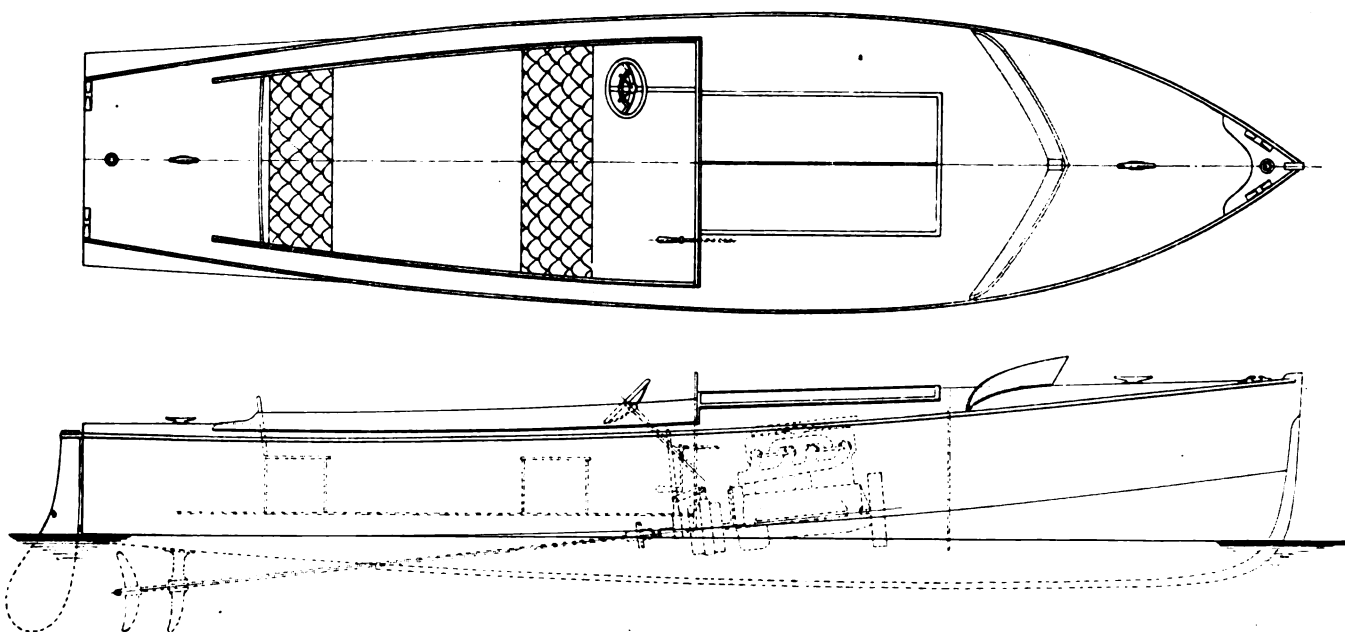
The Scripps Motor Company, Detroit, Mich., exhibit six models at the show. Aside from the Model "K" four-cylinder, 5½ inches by 6 inches motor, the Model "L," two-cylinder trans-Atlantic type, the Model "A," single-cylinder, and the 7-h.p., 2¾ inches by 3½ inches Midget, which on account of its workmanship and unusual design has created so much comment during the last year, there are shown two models of the new Series "B" enclosed Scripps marine power plants. These two models, known



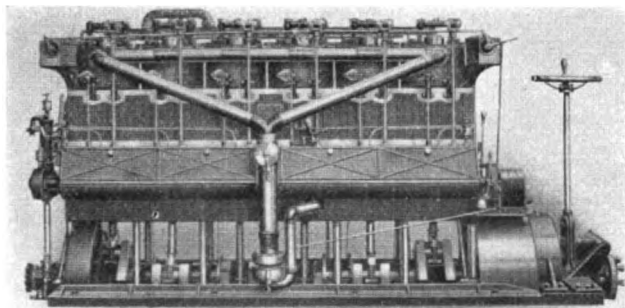
The Scripps Twenty

as Series B-4 and Series B-6, present so many new improvements in design and construction that they give to this exhibit more than usual prominence.

Illustrating aptly the noticeable trend toward enclosed practice, the Scripps Series-B will be found to embody so many new desirable features that it may be said that they have set an entirely new style in marine motor manufacture. With the exception of the revolving shaft at the gear end and small magneto shaft on the starboard side, no moving part can be seen; everything is completely housed, even the flywheel, operating silently and smoothly in a bath of oil.



Plans of the Twenty-One-Foot Runabout, Shown at the Toppan Boat Co.'s Booth



A Murray & Tregurtha Motor

The cylinders, which are $4\frac{1}{2}$ inches by 5 inches, are cast two en bloc, with open-head water-jackets, allowing a thorough cleaning of the jackets when operating in muddy water. A single casting covers the jacket openings. This is so crowned that it prevents the formation of steam pockets when the engine is set at an angle, and it is also made to serve the double function of carrying off the circulating water, and providing a complete enclosure of the ignition wires. This motor is built in both medium-duty and semi-speed types. The four-cylinder develops about 18-h.p. at 600 r.p.m., and 30-h.p. at 1,000 r.p.m.

SUTLIFFE-MADSEN COMPANY



Representing the Henricks Novelty Company, this concern are showing a new line of electric riding lights, the distinguishing feature being that these lights do not depend for their current supply upon a distant source of current, which often involves the use of leaky, expensive and corroding deck plugs, troublesome wiring, expensive electric lighting outfits, etc. The current is obtained from a dry cell in the lamp itself. In the stern light a switch is provided and the light is so designed that it may be used as a mast light or mounted on the pole at the stern. The combination bow light for Class One boats, yacht tenders, etc., contains two dry cells, only one of which is used at a time, thus providing 100% reserve capacity. Both lights are absolutely waterproof.

TOPPAN BOAT MANUFACTURING COMPANY



Mr. Arthur W. Toppan

Having one of the best equipped boat-building works in the East, naturally one expects an interesting exhibit to be made by the Toppan Boat Manufacturing Company, and one's expectations are fully realized. Their specialty is the Toppan seaworthy dory, which has won a world-wide reputation, and also offshore cabin cruisers which have been so popular the last few years. Another line made by the Toppan Company is the V-bottom runabout of which they have built many with the best of results. The company

have been favored with many Government orders at all times, and have developed one of the best rough launches with the assistance of Captain J. J. O'Brien, Commander U. S. Fish Hawk, of the Bureau of Fisheries, and have made several of these for tenders for the U. S. Fishing Boats. The 22-foot Government model launch exhibited at the New York show is a duplicate of one of these boats and has attracted much attention. The Toppan Company have lately added a full line of sailing dories and have made a specialty of the famous RUDDER Club Design Dory, 21 feet long, which has proven very popular and an easy boat to handle. It may be quite interesting to RUDDER readers to know that the Toppan Company state that for four or five years, when this company first started, they advertised exclusively in THE RUDDER, and in no other paper. At that time, the returns which they got were justified in all ways, as the firm increased in size and sales and above all, carried one of the best reputations among boat companies doing business.

THERMEX SILENCER WORKS

Five different sizes of the Thermex water-cooled exhaust silencers are shown by this concern.

VALENTINE & CO.

To a motor-boat man the very names, Valentine and Valspar, suggest varnish, so well-known have this concern's products become; thus they need no introduction. A feature of their exhibit is a test of the water-resisting qualities of Valspar, compared with other spar varnishes. This is conducted in a prominent part of the booth, by the use of an apparatus which subjects a varnished panel continuously to a stream of running water. They also show Valspar canoe enamel, and Valspar bronze bottom paint.

VAN BLERCK MOTOR COMPANY

Opposite the main entrance in sections O and N, near the front of the hall, will be found the exhibit of the Van Blerck Motor Company. It consists of their complete line, showing their 1915 models—E, EE, and E-Special. All these models have the same cylinder dimensions, $5\frac{1}{2}$ inches bore by 6 inches stroke, and range in size from four to eight-cylinder machines. The Model E is the high-speed engine, adapted more particularly to runabout and express cruiser work. It is rated to run normally at 1,200 r.p.m., and at that speed develops more than 20-h.p. per cylinder. The Model E-Special is the racing engine, differing from the Model E only in compression and timing, suiting it to the higher rotative speed necessary in racing. The Model EE is the medium-duty, which is designed to run at about 650 to 800 r.p.m., and is best suited to the heavier and larger type of runabouts and large cruisers. This motor differs most essentially from the other models in that it is fitted with a crank case of cast-iron, instead of an upper half of manganese bronze and a lower half, or oil pan, of aluminum. Other differences, of course, are slower timing and lower compression.

We learn with interest that Mr. T. B. Taylor, owner of Flyaway III, has just installed one of their new Model E-6 motors in his cruiser, which won such fame in 1914, and he wired the Van Blerck Company after a trial trip,

that the motor is a wonder, that he got 21.3 miles with the motor before any tuning up had been done or any adjustments made.

VERRIER, EDDY & Co.

The representatives of the Lathrop engine, Messrs. Verrier, Eddy & Co., are displaying the following extensive range of marine engines, namely: 4-h.p., make-and-break ignition; 5-h.p., make-and-break ignition; 6-h.p., light make-and-break; 7-h.p., make-and-break; 8-h.p., two-cylinder, make-and-break; 10-h.p., two-cylinder, make-and-break; 12-h.p., standard two-cylinder, jump-spark, with reverse gear; 14-h.p., two-cylinder, make-and-break, with reverse gear; 18-h.p., three-cylinder, jump-spark, with reverse gear; 21-h.p., three-cylinder, four-cycle, with reverse gear; 12-h.p., two-cylinder (new), four-cycle. The bore and stroke of the latter motor is $5 \frac{3}{16}$ inches by $6 \frac{1}{2}$ inches.

WHEELER & SCHEBLER

Schebler carbureters are to be found on many engines at Madison Square Garden, also at the booth of the makers, Messrs. Wheeler & Schebler.

E. J. WILLIS & Co.

This concern exhibit a complete line of motor-boat accessory fittings, including propellers, pumps and silencers.

WINTON GAS ENGINE & MANUFACTURING COMPANY

The beautifully constructed yacht engines built by the Winton Company are represented by a $6 \frac{1}{2}$ inches by 9 inches, six-cylinder marine four-stroke-type motor of 80-h.p. The Winton Company are also showing a launch, in which is installed their famous little six-cylinder tender engine, a motor-driven yacht's electric lighting set and a power tender outfit. It is of interest to recollect that during the past year the Winton Company have provided the power for more large motor yachts than any other American concern.

WISCONSIN MOTOR MANUFACTURING COMPANY

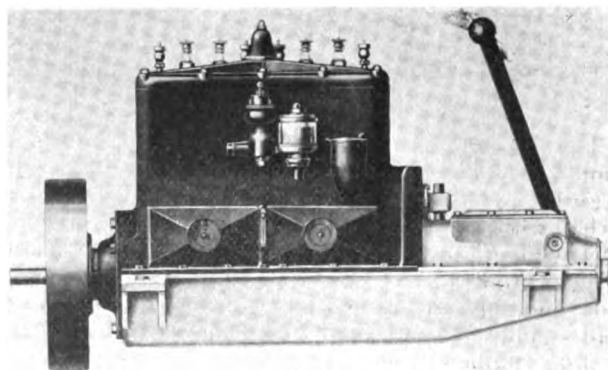


Mr. Johns, of
Wisconsin Motor
Co.

An exhibit of particular interest is that of the Wisconsin Motor Manufacturing Company, who show ten engines altogether, seven with four cylinders, two with six cylinders and one eight-cylinder model. A distinctive feature of these motors is their compactness and the completeness with which all parts are encased and protected. Light weight is combined with maximum strength and durability, as a result of correct design and high-grade materials. Liberal dimensions of all bearing surfaces, with effective force-feed lubrication, which insures the same amount of oil being fed to each bearing, irrespective of the angle at which the motor is operating, insures a quiet and smooth running motor.

Type CM, $3 \frac{3}{4}$ inches by 5 inches, four-cylinder, is

especially adapted for a light runabout. It is flexible and runs absolutely quiet. This is the motor which won first prize in the motor-boat races at Christiania, Norway. Type A, $4 \frac{3}{4}$ inches by $5 \frac{1}{2}$ inches, four-cylinder, is a powerful and sturdy motor, built for hard usage, with large bearings and a heavy crank shaft. This motor is also built for racing, with special cylinder,



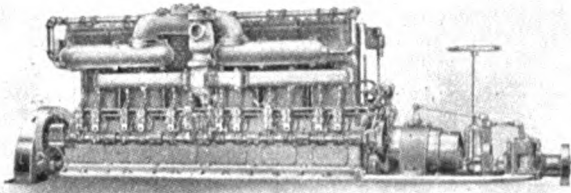
One of the New Wisconsin Outfits—The $3 \frac{3}{4}$ In. x 5 In. Model

$5 \frac{1}{10}$ inches bore and 3-inch Tungsten valves, chrome-vanadium connecting-rods, lightened pistons and racing cams, also special racing reverse gear. The racing motor of this type will develop over 100-h.p., and holds the world's record for the 450-cubic inch class.

WOLVERINE MOTOR WORKS

The Wolverine Motor Works, of Bridgeport, Conn., are exhibiting their latest production,—the "Wolverine Baby," a 175-200-h.p. marine motor to develop 175-b.h.p. at 300 r.p.m., on suction producer gas and 200-h.p. at the same speed on oil fuel. This motor has six cylinders, 11 inches bore, 15 inches stroke, and will weigh, engine, flywheel and reverse gear, approximately 18,000 to 20,000 lb. There is a bearing between each throw of the crank shaft and there are $81 \frac{5}{8}$ inches in length of bearings on the crank shaft, the bearings being $4 \frac{1}{2}$ inches in diameter. The lower base of the machine is made in one piece with the reverse gear extension bolted to the rear end of it. The construction of the extension is such that when bolted into place, it is absolutely rigid. It has the advantage of being readily removable for shipment. The portion of the engine supporting the cylinders is in two parts, each carrying three cylinders. This is also made so that it can be easily dismantled, in this way saving the large cost due to shipping heavy machinery completely set up. The crank shaft, likewise, is made in two pieces, the ends telescoping into each other and held by six $1 \frac{1}{4}$ -inch nickel steel bolts. The telescopic construction of the crank shaft shortens the engine about 14 inches over engines having the usual type of construction, where the crank shaft is made in two sections.

The total length of this engine from the forward end of the crank shaft to the center of the coupling at the rear of reverse gear is 180 inches, so that it will readily be seen that the design is compact. The usual large hand-hole doors are maintained in the upper bases so as to give ready access to the crank shaft and connecting-rod boxes.



The Big Engine Shown by the Wolverine Co.

WOOLSEY PAINT & COLOR COMPANY

The old and well-known concern of C. A. Woolsey Paint & Color Company have a booth as usual. It is tastefully arranged and their sales manager, Mr. P. Varley, with assistants, is on hand to welcome customers and friends of the firm and to explain the good features of their products, etc. A very liberal supply of color cards and advertising matter is being distributed and small sample cans of their best spar varnish and heat-resisting engine enamels are given away gratis.

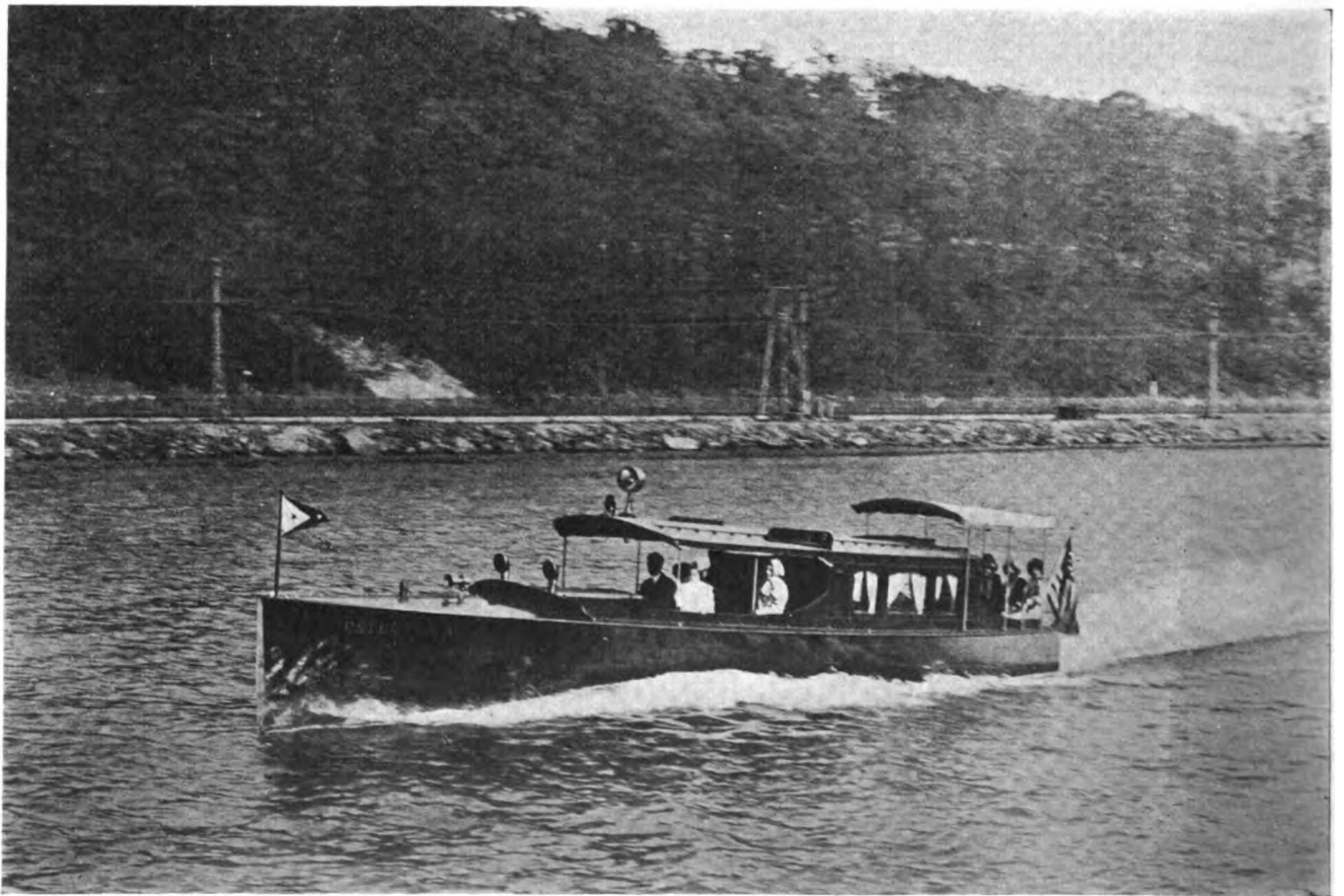
They call particular attention to their yacht whites, flat and gloss, their heat-resisting engine enamels, of which they claim to be the pioneer manufacturers, and the first paint concern to realize the necessity for such a product and to manufacture same and put it on the market. Their copper paints—brown, red and green—are well known. They ask for especial attention to the beautiful shade of green bottom paint, which they call Regatta Green. This green has been on the market for a



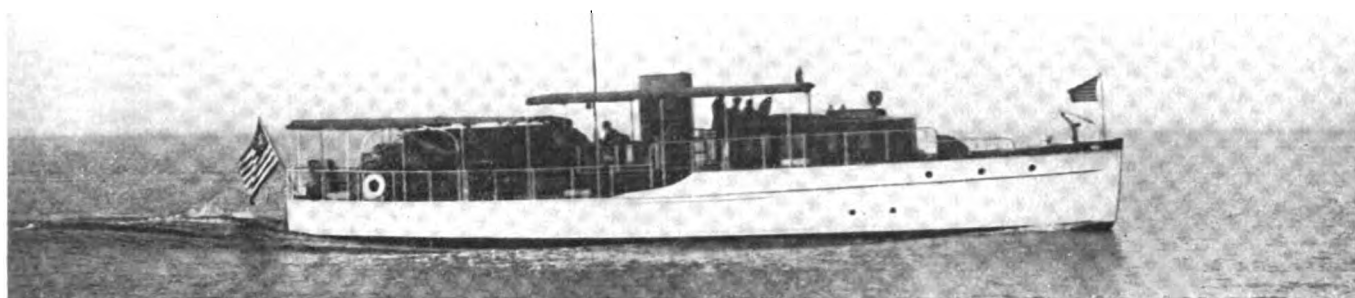
A Canoe Fitted with an Air-Cooled Motor Driving an Air-Propeller. While Not a Practical Mechanical Proposition Much Fun can be Derived from a Boat Thus Equipped

year or more past, but they now claim to have improved the anti-fouling properties and offer it as a green that will give good satisfaction in all Northern waters. Their Adamant deck paint is an old and well-known product, and their seam paint, elastic seam compound, yacht black, marine white, and marine green, also spar varnish, complete the line.

T. O. L.



Peter Pan Sr., Owned by Mr. James Simpson. A Forty-Foot Sterling-Engined Day Cruiser



SHALLOW-DRAUGHT CRUISER ZUMBROTA

NEW WINTON-POWERED CRAFT

COMPLETED towards the end of last year was the Zumbrota, a shallow-draught cruiser of striking appearance, which has been built by the Matthews Company, of Port Clinton, to the order of Mr. C. E. Ringling for use in Florida waters—at Sarasota, to be exact. She is the fifth boat to be built by the same firm for the Ringling family, of circus fame. The length of Zumbrota is 70 feet by 15 feet breadth, and 3 feet 4 inches draught, with 6 feet 3 inches headroom throughout. Her power plant consists of a six-cylinder 6½ inches by 9 inches Winton marine motor, using gasolene as fuel, and there is a complete independent electric lighting equipment, with electric bilge and air pump sets. On trials, the speed attained was 12½ m.p.h., without squatting or settling aft.

The accommodation arrangement provides for a crew of three forward, and a separate stateroom for the captain with toilet room adjoining. The dining saloon is aft of the forecabin and is finished and furnished throughout in mahogany. The galley is placed just aft of dining saloon, or general cabin, and fitted with a large ice-box, glass lined, filling from deck, Shipmate range, with hot-water

connections, sink, dish-racks, large storage lockers under forward cabin floor.

The owner's sleeping quarters are arranged aft, his stateroom being immediately aft of engine room, which is amidships, and finished in mahogany throughout. This compartment is fitted with a full-size double bed, having drawers and locker space under; sofa berth on opposite side, with hanging locker, dresser and chest of drawers. A folding lavatory is built in the bulkhead. A similar stateroom is provided for at the after portion of the vessel, with a single stateroom on the starboard side.

The bathroom is arranged opposite the single stateroom, with entrance from the lobby. The bathroom is finished throughout in white enamel, and fitted with 4½-foot enamel tub with hot and cold-water connections, flushing closet, stationary enamel lavatory, with hot and cold water, storage for linens, and a full equipment of nickel-plated fittings. The amidship deck is of large size, with permanent upholstered seat at the after end. The motor controls are brought convenient to the helmsman, and mounted on a bronze stand. The funnel shown is arranged to ventilate the engine room.



NACOOCHIEE

IT is rather curious that Americans living abroad often adopt foreign machinery for their boats, particularly in the case of large yachts. This no doubt is due to the fact that when they can get the goods on the spot, they will not trouble to send to the United States for them. The launch Nacoochee II is no exception, for she was built to the order of Mr. J. J. Morgan, by the Parsons Motor Company, of Southampton, England, and will fly the American flag. She is 25 feet long with 6 feet breadth and 1 foot 10 inches draught, and a 14-h.p. Parsons gasolene motor gives her a speed of 9½ knots.

The hull is constructed of teak, with extra large hatch over engine, and the forward deck carried well back. There is a small mast forward with lugsail and there is a sprayhood arranged aft of the decking, so that there is protection for practically three-quarters of the length of the boat. The fuel tank is carried forward and it will be noticed that the launch being slightly built up forward, gives a good head of fuel under all conditions. The liberal breadth of this boat, 6 feet, together with the ample protection, makes her certainly a more

reliable and useful boat than the ordinary open launch, in addition to which she is substantially built, and fit for any ordinary weather conditions.



The lines of the hull, in spite of the breadth, are obviously good, and the boat is very clean traveling and does the satisfactory speed above mentioned.

AMERICAN ENGINES IN SCOTTISH FISHING BOATS

ALTHOUGH the field has not thoroughly been attacked by American marine motor manufacturers, quite a number of engines have been sent from this country and installed in Scottish fishing boats. The boats range from the little 7-10-h.p. line fishing craft to the big 80-120-h.p. herring drifters, according to the district, and there is quite a market for the sale of motors, especially to the maker who can offer easy payment terms to the fishermen, who, while for the most part are very honest, cannot afford to lay out sufficient money to convert their sailboats to power. Although the Kelvin engine concern of Glasgow alone have fitted over 1,000 motors in fishing boats, there are still about 10,000 sail-



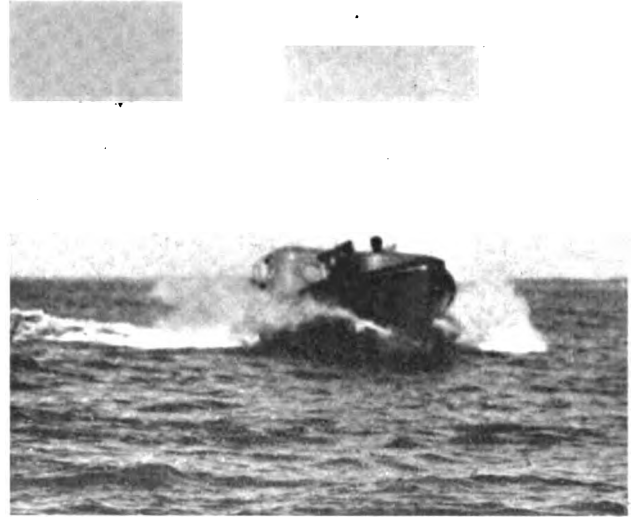
Fishing Boat Boy Fred

boats awaiting conversion. The longer these craft remain without power, the worse the plight of the owners become, as they cannot compete with the more fortunate power-boat owners. One of the boats which has engines, is the Boy Fred, of the Moray Firth. She is fitted with a 12-h.p. Wolverine engine and for nearly two years has given splendid service.

At the present time there is a fine opportunity for British motor-boat fishermen to make large sums of money, because the English Admiralty have offered a reward not exceeding \$5,000 for information received from fishermen which leads to the capture or destruction of an enemy's vessel, including a mine-layer or submarine. A sum not exceeding \$1,000 will be paid for information which leads to an enemy's vessel being sighted and chased. The advantage of a motor in a boat in such a case is obvious.

NEW ADMIRAL'S BARGES

IN November, an interesting boat received its acceptance from the Navy Department. This craft formed a unit of a fleet of four "Admiral's barges" now building by the Camden Anchor-Rockland Machine Company, of Camden, Me., one of which is for the Norfolk Navy Yard and another for the U. S. Battleship Utah. Each boat is 35 feet long with 33 feet 8 inches water-line length, by 8 feet 2 inches breadth, and although of stout construction and by no means fine lines, the first attained, we are advised, a speed of 15.15 knots, or 17.44 land miles an hour, over a measured course under Government inspection. The machinery in each case consists of



The Admiral's Barge at Full Speed

a six-cylinder, 6½ inches bore by 9 inches stroke, heavy-duty Sterling motor, delivering a little over 100-b.h.p. at 650 r.p.m., and this turns a Hyde, 30-inch diameter by 40-inch pitch, three-bladed propeller through a Joe's reverse gear. On the trials, the propeller speed was 615 r.p.m. To the engine is fitted a Rushmore electric starter, and there are two independent lighting systems. The designs and specifications of the job were carried out by Mr. A. L. Swasey, of Swasey, Raymond & Page, of Boston. [The others have since been accepted.]

XQQME

SEEING that Xqqme has been such a success this past season, the name selected by her owner, Mr. John C. Vanderslice, of the Camden & Flat Rock Motor Boat Club, certainly seems unfortunate, because she has no need whatever to apologize for her existence. Xqqme (Excuse me) is an attractive displacement racer equipped with a four-cylinder, 5½-inch bore by 6-inch stroke Sterling, 30-35-h.p., stock model, but delivering about 40-h.p. at 900 r.p.m. She captured the first prize in the Norristown displacement class race on October 3d, covering the 25 nautical miles in 1 hour 7 minutes 53 seconds. Also she won the Delaware River Championship and Record Trophy events. Again she carried off the first prize for displacement racers at Torresdale on October 14th. However, her most noteworthy performance was on September 5th, at the South Jersey Association finals, when she cleaned up the pick of the shore boats rating over 70.



Xqqme Going Some

THE RUDDER

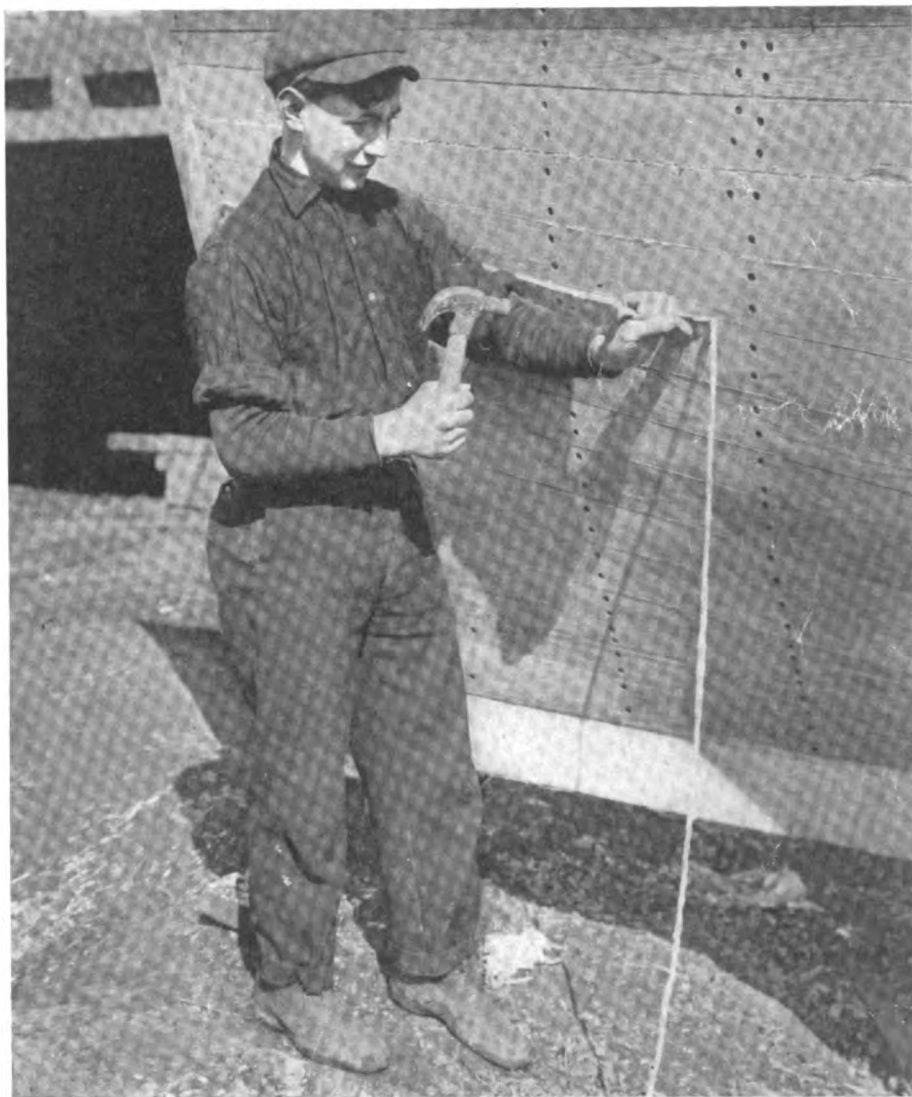
MARCH, 1915

Vol. XXXI

No. 3



**FITTING-OUT
NUMBER**



PUBLISHED AT 254 WEST 84th ST., NEW YORK CITY

Price 25 Cents

Speedway

SPEEDABOUT

The Latest "Speedway" Achievement

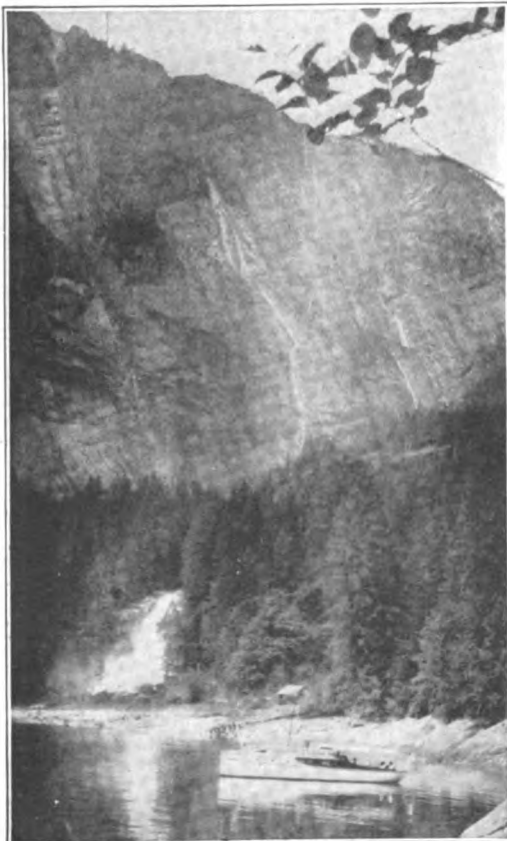
A TWENTY-FIVE-FOOT "Speedway" Runabout of new design regularly capable of 18 miles per hour. Distinguished by the grace of its lines and the excellence of its performance.

Every bit a "Speedway."

And the price brings the desirability of a "Speedway" ownership within the reach of every motor-boat enthusiast—just \$1,500.



**GAS ENGINE & POWER CO. and
CHARLES L. SEABURY CO., Consolidated**
Launch Dept. E Morris Heights New York City



Sovereign—46x10½ Ft. Raised Deck Cruiser in Home Water

WESTWARD HO!

A note of satisfaction from a boat owner on the greatest motor-boat cruising waters in the world.

Extract of letter received from T. S. Hamilton, of Bellingham, Wash.

"Now a few words about my present boat, the SOVEREIGN, which left your yards three years ago this Summer. We have spent four seasons in this delightful little boat, cruising Puget Sound, British Columbia and Alaskan waters. There are some fine cruisers in these waters sailing Victoria, Vancouver, Seattle, and Tacoma Yacht Club pennants. Many of them are much larger and very much more expensive than the SOVEREIGN. Several of these boats were built at Hongkong of teak and other Chinese woods. However, not one of them can show the classy lines and splendid quality of construction and finish that does the SOVEREIGN. Not one of them has gone further or proven more satisfactory in service. The boat receives everywhere decidedly more than its share of admiration."

Write for information on the small independent electric lighting plants, electric capstan, electric water, air and gasoline pumping sets.

THE MATTHEWS BOAT COMPANY

CRUISING YACHTS OF QUALITY

PORT CLINTON, OHIO

The Rudder

Vol. XXXI

MARCH, 1915

No. 3

AROUND CAPE COD IN A 13-FT. SCHOONER

A FOOL trip, you say? Well, maybe it was, but not in just the way you think. For this boat was no ordinary 13-foot skiff. In her youth she had been a Maine "pea-pod," a double-ended keel rowboat, with a slack bilge and no stability. But after emigrating to Massachusetts she had grown a long oak keel, 8 inches deep, for most of her length, with a 160-lb block of lead set into it nearly amidships. She had also acquired a deck with a low coaming around the 8 by 2-foot cockpit. And strangest of all, she had collected a schooner rig.

Notice, I say "collected." It had not come to her all at once. The shock would have been too much for her nervous system. The mainsail, a large spritsail with an outrageously steep head, had come aboard from a second-hand pile in a sail loft, while the jib was an heirloom in our marine family, having served before the mast on several small boats before. With these sails she had created amusement for about a year, when, to give her more sail area, the mainmast was moved aft a bit, a bowsprit was put on, and a foremast, made of an old oak oar, pieced out on top with gas pipe, was put in. On this was rigged a good, level-headed spritsail of heavy canvas, that would stand a hurricane.

Right here I wish to warn you, gentle reader, against the criminal that invented a steep-headed spritsail. For the way the heavy tension in the head of such a sail makes the sprit slide down the mast and lets the peak sag when beating till it is worse than useless, is one of the most unnecessary nuisances I have ever met on a small boat.

She was a real genuine "rakish-looking craft," but she was nearly non-capsizable, and seaworthy as a small lifeboat, and she would make a speed of five knots in anything like a good breeze, whether the sea was rough or smooth. And, best of all, as her stability depended on her lead keel rather than on her bilge, she would not lose it as so many small boats do, when she got half full of water.

For cargo, she carried very little. Two heavy woolen blankets done up tight in a rubber one, and a canvas bag full of clothes sat under a poncho on the two seats that were close together between the mainmast and the front of the cockpit. In the bottom were a basket of cooking utensils, two water bottles and a pump, while under the decks were hung a chart box full of charts, another full of grub, and a small box of tools, compass and other odds and ends.

With this strange boat, the only one of her kind in captivity, and known as the Whatisit, of Cohasset, I left our home port, about 20 miles South of Boston, on a hot June morning just after a thunder-shower. The shower had pretty well killed the wind, but as I was just through with a lot of hard work in the city, I did not mind going easy for a while. So for about five miles I drifted along slowly, until another squall came up astern. This one was not serious, and in fact, was very useful in helping along a few miles. Finally it died out and left us—the little boat and me—becalmed a couple of miles from Brant Rock, Duxbury, where there is a small harbor and a large village of Summer houses. I then furled the sails and rowed to the harbor, arriving just as another real thunder-shower got well underway.

After spending the evening ashore, I returned to the boat, got my blankets and warm clothes, and anchored her out in the harbor. This was done by a useful and ingenious scheme that I had learned from a fisherman in Cohasset, but have never seen elsewhere. This is to hang the anchor by one fluke on the bow, with the rode made fast to the boat at the proper length and a long, light line fastened to the throat of the anchor. Then, shooting the boat out stern first and holding the other end of the light line, one may anchor her wherever one wishes and pull the anchor ashore quite easily later.

Having done this, I picked out an empty house with a sheltered piazza, on which I rolled myself up in my thick clothes and blankets and lay down to sleep. But that was as far as I got toward sleeping. I was not worrying about anything, for all this happened before anyone said "I should worry." But added to the usual discomforts of a first night in camp was a cold, damp, Northwest wind; and being about worn out with indoor work in the city, I was in no condition to sleep readily anyway, and in still worse condition for a trip like this. But, being in this condition, I never suspected it till later, when I had a chance to rest.

At daylight I got up, cooked a bit of breakfast, and set sail. Passing the end of the jetty just as the sun rose clear and bright over the dark blue sea, I headed out for where I knew Race Point, the North end of the Cape, should be, about 20 miles ahead. The remnant of the night's wind blew gently over the port quarter, and the little Whatisit skipped out over the waves in fine style.

It was great fun, sailing along this way, with the wind freshening slightly, and it seemed only a few min-

utes before we were six or eight miles out on the bay, and the big tall Pilgrims' Monument at Provincetown had appeared out of the water about 15 miles away under the lee bow. Then, as I was sailing along, looking ahead and feeling unusually glad to be alive, a big wave suddenly broke into the stern of the boat.

"What the blazes?" I said to myself, and then noticed that I was carrying quite too much sail for the breeze that had come up, and that the sea was really pretty rough. So I furled the mainsail and went on, the jib and foresail balancing well on that course, with the wind well aft of abeam.

Then the fun began. The wind freshened more, and the waves got rougher, until I did not at all like the looks of so much top weight in a quartering sea. Picking a comparatively smooth spot, I dropped the mainmast. That relieved the situation for a while, and I thought there would be no more trouble. But soon things got lively again, as a steep swell that began to roll in from the East and an ebb tide running against the waves, made a most unrighteous cross-sea. By this time the waves, as measured by standing up and trying to see the horizon over them when the boat was in a hollow, were many of them five or six feet high from trough to crest. When they broke, as they often did, they were far from easy to handle. But as I was then about 10 miles from either shore, and Provincetown was somewhat to leeward, it was no use to think of turning back.

The only thing to do was to keep a sharp watch on the groups of two or three breakers as they marched along before the wind, each wave breaking for a while as it ran through the group and then running on ahead, while others behind took up the work it left. Beautiful they were, but wicked-looking, and they must be avoided if possible; or whenever a group began to form too near the weather side to avoid it, their orders to shoot straight before them must be obeyed at once.

The little boat behaved beautifully, thanks to her sharp stern and big rudder; and when any of those big fellows caught her, she jumped ahead with a bow wave shooting out on either side, as if she were a steamboat, her stern deck buried in foam, and her rudder stiff as iron with the rush of water past it.

Gradually, the sand hills of the Cape rose above the water and drew nearer. Soon Race Point was abeam, though not to starboard, as I had planned, for all idea of starting down the beach that morning had long vanished, and I was heading for the long neck of sand that shelters Provincetown. In the lee of this I dropped the jib, shifted the foremast aft to a step between its regular step and that of the mainmast, and then beat up to the town.

At this point I ought to have lain down and slept; but being overworked and nervously energetic, I spent the rest of the day exploring the surrounding country, and turned in after dark in a hollow among the sand hills. Here I slept irregularly, waking frequently to bat "skeeters," and curse the low tide and muddy flats that separated me from my "skeeter-dope," that I had forgotten to take from the boat.

At five the next morning I ate a small can of baked beans and got underway, with a light Northwest breeze and a smoky sky, and started to beat to Race Point. Though I had to reef the mainsail soon, the wind was by no means what it had been the day before, and by the time I reached the point it was dying out and I had full sail again.

A smoky sky and a dying wind, and 30 nautical miles of sand beach between me and the next harbor, Nauset Inlet! But what wind there was was fair, and it might stay so, and I was in a hurry to get around, and if it did die out too far from Nauset to row, I could land and pull the boat up the beach.

Just how I proposed to get a 300-lb boat up that steep sand beach with no help in sight may be a bit puzzling at first. This can, however, be done easily by burying the anchor way up the beach, drawing the rode as tight as possible before making it fast to the boat, and then pulling the middle of the line *along* the beach. The effect is much like that of swaying on a halyard, and will move the boat a few feet at a time.

Remembering then that Steve Brodie took a chance, I headed off down the long, curving beach. A mighty long beach it is, though because it curves away from you it looks short, as if it ran from a point a few miles astern to another one ahead, but with this difference, that as you sail toward one of those points you never seem to reach it, but it seems to change continually as new sand hills or cliffs swing into view around the smooth curve of the beach.

A weird place, this beach is, with its white sand dunes and their scrubby grass and bushes, with its long line of yellow and brown cliffs that shift slowly, as the sand blows and washes away to form new hills or shoals or bury some lonely wreck. Of their old forms there remain only memories, such as ancient charts and old white-haired men ashore can tell you of, of the times when what are now the sands of Monomoy were the three Nauset Islands, that are gone, and over whose foundations the restless tides roll by, now fifteen fathoms deep.

With all its desolation, or perhaps because of it, this beach has a fascination it can never lose. On a clear Summer day you can watch the waves roll in over the deep blue sea and break in a long line of white foam that stretches to where the blue sky meets it, far away. Or on a black, foggy night, you see only one or two big rollers at a time, and you can't see the line of foam at all, but only hear it, as a low, dull roar, broken by the hoarse voice of the trumpet on the Highlands, the groans and cries of the whistling buoys, or the warnings shouted by the lightships on the shoals and passed on by the South-bound tugs off Chatham as signals to their tows to shorten lines, and if you're near enough you hear their winches clank and grind as through the black fog the blacker barges with their lights slide by you one by one. In a Northeaster the shoals are a mass of foam, and if you're further North the wind does its best to drive you toward the shore, that, when you see it, looks blurred and more desolate than ever through the rain, that seems to turn the big skeleton towers of the Wellfleet wireless station to the ghosts of the factory chimneys of some departed town, lying, like other wrecks, burned in the sand. In a cold, howling snow storm, the air is full of white flakes driven down from the clouds above, to mix on your deck with the water, full of sand, stirred up from the shoals below.

It is always the same old beach, yet with every turn of wind or tide it changes to something new, sometimes as you want it to, and sometimes as you don't. Though you may often be glad enough to see the waters of the bay appear around the end of the long beach, you are none the less glad to see that beach again, when, as Kipling says:

"We've seen the seasons through,
And it's time to turn on the old trail, our own trail, the
out trail,
Pull out, pull out, on the Long Trail—the trail that is
always new."

* * *

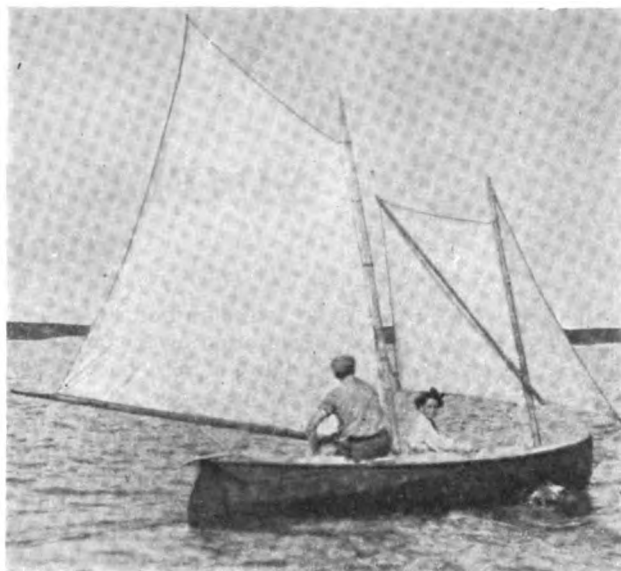
Along this beach I sailed all that morning, passing the familiar landmarks one after another, and wondering, as I passed each one, whether the feeble breeze would last as far as the next. At last, a little after noon, just North of the wireless station, the breeze gave a last gasp and died, apparently never to wake again.

It was only 8 miles more to Nauset, so I started to row, but had scarcely done so when the wind came up off the land, slightly ahead of abeam, blowing in vicious puffs, as it always does when it comes off those cliffs. Setting sail again, I soon passed the three towers of Nauset Lights, at the end of the cliffs, and then the four miles of low sand beach that form a breakwater for Nauset Harbor, leaving a narrow entrance at the South end. The entrance has only about 2 feet of water at low tide, and the 3 or 4-knot current, aided by its lack of depth, is likely to make it a rough place to enter if there is any sea running, though on the last half of the flood it is easy to take in a boat drawing 4 or 5 feet, looking for the channel, if necessary, from the masthead. Within, there is plenty of water for such a boat to float at low tide.

Landing at the pier about a mile up the channel, I was greeted by Captain Freeman, who was most hospitable and insisted that I should come to his house for supper and over night. This I did with great pleasure, and with gratitude that was greater, if possible, when I left than when I arrived.

Next morning it was clear again, with another stiff Nor'wester, before which I sailed down the channel about 6 a. m., under jib and foresail, reefing the mainsail as I went. Once outside, I put that up, too, and was soon tearing through the smooth water on a broad reach, with a cloud of foam under the bow and a big stern wave as high as the deck, well out astern. The eight miles of low beach that shelter Pleasant Bay were soon passed, and rounding Chatham Bar I started along the shore of Monomoy, the last 8-mile stretch of beach. This, too, was passed quickly, while the wind shifted more and more astern, and with the aid of a strong West tide, the little boat fairly flew through the channel between Barse's Shoal and Monomoy Light, and on to the end of the point.

Around the end of the point there is a little narrow channel, at that time 5 or 10 feet deep at low tide, called the Beach Channel, from the fact that its inner edge is within 50 feet of the beach for most of the way around



The Whalsit at Cotuit

the semicircular end of the point. Through here the tide runs like a mill stream and, not keeping to the curve of the channel, it makes a lively rip in the middle, making you think at first sight that there is trouble coming fast.

Through the first half of this channel, and across the Northwest corner of Shovelful Shoal the little boat went like a speed launch. At the West side of the shoal the current seemed to pour off into the depth like a waterfall, making a heavy rip beginning with a wave about 3 feet high that stayed just breaking all the time. Feeling frisky that morning, I drove her at that wave, full speed, and she dove through it with a grand splash as the water rushed aft over the deck and the poncho that covered the front half of the cockpit, some of it even jumping the other half and out over the stern.

Closehauled, she skipped across the blue channel, between Shovelful and Handkerchief Shoals, and then for two miles across the North side of Handkerchief, where the dark green waves with their whitecaps chased the light green hollows that showed the sand below. Then I hove to, pumped out the water that this somewhat unnecessary friskiness had got into her, and headed for Cotuit, where there were some friends I was to visit. There I arrived at 2 p. m., having made the forty nautical miles from Nauset Harbor in just 8 hours, and looking like the most disreputable pirate that had been seen on that coast for many years.

DAVID L. WEBSTER.



Sagamore Bridge



Highway Bridge

Jack-Knife Bridges Over the Cape Cod Canal

SIMPLE NAVIGATION

THIRD LESSON

IN diagram No. 1 we have two lighthouses, called *A* and *B*. These lights are connected by telephone. The tower is mounted on a circular concrete base used by the inmates as a parade for exercise, and to amuse the keepers, the Government engineers have painted the points of the compass around the edge of this platform. One evening keeper *A* comes out for a bit of exercise, and while walking about, catches sight of a vessel on the horizon. He looks down at the painted representation of the compass on the platform, and sees that the vessel is Northeast from his tower; stepping inside he calls up keeper *B* on the 'phone, and asks keeper *B* to go outside and get him the bearings of the vessel from his tower. Keeper *B* does, and 'phones keeper *A* that it is Northwest. With these two bearings, keeper *A* goes to his chart, and draws the two lines—one extending Northeast from his own tower, and one extending Northwest from *B*'s tower, until they cross each other. Where they cross on the chart is the position of the vessel.

Let us now take diagram 2. The steamer *Winning Post*, R. S. Sevier, Master, is on a voyage to Port Two Lights, and chief officer Bright is on the bridge with instructions from the skipper to keep a good lookout for the lights, and soon as seen to report to him in the chart room. The skipper is sitting before his chart table, reading "Three Weeks," "Tom Jones," "Manon Lescaut," or some other book of the same sort, (ship captains being very partial to this type of literature). On the table is

the chart, a pair of dividers, parallel rulers, etc. Suddenly, in the middle of a very interesting chapter, his ear is saluted by the whistle of the speaking tube. "Well, what is it?" he calls back. "Raised both lights, Sir," says the mate. "All right, give me the bearings." The chief mate goes to the binnacle, slips the brass hood around and catches the first light, then shifts it again and catches the second. "Whew! whew!" the speaking tube again. "Well, Sir, *B* Light bears East-South-East, and *A* Light, South, Sir." "All right," answers the skipper, dropping the voice tube, and picking up the parallel rulers. With these he draws a line from Light *B* extending W.N.W. and E.S.E., and from Light *A* a line extending N. and S. Where these lines intersect on his chart is the position of the *S. S. Winning Post* at the moment the chief mate took the two bearings. Having found the position of his ship, the skipper now draws a line from that spot to the Farewell Buoy off the Port of Two Lights, where he expects to pick up a pilot. Taking his parallel rules, he lays them along this line, and then slides them over to Compass Rose, and finds that this line he has drawn from his ship's position to the Farewell Buoy extends S.E. by S. He now takes his dividers, stretches the legs from the ship to the buoy, and taking this stretch of the dividers, he applies it to the scale and finds that it is 10 miles, let us say. Then he whistles up the tube to the mate. "Well, Sir," says the mate. "Keep her S.E. by S. and call me again when

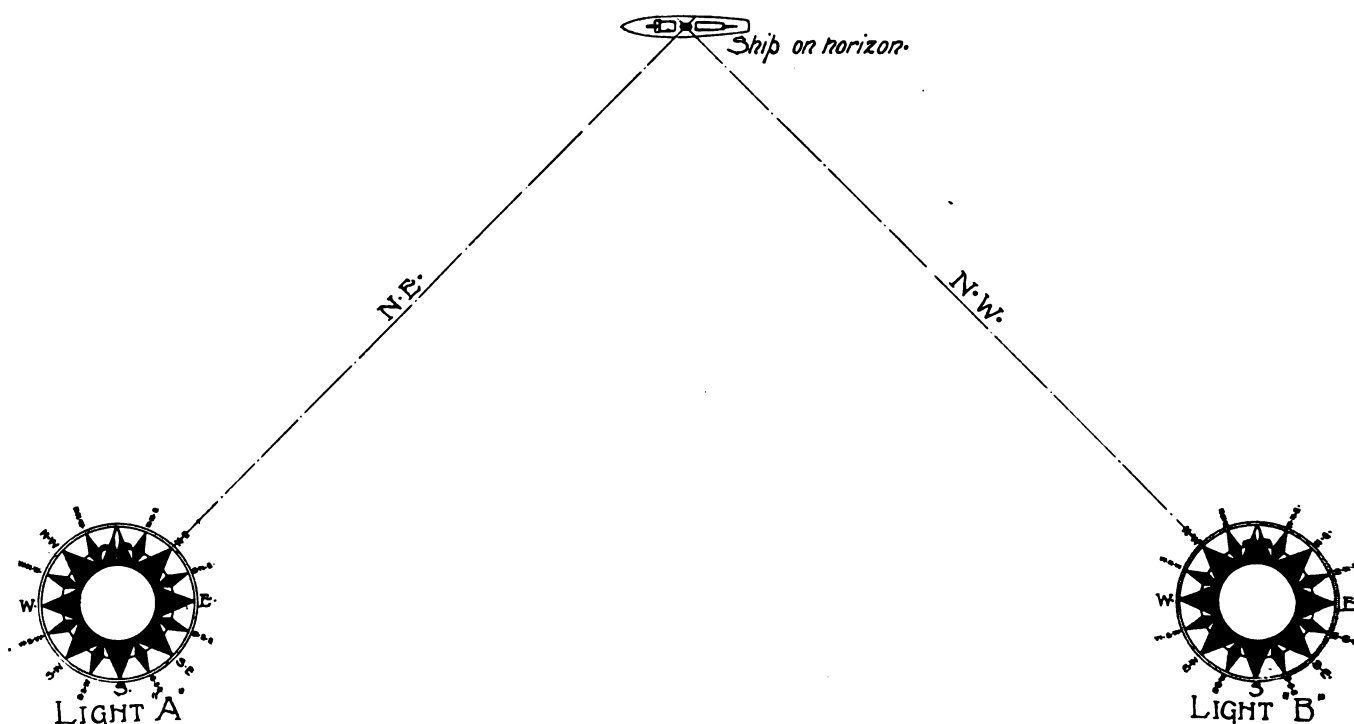


Diagram No. 1

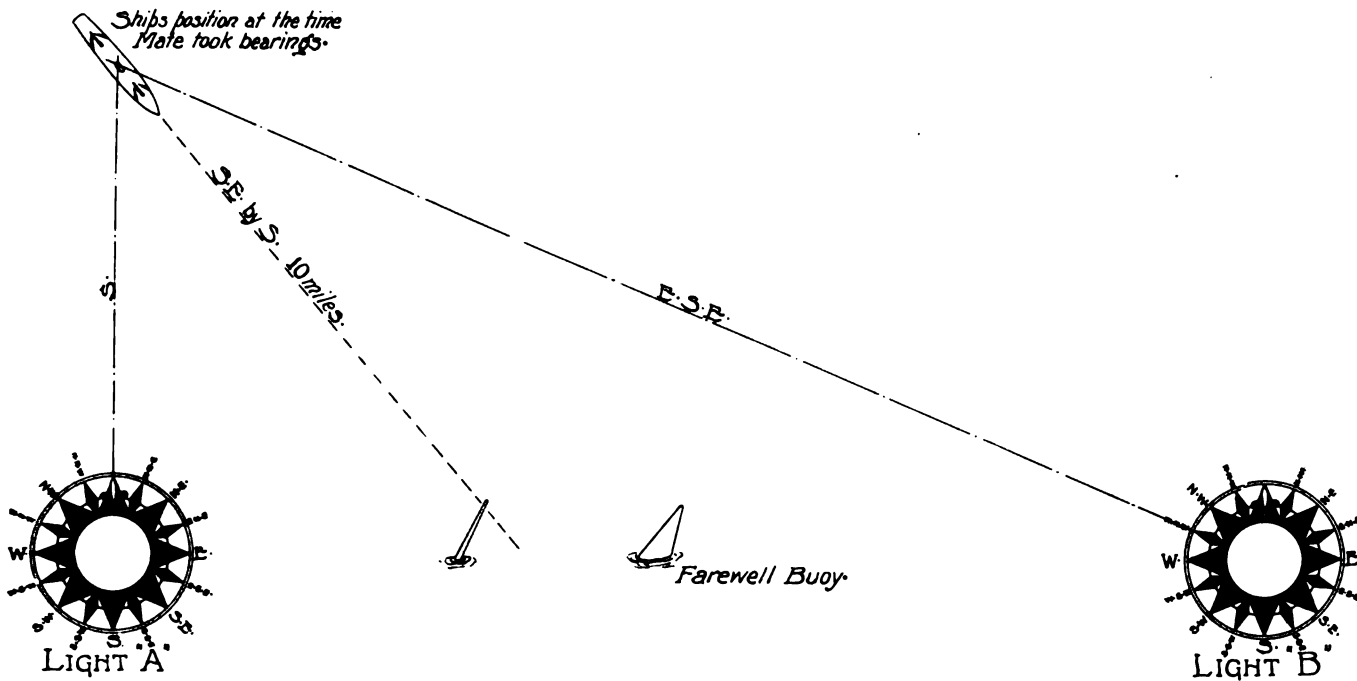


Diagram No. 2

Light A bears Sou'west." Now, if he had been an active and careful master, he would have turned his books down, and gone on the bridge after getting the position and course, to make sure that the mate was right, and I advise you always to do so, no matter how good a subordinate you have on watch, or how much you can trust him.

The next thing to do is to open your copy of THE RUDDER for June, 1913, and look at page 371. Here is a chart of the Island of Bermuda with the cross bearings drawn in for the Northern Quadrant, using the two prominent Lights of the island, St. Davids Head and Gibbs Hill. You will at once recognize the utility of these lines and the absolute certainty of being able to fix your ship's position by using them.

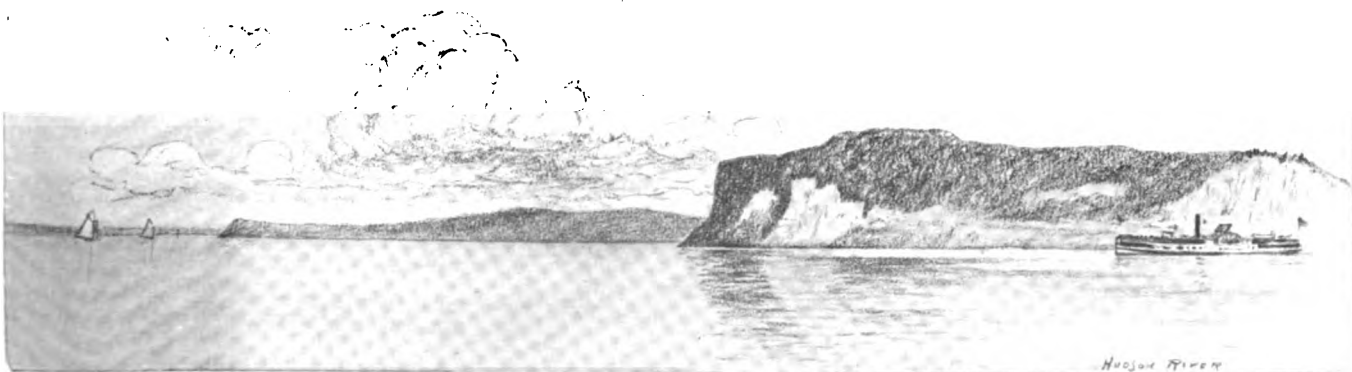
What I want you to do is to take a chart of your local waters or the waters you intend to cruise in, and selecting several prominent objects, Lights, headlands, buoys, small islands, rocks, etc., to draw in a set of cross bearings.

When you have this safely stowed in your head, don't sit down and say, "Is that all?" It is not all. Being able to take bearings and find a position and lay off a course is not all. There is one thing you must find, the most important thing—confidence in your own work. This you can only do by putting your knowledge to the test.

During the Winter practice on your chart, then when the swallows come home, and the maples burst into bloom, go out in your boat and practice on the water. You don't need the ocean, a three-mile pond will do. When you have taken these bearings, found your ship's position, and from it steered a true, safe course for port, once, twice, three times, you can swell out your chest like a pouter pigeon and say, "There, I'm some navigator."

You are, so long as the sun or stars are shining, but what if you can't see a hundred yards ahead, astern or abeam? You all have something more to learn, so stand by for the next lesson.

(To be Continued)





SAILS

Charles G. Davis

PART VI

FIN keel boats with their round cigar-shaped hulls and thin metal fins travel just as fast laid over on their beam's end as upright, so long as they are trimmed so the fin cuts straight through the water, but, if by her crew sitting too far aft, the fin is presented the least bit sideways, the resistance is immediately noticeable.

The little fin keel Star Class boats noticed this, and to keep their fins edge on the crews have to sit well forward so much so that the tiller was lengthened on some to allow the helmsman to get his weight forward.

On knockabout type of boats, and by them we mean, boats built with wooden fins to support the lead keels, the mistake is often made of making the boat too full in the garboards, or the top of the wooden fin keel too thick.

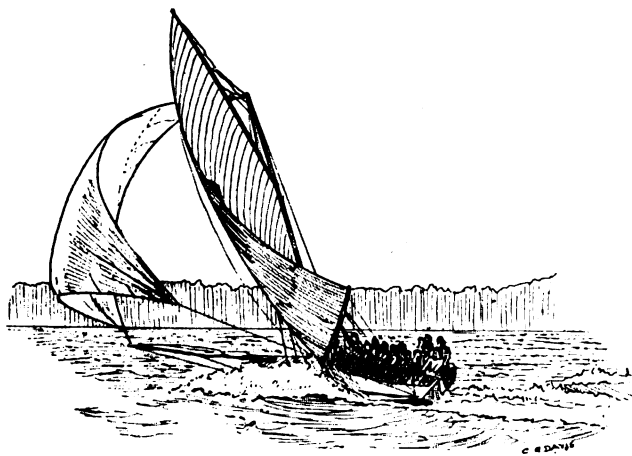
When such a model heels over, the lower diagonal lines are so full aft the water comes boiling out from under the boat in a roll of white foam off the weather quarter. Her speed is limited to the speed with which the water can flow under this part of the boat. As soon as she tries to go faster she attempts to drag a vacuum in the water and this creates a resistance that is considerable. The roll of foam under the bow does not take anywhere near the power to make it that this dragging wave does aft.

Different boats require different treatment to get the best speed out of them due to some peculiarity of the hull. In 1895, when the 15-foot water-line class of boats called half-raters (because they rated $\frac{1}{2}$ under the English system of racing measurement) were in their prime, there were two boats built by Herreshoff, one called the Gnome,

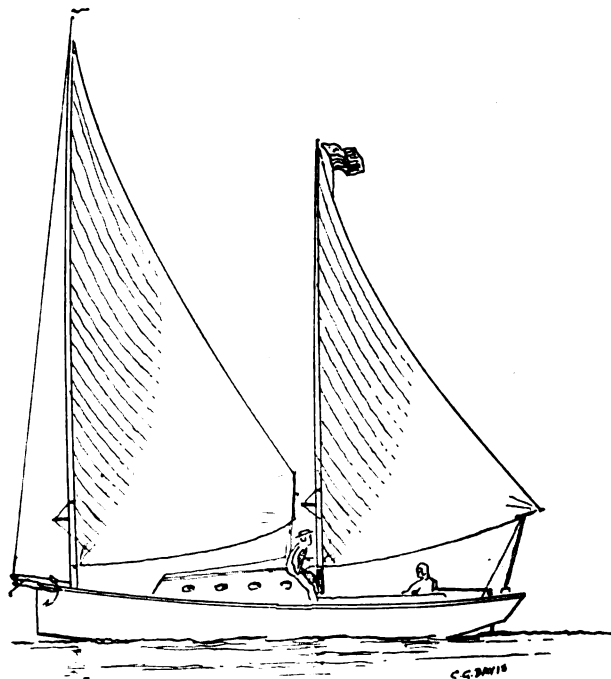
the other Olita. One day in a race off New Rochelle these two boats started last of a class of about eight boats.

Soon after the start, the wind hauled fair, a man on the Olita went forward to bend on her big balloon jib, and we from a distance saw Olita pick up and go much faster. She passed several boats and at the rate she was sailing would soon have been the leader; with her peculiar square stern and long overhanging bow, the man's weight had put this bow down and lifted the stern so her sailing lines were very much easier. But neither of her crew seemed to notice the improvement. The man went aft again and Olita stopped as if a brake had been applied. But there was another boat built later on the same principle; rule cheaters, these boats were called, because while they measured short on the water-line at anchor, when they heeled they lengthened their side in the water considerably. That boat was the 30-foot racing catboat Volsung and her crew utilized every advantage of the hull. It was a common sight to see Volsung driving to windward in a heavy sea with two men encased in oilskins lying flat and hanging onto her deck forward of the mast.

There is another advantage in shifting the crew's

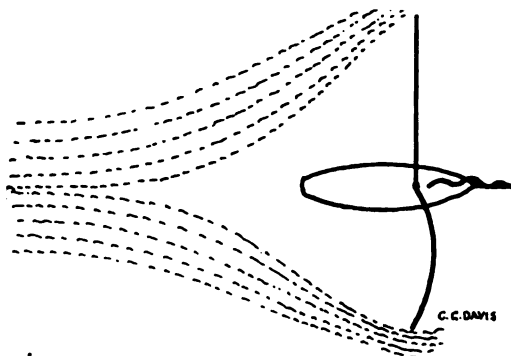


Australian Twenty-One-Footer



Connecticut Sharpie

weight that can be employed on small boats where the weight of the crew amounts to something compared to the weight of the hull, and that I picked up one day, years ago, when we were beating down the Hudson River in our catboat Rambler from Yonkers to 152d Street. Off Spuyten Duyvil we met the cat Roma. Tack after tack, our wide sandbagger sailed at that time with only six sandbags and a small sail, kept nose and nose with Roma with her fixed iron ballast stowed along under her floor. Off Fort Washington Point the ebb tide kicked up a sea and from here, every time the two boats jumped, Roma forged ahead a foot or so. I soon figured out what was doing it and had Bill, my brother, put three sandbags up near the mast and three on the after deck: the result was noticeable. Rambler was slower to jump and slower in her swing, and from then on foot by foot, every wave,



If mainsail and spinnaker are both squared off the live wind goes out around them and dead wind only presses on the sails.

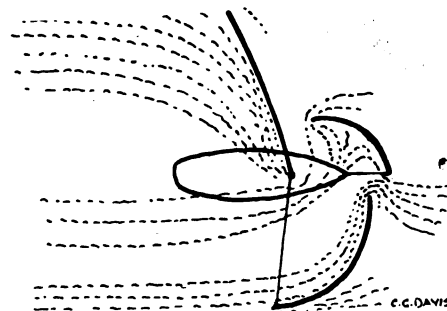
Fig. 45

to square the mainboom off and set the spinnaker off the other side in line with it—as it was argued, in that position, the greatest possible area was exposed for the wind to act upon.

But wind is a fickle element and it was not understood by many who should have known more of its actions.

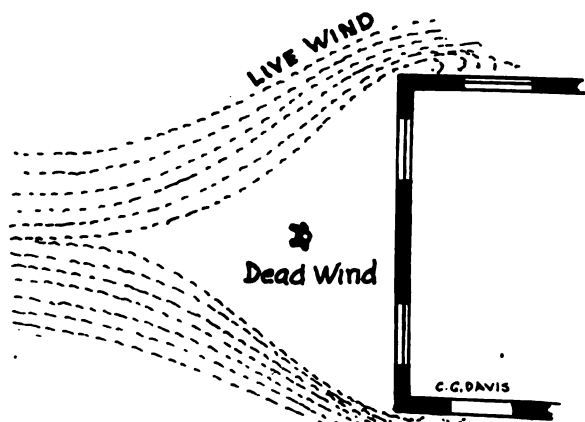
If you stand in front of a board fence, for instance, or the side of a building, with the wind blowing squarely against its surface, you do not feel the full force of the wind. Going around the corner it will lift you off your feet; the wind there forms a swift live current of air. Where you stood directly in front of the building, Fig. 44, a wedge-shaped volume of dead air was being pressed upon by the moving air, which divided some distance from the wall and flowed around the sides of the building. That is just the way the wind acted and still acts on a mainsail and spinnaker when both are set in a line square across the boat, Fig. 45. The "live" wind, as we call the air in motion, flows out around both edges; but if these two sails are set so they form a funnel, Fig. 46, and make all this live wind flow in a swift current between them, the pressure on each sail is not only increased but the balloon jib, that formerly hung limp and useless, is made to pull as hard as any.

Many a time when there seems to be no air moving when running before the wind, a slight luff will immediately produce a draft, and if you can so fill your sails and get headway on your boat you will find you can sail her down to leeward in two long zigzag legs or reaches and get there faster than if you drifted before it.



but- if mainsail and spinnaker are set so they form a funnel- live wind flows against them and also fills the balloon jib.

Fig. 46



If the wind is blowing squarely against the wall of a building- you will find a wedge shaped space of dead wind.

Fig. 44

we came up on and passed the Roma. Do you suppose such lessons were forgotten? Try such stunts next Summer but don't try any you can't give a reason for.

Accidents do sometimes supply knowledge, as my old friend A. Cary Smith once experienced; when in a light wind, the outhaul to the mainsail carried away, the flat sail instantly eased up into an easy bag and the boat walked right away from her rival. In light airs when the boat does not go through the water fast enough to make any appreciable amount of waves the principal resistance is the friction between the surface of the boat and the water. Here is where a smooth polished bottom paint comes in and the boat with the most sail area in relation to the wetted surface of the bottom has the advantage.

Sailing a boat to leeward used to be considered the easiest point of sailing, but when a man has mastered the fine points of the game he learns that getting the yacht to leeward, instead of being simple, is the most difficult, and calls for more skill and vigilance than when beating to windward.

You may think "Why even a leaf can blow along before the wind;" which is true enough, but racing puts a different value on the point. Another leaf may drift just as fast—now how are you going to make your leaf beat the other?

It used to be customary in running before the wind

(To be Continued)

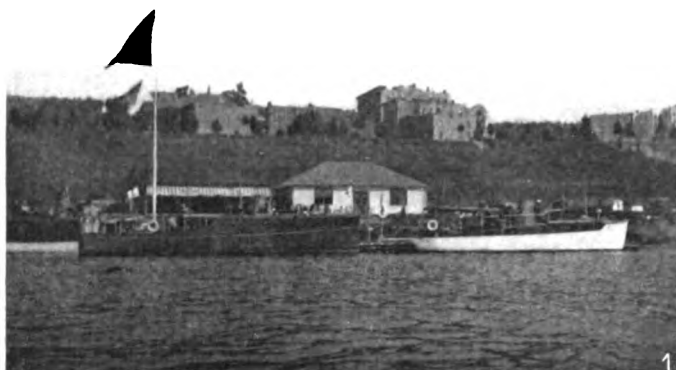
FITTING OUT FOR A LONG CRUISE

FIRST, we will suppose you have the boat. Any kind of a boat will do, if she has a tight bottom and a tight deck. If either of these leak or show signs of leaking, don't go cruising in her, or else have the craft overhauled and patched up. A leaky boat is a curse, and will upset the tempers of the best of crews. Next, find out where you intend going, and after making up your mind as to what portion of the world you intend voyaging, look the locality up. Get the charts and go over them, laying off the course, distance, etc. Sweep in circle of visibility for the lights, and above all, look up the best harbors. Knowing your charts thoroughly will add to the enjoyment many times when you are in the actual waters.

Before putting in the equipment and stores, go over the boat inside and clean her out. Get up the floor boards and go after the bilges, especially if she is a power-driven craft. Dirty bilges are the cause of so many power craft stinking the minute they get into a seaway and roll and pitch.

I always wash out the bilges with boiling hot water and soda, and where the grease and dirt is thick use a hand scrubbing brush. Go into the lockers and wash them out. Then get a good fire going, either in a stove or fire pot, and dry the boat out.

Next have a go at the water tanks. These tanks have laid empty all Winter and are dirty and scaly. Clean 'em out good. Lots of the bowel trouble crews



Scenes Before and During a Cruiser Race

suffer from when cruising comes from dirty water tanks. Don't forget to clean out the toilet pipes and sink pipes, and the gasolene tanks, and pipe lines.

I have spent a whole night rolling around in a stalled power boat while the engineering force, between visits to the rail or pail, worked to clean up a pipe line,—a job that should have been attended to before we started on the cruise. Another time we hunted a bad smell and found after pulling out a few yards of ceiling, a dead rat. What messes have been discovered behind ice-boxes, never suspected until a few hours of rolling stirred up the effluvium!

Before putting in your mattresses, cushions and pillows, give them a good sun bath. Damp cushions or mattresses are not pleasant shipmates. Blankets and curtains should be well aired. Don't neglect to take plenty of blankets, especially if you are cruising Northward. Summer is Summer, but about 2 a. m. it feels much like Winter in many places. Especially North of Cape Cod.

Cook stove? That is a question. My advice is, if you are going on a long cruise, have a coal or wood Shipmate. The three days that you lie snuggled up in some harbor with a wet Sou'easter soaking things it will pay for itself. I know of no place more miserably uncomfortable than a stoveless boat in a rainy spell, or of a place more homelike and happy than a cuddy with a good stove. For ordinary weather and cooking, an

alcohol stove is the thing. A coal or wood fire once in a while even in good weather will do much to get the dampness out, and to keep your clothes free from mildew.

Food? Nobody can make out a list to suit everybody. It is necessary to carry an amount of canned stuff. Plenty of tight canister or screw-top fruit jars should be taken to keep the groceries dry.

A good dinghy, either with a sail or outboard motor, is wanted. You can get a lot of fun out of a little boat as it enables you to explore up small rivers and backwaters, where the large boat can't go.

Nearly forgetting the one principal thing. The ground tackle. You want three anchors, two heavy and one light, a chain and a good length of rope rode. A small kedje also comes in handy.

Lights and compass; the best you can buy of these. Get your compass adjusted. Get a good reliable bin-nacle lamp.

Tools; take a small set of tools. You may need them. Also some spare small parts of your engine and a good pump, several buckets and fire extinguishers.

When to start on a long cruise. The earlier in the season the better. To make and keep your crew happy, rise early, get underway early and come to an anchor early. Have the meals regular and plenty of hot grub and drink.



FITTING OUT

AFTER a rest of several months, when the sap begins to run in the trees, the grass to sprout and our fancy turns seriously to thoughts of boats, plans are then laid for the coming season's pleasure.

Before these plans can be carried into execution, however, many things must be tended to and the boat put in shape, painted, puttied, rigged and, if necessary, proposed changes made.

From labor comes the greatest source of pleasure; some may deny and revile me for saying this, while they

are on their backs scraping the bottom or some equally uncomfortable work, but when the job is completed and the boat all smooth and freshly painted, and ready to go in the water, the man who doesn't swell out his chest with a keen feeling of satisfaction would be disgruntled if a rich relative died and left him a million.

With the removal of the Winter covering, everything within should be given a thorough airing and drying out. Floor boards should be removed and the inside washed out, if it was not done in the Fall, which is the proper



A Poor Condition to Leave a Boat in Over the Winter



Steel Wool is an Excellent Substitute for Sandpaper

time to do it. The bottom outside should also have been cleaned and washed off and not left, like the accompanying illustration, covered with barnacles.

Any changes or repairs are then done, and the boat prepared for painting and varnishing.

Here is a little tip which will pay to follow: Do your painting and varnishing in the forenoon, especially the latter, so that it may set naturally and during the warmth of the day. The sudden chilling at nightfall often ruins what may otherwise have been an excellent job of varnishing and will often cause it to crack.

Varnishing should always be done before the painting, then if a little runs over it may be wiped off and the spot covered with the paint, but if you wait until the painting is all nicely finished and then try to varnish any run-overs will always show and be an eyesore. If the wood to be varnished is clean, and last year's coat in fair condition, all that will be necessary will be to smooth it up with sandpaper, when fresh coats may be applied. If the wood is black or discolored, and but very little left of the old coat, all trace of it should be removed with a good varnish remover, and the wood bleached out clean with oxalic acid.

To make and use oxalic acid, buy 10 cents' worth at a drug store. This comes in crystal form. It then has to be dissolved. Use an old beer bottle—no job is complete without several lying around—and fill it three-quarters full of water. Then put in the oxalic acid. Only a certain percentage of it will dissolve in a given amount of water, so that it can only be made up to a certain strength.

It is a good plan to apply this with a swab tied to a stick. Putting it on with a rag or sponge in your hand is poor comedy; your hands will be all raw before you finish.

When the acid has dried thoroughly sandpaper the wood off, for the water used will raise the grain.

Varnish should always be put on as soon as possible after the wood is dry, for if it should rain or water spilled on the wood, especially oak, that has been treated with this acid, it immediately turns dark again and in the case of the oak, black, forming a sort of ink, when the whole operation will have to be repeated.

The old painted work also should be cleaned before applying the new coat. Inside and around the wood-work may just be sandpapered off and fresh paint ap-



Always Paint the Topsides First

plied, but on the sides and bottom it is best to scrub the old surface.

One of the best methods of doing this is to use hot (fresh) water and "Gold Dust"—"let the 'Gold Dust' twins do your work"—first wetting the surface and then using a scrubbing brush with the "Gold Dust" on it, dipped in the hot water. This not only cleans up the old paint, but also removes the grease and oil so likely to be picked up in the waters around New York or, in fact, near any large city.

In cleaning the bottom, a wire brush is sometimes very effective and quicker where dry mud or grass has adhered, after which the scrubbing removes any grease or oil.

After the scrubbing all sediment should be thoroughly washed off—also with fresh water if possible, if not with clean salt water, and when absolutely dry should be carefully sandpapered and all uneven seams either scraped or planed down even. In lieu of sandpaper, steel wool is sometimes used and is preferred by some, because it does not clog up the way sandpaper does.

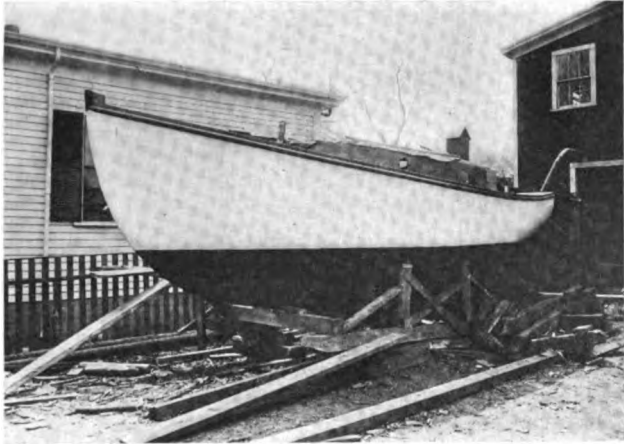
All cracks and open seams are then puttied with good white lead putty and evened off smoothly. Then apply the new paint. Another rule which should always be followed is to put on the paint in a thin coat rather than a thick one; an extra coat or two may be necessary, but whereas with a thick coat cracking and peeling off, it will not happen with the thin paint.



Cleaning Off the Bottom with a Wire Brush



Raising the Water-Line



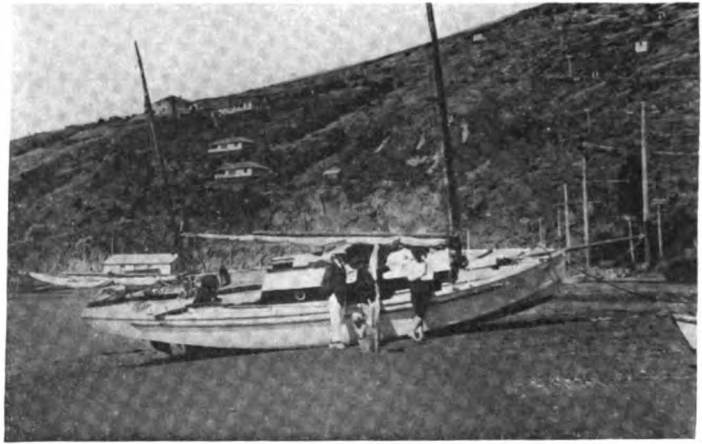
All Ready for the Water

Always paint the topsides first, then should some run below the water-line it is easily covered by the darker bottom paint.

All iron ballast should have the rust chipped off and painted two or three coats of red lead. Lead or stone ballast, of course, requires little or no attention, other than washing off and returning it in exactly the same location as it was previously. This, of course, providing it was right before.

The spars are cleaned up and varnished as explained under varnishing. Sometimes it is necessary to scrap them and in doing this use a regular scraper—don't use broken glass, for by doing so very often scratches are put in which can never be fully removed or taken out except by planing down the spar.

The rigging should be very carefully looked after,



On the Beach for a Scrub in Midsummer

especially the splices, and if any part is at all doubtful, should be replaced at once and not after some accident has befallen you.

If the old sails are put on again, see that they are rigged as during the previous year. Should a new suit be bent on, don't, under any consideration, pull the foot and head out beyond the dimensions given by the sailmaker. Better that you should lose three or four races at the beginning of the season than ruin a good suit of sails.

One of the finest setting sails was one bent on in the Spring and never touched all season until the last race on Labor Day, when they were hauled just hand taut and the boat won the championship of her class in that locality, so badly defeating boats 10 feet longer as to cause a great deal of ill feeling. About 50% of her efficiency was due to the fine condition of the sails. F. W. GOELLER, JR.



Before the Winter Covers are Removed

OVERHAULING THE ENGINE

A JOB THAT SHOULD BE DONE EVERY YEAR AT FITTING-OUT TIME

IF you want to obtain satisfactory results from your engine during the season then you've just got to give your entire propelling plant a thorough overhaul when fitting out your boat. Some power-boat men seem to think that all that is necessary at the end of each Autumn is to haul up the boat in a shed, cover it up with a sheet of canvas or tarpaulin, then when the call of Spring comes, just sling off the cover, slide the craft down the slipway, get fuel and stores aboard, crank up the engine, and cruise away merrily. No, my lads, there is more than that to be done, and done well, too, unless you want



Perhaps Your Pals Will Lend a Hand. They Are, at Least, Always Willing to Give Advice

engine troubles all the time. What the hull requires is dealt with in another article in this issue, so this story will be just a plain talk between you, I, and the engine; so, boys, put on your overalls, turn up your sleeves, and get right at the job, with a song or whistle, just as you please. Maybe your pals will lend a hand, too, for many hands make light work.

It is quite probable that your motor ran beautifully right up to the time you laid the boat up for the Winter months; but that does not say that she will run sweetly after several months in storage. During the time it has been laying idle, the lubricating oil will have run off the working parts; as a result, all these brightly finished surfaces may have become rusted up through the action of the damp air. Further, there is a tendency for a heavy dew-like moisture to gather, not only on the machinery, but also on varnished woodwork when a boat is covered up by canvas, even though in a shed, as the variation of temperatures underneath and outside the cover causes sweating. But apart from rust, one must make sure that there are no broken piston rings, worn-out bearings, pitted valves, scratched cylinder walls, which sooner or later are bound to produce trouble—perhaps at a critical moment. Again, very often the salt water and salt air will have eaten away the crank case, which is quite a common occurrence, and if not attended to, will result in seized main bearings, owing to the crank case having become structurally weak and unable to resist torsional strains, specially as this deterioration is liable to have gone on throughout the Winter.

If the engine is installed in the boat where it is rather difficult to get at, uncouple the propeller shaft, and

bodily remove the motor and reverse gear from their bearers, and place on trestles alongside. Have handy a flat can or dish filled with gasolene or kerosene, into which the small nuts, studs and fittings can be dropped. Then when they are required, not only will they be ready to hand, instead of becoming trampled on, but they will be clean and free from grit. Have a lubricating oil squirt filled with kerosene ready for injecting to the bolts and nuts that have become rusted and difficult to unscrew. Much useless energy will then be saved.

Having got the power outfit on trestles, the best plan will be to entirely dissemble the engine, but if it is of the four-cycle type be careful to mark the timing wheels, in order to prevent incorrect setting of the valves when reassembling. Should there be no obvious maker's marks the best plan is to center-punch dots on two teeth of the cam shaft gear wheel, and a corresponding dot on the tooth of the driving pinion that meshes between the two teeth of the driven gear wheel. Treat the magneto drive similarly. On no account rely upon chalk marks, as you may be some days on the job and chalk is sure to get rubbed off. By the way, if you are using gasolene for cleaning the parts, keep your pipe or cigar in your pocket until you've quit work for the day—unless your boat and the shed are heavily insured.



If Your Engine Is Installed Where It Is Difficult to Get at, Take It Out and Mount It on Trestles Alongside

Possibly all the cylinders, pistons, connecting-rods, are numbered, if not, carefully lay each set in a different heap. Although all parts of a modern engine are interchangeable, the wear and tear of a season's running will cause a difference of some thousandths of an inch, and this will be quite sufficient to prevent smooth working should the parts get mixed up.

The main and connecting-rod bearings will, no doubt, require the most attention. First of all smooth all ridges on the cranks with strips of emery cloth and then place back in the bearings and examine for slack. If the bearings are badly worn, obtain new brasses from the maker.



Roll Up Your Sleeves and Get to the Job in a Thorough Manner; But Put Your Cigarette or Pipe in Your Pocket Until You Quit for the Day

Should there be but a slight play, file about 1/32-inch of metal off the two faces, and then scrape the linings until they fit the cranks nicely. If you are lucky enough to have a lathe in the boathouse, the two halves of the bearings can be clamped together and a light cut taken through before scraping.

When scraping, make sure that the oil channels are deep enough to allow the oil to flow freely. Hand-scraping the bearings is a delicate job. Place the crank shaft in position on the lower or upper half of the crank case, as the case may be, first smearing the brasses with a thin mixture of red lead and oil. Give the crank shaft a few turns by hand and then remove the shaft and brasses. Where the brass has been rubbed bright by the crank, it is a sign that the surface is not level and so the bright projections need scraping. After the scraping has been done, wipe off the grit and replace in the bearings. Repeat this procedure until the surfaces of the bearings are smooth and there is no slack left, but the crank must turn easily with the bolts tightened down. The connecting-rod bearings also need treating in this manner.

Remove all the rings from the pistons and clean off any carbon deposit that may have formed, also remove the carbon from the combustion chamber of the cylinder. The rings can easily be taken off by inserting several strips of tin underneath, but handle them with care, as they are of cast-iron and so very brittle. There are a hundred and one little jobs to be done, such as cleaning out the cylinder jackets, examining the water pump and repacking the glands with yarn soaked in tallow, if this be necessary; also the oiling arrangements need attending to. Air should be blown through to ensure that there is no chokage of the feed pipes. All the ignition gear needs attention, new leads fitted where necessary and the batteries recharged.

After reassembling the cylinders the valves will require regrinding. This can be done with a little flour-emery, lubricating oil and a screwdriver. Do not continuously rotate the valve, but frequently re-reverse the motion. Much labor can be saved by using a carpenter's brace for this purpose. The exhaust valves will need the most attention, as pitting is usually more severe because of the heat to which they are subject. Grinding-in the valves causes them to sink deeper into their seats, and so the tappets will most likely need adjusting. When the valves are closed there should be about 1/16-inch



With the Engine on Trestles You Can Get Right at the Job

clearance between the valve stems and the tappets. This job, of course, will be absent where a two-stroke motor is concerned.

Having reassembled the engine and overhauled and cleaned out the reverse gear, the entire machinery can be placed back into the hull and brought into proper alignment with the propeller shaft, then coupled up. The water connection must then be properly made and new leads fitted to the ignition gear. There are many other little jobs during the overhaul which will make themselves obvious during the course of the work. After everything is done the reward will be felt during the season, when everything should run like a Greenwich clock.

T. O. LISLE.



A Maternal Study
Mrs. Paula Blackton and Her Baby (Speed Demon II)

SOME NEW BOATS FOR 1915

AN OPTIMISTIC VIEW OF THE COMING SEASON IN MOTOR BOATS

C. G. Davis

FEW yachtsmen are aware of the number of new, large motor boats that are already under construction in the yacht yards here in the East. It was due to the number of pessimistic opinions upon the industry, expressed by various yachtsmen that I met, that started me inquiring into the situation and the result has been most satisfactory, in that it has shown me that, war or no war, yachts are being built just the same.

We may not see an International yacht race. No one would expect an Englishman to sail his boat in an International event when his nation is engaged in such a warfare as is racking Europe today.

Motor-boat racing among the various clubs of this country will, no doubt, be as popular as ever and hundreds who used to go abroad for their vacation will this year amuse themselves by cruising about the unsurpassed waterways their own country affords.

The largest new yacht to carry a gasolene motor will be the 230-foot auxiliary, three-masted schooner Seacall, building at Lawley's yard at Neponset, Mass., from designs by Wm. Gardner, of New York, for Mr. Samuel C. Cochran—the same man who had the cup racer Vanitie built last year. Seacall will undoubtedly set a new standard in yachting in America that will take years to excel. Nothing in the matter of expense has been spared in this boat's construction; the hull is built of bronze and her auxiliary power will be a specially constructed eight-cylinder gasolene motor, 12½ by 21 inches, developing about 400-h.p., designed by and built under the personal supervision of Mr. Paul Daniel, of Sloan-Daniel Company, of Bound Brook, N. J.

Lawleys are also building a 160-foot steam yacht designed by Tams, Lemoine & Crane, of New York, two other schooner yachts, and they also have orders to build three motor yachts ranging in size from 50 to 80 feet in length.

At Cramp's Yard, Philadelphia, a steam yacht 177 feet long is building for Mr. H. P. Whitney from designs by Messrs. Cox & Stevens, of New York.

Mr. Payne Whitney is having built at the New Jersey Dry Dock, at Elizabethport, N. J., a most elaborate houseboat, 146 feet in length, from designs prepared by Messrs. Gielow & Orr, of New York.

Out at Halesite, L. I., the firm of Atkin-Wheeler are not only building the hull of a 118-foot flyer that is to reel off 31 knots for Mr. August Heckscher, but they are also manufacturing the motors that are to give this speed.

Farther out on Long Island, at Port Jefferson, the firm of J. M. Baylies is building an 82-footer, 15 feet breadth and 4 feet 4 inches draught, from Gielow & Orr's designs. Two 40-50-h.p. Wintons will furnish this boat's power. They are also putting up from the same architect's plans a 70-foot raised deck cruiser type of yacht of 13 feet 6 inches breadth and 3 feet 9 inches draught.

At the yard of Robert Jacob, on City Island, there is being built for Mr. J. J. Davol, from designs by Messrs. Swasey, Raymond & Page, of Boston, Mass., a 118-foot high-speed motor yacht that will bear the name of Paragon. In appearance she resembles somewhat the U. S. Navy torpedo chasers. Jacobs has also been negotiating for a 100-foot motor yacht from the same designers.

At the Matthews yard, Port Clinton, Ohio, a 100-foot motor yacht is in course of construction for Mr. C. H. Wills, of the Ford Automobile Company. This yacht will be named the Marold, and her power plant will consist of three 300-h.p. Sterling motors.

For a year supposed to be an off one that is doing pretty good, I think, as with the 110-footer designed by Whittelsey & Whittelsey for Mr. L. Fabacher, of New Orleans, and the 120-footer by J. Murray Watts, we have a list of the new yachts 100 feet or over in course of construction; then under 100 feet there is an 83-footer named the Leola II, building at the New York Yacht, Launch and Engine Company, at Morris Heights, New York, for Mr. R. E. Olds, from plans by Messrs. Cox & Stevens, New York. Though only 3 feet draught, a breadth of 16 feet gives a lot of room inside of this boat, which is driven at a moderate speed by two 45-h.p. Sterling motors.

The same firm is building from its own designs a 65-footer to be known as the Francis II, for Mr. E. M. Jennings; also a 55-footer for Mr. A. L. Kerker, of New York.

At the Mathis yard in Camden, N. J., three yachts over 70 feet in length are under construction from Bowes & Mower's designs. The largest of these is the Lady Baltimore, 77 feet long by 13 feet breadth, that is to reel off 12 knots an hour with her 100-h.p. Hall-Seeley motor. She is being built by a syndicate of Baltimore yachtsmen known as the Hall-Seeley Corporation, who expect to enter her in the New York to 'Frisco Race this Fall, if that race does not fall through for lack of entries. The next in size is the 74-footer Enchantress II, an 18 to 20-miler, for Mr. Louis Burk, of Philadelphia. The smallest of the three is the 73-footer, 11 feet 9 inches breadth, for Mr. Geo. W. C. Drexel, of Philadelphia, Pa. This boat will be called the Akbar and is to have a speed of 22 miles an hour.

The last two boats will each have the same kind of motor equipment, consisting of two 200-h.p. Harbeck-Loew-Victor motors. Besides these three Bowes & Mower have turned out designs for eleven other motor boats from 68 to 30 feet in length. One of these, a 68-foot steel power cruiser, is for Walter Ahlstrom, Viborg, Finland; another is a 50-foot inspection launch, to be used in Nicaragua for Mr. H. A. Watson; a 48-foot racy-looking craft, equipped with two eight-cylinder Wisconsin motors, capable of a speed of 32 miles an hour, for Mr. G. W. C. Drexel, now building at the Mathis yard in Camden, N. J.; for Mr. H. L. Hess, Jr., of

NEW MOTOR BOATS FOR 1915.



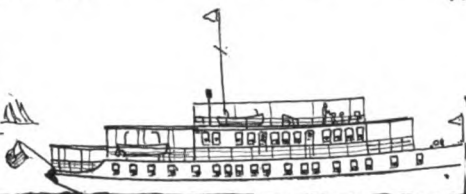
MR. C. J. DAVOL'S 120 FOOT SPEEDER, "PARAGON"



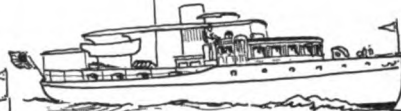
MR. G. W. C. DREXEL'S 74 FOOT FLYER, "AKBAR"



MR. R. E. OLDS' 83 FOOTER "LEOLA II"



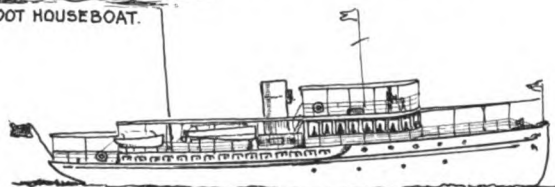
MR. PAYNE WHITNEY'S 130 FOOT HOUSEBOAT.



A Gielow designed 81 FOOTER.



A New York yachtman's 70 FOOT CRUISER.



110 Footer for MR. L. FABACHER of N.O.-LA.



MR. A. GARDINER COOPER'S 45 FOOTER.



MR. W. BLISS'S NEW 50 FOOTER.



MR. A. S. COCHRAN'S 230 foot AUX. "SEACALL"



MR. G. DEGERBERG'S 38 FOOTER.



MR. J. K. VANDENBURG'S 32 FOOTER.



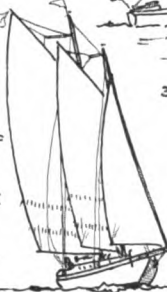
MR. C. S. McCULLOH'S 68 FT. seagoing cruiser.



35 FOOTER FOR A NEW HAVEN YACHTSMAN.



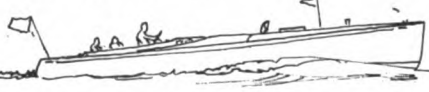
MR. A. HECKSCHER'S 110 FOOT SPEEDER



MR. H. L. HESS'S 43 FOOT SCHOONER "PHYDORO"



87 FOOT BUCKEYE.



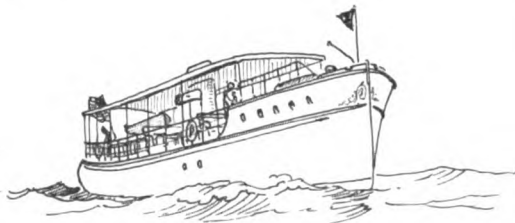
G. W. C. DREXEL'S 48 FOOT, 32 MILER.



MR. G. H. KETCHAM'S 55 FT. "CRESCUUS"



THE BALTIMORE SYNDICATE 77 Footer "LADY BALTIMORE."



MR. LOUIS BURK'S 74 FOOTER "ENCHANTRESS II"

C. G. DAYIS.

Bridgeton, N. J., this same firm has designed a 43-foot over-all, 30-foot water-line auxiliary schooner, named the Phydoro, which is being built at Kirk's yard at Toms River, N. J.; a 38-foot express cruiser built at Mathis yard for Geo. Degerberg, of Philadelphia, Pa.; a 35-foot high-speed runabout for Mr. A. H. Woods, of Boston, Mass.; a 33-foot raised deck cruiser for Mr. J. A. Guest, of Philadelphia, Pa.; two 30-footers built at Vanderslice's yard in Camden, one a day cruiser, for Charles Fareckson, and one a raised deck cruiser, for Mr. F. Deiser, both of Philadelphia, Pa.

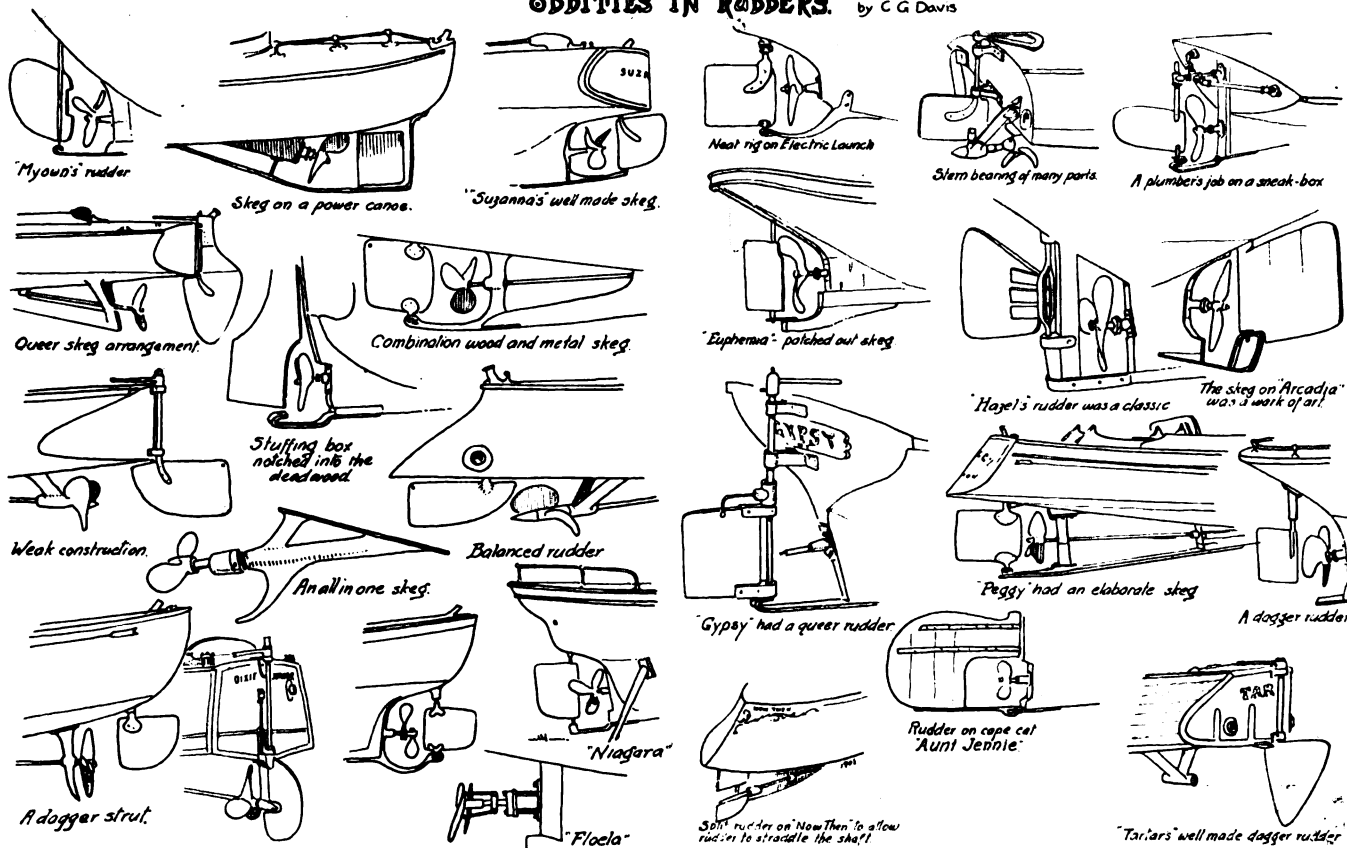
Matthews Boat Company, of Port Clinton, Ohio, are building a 56-foot cruiser to be named the Cresceus, after

the famous race horse for Mr. Geo. H. Ketcham. H. E. Nevins, of City Island, N. Y., is building a 80-foot motor yacht for J. H. Ottley, which is to be equipped with two 70-h.p. Sterling motors. At 55th Street, South Brooklyn, A. Hanson is putting up a 55-footer to carry a 25-35-h.p. Sterling motor from the Whittelseys' design for Mr. Cruikshank, and at Astoria Boat Works they are building for the Mission Yacht Association a 55-foot by 14-foot motor boat to replace the old Mission that has been in use for several years. The new boat is from the designs of Ashley & Johnson, of Bath Beach, and her construction is being looked after by Captain Geo. E. Benn. W. H. Hand, of New Bedford, the man who

NEW YACHTS FOR SEASON OF 1915

	Name	Ft.	Owner	Designer	Builder	Power
1	Seacall	230	A. S. Cochran, N. Y.	Wm. Gardner, N. Y.	Lawley, Boston	400-h.p. Daniel
2		177	H. P. Whitney, N. Y.	Cox & Stevens, N. Y.	Cramps, Phila.	
3		146	Payne Whitney, N. Y.	Gielow, N. Y.	N. J. Dry Dock Co.	Two 200-h.p. Wintons
4		160		Tams, Lemoine & Crane	Lawley, Boston	Steam
5	Paragon	120	C. J. Davol	Swasey, Raym'd & Page	R. Jacob, C. I.	
6		100		Swasey, Raym'd & Page	R. Jacob, C. I.	Two 75-h.p. Sterlings
7		118	A. Heckscher, N. Y.	Atkin-Wheeler, L. I.	A. W., Halesite, L. I.	A. W.
8		110	L. Fabacher, N. O.	Whittelsey, N. Y.		
9	Marold	100	C. H. Wills	Matthews, Port Clinton	Matthews	Three 300-h.p. Sterlings
10		120		J. M. Watts, Phila.		
11		90	Com. Cox, Wil., Del.			
12	Leola II	83	R. E. Olds	Cox & Stevens, N. Y.	N. Y. Y., L. & Eng. Co.	Two 45-h.p. Sterlings
13		82		Gielow	Baylies, Port Jefferson	Two 40-50-h.p. Wintons
14		87	F. M. Carnegie	Gielow	Salisbury, Md.	
15		80	J. H. Ottley	Swasey, Raym'd & Page	H. E. Nevins, C. I.	Two 70-h.p. Sterlings
16		80	Mr. Gilchrist	W. H. Hand, N. B.	Lawley, Boston	
17	Lady Baltimore	77	Hall-Seeley Corp., Balto.	Bowes & Mower, Phila.	Mathis, Camden	100-h.p. Hall-Seeley
18	Enchantress II	74	L. Burk	Bowes & Mower, Phila.	Mathis, Camden	2 200-h.p. H-Loew-Victor
19	Akbar	73	G. W. C. Drexel	Bowes & Mower, Phila.	Mathis, Camden	2 200-h.p. H-Loew-Victor
20		70		Gielow	Baylies	
21		65	E. H. Jennings	N. Y. Y., L. & E. Co.	N. Y. Y., L. & Eng. Co.	
22	Roselyn	55	A. L. Kerker	N. Y. Y., L. & E. Co.	N. Y. Y., L. & Eng. Co.	
23	Cresceus	56	G. H. Ketcham	Matthews	Matthews	
24		55	J. H. Cruikshank	Whittelsey	A. Hansen	25-35-h.p. Sterling
25		55	Mission Yacht Assn.	Ashley & Johnson	Astoria Boat Co.	6-cylinder Niagara
26		50	C. W. Bliss	W. H. Hand	Lawley, Boston	
27		50	Cuba	J. M. Watts	Essington S. Y. Co.	
28		50	H. A. Watson	Bowes & Mower		
29	Calypso	60	W. J. Graham	J. M. Watts	Essington S. Y. Co.	
30	Shadow	48	C. G. Fisher	Gas Eng. & Power Co.	Gas Eng. & Power Co.	Speedway
31		48	G. W. C. Drexel	Bowes & Mower	Mathis	8-cylinder Wisconsin
32		47	A. G. Cooper	W. H. Hand	W. H. Hand	
33	Phydoro	43	H. L. Hess	Bowes & Mower	W. P. Kirk, Toms River	Keystone
34		37	E. Charlton	W. H. Hand	W. H. Hand	
35		38	G. Degerberg	Bowes & Mower	Mathis	
36		35	A. H. Woods	Bowes & Mower		
37		33	H. E. Childs, N. Y.	F. W. Goeller, Jr.	C. T. McCullough, N. R.	
38		35	H. C. Cushing, N. Y.	W. H. Hand	W. H. Hand	
39		68	C. S. McCulloh, N. Y.	J. M. Watts	F. S. Nock	4-cylinder 20th Century
40		32	E. W. Marshall, N. Y.	W. H. Hand	N. Jacobsen, Tarrytown	4-cyl. 30-40-h.p. Sterling
41		32	J. K. Vandenburg	W. H. Hand	W. H. Hand	
42	Estelle	36	A. L. Thorn	Bowes & Mower	So. J. Y. B. Co.	
43		35	H. Sanford		Greenport B. C. Co.	
44		35	N. H.	M. Whitaker		4-cylinder Peerless
45		30	Balzesert, Wil., Del.	A. E. Apel	A. E. Apel	15-h.p. Sterling
46	Zaline	30	C. G. Fisher	Gas Eng. & Power Co.	Gas Eng. & Power Co.	Speedway
47		30	G. F. Deiser	Bowes & Mower	Vanderslice	
48		35	A. P. Lasher, N. Y.		G. E. Snowman, Me.	
49		35	Herbert French		G. E. Snowman, Me.	
50		37	Rex McCaffrey		Rex McCaffrey, Pittsb'gh	
51	Gemini	19	J. H. Hamilton		J. H. Hamilton, Pittsb'gh	
52	Ankle Deep Too		C. S. Mankowski	Frederick Chase	Wood & McClure, C. I.	
53	Gypsy	45	J. W. Downs, L. I.		J. W. Downs	
54		60			J. W. Downs	
55		35	Clock, E. Islip		G. D. Bishop	100-h.p. Sterling
56			Col. Dupont	A. E. Apel	A. E. Apel	8-cyl. 240-h.p. Sterling
57		25	A. O. Lungdrum	J. C. Vanderslice	J. C. Vanderslice	90-h.p.
58		33	J. A. Guest	Bowes & Mower	J. C. Vanderslice	
59		30	C. Fareckson	Bowes & Mower	I. C. Vanderslice	
60	Simplicity	60	N. Y. Y., L. & Eng. Co.	N. Y. Y., L. & Eng. Co.	N. Y. Y., L. & Eng. Co.	65-h.p. 20th Century
61		40	G. H. Thomas	Thomas	Mariners Harbor	180-h.p. Wisconsin
62	Flyaway III	32	T. D. Taylor	W. H. Hand		20-h.p. Van Blerck

ODDITIES IN RUDDERS. by C. G. Davis



made the V-bottoms famous, has designed an 80-footer for Mr. Gilchrist. A 50 feet by 10 feet 2 inches breadth and 2 feet 10 inches draught, with raised deck forward, bridge deck amidships, then an after house and cockpit aft, for Mr. Chester W. Bliss. A 47-foot boat somewhat similar, with the exception that there is no cockpit, the 12-foot cabin house extending within 6 feet of the stern, for Mr. A. Gardiner Cooper. A 37-footer, 9 feet breadth and 2 feet 9 inches draught, for a member of the New York Y. C. A 32-footer of 8 feet 8 inches breadth, 2 feet 4 inches draught, for Mr. Joseph K. Vandenburg, of New York City. A 32-footer for E. W. Marshall, of New York City, that is to go 15 miles an hour with a four-cylinder, 30-40-h.p. Sterling motor, and judging from appearance, it looks as if a one-design class of V-bottom, 35 feet, similar to the famous Flyaway, will be built. C. T. McCullough of New Rochelle is building a 33-footer for H. A. Childs, and W. Haff, of the same town, is building a boat of about the same size for Mr. H. R. Cushing, of New Rochelle. There are undoubtedly

many more boats of about this size that will never be heard of until they are met on the water this Summer. Commodore Cox, of Wilmington, Del., for instance, is building a 90-footer. Gielow & Orr have designed an 87-foot auxiliary buckeye, building at Salisbury, Md., for Mr. F. M. Carnegie. J. Murray Watts, of Philadelphia, has turned out plans for half a dozen or more barges and three-masted schooners in the mercantile trade that are all over 100 feet in length; he designed the Calypso, a 60-footer, building at Essington, for Mr. W. J. Graham, and a 50-footer, building at the same yard for Cuban owners. If we were to count all the 30-footers and such racers as the Ankle Deep Too, building at Wood & McClure's yard on City Island for Count C. S. Mankowski, we have a list of sixty new boats. This list of boats certainly goes to prove that the season of 1915 will not be a dull one so far as new motor boats are concerned, for it is safe to say there are double this number of boats actually building of which we have no record.



MODERN MARINE MOTORS

by T. ORCHARD LISLE, A.M.I.MAR.E



TWENTY-ONE-FOOT CLASS FOR MISSISSIPPI VALLEY

ALREADY we have pointed out the intention of the Motor Boat Club of America to produce a fleet of 21-footers. It now seems highly probable that our repeated efforts to improve the status of, and interest in, motor-boat racing by starting the International Restricted Class of 21-foot displacement boats, will also bear good fruit in the Mississippi Valley; for Dr. A. C. Strong, President of the M. V. P. B. A., strongly recommends the revision of Class A to the rules of the International 21-foot class, with its maximum piston displacement of 151 cubic inches, and the remarkable speeds for its restrictions.

At present there are no fewer than fourteen American-made engines that come within the limit, and it is possible to buy foreign engines for the purpose of studying the designs, as the rules do not now forbid this. The home productions are as follows:

FOUR-STROKE-CYCLE ENGINES						
Piston Dis- placement in Cubic In.	No. of Cyls.	Bore	Stroke	Make	H.P.	
90	4	2¾	3½	Scripps	10	
120	4	2¾	4½	Sterling	12	



Cordon Rouge IV, an Attractive Type of Twenty-One-Footer. Speed 30 Miles per Hour

Dr. Strong pointed out that even if this class proved small at the beginning, its adoption by the Association would make it available for use by affiliated clubs in their local races, and that it in time would without doubt result in the development of a great deal of speed with very limited power. As this class offers magnificent speed opportunities at low cost, combined with safety, comfort, and seaworthiness, much interest is being evinced by power-boat men, and the enthusiasts of the fairer sex, out in the West, so the 1916 season should see a representative racing section afloat, while this year a start should be made.

TWO-STROKE-CYCLE ENGINES						
P. D. Cu. In.	Cyls.	Bore	Stroke	Make	H.P.	
133	4	3¾	3	Leary	20	
132	3	4	3½	Roberts	15	
135	3	3½	3½	Fox	24	
140	3	3¾	4¼	Waterman	15	
144	2	4½	4½	Mohawk	20	
151	3	4⅝	3¾	Mohawk	21	
151	2	4⅝	4½	Elbridge	30	
151	3	4	4	Wis. Val.	20	
151	3	4	4	Vim	23	
151	3	4	4	Pierce Bud	25	
151	3	4	4	Era	15	
151	3	4	4	Morristown	15	
151	3			Vim	15	



Another Fast Twenty-One-Footer of Different Design

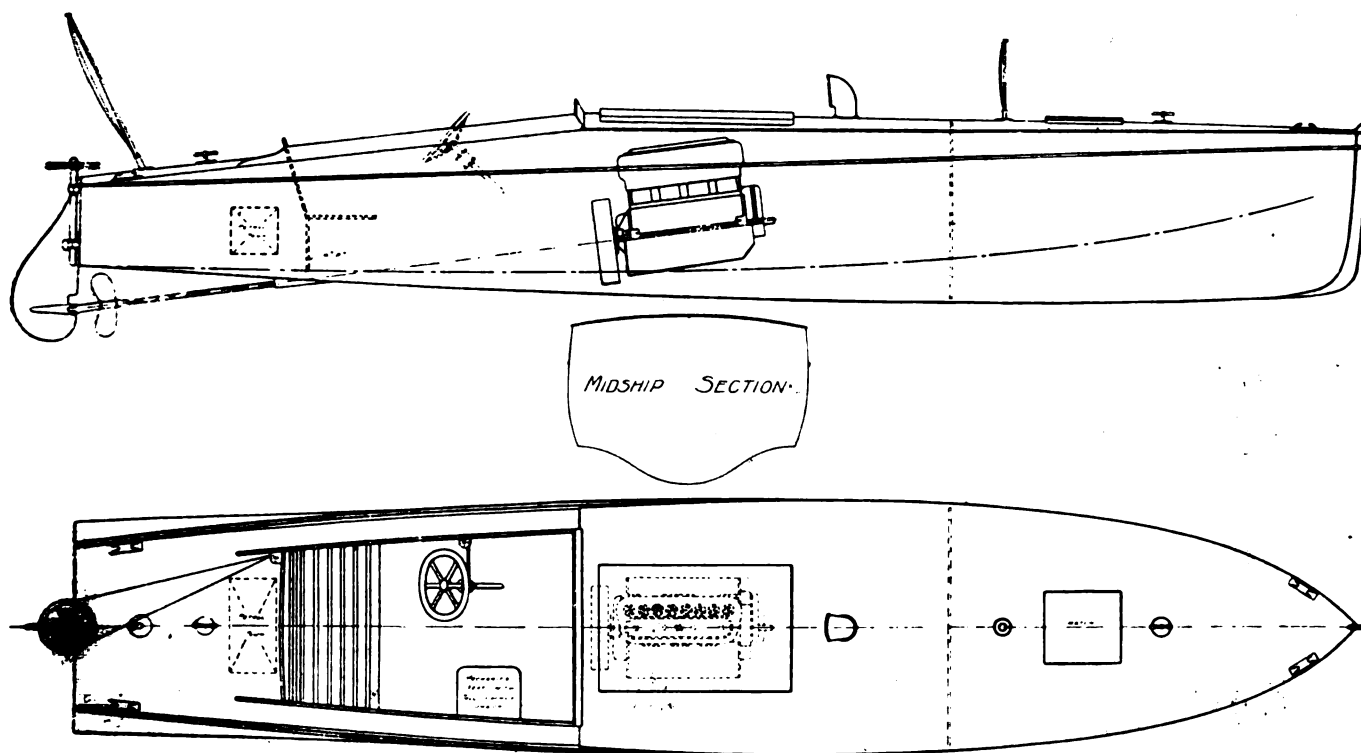


Toto, the World's Champion Twenty-One-Foot Restricted Displacement Boat. Speed Over 35 Miles per Hour

At present none of these engines turns at high enough revolutions to give a boat a speed of 30 miles an hour or over, as has been obtained by several of the British boats; but once the class is in good shape the natural desire of owners for more speed will give the engine makers the necessary encouragement and impetus to develop the revolutions and powers of their motors. For high speeds weight saving must be studied and the total weight of the hull and machinery (without crew) should not work out at more than 35 lb per b.h.p., and the nearer 30 lb per b.h.p. the better the results will be. Some of the engines in boats abroad turn at 3,000 r.p.m., and develop 45 to 60-b.h.p., but 2,500 r.p.m. is ample. Most of them have direct-driven propellers; but a few are geared down. The highest speed yet obtained by a 21-footer over the official mile course in a race under international ruling is the 35.1 miles an hour of the Toto; but there is no reason why this record should not

be broken by one or more boats flying the Stars and Stripes; in fact, it is up to the honor of our country to do so.

A study of the illustrations of the craft given will reveal an entire absence of life-saving jackets and oil-skins on the crews, although the boats are shown in the open sea and not in sheltered waters, which denotes their safety and dryness—qualities all speed launches should possess. The only serious accident to members of this class occurred in Belgium before the war, when, after a race two mechanics were doing stunt turns in the river in their master's boat for the benefit of the crowd on the banks. Now the 21-footers can turn in half their own length; in fact, they spin round on their axis. The unfortunate joy-riders apparently overdid the spinning business, and the boat capsized. Not being able to swim, both men were drowned, as, sad to relate, no attempt at rescue was made by the crowd on the banks 50 feet away.



Plans of One of the Successful British Twenty-One-Footers

THE NINE-NINETY-NINE CLASS

FURTHER details of the one-design class to be formed by the Motor Boat Club of America were announced by Commodore Blackton at the annual dinner recently. We learn with regret that the officers apparently have decided not to bring this class into line with the International rules, at least, unless such boats can be built for the total sum of \$999, which is to be the maximum cost, and from which the title, the "Nine-Ninety-Nine Class,"

\$400 to \$500. Accessories, such as propellers, shafting, fuel pressure pump, bilge pump, tachometer, fuel tank, lights, etc., would run into at least another \$100. This means that to allow of a reasonable profit to the builder, the total cost of well-built craft, in batches of six, will be somewhere between \$1,150 and \$1,450, each. It is obvious that to bring this down to \$999, the hull must be of cedar or some other cheaper wood. Even then the



A Whitaker Twenty-One-Footer Sold at Under \$999

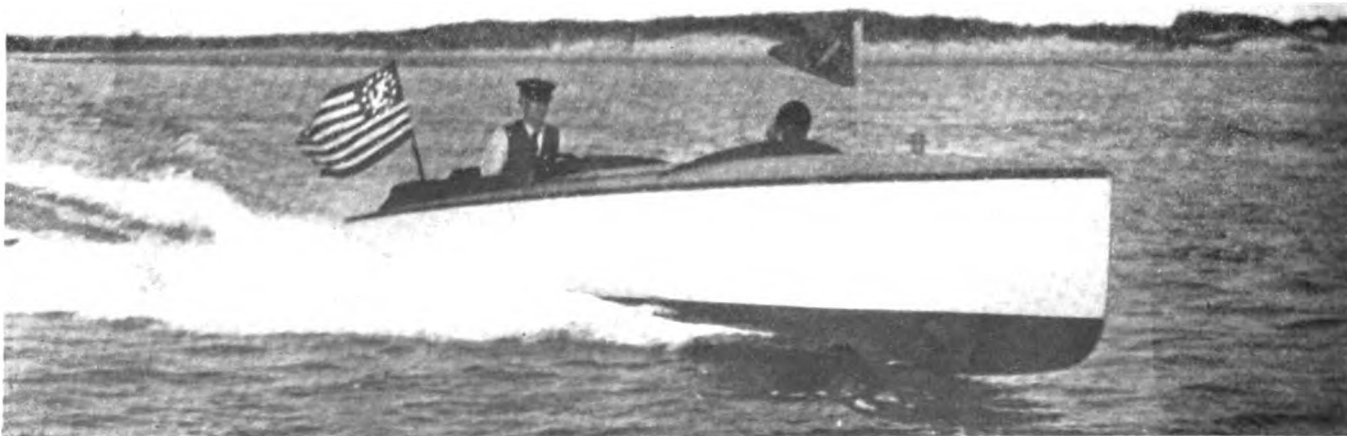
is derived. It is proposed to make the boats 21-foot one-design monoplanes, but the type of hull will depend partly upon what builders can offer at this price.

While the club's efforts to produce a low-priced one-design class are commendable and should do much good to the sport, we do not think that the maximum price will allow of the production of a well-built boat and engine from which sufficient speed to provide popular racing will be derived, unless a maker builds the boats without profit, purely for the sake of the advertisement that he would thus obtain, which we much doubt.

It is hardly likely that an engine of less than 30-35-h.p. at 1,500 to 1,750 r.p.m. would do, and this alone would cost at the lowest estimate, \$400 to \$500, while a semi-displacement mahogany hull would require from \$650 to \$850—to use a cheaper wood for a racing boat is hardly desirable, but if adopted, a cedar hull could be built for

speed derived from such a class is hardly likely to be over 22 m.p.h., which in these days of high speed may not be considered sufficient. Placing the building in the hands of one firm should be avoided, because this does not produce the development in hull and engine design that friendly rivalry brings about, when every designer wants to better the other fellow.

Regarding the cost of the International 21-foot class boats, which have attained over 35 miles an hour, nothing has ever been revealed so far as we can trace; but the owner of the boat with the highest number of wins in 1913 told the writer that his racing bill for the season, which included building the boat, running propeller and engine trials, shipping to the various regattas, mechanics' wages, hotels, etc., left him little change out of \$5,000. This was in England. However, the expenses of a 30 m.p.h. 21-footer should be much less in America, as the



The Hand V-Bottom Twenty-Footer Runabout. Also Suitable for the Class

first cost will be lower, the owners will not likely require mechanics, and probably very little shipping will have to be done, except for international and interclub racing if such takes place.

Taken as a whole we do not think that the Nine-Ninety-Nine Class will attain the lasting popularity which the International 21-footers have acquired, because it brings us no nearer interclub and international racing,

which is what is required to rejuvenate the sport of speed motor boating. At the same time, we wish the M. B. C. of America every success with their new class because it tends to bring semi-racers within the reach of the man of moderate means and will offer him a comfortable runabout for use when not racing, so we trust that our views as portrayed above will not prove correct, and that the class will fully bear out the hopes of its parents.



ELCO EXPRESS ENGINE

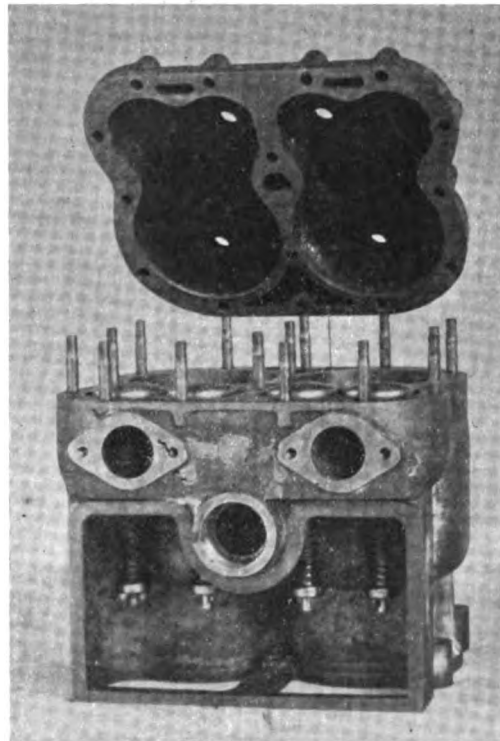
A NEAT DESIGN WITH NOVEL DETAIL FEATURES

THERE are very few boat builders who manufacture engines by reason of the fact that their plants usually are not suitable for this work. Some builders have a working agreement with one motor firm to take over a minimum number of engines during the year, while others prefer to remain independent so that they can offer any make of motor to a prospective owner. But modern competition often makes it very necessary for a builder either to construct his own power plants—and this requires large works and extensive capital—or else enter into some arrangement with an engine maker as stated, because low prices can only be made by turning craft out in large numbers, from more or less stock designs. At the same time a builder who contemplates building a motor himself must think seriously before taking the step, as there is a tendency for engine makers to then place orders for hulls with concerns not in competition with them.

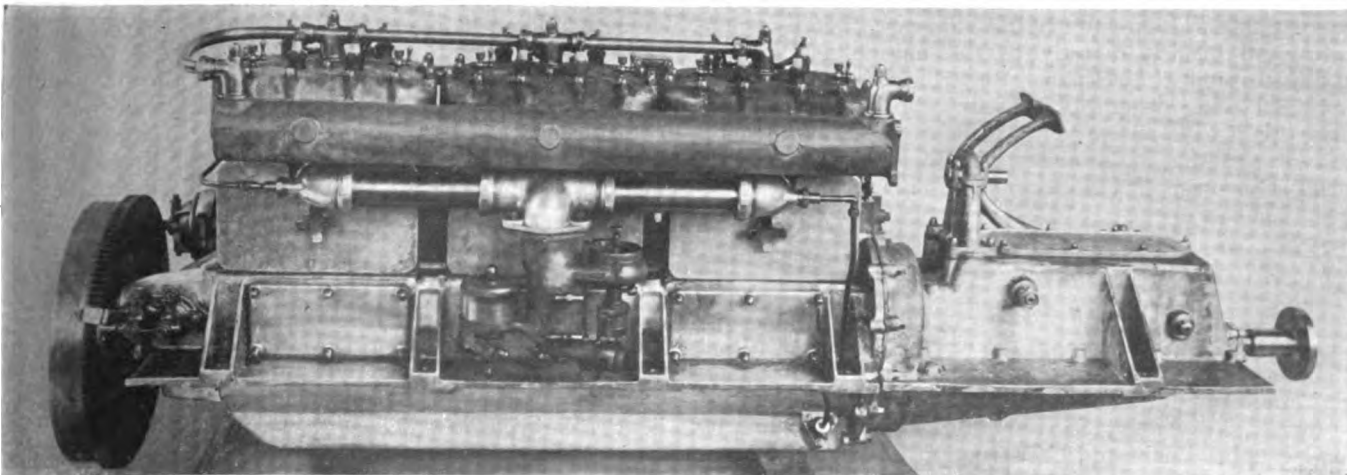
One of the concerns who have undertaken the manufacture of their own motors is the Elco Company, of Bayonne, and while this step requires considerable outlay, they are placed in the position of knowing exactly what their outfits will do and thus are able to guarantee the boats they build accordingly, without having to rely upon other persons' statements. Furthermore, they are able to quote other makes of engines should a prospective owner so desire.

The Elco 1915 express models are built in two sizes, namely, the four-cylinder, 65-h.p. motor and the six-cylinder, 100-h.p. engine. On tests of the first new model six-cylinder 5 9/16 inches by 6 inches plant it was found that 134-h.p. was developed at 1,456 r.p.m., and that it would operate for sustained periods at 1,500 to

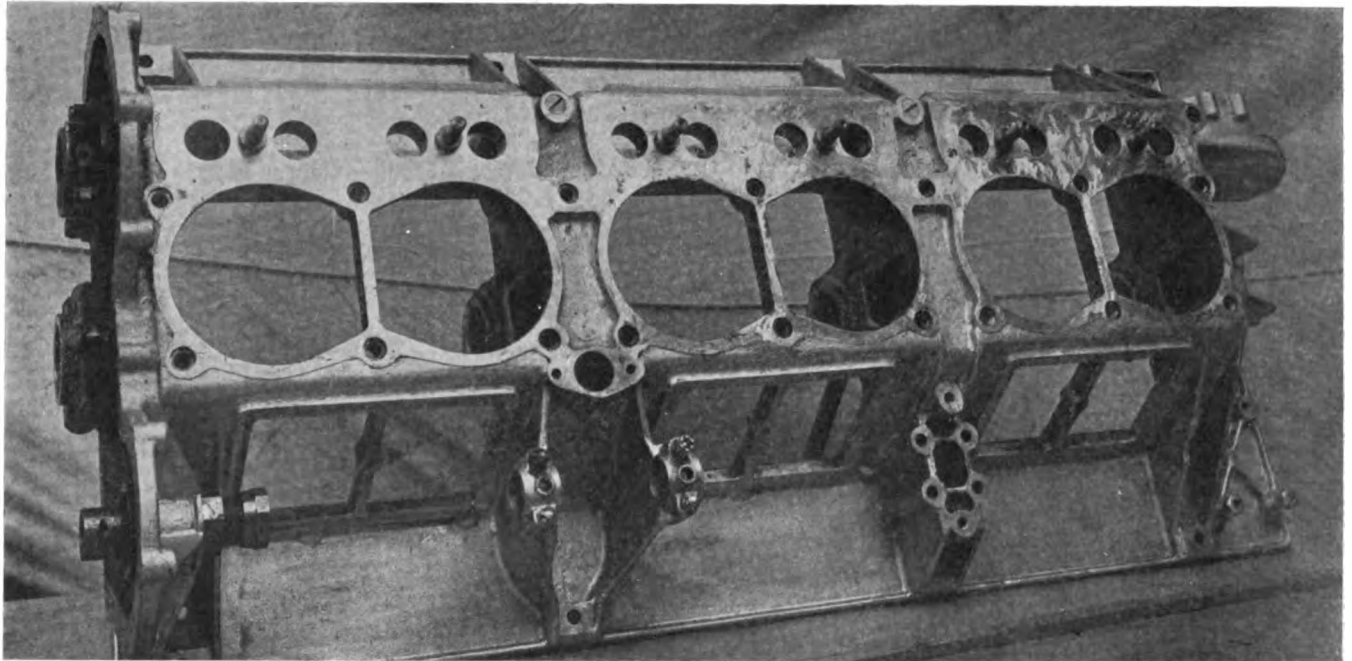
1,600 r.p.m. At 1,000 r.p.m. the rated horsepower is developed. Special attention has been given in the designing of these motors to embody features which, from ten



Depicting the Detachable Cylinder Head



The Complete Elco Express Power Plant



Crank Case of the Elco Engine

years' experience in designing and building high-speed motor boats, the makers considered necessary for the ideal express launch power equipment.

Except that the general design embodies the good features of modern practice, and that there are some original detailed features, there is nothing radically different from accepted present-day marine vogue. Hence it is that the cylinders are of the inverted L-head type, with the difference that the heads are detachable, with a gasket between the joint. This arrangement allows for the removal of complete piston and connecting-rod assembly without removing the cylinders from the crank case. It facilitates the removal of carbon from the combustion chambers and pistons and also eliminates the use of valve bonnets. It is excellent so long as a novice does not go fooling around with the gasket when the cylinder head has been taken off. As may be expected, the valve tappets are enclosed to aid silent running, as is, of course, all gearing.

The upper half of the crank case, which is of aluminum, carries the main bearings and caps. Supporting arms are integral with this half of the case, thereby transmitting all strains directly to the engine-bed without passing through the oil pan. Regarding the Elco patent air-cooled oiling system for the lubrication of the working parts, this is of particular interest. Oil is carried through the center of the intake manifold in a corrugated copper tube. This tube has a very large surface exposed to

the cool intake gases; the faster the motor runs and the hotter the oil gets, the cooler this device tends to keep the oil; oil is circulated by eccentrics integral with the cam shafts. There is fitted a combination oil indicator, breather and filler, and it is accessibly located on the starboard side of the engine.

Turning to the water circulation pump, which is of bronze, this is of the rotary type, with herring-bone bronze gears and monel metal shaft mounted on trunnions, making it easily removed and re-installed without changing the alignment. No brazed piping is used, all joints being of the stuffing-box type, which allows for expansion, contraction and vibration of the motor.

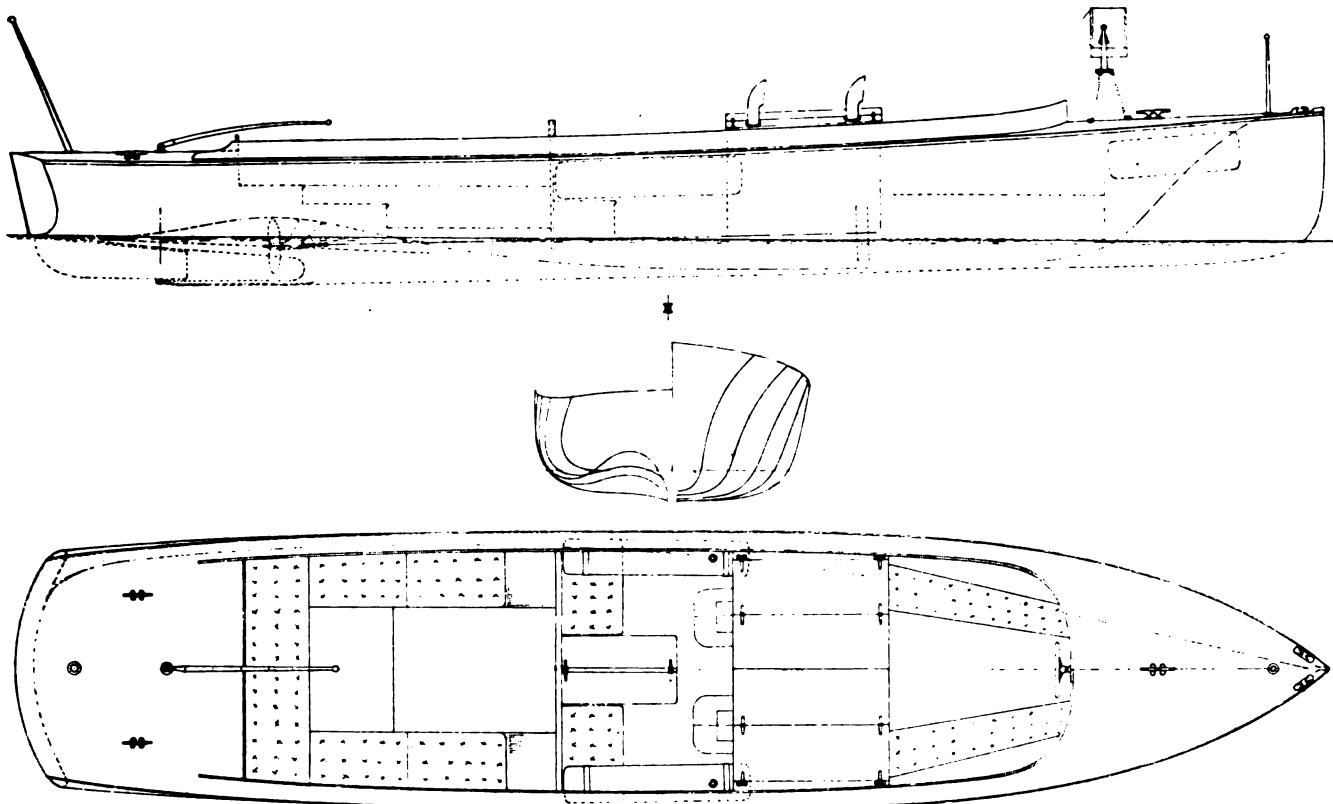
The reverse gear supplied is the Paragon, installed in an oiltight cast-aluminum housing and fitted with Elco operating mechanism. This gear is self-lubricating and requires no attention. The reverse band is made of spring-steel lined with Raybestos and operated by two hardened steel cams, one on each side to equalize the motion. This construction permits of a light and strong reverse band, quiet in operation; adjustment of the reverse band can be made from outside of gear case. The tail shaft of the reverse gear is supported by a large roller bearing which takes the thrust of the propeller on the go-ahead drive. It will be noticed that neat foot controls are fitted and these are made of non-corrosive monel metal, and operate the reverse gear through an ingenious combination of bevel pinion and segments.



A TARPON AND SHARK FISHER

DRRAWINGS are given on the next page of a boat that is 35 feet over all, 7 feet 6 inches breadth, 16 inches maximum draught, and which was especially designed for the owner, Mr. Henry Sanford, of Ridgefield, Conn., by the Greenport Basin and Construction Company to serve the requirements of seaworthiness, speed and exceptionally shallow draught, necessary to the fishing for

tarpon and shark in Florida waters. These features are secured by design, using twin tunnels for the propellers, careful construction, and distribution of strength, and the boat has been installed with twin Loew-Victor four-cylinder, 40-h.p. motors, driving twin screws, which are depended on to give a speed in excess of 15 m.p.h., as guaranteed by the builders.



Plans of the Tarpon Fishing Boat

The arrangement of the launch gives a forward cockpit where the fishing gear is kept, and from which it is served to the harpooner standing on the forward deck. This cockpit is also fitted with a steering wheel, and bell pulls to engine bells in engineer's cockpit. Aft of the fishing cockpit, the motors are housed under a hatch deck, with bulkheads forward and aft. The controls and rear starters of the motors, as well as the engine signals, are fitted on the aft bulkhead, which has a center line door for emergency access to the engines when the hatches dare not be opened. The engineer's cockpit, just aft of

the machinery space, is bulkheaded off from the owner's cockpit aft, and is fitted with gasolene tanks each side, engineer's locker seats, and has an independent electric generating set in the center housed under a portable box.

The owner's cockpit is aft, and has large, comfortable locker seats with cushions. From this cockpit the secondary tiller is handled, to be used in shooting through the breakers on the bars and reefs. The electric outfit is direct-connected to a 9-inch arc searchlight mounted on the forward deck, and is used to locate spar buoys and channel marks in night work.



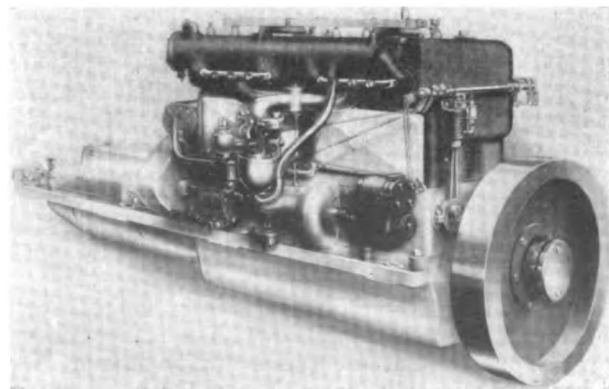
BUFFALO CRUISER ENGINE

A NEW MODEL WITH PLEASING FEATURES

CONSIDERABLE interest was evinced by visitors at the New York Motor Boat Show in the new Buffalo cruiser and runabout engine, and in response to the demands of many of our readers who were prevented by the crush from making more than a casual inspection of the motor, and others who could not get to the show, we give a simple description of the incidental features, which, together, make the plant pleasing as a whole. Like nearly all the other engines at Madison Square Garden, there are no radical changes in design with this engine, and in many ways it resembles the last Buffalo model put on the market, so that the purchaser really has a thoroughly tried power unit for his boat, and not merely a new design from which good results are hoped for.

It is a four-cylinder engine built in two sizes, 5½ inches by 7 inches, and 6¾ inches by 9 inches bore and stroke, respectively. Where it is used in ordinary cruisers the smaller size is designed to operate at a speed of about 600 r.p.m., but when powering light day cruisers or runabouts its speed will be in the neighborhood of

900 r.p.m. The larger size has a range of speed from 500 to 800 r.p.m. Provision is also made in a number of ways for the particular kind of work the engine will be called upon to perform. In the lighter class of boats,



The New Buffalo Motor

the motor will be equipped with aluminum base, while in the heavier with iron base. The weight of the smaller size with iron base is 1,400 lb and 1,100 lb with aluminum. The larger size is 2,100 lb with iron base and 1,600 lb with aluminum. Where the engines are to be run at their higher speed they are equipped with rotary water pumps. Where they are to be operated at slow or medium speed the water pump is of the plunger type.

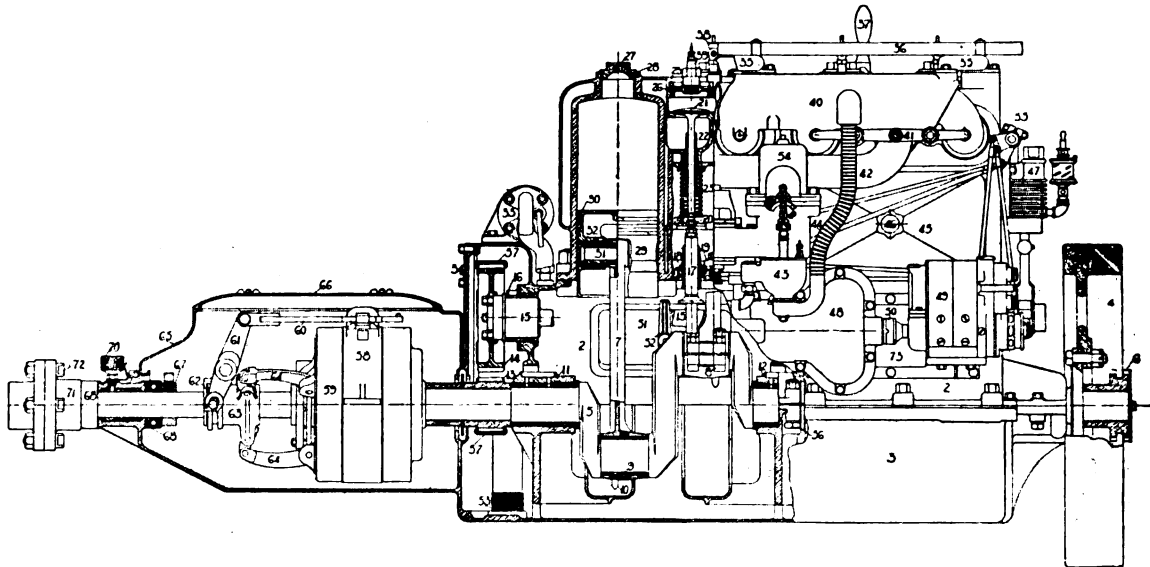
The main object held in mind by the designers of this engine was to produce a machine which would combine the qualities which make for reliability and endurance with a minimum of weight, fairly high speed and a convenient size for cabin boats where space is valuable. For one thing, it was necessary to make the length of the engine as little as possible without greatly reducing the bearing surface, and for another to reduce weight where it could be spared, but at the same time to have all parts ample for their needs.

The cylinders are cast in pairs, thoroughly water-jacketed with large inspection panels. The water enters the cylinder water-jackets near the valves instead of

the oil is strained and cooled in a water-jacketed container before being used each time it is returned from the base.

The reverse gear is of the multiple disc type, completely enclosed in an oiltight case, deleting all possibility of the oil and grease being spattered about the boat. As a matter of fact, cleanliness should be one of the most striking points about this new engine. It is far removed from the marine engine of early days when the minor refinements were given scant consideration. The hood over the reverse gear is provided with a removable cover by means of which adjustments can easily be made. As previously stated, the base is either aluminum or iron, depending upon the needs of the boat. The babbitted crank shaft bearings are carried in the lower half, which is the usual type of Buffalo extension base with a solid extension for the reverse gear.

Often, when a cruising boat is in a seaway with its propeller out of water at every dip, the consequent racing of the engine as it is relieved of its load, is a condition which gives trouble to the engineer. This is remedied in



General and Sectional Arrangements of the Buffalo Cruiser Engine

at the bottom of the cylinders, which the designers claim is advisable for engines running at a fairly high speed. An absence of gears wherever their work can be accomplished by other means makes the engine exceptionally quiet and free from vibration.

The connecting-rods are drop-forged, with removable die-cast bearings at the lower ends, the upper ends being clamped on the hardened and ground steel piston-pin and oscillating in bronze bushings in the piston. Special stress is laid by the designers upon the fact that the crank shaft is very large, the smaller size having a crank shaft diameter of $2\frac{3}{8}$ inches and the larger size $2\frac{3}{4}$ inches, thus not only giving reserve strength for an emergency, but also giving a larger bearing surface. The flywheel is bolted to a flange, which is a part of the crank shaft, thus doing away with all the possibility of it getting loose.

Lubrication of all working parts is brought about by a constant-level-splash combined with a force-feed system, which means that there is a steady stream of oil to all bearings and cylinders. One of the novel touches characteristic of this engine is an arrangement whereby

this instance by the employment of an enclosed horizontal governor, operating on a balanced double-disc throttle valve, which will govern at practically any speed. A double system of ignition is provided, one system operating by means of the magneto and the other being the battery and distributor systems. These two systems are entirely separate and independent of one another.

SPECIAL FEATURES FOR APRIL

In addition to many other interesting motor boat and engine stories, the April issue of THE RUDDER will contain a special article on "Oils and Lubricating Devices." Not only will the leading systems of the lubrication of motors be discussed and described, but simple tests for discovering good and inferior oils will be fully explained. As the life of an engine depends upon efficient lubrication, this article will be of the greatest value to all power-boat men. Another feature will be a full report of the Chicago Motor Boat Show, so as there will be a great demand for the April issue, order your copy now and avoid disappointment.

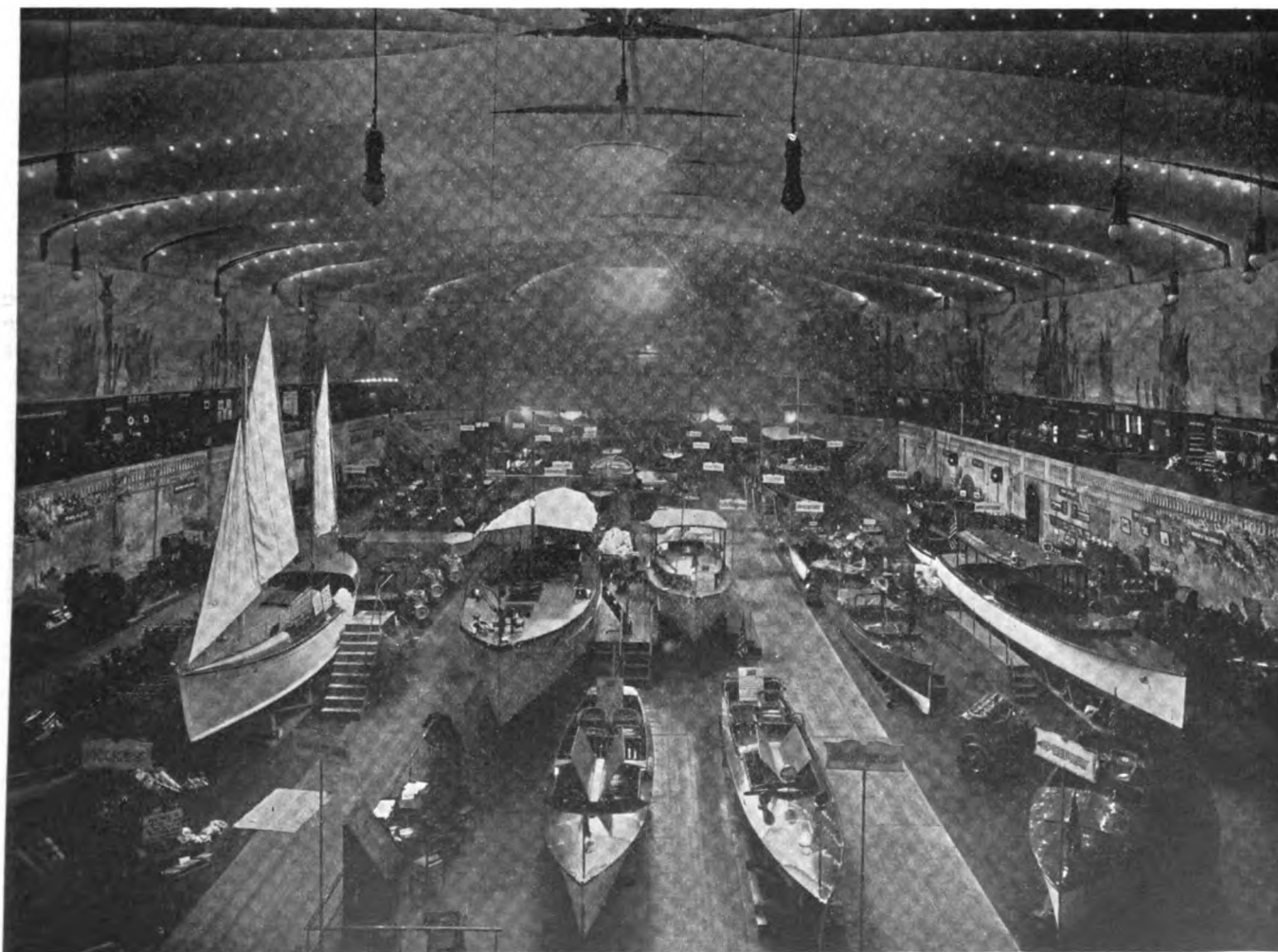
AFTER THE SHOW

AS we write all that there is left of the New York Motor Boat Show at the Madison Square Garden is litter, and this, too, is rapidly being cleared away. Pardon, we blunder! for there is even more than one thing which remains that still vividly portrays itself with all concerned, namely—pleasant memories for the visitors and fat order books for the majority of the exhibitors. Even ourselves made a very big number of new friends, of which over three hundred actually signed on for a year or more during the exhibition, which we have reason to believe is a subscriber record not approached by any other magazine at the Garden, and thus strikingly demonstrates how THE RUDDER is gaining in popularity among power users.

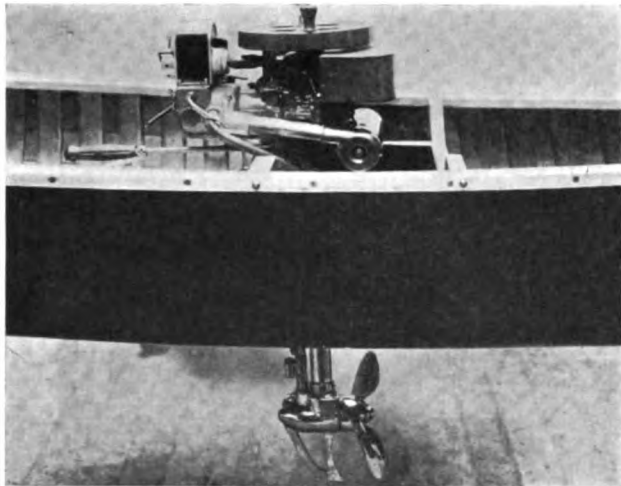
Apparently we have reached a stage in the designing of hulls and engines where but little outstanding changes are being made—at least, this is the impression that comes to us after a careful reflection of the exhibits. While there are many minor changes in detail of the engines,

which consist chiefly of refinements, there were hardly any radical alterations in design to note, with, perhaps, the exceptions of the new enclosed Scripps, Sterling and Ferro motors, and a few other instances, where everything that can possibly be enclosed is enclosed by aluminum covers, with the advantage of making the engines silent running and clean in operation; at the same time weight cutting has to be made in other parts to allow for the extra metal formed by these housings. Generally speaking, the housings do not increase the inaccessibility, because good arrangements have been made for their easy removal when adjustments are required.

One important change in policy is the abandonment of the use of aluminum for the upper halves of the crank cases with the high-speed engines manufactured by the Van Blerck Company, and it is "Joe's" opinion that one must sacrifice a certain amount of weight-saving for strength and reliability. Again, it is noticeable that the use of chain-drive for cam shaft operation has almost



General View of the Exhibits. Elco Boats in the Center, with the Speedway Craft to the Right of the Picture

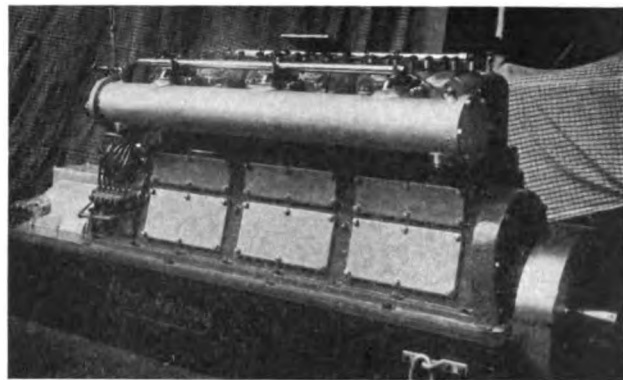


An Evinrude Motor Shown Installed in a Canoe

entirely been ignored, not more than two engines having adopted this means.

A noticeable feature is the more general adoption, than last year, of electric starters—which in most cases also combines an electric-lighting outfit, and almost every maker had an equipment of this type on at least one model, and in some instances, on several sets. Furthermore, with several designs the electric starter is fitted right in a housing cast integral with the crank case of the engine. Although there were several big gasoline, kerosene and producer-gas engines of 100 to 200-h.p., such as the Speedway, Buffalo, Balaco, Sterling and Wolverine, only two Diesel motors were shown, the Craig and the new Standard Diesels not being on exhibition. In fact, several old exhibitors were missing, including the Matthews Company, who usually have several fine cruisers and runabouts displayed.

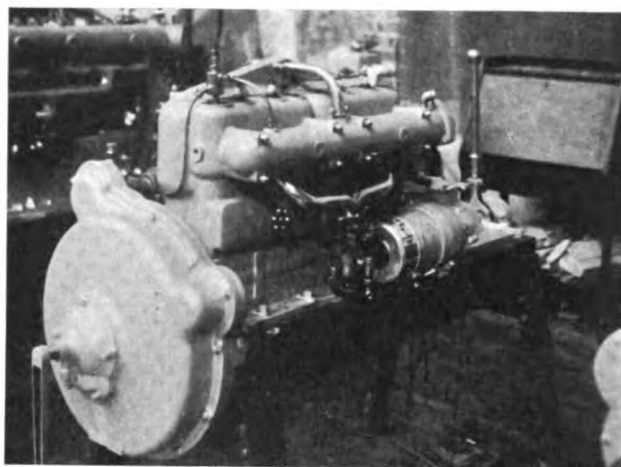
Many novelties in the way of boat and engine accessories were shown in the balcony, which, by the way, at all times seemed a popular part of the hall for the visitors. A marked development was shown in such electric-light-



One of the Big Speedway Engines

ing plants as were on exhibition, and about these we shall have much to say in detail very shortly.

With regard to hull design, our impressions are that



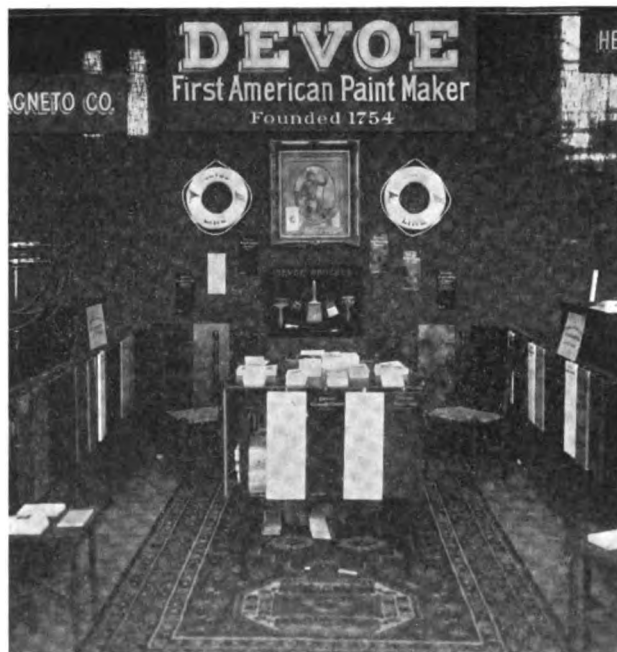
The New Scripps Motor. Note the Enclosed Flywheel

the only noteworthy developments seem to be in the express cruisers and runabouts, and this is chiefly due to the more general adoption of higher speed engines for



Messrs. Valentine & Co.'s Demonstration Booth

the purpose. Ordinary cruisers remain much the same as last year, although internally there are many minor improvements which favorably effect the comfort of the accommodation. As a matter of fact, the modern cabin cruiser and motor yacht have already reached a very high degree and so we cannot expect many changes yet awhile. Little cruisers of the "Cruisette" type revealed what wonders can be done in the way of building useful, comfortable and seaworthy craft of small dimensions on stock. This boat the Editor will command on a trip to Bermuda in May. There were several runabouts on exhibition that are hardly suitable for the salt water of the East Coast, and the builders of these will probably make better sales at the Chicago Show, which is due to open for a week at the Coliseum on February 27th. During the first few days bad weather kept many fans away, but the crowds later in the week more than made up for this. Taken as a whole, the New York Show, of which full details were given in our last issue, was a big success, despite the fact that financial and business conditions in America have only recently started on the upward trend, and we fully expect the Chicago exhibition to show similar results. The latter will be fully dealt with in our next issue.



The Devoe Exhibit



NEW INSTALLATION INCREASES SPEED

PROBABLY one of the most interesting changes of power plant that has occurred in the speed-boat circles of late, is that of the Adgadia, one of the Cinderella type of wave-collecting hydroplanes built last season. Her owner is Mr. John F. Betz, of Philadelphia, Pa., and she has a Crouch designed hull. Adgadia is 28 feet in length with a beam of 5 feet 2 inches; her power plant consisting of a six-cylinder, high-speed Sterling motor, rated at 135-h.p., and a bore of $5\frac{1}{2}$ inches by $6\frac{3}{4}$ inches stroke.

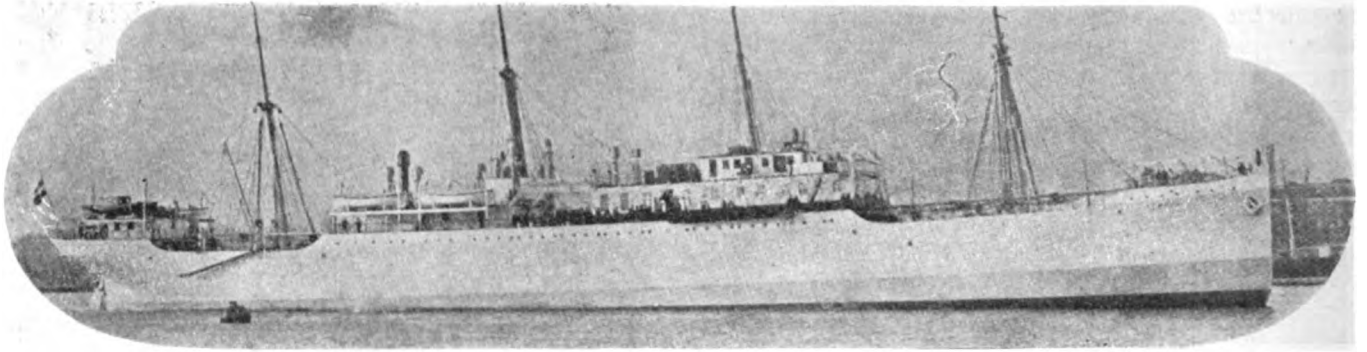
Her former plant was a six-cylinder motor of the same bore but less stroke, and it was said that in the races at Red Bank, N. J., last season, she covered the course at 37 miles per hour. However, Mr. Betz wanted more speed and as his engine apparently could not drive the Adgadia any faster, he then decided that an increase of power was necessary.

The principal reason for this expected additional speed is based upon the fact that last season a 26-foot Cinderella hull of the wave-collecting type, equipped with a four-cylinder motor of a different make, could do but 33 actual miles per hour, but with exactly the same type of hull and one of the 90-h.p. Sterlings installed, demonstrated a speed of 37 miles per hour, an increase of 4 miles over her sister boat.

Mr. Betz is well known throughout the country and is very enthusiastic about high-speed motor boats, and says that the experience of traveling at high speed in a motor boat is sure to result in one becoming an enthusiast in that particular branch of sport, and that with his new power plant installed, which should drive his Adgadia at a 40-mile clip, it will put him in a class that should enable him to carry away a considerable number of trophies during the season of 1915.



Adgadia at Speed



The Motor Ship Fionia

ACCOMMODATION ON MOTOR SHIPS

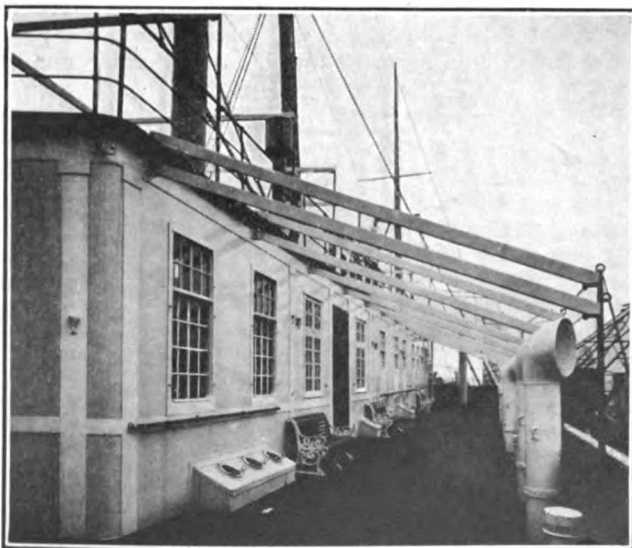
ALTHOUGH nearly all of the large motor ships are cargo carriers or tankers, some of them, especially those on the Asiatic service, have accommodations for a few passengers. Extraordinary as it may seem, this accommodation, limited though it be, is fitted up in a style that rivals the latest and largest ocean-going liners. We give some interesting pictures of the passenger quarters on the M. S. Fionia, a vessel of but 6,700 tons dead weight, and 4,000-i.h.p., but which can cruise round the world on one fueling.

She carries forty first-class passengers, but it is not possible to book single berths, as this accommodation is intended for parties only. Yet she carries quite a large orchestra for the entertainment of the passengers. How luxurious are the saloons, cabins, etc., may best be judged by the illustrations. It will be noticed that on the promenade deck are seats of the garden type, which we do not remember having before noticed on a ship. Instead of scuttles, or ports, large windows, such as seen in a mansion, are provided. A smaller reproduction of the interior of this vessel would make a beautiful design for a motor, sail or steam yacht.

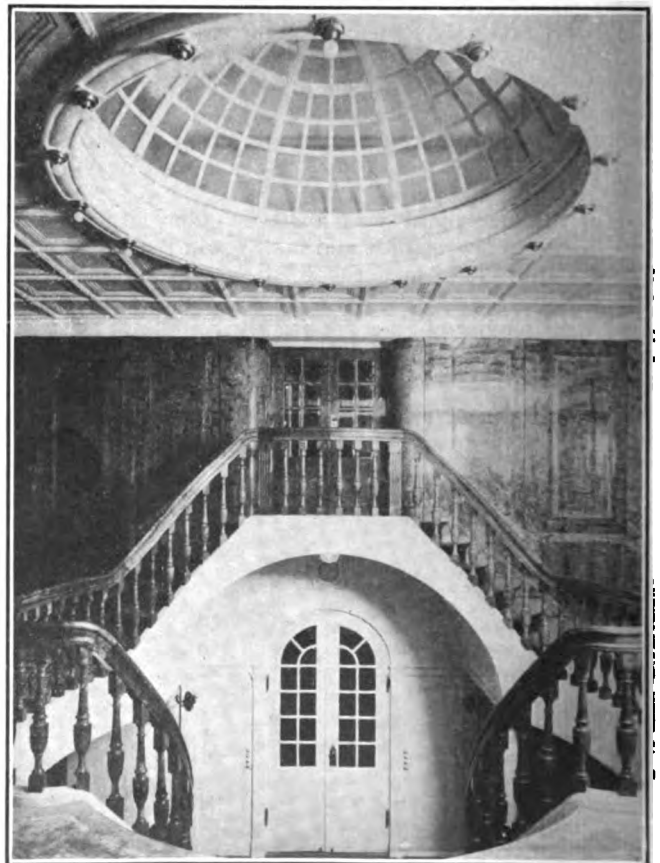
In addition to the dining saloon which, by the way, has 16 feet headroom, there is a ladies' and music saloon,

which is decorated in white and gold. Over this saloon are well fitted cabins, and it is to be particularly noted that each cabin has its own dressing and bath rooms attached, while each is furnished with a bedstead, sofa and writing table. Astern is the hospital, barber shop and accommodation for the servants and a few second-class passengers.

The entrance to the saloon is through the handsome hall which we illustrate, and this is paneled in birchwood and covered by a cupola. The floor is fitted with a layer of India-rubber to deaden sounds. Regarding the smoking room, this is of full mahogany, from floor to ceiling, while the furniture is upholstered in leather. The length of Fionia is 400 feet by 53 feet breadth.



The Promenade Deck. Note the Large Windows and Garden-Type Seats



The Grand Stairway on the Fionia



The Luxurious Dining Saloon and Cozy Smoking Room of the M. S. Florida

SAN FRANCISCO RACER LADY BALTIMORE

THE accompanying plans show the first boat designed for the race from New York to San Francisco, and is of special interest, as she is from the office of Bowes & Mower, designers of the Bermuda racer Dream and other successful ocean racers. It is of interest to note that both members of this firm have taken part in the Bermuda races, and are the only designers in the field today who have the knowledge of actual ocean-racing experience to aid them in designing boats for this service.

While designed primarily for the San Francisco Race, the owners of the new boat required a boat that would be suitable for general coast cruising and of as smart an appearance as possible; in other words, a thoroughly modern and up-to-date cruiser that would attract favorable attention in any yachting center, and at the same time be a worthy entry for the ocean race. The plans show how well they have succeeded in meeting the requirements as to appearance and arrangement and the race only can prove if they have added another winner to their already long list of successful boats.

The new boat is owned by a syndicate of Baltimore yachtsmen, and is now under construction at the yard of the Mathis Yacht Building Company, of Camden, N. J., under the personal supervision of the designers. She will be fitted with a motor built specially for her by the Hall-Seeley Motor Corporation, of Baltimore, Md. The motor will have six cylinders, 6½ inches diameter by 12 inches stroke, and will develop 60 to 100-h.p. The motor has many new and interesting features in its design and has shown, in actual tests, an economy of fuel consumption that has not been attained in any existing type of marine gasoline engine. The engine is installed amidships in an engine room 20 feet long with double water-tight bulkheads at each end, thus cutting it off absolutely from the living quarters forward and aft. Fuel tanks are located at each end of the engine room, having a total capacity of 1,200 gallons. In addition to this supply, there are reserve tanks in the lazarette with a capacity of 300 gallons additional, making a total fuel capacity of 1,500 gallons. All tanks are specially built of heavy soft copper, riveted and brazed and thoroughly fitted with baffle plates. All are set in deep copper pans, fitted with scuppers leading overboard. The fresh-water tanks have a total capacity of 450 gallons, and are placed so that the weight is distributed throughout the length of the boat. The engine room will have a large work bench on the port side and on the starboard side is located the auxiliary machinery, which will be used for lighting, pumps and driving ventilating fans, etc. There are two transoms for the engine room crew on watch and a toilet in the engine room. The engine room is reached through hatches in the top of the engine room trunk and two hatches are provided, so that there will always be one to leeward, which can be used and kept open in ordinary weather. The two stacks are used for engine room ventilation, the after one being further utilized for the engine exhaust and the forward one for the crank case ventilation system. Sleeping accommodations for all hands will be provided forward and aft, so that only the watch on duty will be in the engine room when underway.

The accommodations aft consist of a main cabin, 17

feet long with an athwartship berth at the after end and extension transoms on each side. When fitted for racing trim these transoms will be made into four permanent berths with fixed leeboards. Back of the transoms are the alcoves and bookcases usual in a cruising yacht of this type and beneath them are large drawers for stowage. At the forward end, on each side, is a large wardrobe locker and in the center a buffet sideboard. A door on the starboard side leads to a toilet room of good size and on the port side is the door to the galley. The galley is 5 feet fore-and-aft, and 5 feet 2 inches from face of ice-box to the fore-and-aft bulkhead, making a galley amply large to provide for the full crew that will be carried in the race. A coal range will be used and it is set against the forward bulkhead and nearly over the center-line of the vessel. This brings it nearly over the center of buoyancy, and the position where there will be the least motion, so that the cook will have a fairly easy time keeping his pots and kettles from jumping off the stove in bad weather and there will be little danger of the fire box spilling its red-hot coals out on to the "doctor's" feet. The ice-box is extra large and a hatch is provided over the galley, through which ice can be taken and the cook given fresh air when the weather permits. The galley stovepipe is carried through the engine room and up into the after stack.

The accommodations forward consist of a large stateroom and toilet room. The companionway steps are on the starboard side, leading from the bridge deck. There are three berths here, one on each side, and one athwartship under the bridge deck. The chart case is placed on the port side, where it is conveniently reached from the foot of the companionway steps.

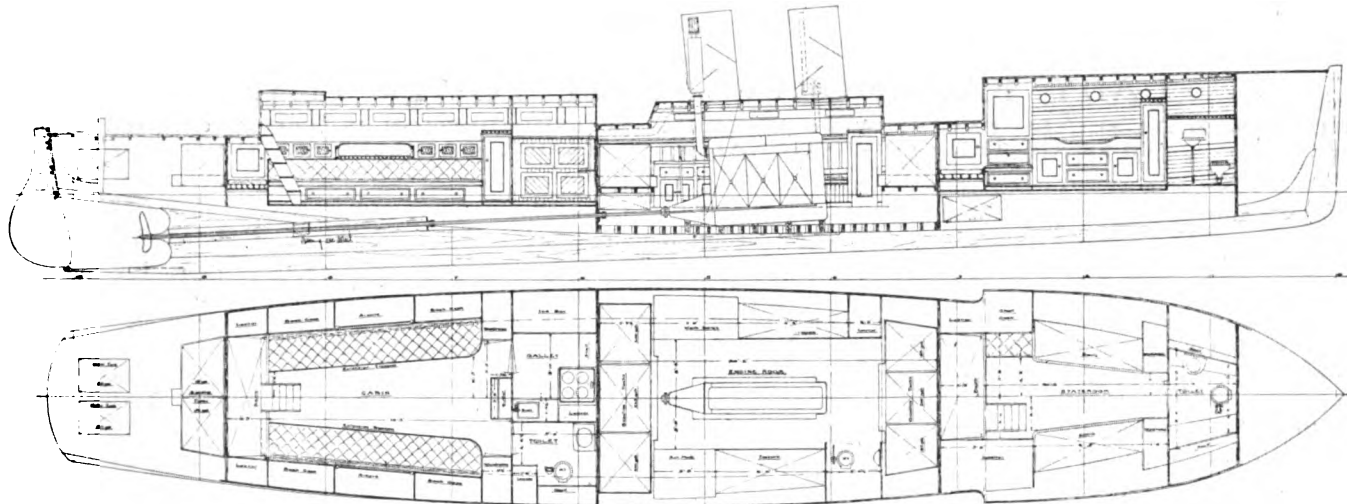
The outboard profile shows a straight sheer with fairly high freeboard and a high raised deck forward extending aft to the bridge. This gives a freeboard height of 7 feet 6 inches at the stem head. The bridge deck is 6 feet and aft of this the 14-foot engine room trunk. There is a space of 3 feet between the engine room trunk and the after cabin trunk, which is 20 feet long. The after deck is 12 feet. The side decks are 18 inches wide, and the sides of the engine room trunk are raked inboard to give more room for the passageway. In cruising trim a signal mast will be carried aft, but for racing this will be removed and a mast fitted at the aft end of the raised deck on which sail can be carried.

The steering gear will all be fitted above with a pedestal steerer on the bridge deck for ordinary use. For the race, a steerer will be fitted on the after deck for use in very bad weather. The tiller is under the grating on the after deck and all the sheaves and fair leads are placed so that they can be gotten at without an instant's delay in case of trouble. No attempt will be made to handle the motor with deck controls and engine room telegraphs will be installed at both steering stations.

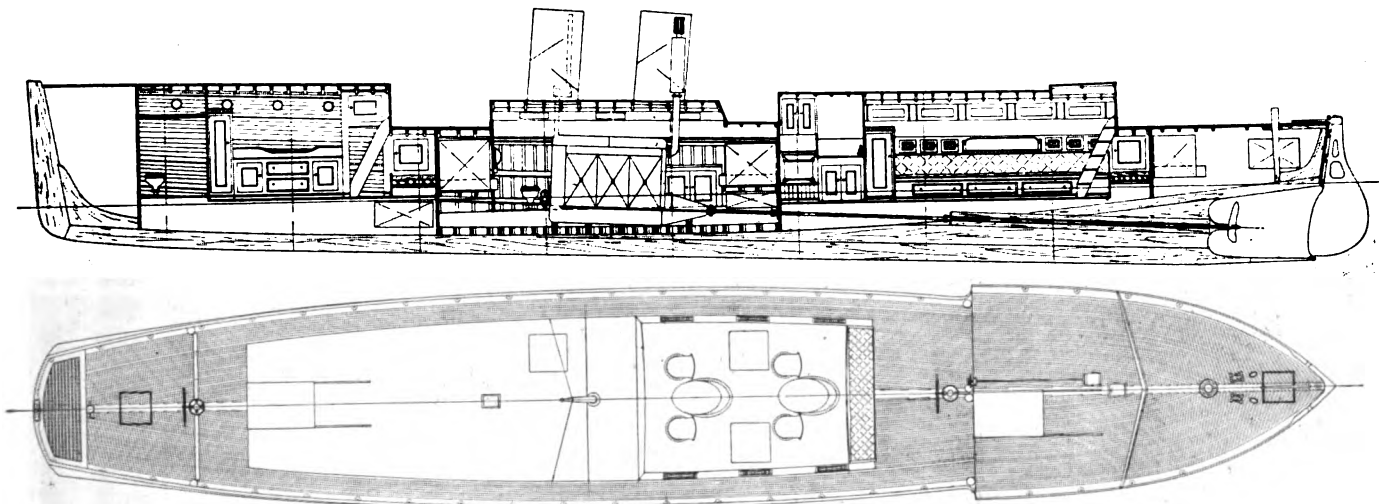
The construction has been carefully designed to give the necessary strength and this has been accomplished by a careful proportioning of the different members and close spacing of frames and fore-and-aft stringers rather than by excessive weight of material. The main keel is 6 inches by 10 inches white oak, with backing pieces to

take the heels of the frames. The frames are 2 inches by 2 inches white oak, steam-bent, and spaced 12 inches center to center in the ends and 8 inches in the engine space. The planking is selected long-leaf yellow pine, 1¼-inch thick when finished. The deck frame is white oak with a 1¾-inch white pine calked deck. The fore-and-aft stringers are yellow pine and special attention has been given to the construction of the engine foundation. The deck joinerwork will be of mahogany, including the cabin trunks.

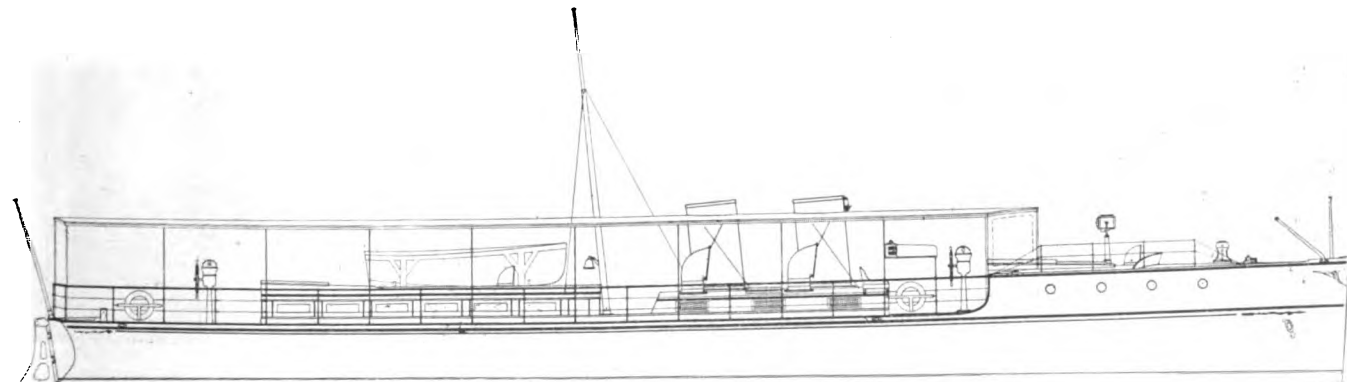
In design, the lines show a very easy form that has in no way been distorted to suit the rating rule, as the designers believe it better to turn a properly designed form of underwater body and let the rating figure what it will. In general, the boat has the plumb stem with considerable flare to forward sections, and long fore-body with fairly straight water-line. The transom stern is used with the rudder hung outboard. The aft sections show a moderate tumble home with the turn of bilge lifted well above the water-line. Below the water-line the



Accommodation Plan



Starboard Inboard Elevation and Deck Plan



Outboard Profile of Seventy-Seven-Foot San Francisco Racer Lady Baltimore. Designed by Bowes & Mower

sections show a fair deadrise with a straight floor, which rounds into a good firm turn of bilge at the midship section. The deadrise is carried all the way to the stern transom, which gives a fine water-line aft and at the same time gives a good bearing surface to steady the boat when rolling or running in a following sea. The success of the Bowes & Mower boats has been due in a great measure to the study and care that is given to the design of the form below the water-line and the designers believe this boat to be an improvement over all

of their former designs. The dimensions of the Lady Baltimore are as follows:

Length o. a.	77 feet	0 inches	= 23.469 meters
Length w. l.	76 "	0 "	= 23.164 "
Breadth, extreme. . .	13 "	0 "	= 3.962 "
Draught, extreme. . .	4 "	7 "	= 1.396 "
Freeboard, bow. . . .	7 "	3 "	= 2.209 "
Freeboard, stern. . .	3 "	6 "	= 1.066 "
Freeboard, least. . .	3 "	4 "	= 1.015 "

F. W. GOELLER, JR.



LADY BALTIMORE'S NOVEL POWER PLANT

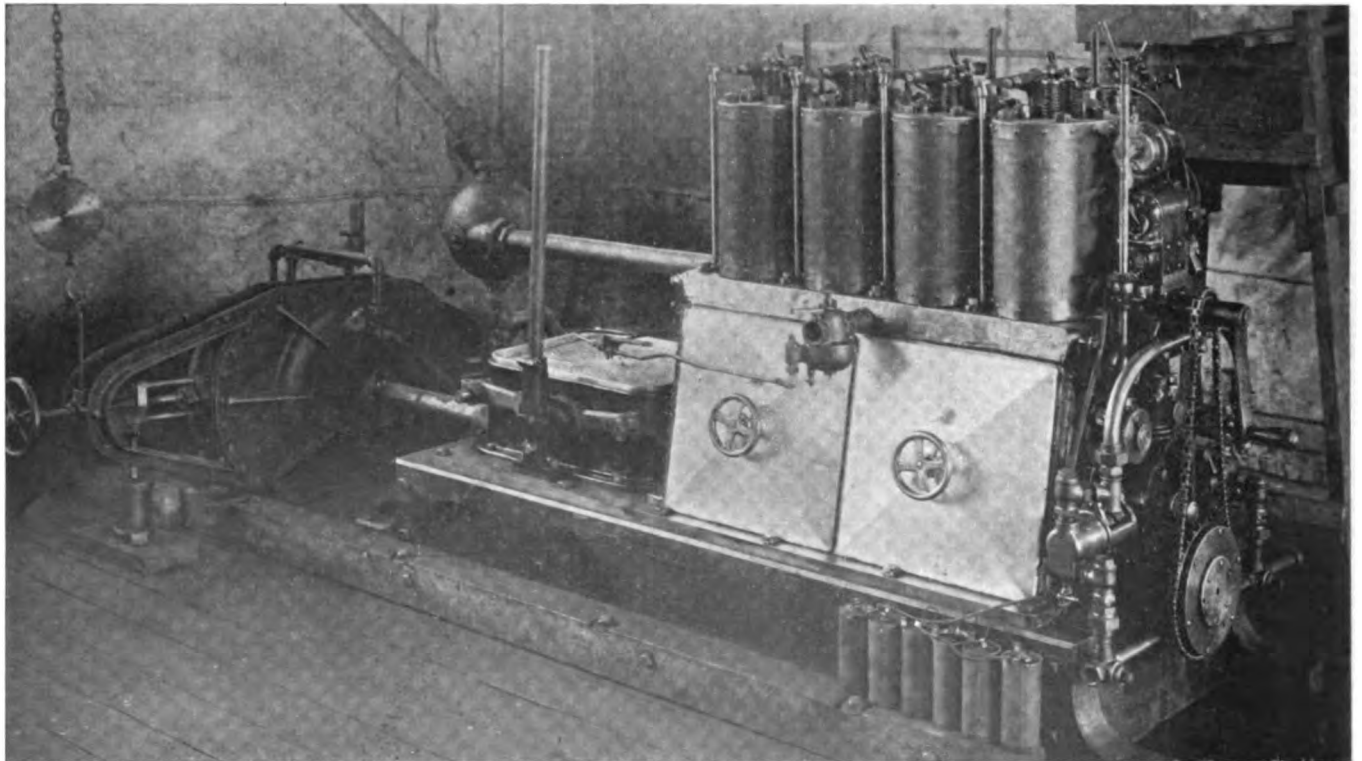
THE NEW HALL-SEELEY ENGINE WITH WHICH FUEL CONSUMPTION IS ABOUT ONE-HALF OF THAT OF THE CONVENTIONAL TYPE MARINE GASOLENE MOTOR

Special to THE RUDDER

IF expectations are fully realized the San Francisco motor yacht race bids fair to revolutionize marine gasolene motor design, for the principal entrant, Lady Baltimore, of which plans are given elsewhere, will be powered with a high-compression engine, which in addition to bearing advanced constructional features is claimed to have a remarkably low fuel consumption. While the six-cylinder, 100-h.p. motor for the Lady Baltimore has not yet been completed, we were advised, during a discussion with the inventor at Baltimore, that the four-cylinder, 25-30-h.p. experimental engine proved to have a consumption of 0.48 lb per brake-horsepower hour, which is about half as much as is consumed by the conventional type of marine motor. This means that on a given amount of fuel, the 'Frisco racer will be able to cruise twice as far as another gasolene-driven boat of similar power.

Generally speaking, this is accomplished by the embodiment of a new combination of known principles of premixture explosive motors, which enables the engine to be operated normally at maximum compression, and which secures an increased ratio of expansion. Ordinary type four-stroke-cycle motors have a fuel consumption of one pint per brake-horsepower hour, and indicate a thermal or heat efficiency of 13% to 18% of the total heat, depending upon the heat value of the fuel itself, the main endeavor apparently having been to get as great a volume of mixture into the cylinders as they would contain, then compress it to as low a point as is consistent with the maximum output of power.

Thus when designing an ordinary engine the volume of compression space is usually made to equal one-third of the piston displacement and consequently the gases of explosion can only expand four times their initial



The Experimental Hall-Seeley Engine on the Test-Bed. In General Appearance the Lady Baltimore's Engine Will Differ, but the Principle of Operation Will Be the Same

volume, being exhausted to the atmosphere at a high terminal pressure.

In comparison with the above, the Hall-Seeley design takes advantage of several important factors.

First: A gain is effected by a constructional arrangement that permits of maintaining compression normally close up to the maximum, or point of ignition.

Second: Economy is further secured by expanding the gases at a low terminal pressure, requiring an expansion ratio of at least eight to nine volumes.

Third: A long stroke in proportion to the bore of the cylinders is adopted, permitting a more nearly spherical form of combustion chamber, higher piston speed and a 50% reduction in the cooling effect (absorption of power) upon the combustion chamber.

Owing to these features, however, the maximum efficiency for the bore has been found to be somewhat lower than normal. Notwithstanding this the engine showed a maximum heat efficiency of 28%, or about 0.48 of a pound per b.h.p. hour, (8.34 lb to the gallon is the average weight of gasoline), as against 13% to 18% of the conventional type of engine, having a compression of 60 lb per square inch. With the Lady Baltimore's engine the development and improvement in general design is expected to establish the thermal efficiency to about 33% to 35%, and thus save gasoline to a remarkable consumption.

One of the chief mechanical features of the design is that instead of the intake valve closing at the bottom of the suction stroke, it remains open at least one-half of the compression stroke, in addition to the whole of the suction stroke, and so one-half of the charge of mixture is expelled and passed to another cylinder, but not wasted. Compression begins at this point, and is carried to the maximum pressure at the moment of ignition, which is over 100 lb per square inch.

This method of compressing a partial cylinder charge of mixture to the maximum possible pressure, and then expanding the same throughout the whole working stroke to an increased ratio, constitutes the only radical departure from the general working principle of the internal-combustion motor using gasoline as fuel. In conjunction with the method of heat conservation adopted, it is responsible for the fuel economy. To make matters a little clearer, it may be said that the gases of explosion expand to a greatly increased volume, or ratio, actuating the piston throughout the entire working stroke, until the point of exhaust is reached, when they are expelled through the exhaust valve in the ordinary manner.

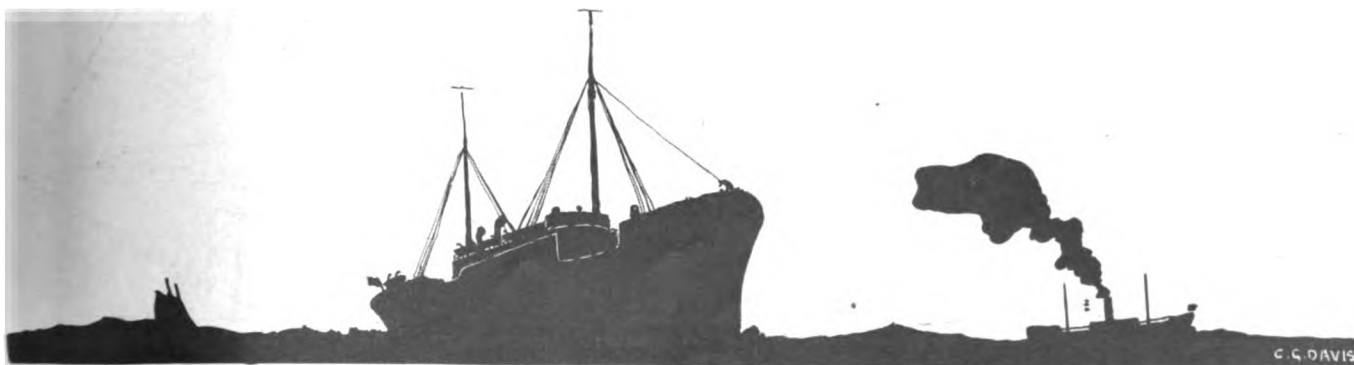
Regarding the constructional arrangement of the Hall-

Seeley engine, the general design shows an incorporation of new and recognized marine engineering ideas, with accessibility as its star feature. For instance, the cylinders are individually hung, rather than mounted, from the manifold combustion chamber, or cylinder heads, while the latter are supported by steel columns. This arrangement, which we cannot yet go into detail because of patents pending, not only allows of easy piston removal, but facilitates the rapid broadside removal of the crank shaft. It will already be realized that an open type of crank pit has been adopted, but oil splashing is prevented by the use of splash-guards, also by side and end plates. To withdraw the gases and oil fumes that always find their way into the crank case of an engine, there is fitted a fan.

A single cam shaft has been adopted, this operating the valves by means of small rockers, the cam shaft itself being actuated by a vertical shaft and spiral gearing off the crank shaft. In this connection there is an important mechanical feature, namely, the eccentric mounting of the inlet valve rocker, which is controlled by a hand lever or governor. By turning the shaft upon which the rocker is mounted the eccentric movement oscillates the rocker and thus varies its position, incidentally causing a variable closing time of the intake valve, according to the engine speed. This also has an important bearing upon the fuel economy. By depressing this intake valve control lever the closing time of the valve is delayed and a smaller volume of mixture is retained in the cylinder, resulting in a reduction of power and consumption. This action also provides the necessary compression relief for starting up the motor. The valves themselves are arranged V-fashion in the cylinder heads and are carried in detachable cages.

There is a flywheel for each pair of cylinders and these are arranged in the crank pit, thus the absence of an externally-arranged flywheel leaves the forward end of the motor clear for the location of the water-cooling, air, and bilge pumps, where these are accessible, yet out of the way. With regard to lubrication, an excellent system of force-feed from two rotary pumps, through a drilled crank shaft, via a filter and cooler, has been fitted.

The main bearings are all made in halves, and are interchangeable. They have an unusually large amount of bearing surface, because the crank shaft is one-half of the cylinder bore. All other bearings are made in similar proportions. We look forward to the results of this engine when in the 'Frisco racer, and as the yacht will be in command of the Oldman, we shall have ample opportunity for carefully watching the operation and checking the fuel consumption.



CABINS ON SMALL SAILBOATS

THERE are certain points about the designs of cabins of small yawls and auxiliary sailboats which to the layman seem both wrong and unnecessary. It would be interesting to learn what valid reason there is for the usual design or whether it is simply applied to small boats because it is customary and desirable on large ones.

This is the custom of making the cabin narrower than the boat, leaving a portion of deck along each side.

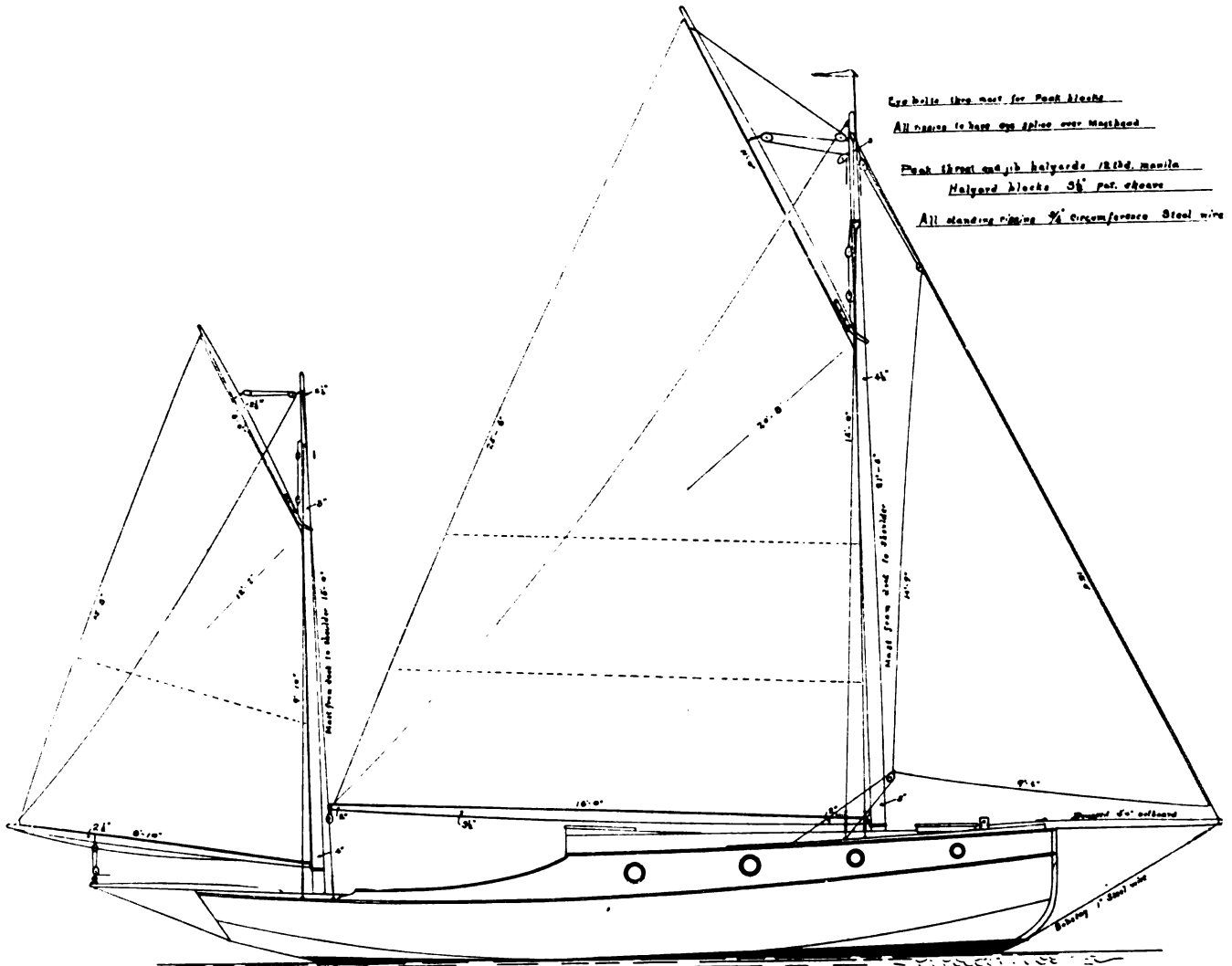
For concrete instances, there are the Sea Bird, Sea-goer, etc., and any number of small sailboat designs which have appeared in THE RUDDER for boats of between 20 and 35 feet in length.

Taking the original Sea Bird as an example, it will be seen from the cross section through the cabin that while the boat has a breadth of 8 feet, the cabin, where it projects above the deck, is but 4 feet 9 inches wide. Mr. Day describes it as affording very cramped quarters for the crew, while Mr. Mower, who designed it, has

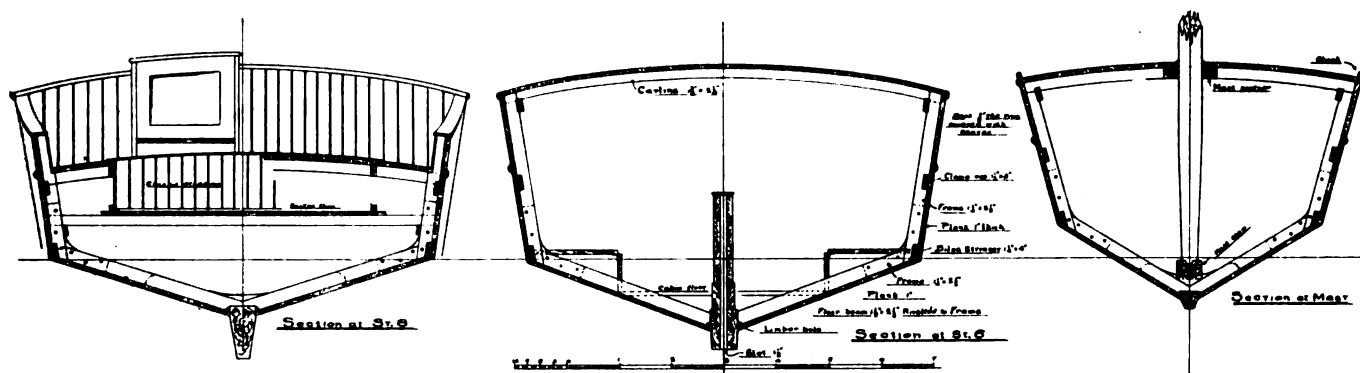
also made the same remark to the writer, and this is further mentioned as one of the reasons for the removal of the centerboard. The portion of the cabin forward, even if used only for stores, must have been very difficult of access.

The question of cabin room may not be much of a consideration in a boat used only for day trips, but is a most important one on a boat where one expects to spend several weeks or a month.

Cramped quarters have a curious effect on the nerves. This was mentioned by the late Admiral Melville in describing the ill-fated Jeannette expedition, at a meeting of the Loyal Legion in Philadelphia some years ago. The Admiral said the continual personal contact necessitated by the close quarters was one of the most irritating things in the expedition. It was difficult to move about the cabin without stumbling over something. When they first started, such an accident brought an "Excuse me,"



Raised Deck Sea Bird. Designed by Duncan W. Patterson



Sections of Raised Deck Sea Bird

or "Beg pardon," but after a short time it became "— you, why can't you keep your — — feet out of the way."

In a boat as small as the Sea Bird, it is, of course, impossible to expect much headroom, any attempt in this direction giving the appearance of a "Noah's Ark," and at the same time impairing her seaworthy qualities.

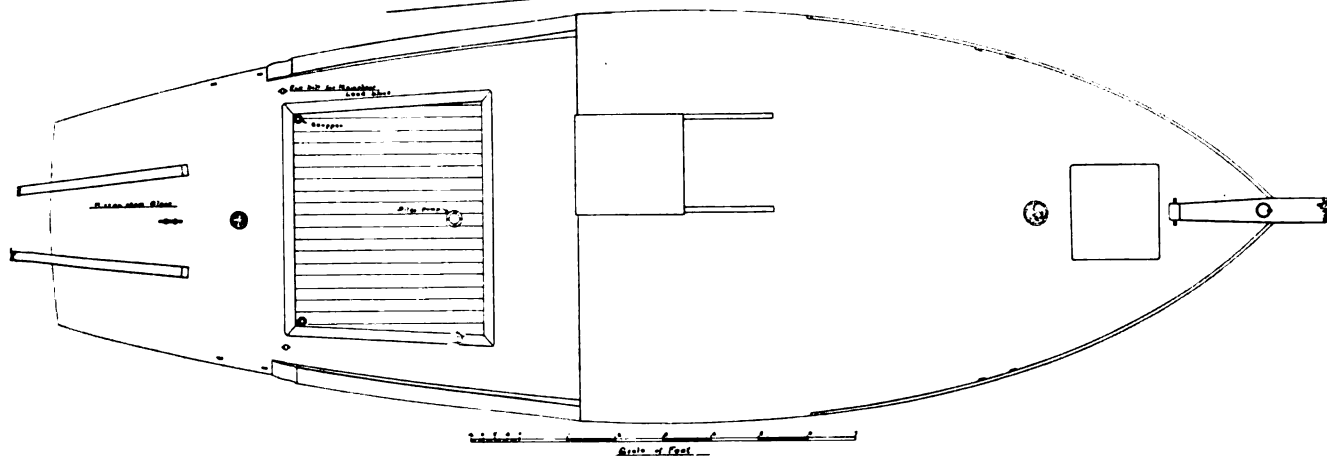
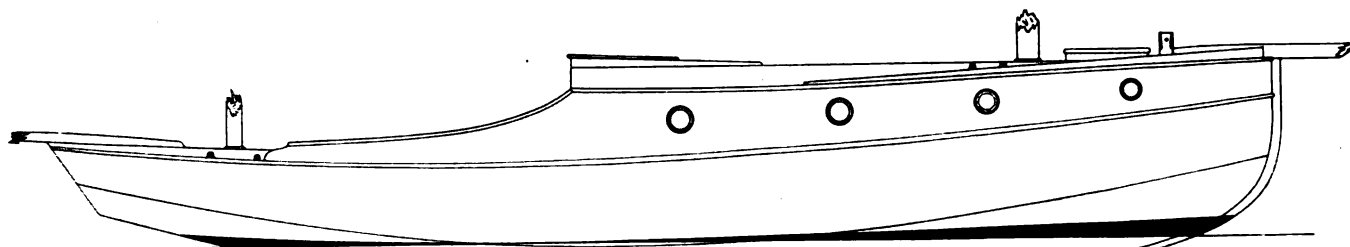
It would, however, be a great improvement in the cabin of this boat if the sides were brought up to form the sides of the cabin in the manner which is, perhaps, best exemplified by Mr. W. H. Hand's design of V-bottom cruisers. To make this clear, the accompanying drawings made from the plans of the Sea Bird are submitted.

The height of the cabin remains the same, but the freeboard at the bow is increased 10 inches by carrying forward the crown of the cabin roof to the stem level with the water-line. The sides of the boat form the sides of the cabin, and are carried aft to the shrouds for

the mizzen mast, protecting the cockpit, which remains the same size as before.

Regarding this increased freeboard, it should make an even dryer boat than the original design. It is also indicated as being desirable, for in the design of the Seagoer, which was a refinement of the Sea Bird, based on extensive experiences, not only were all the dimensions increased one-third, but the freeboard was increased more than this proportion. Such an increase of the 34½-inch freeboard of the Sea Bird would make exactly 46 inches, whereas, the freeboard of the Seagoer was 49¼ inches, an increase of 41%, instead of 33¼%. Based on the Seagoer, the Sea Bird would have been 1¾ inches higher at the bow than the original.

Instead of going forward over the deck, the jib and anchor would be reached by going forward inside the cabin and through a hatch forward of the mainmast. This hatch would also provide a welcome means of ventilating the cabin, if propped up, in fair weather.



Outboard Profile and Deck Plan of Raised Deck Sea Bird. Designed by Duncan W. Patterson

The cabin roof would be made of $\frac{7}{8}$ -inch tongue-and-groove boards, covered with canvas, so that it would be as strong as the original deck and could be walked on with impunity.

It is true there would be nowhere to dodge under the boom if one were on the cabin when the sail swung over, but one would be in an almost equally bad fix with the original design, owing to the small space alongside the cabin.

This form of deck or cabin roof would make a far stronger construction than the original cabin roof with the short deck beams on each side. With adequate sized carlins, notched over clamps at each side and tied to the frames, there would be a continuous truss over the whole width of the boat.

There is no question but what it would be an easier roof to make tight and keep so. Aside from the hatch, there would be no opening in it and it would be covered with canvas laid without seam. On the other hand, it is admittedly a very difficult matter to make a cabin of the Sea Bird type tight where it joins the deck proper, and if there is anything worse aboard than a leaky cabin and wet bedding, it would be hard to mention it.

Not the least of the advantages of this construction is the increased comfort of the cockpit. With the sides of the cabin carried aft as extensions of the sides of the boat, it provides two broad shelves on each side, on which one may sit or lie in comfort, instead of being perched on the sharp edge of the cockpit coaming. On warm nights, when the cabin is hot and stuffy, what could be pleasanter than sleeping on these cockpit decks covered with an awning stretched over the main boom, or at anchor to eat outside, sitting comfortably on these decks?

Scupper holes would be placed to allow any water lodging on these decks to run off.

By eliminating the difficult fitting of the cabin roof, it would make a boat much easier to build, not only for a professional builder, but also for an amateur particularly. As to appearance, it might be argued that it resembles a motor boat too closely for a sailboat. That it does not look like the usual sailboat should not condemn

the design, if it is really better. The raised deck cruiser type of motor boat has proved its worth beyond question. This being so, why not adapt the better idea, rather than stick to the old construction because our grandfathers built boats that way?

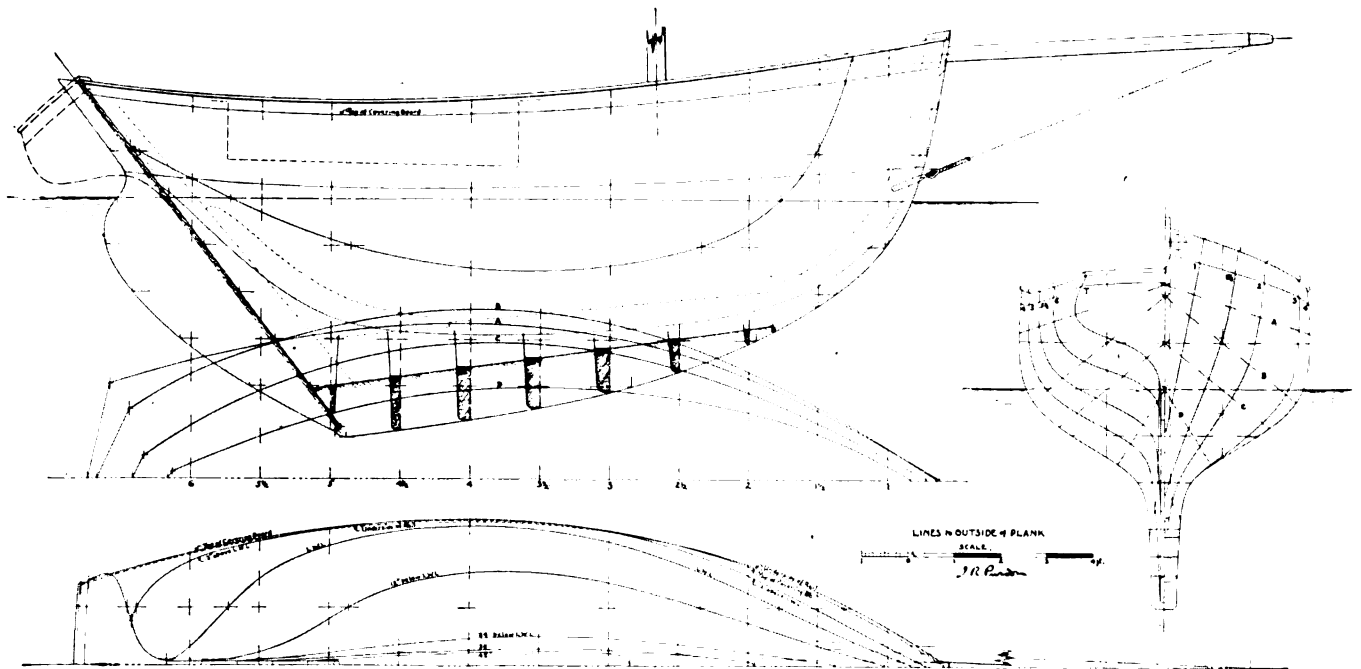
By accenting the line of the cabin roof and the original sheer-line with rubbing strips, this construction makes a very presentable boat, as shown on the drawings.

DUNCAN W. PATTERSON.

COCKLE, SIXTEEN-FOOT CUTTER

I SEND the accompanying tracings taken from the working plans of a small boat that has fulfilled her purpose very well, thinking they may be of interest to those of your readers who find a joy in little ships. Cockle was built last Fall, and has been in service just a year. In all sorts of weather, Winter and Summer, she has shown the most satisfactory capabilities. Her odd appearance and rather extreme proportions might lead one to suppose that her gait would be a disappointment, but the little boat has shown quite unexpected speed for one of her size and type. She has gone out into heavy Easterly weather off Marblehead, when none but the saltiest salts cared to try the "dust" and has sailed into it like the little ship she is, as dry as the proverbial bottle afloat with the cork in. Of course, to windward, in a sharp sea of her own length, she does a rather abandoned rocking horse act, but off a little and with a longer sea, she climbs up and down the watery hills like a roller coaster. In smooth water, she slides along as well as anyone could ask.

Cockle was designed to give two lads experience with as much of the sails and rigging of the cutter type as it seemed reasonable to put on a very small boat, and with all of the seafaring and adventure that could be had on any boat—what might be called an Instructive Toy. She was to be very safe, easily handled, roomy enough to house two below in case they were caught out over night, and as small as possible to give these qualities with good



Lines of Cockle, Sixteen-Foot Water-Line Cutter. Designed by J. R. Purdon

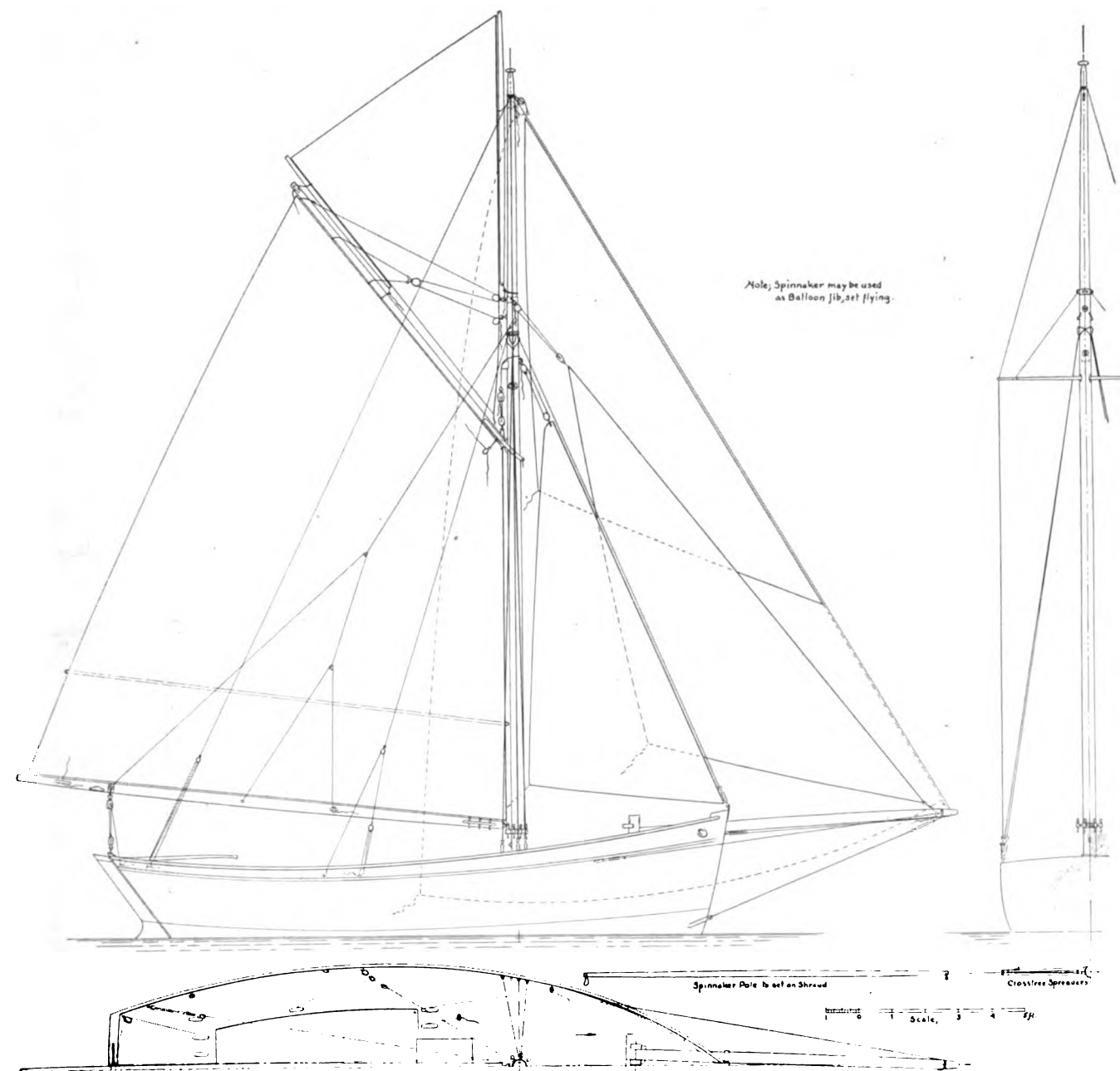
sailing abilities. These requirements appear to have been met satisfactorily. Some cushions stuffed with cork shavings, to serve as life-preservers in case of need, are fitted to the floor of the self-bailing cockpit, making a very comfortable lounge for day sailing and a fine bunk at night with a shelter tent stretched over the boom to keep off the dew. Two portable pipe-and-canvas bunks make it possible to sleep below if the weather is bad. Of course "housekeeping" accommodations and conveniences are very limited—one has to go ashore now and then to get a full meal, but still the little boat has many possibilities for comfortable cruising on one-night stands. She is intended for sailing in deep waters, but for not very far at a time.

A small club topsail is used altogether, in place of a working topsail, being easier to set and stow, more practical than a jib-headed topsail set flying and not too large to manage single-handed. The little boat is stiff and

carries all sail easily in anything but the heaviest weather. Lying to in a "breeze o' wind" is her special forte; she will stay put as long as you choose to leave her, riding as light and dry as a gull. Her balance is nicely adjusted under various combinations of sails and even works out well with only foresail and reefed mainsail. This makes her very comfortable to handle and as a matter of fact she has been sailed practically single-handed under all conditions through the year, with much pleasure, ease and benefit to her "crew."

Cockle's dimensions are:

Length o. a.	18 feet 9 inches	=	5.715 meters
Length l. w. l. . . .	15 " 11 "	=	4.890 "
Breadth, extreme . . .	6 " 3 "	=	1.905 "
Draught	5 " 1 "	=	1.548 "
Sail area	330 square feet	=	30.657 sq. m.
Displacement	5,470 lb		
Lead on keel	2,850 "		



Sail Plan of Cockle, Sixteen-Foot Water-Line Cutter. Designed by J. R. Purdon

THE NINE-FOOT SKIFF, POLLYWOG

Fred. W. Goeller, Jr.

IN the March, 1912, issue was published the plans of a light, burdensome and attractive-looking skiff. There have been numerous boats built from these plans all over the world, and having proven so successful and filling a long-felt want, the issue containing them has become exhausted. We are therefore reprinting herewith the plans and description to build from them.

The dimensions are given for every part so that the boat may be gotten out in short order.

For the stem use a $2\frac{1}{2}$ -inch piece of oak 20 inches long—some of this is cut off after the sides are on—and 5 inches wide. After laying out the face and after side of the stem and cutting them out, the rabbet line is marked. This is an inch back from, and parallel with, the face of the stem.

A center line is then marked and a line one inch away is drawn on either side of it. The sides were then cut down to this line to just back of where the rabbet line came. The rabbet line was again marked and a line drawn on either side of the center line $\frac{3}{16}$ -inch, making the face of the stem show $\frac{3}{8}$ -inch wide when finished. The sides of the stem were then beveled off from the rabbet line to the $\frac{3}{8}$ -inch mark on the face of the stem.

With a $\frac{5}{16}$ -inch piece as a template cut in the rabbet, the face of the template should carry out with the side of the stem.

The reason then becomes apparent why the after part of the stem was left wider. It affords a landing for the planking over an inch wide, while if the stem was sided 2 inches all the way the landing would only be about $\frac{3}{8}$ -inch.

The two moulds and the sternboard are then gotten

out. Most anything will do for the former. We used some $\frac{3}{4}$ -inch cedar scrap.

The sternboard is $\frac{7}{8}$ -inch thick, as there is no nailing strip and the planking is screwed directly into it. The bevels can be gotten pretty closely from the plans, although a little doctoring will very likely have to be done when the planks are being put on.

When all this has been done, a horse long enough to go the length of the bottom of the boat should be made and set up, as it is quite important to have something rigid on which to set the stem, moulds and sternboard.

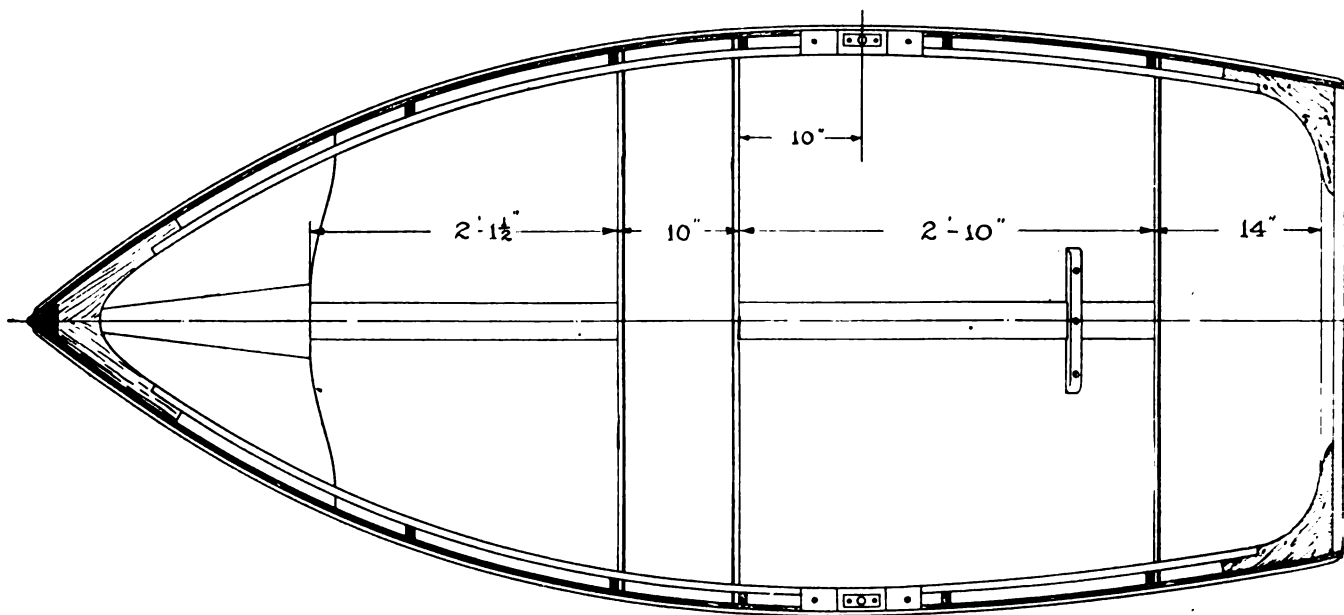
The stem is set onto the stocks and held at the bottom and cross braced to the ceiling on top.

The moulds have shims under them to keep the bottom at the proper height and the sternboard has two pieces screwed to it on the inside face and go down either side and are fastened to the stocks. A heavy batten is then bent around the tops of the moulds and fastened at the stem and stern.

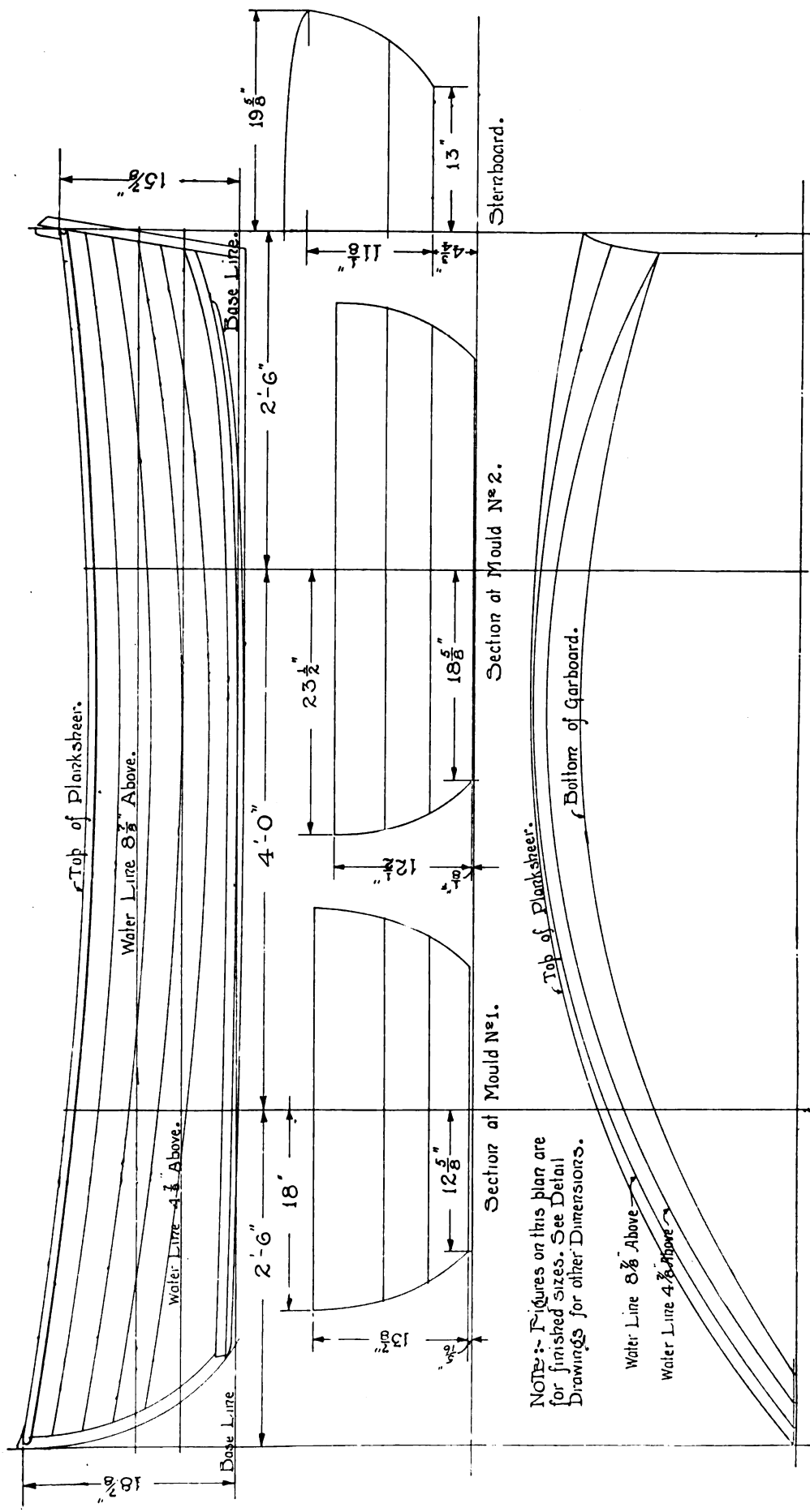
The widths of the planks are then marked on the stem, moulds and sternboard. The planks show $2\frac{3}{4}$ inches wide on the stem and sternboard, so in laying them off start from the top. The first space is 2 inches—there is no lap to the top of sheer-strake and it finishes the same width as the other planks—then $2\frac{3}{4}$ inches three times. This will take care of all planks except the garboard, which is wider forward and aft, and finishes up to the mark.

On No. 1 mould the planks finish $3\frac{1}{4}$ inches wide, so the first dimension is $2\frac{1}{2}$ inches and the rest $3\frac{1}{4}$ inches. On No. 2 mould the planks finish $3\frac{3}{8}$ inches and the first mark is $2\frac{3}{8}$ inches down.

These marks are drawn out on the side of the moulds

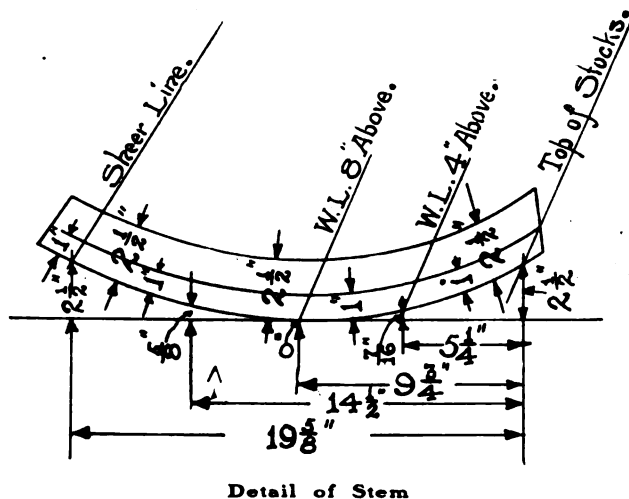


TOP VIEW.



NOTE: Figures on this plan are for finished sizes. See Detail Drawings for other Dimensions.

Lines of Nine-Foot Dinghy, Pollywog



and sternboard and on the side of the stem, and are the marks to which the top edge of the plank finishes to.

We are now ready to plank up the sides. The stuff used for this is dressed to $\frac{3}{8}$ -inch—and get six or seven boards, if wide material is to be used, as two planks can be worked out of a wide board. Otherwise get ten boards if they are narrow, or eight cedar and two oak ones if an oak sheer-strake is to be put on.

Take a wide board and bend it around the bottom edge of the moulds and mark the top and bottom at the stem, each mould and at the sternboard. Then take the plank off and with a batten draw a fair line between the points for the top edge. The bottom edge will show a most peculiar curve. Don't think that this is wrong, as the bottom works out with a hollow forward and ends up with a little lump just before it reaches the sternboard. This is caused by the angle at which the plank sets. In marking out these planks be sure that the board is held as near as possible to the bevel to which it will be when finally fastened on the boat.

When the garboard is fitted the rabbet at the ends is cut for the plank above to fit into. This rabbet is started about 9 inches from the end of the plank and is $\frac{3}{4}$ -inch wide and goes to a feather edge, the plank above not being rabbeted at all on the lower edge forward and only enough aft to bring the planks smooth. The upper edge aft on each plank is rabbeted the same length and width as forward, only about $\frac{1}{8}$ -inch is left where the plank ends.

Before putting on the next plank, the bevel on the upper edge of the garboard is planed off. With a gauge mark $\frac{3}{4}$ -inch from and the length of the top edge take a rule or short straight edge and holding the top end against the mark for the top of the plank next above, plane off, with a block plane, the outer top edge until the bevel is so that the rule or straight edge forms a straight line from the upper mark to the $\frac{3}{4}$ -inch mark for the lap.

Do this at both moulds for a short space—8 or 9 inches—then take off the plank and fair up the bevel all along.

Putting on the rest of the side planking is simply a repetition of the foregoing, only in bending around each plank, the bottom is simply marked along the top of the plank next below, on the inside and the top from the marks on the stem, moulds and sternboard, only don't forget to allow $\frac{3}{4}$ -inch above the latter marks, as the board will go down that much to form the lap and the marks show where the planks should finish to.

After two or three planks are fastened—with brass screws—to the stem and sternboard, four frames, two on each side, are put in. The forward ones on the after side of the forward mould and the after ones on the forward side of the after mould. A piece is cut out of the heel of the frame $\frac{5}{8}$ by 1 inch on the outside edge for the nailing strip to fit into.

The planks are then screwed to the frames with brass screws, through the lap. The object in putting in these frames now is to hold the laps even in the middle of each plank, so that they don't either slip down or work up; this would be awkward when riveting up, as one plank would show wider than another.

When the planks are all on and have been fastened at the ends and the two frames, the laps should be riveted. Use about a $1\frac{1}{4}$ -inch copper nail (cut) and a No. 14 burr. The rivets are spaced 2 inches apart with a pair of dividers, starting from either mould and working forward and aft.

The planks being all riveted, the braces to the ceiling are knocked off and the screws to the stocks taken out. Then the moulds are clamped to the frames and the boat is turned over and placed on a couple of horses.

The next step is to plane off the lower edge of the garboard so that it carries in a fair line from the stem to the lower edge of each mould and runs out to the sternboard. This will have to be done by sighting along to get about what is wanted, the final finishing being done after the nailing strip is put in.

For the nailing strip a piece of oak $\frac{5}{8}$ by $1\frac{1}{4}$ -inch is used, and this will either have to be soaked in water for a day or two or else steamed, as there is a twist as well as bend to it.

In putting it in, fit the aft end against the sternboard and clamp it to the side of the boat. Then start bending it in place and clamp it there, using as many clamps as possible. When this is being put in let a little project above the bottom of the garboard to allow for the bevel at which the side meets the bottom.

The forward end will have to be cut off short enough to get by the lower end of the stem, but this does not in anyway matter, as it is not absolutely necessary that it should fit tightly against the stem.

While it is clamped in position it should be fastened with brass screws to the garboard, the screws being put through the cedar into the oak.

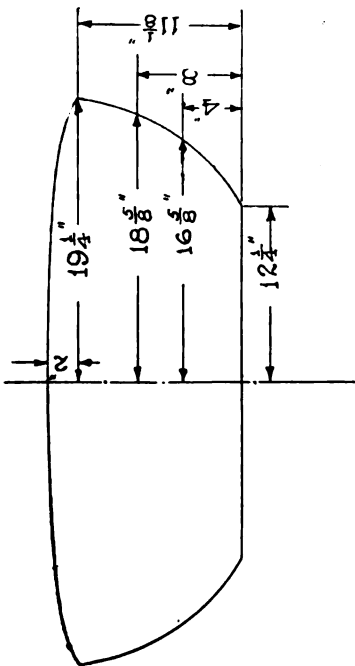
To make both sides alike, put a nailing strip on the other side after the first has been put in.

Now with a straight-edge laid crosswise for a guide plane off the edge of the nailing strip till it comes fair and level to form a fair surface on which to fasten the bottom.

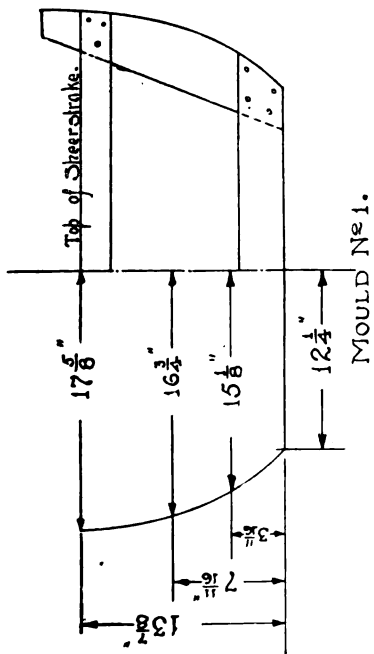
The bottom is then put on. For this $\frac{7}{8}$ -inch white pine is used and it should be put on with pieces not over 6 inches wide.

In putting on the bottom, some thick paint is put on the nailing strip and a thread of lamp wick is laid along it and then some more paint put on to insure a tight job.

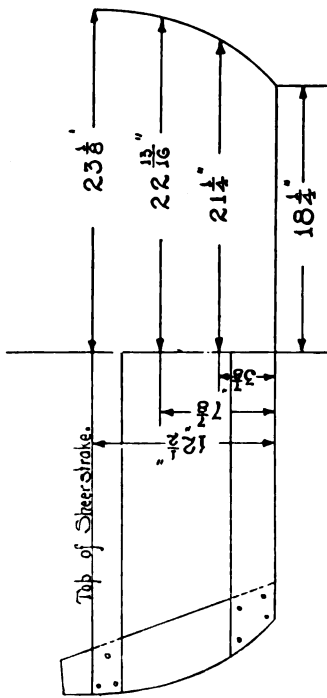
Starting at the stern, straighten up both edges and screw the first piece to the sternboard and the nailing strip on the ends. The next piece is then fitted against and the seam is made so that the inside edge is tight and open a sixteenth on the outside—this is for calking. The other edge is then straightened up and the next plank put on in the same manner. The rest are put on until within about 10 or 12 inches of the stem. The piece next to the stem is of oak and the after edge of



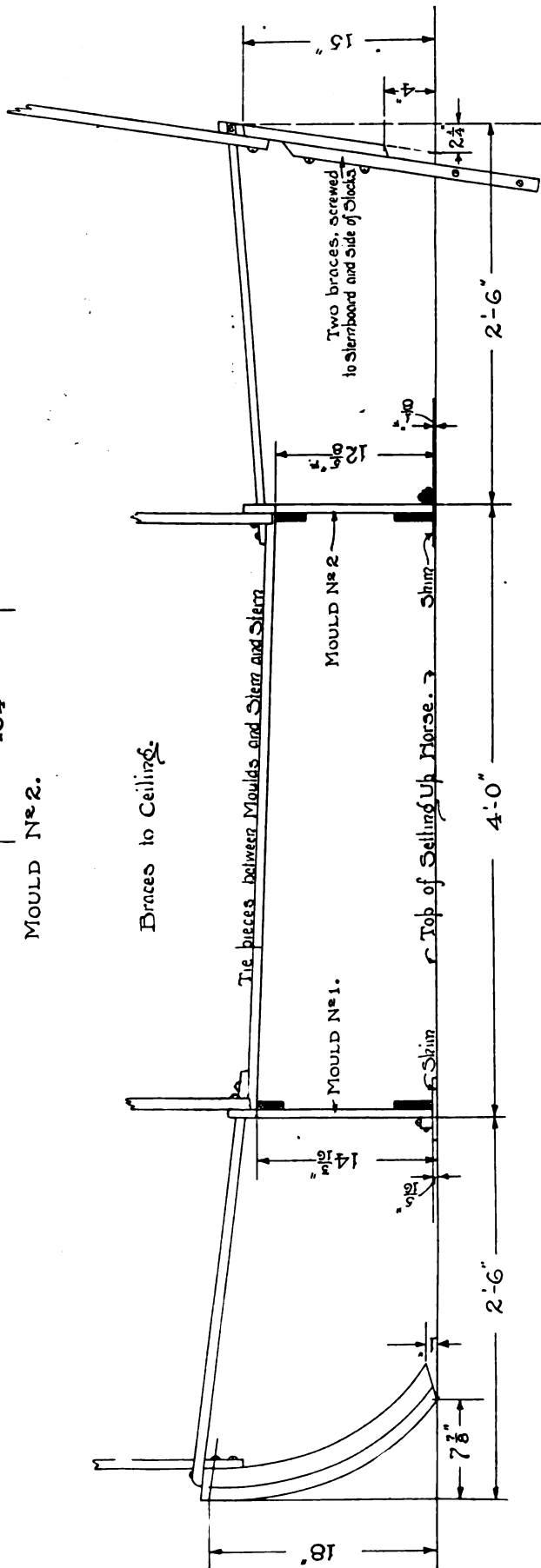
OUTSIDE FACE OF STERN.
Make allowance for Bevels.



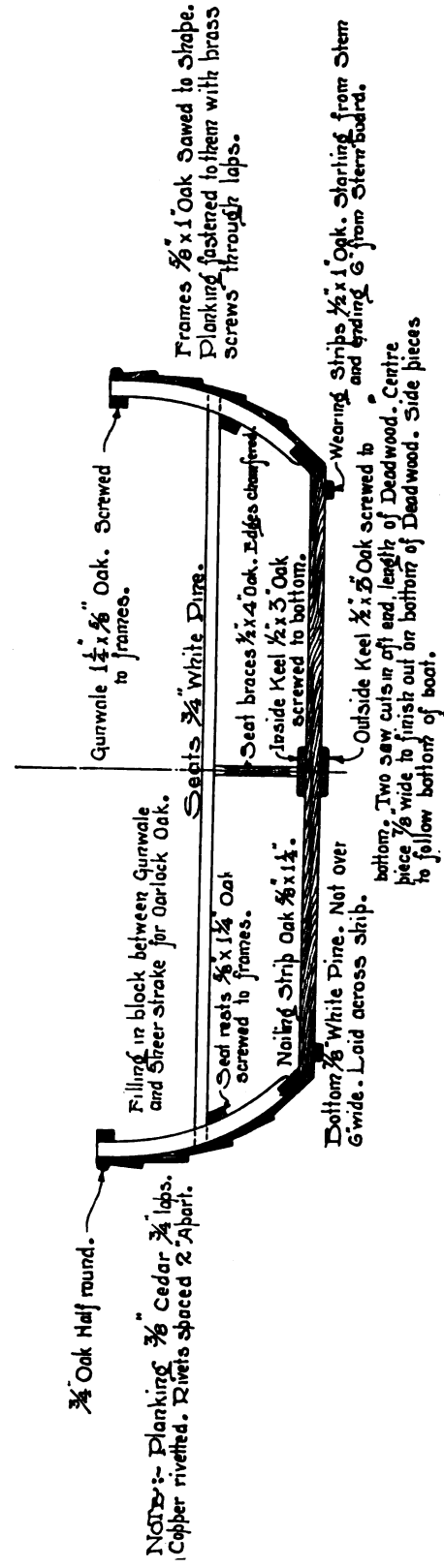
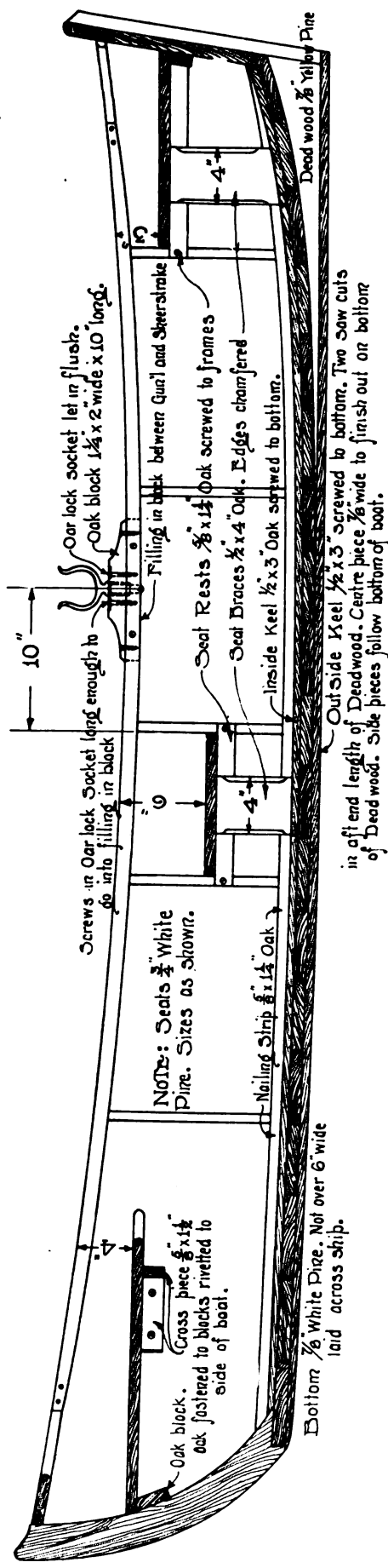
MOULD No 1.



MOULD No 2.



Mould Dimensions and Plan of Setting-Up Horse



Scantling Particulars of Nine-Foot Dinghy. Pollywog

this is planed so that the space between it and the rest of the bottom is wedge-shaped. The shutter, or last piece, is cut to fit this, only it is left long and is driven across hard and screwed down.

The boat is then turned over and the inside keel put in. It is screwed into the bottom with 1-inch brass screws, two in each plank, staggered; or in other words, one is put near one edge and the next is put near the other.

Once again the boat is turned over—bottom up—and the seams are calked. The seam between the bottom and the side is also calked.

The bottom is now planed off smooth and fair and a coat of thin paint is put on the calking cotton.

For a space of about 6 or 8 inches wide through the center putty up the bottom so that the outside keel can be put on.

The outside keel is $\frac{1}{2}$ -inch thick and 3 inches wide, and aft where the skeg comes, two saw cuts are made, making the center piece $\frac{7}{8}$ -inch wide and the length of the skeg.

The skeg is then fitted to the bottom of the boat and the bottom edge is marked and cut off. This is then screwed to the bottom of the boat and the post on the outside of the sternboard is then put on and nailed into the skeg.

The center piece of the outside keel is then fastened to the skeg and the two side pieces are forced up against it and screwed to the bottom.

The rest of the keel is then screwed down, the same as the inside—two screws in each plank—staggered. The forward end is rounded and finished with the bottom of the boat on the sides.

It is a very good plan to put plenty of white lead or some very heavy paint under this outside keel, as this is one of the most frequent places where skiffs leak.

The two wearing strips, $\frac{1}{2}$ by 1-inch oak, are then put on. They are started about 6 inches from the sternboard and are bent around to the shape of the bottom of the boat. Aft, where the most bend comes, a screw is put in each plank, but after it straightens out one in every other one is enough.

Before this is put on the bottom should be puttied so that there is no chance for any leaking under these strips.

This finishes the outside, except the sandpapering and painting.

The rest of the frames are then put in and screwed from the outside.

The breast-hook and after knees are then put in and the gunwale, $\frac{5}{8}$ by $1\frac{1}{4}$ -inch oak, fastened in place with screws into the knees and frames.

The seats are then put in. The boat was primarily designed to carry four—one rowing, two sitting aft and one forward; and it was for this that the seats were laid out on the plans and it worked out very well in practice.

The forward seat will have to be put in in three pieces, as shown. A block of wood is nailed against the stem at the proper height and two pieces about 6 inches long are riveted to the sides. The cross piece to support the after end of the seat is halved into and nailed to this. The two side pieces are fitted first and enough space should be left on the block on the stem for the middle piece to rest on. On all the seats it is a good plan to screw them down, so they may be removed easily, if necessary.

Two cross pieces are screwed to the two center frames for the middle seat to rest on and the seat is screwed down into them.

For the after seat a cleat should be fastened to the sternboard and one on either side of the boat, and the seat is fastened to these.

The filling-in blocks between gunwale and side of boat are then put in and the blocks for the oarlock socket are fastened on top of this. The hole for the oarlock socket is bored through both blocks, and when the plate has been let in flush is fastened down with two screws long enough to go into the filling-in block.

Two shorter screws hold the outer ends of the oarlock block.

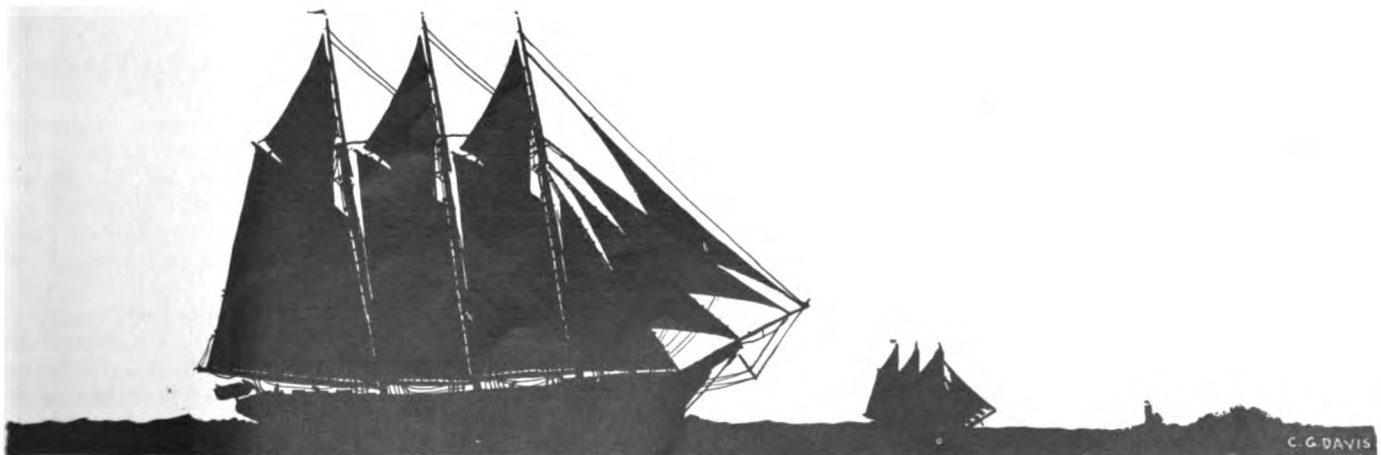
We used 6-foot oars, and while they are not any too long for a wide little boat like this, they worked very nicely.

The boat, if built according to the plans and of the materials specified, will weigh, when completed, in the neighborhood of 85 lb.

While this boat is not as easy to build as putting a box together, those who want a good, safe little "dink" a little better than the ordinary, will find pleasure in building and owning this tender.

The dimensions are as follows:

Length o. a.....	9 feet 0 inches
Length on bottom.....	8 " 1/4 "
Breadth on top.....	4 " 0 "
Breadth on bottom.....	3 " 3 "





HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



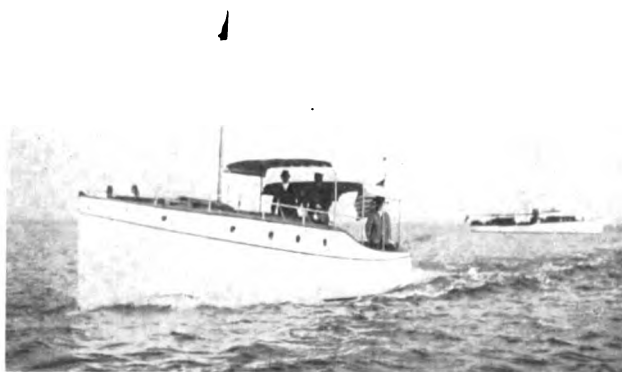
A RUDDER BOAT

AM taking advantage of your offer in January's "Round the Clubhouse Fire" and enclose 25 cents in coin for a copy of "How to Make a Sextant."

I also enclose a picture of the Memories, a boat built from the plans of F. W. Goeller, Jr., published in THE RUDDER of October, 1912. I had never seen, until then, just the boat or plans of a boat that fitted my ideas in every way, so I bought a set of the plans, sold my old boat and gave my order to a builder. The boat was promised for May, 1913, but I felt exceedingly lucky to get it on October 29th of that year.

However, last Summer's pleasure more than paid for the disappointments of 1913. The boat and its layout calls forth the admiration of all who see her.

A. M. CROWL



Memories

BILL 6143

I NOTE what you say in your "Around the Clubhouse Fire" in the February issue, 1915, concerning Bill H. R. 6143, and what you say is about correct. No such bill certainly ought to pass relative to yachts. When a man goes to the expense of owning a yacht and keeping it up and then happens to invite a guest aboard, for whose sanity and good sense he ought not to be held responsible, and who happens to do some idiotic thing or some landsman stunt which caused him to fall overboard, the owner certainly ought not to be held liable. Of course, we must expect in these ages all sorts of crank legislation or attempts of crank legislation. Would it not be well to publish the substance of this bill, or if not too long, the text of it, so that every yacht owner in the country would protest against any such idiotic performance? Being the owner of a schooner yacht carrying a crew of five men, and sometimes having guests for whose good judg-

ment I cannot always be responsible, I am willing to do anything I can to prevent the passage of such a bill without amendment. Can you suggest anything that concerted action can be taken to kill the idiotic thing?

A CONSTANT SUBSCRIBER FOR YEARS.

* * *

[Write to the U. S. Senator from your State and protest against passage of bill in its present form.—Ed.]

RECREATION

When the Winter days are o'er,
We will hasten to the shore,
Don our overalls of blue,
Paint our motor boat anew,
Scrape and varnish all the day,
Whistling as we work and play,
Then the boat made ready quite,
Fasten her to mooring tight.
When we have a day or so,
To our motor boat we'll go,
Take the wife out for the day
For a spin across Hull Bay;
Merrily we race along,
Happy as a lark in song.
Swiftly through Hull Gut we glide
For we have a strong ebb tide;
Passing close to Boston Light,
Standing there so grand and white;
By the islands in and out
Joyfully we cruise about.
Now and then we stop to fish,
Having all the fun you'd wish,
Sketching from a quiet nook,
Wife is reading in a hook.
Darkness soon is on the way,
Then we can no longer stay,
So we turn about in flight,
Run to mooring for the night.
It's great sport to be afloat—
Don't you wish you had a boat?

WESLEY G. PIERCE.

• • •

A CRUISE IN BRITISH COLUMBIA

WHERE shall we cruise this Summer?

For those in search of nature's grandeur, combined with safe waters, good fishing, and a chance to get a deer or bear at the water's edge, the answer is "Go West." Sail the inlet seas of the coast of British Columbia, seas covering thousands of miles of water which the veriest tyro could navigate with a chart, compass, and a copy of the *B. C. Pilot*.

Along these delightful shores are found the camps of the hand-logger, always ready to swap his local knowledge of good fishing grounds, mineral deposits, the haunts of game, holding out the hand of good fellowship in exchange for a magazine or two to wile away his solitary hours.

Then again, there are the pulp mills, embryo villages, with store, postoffice and hotel, the lore and law of the logging camp, with the logger, nature's gentleman seen at his best, rough in his language, calling a spade a spade, or perhaps a "bloody shovel," but a kind, generous sportsman at heart. Calm seas with light to moderate breezes ensure comfort with enough air on the finest Summer day, making these waters the best cruising grounds to be found anywhere.

If the idea of this cruise appeals to you, send a postal to the Bureau of Information, Parliament Buildings, Victoria, B. C., asking for a copy of the map showing portion of New Westminster District and Vancouver Island, published in 1912, on a scale of three miles to the inch (I am enclosing a copy to THE RUDDER). A study of this map, which covers the waters from Vancouver to North of the Campbell River, where the Tyee salmon weighing up to over 70 lb are caught with rod and line, will give a good idea of the lay of these waters.

Next, decide the number of your party, and write to the secretary of the Royal Vancouver Y. C., informing him of the accommodation required in a boat to be chartered for your party, whether you desire paid help on the trip, etc., so that all may be found and made ready.

A cruise of this description could be arranged to last all season, or cut to any limit desired, and with the

right boat, the best of boon companions, and a kodak, no more delightful holiday could be imagined.

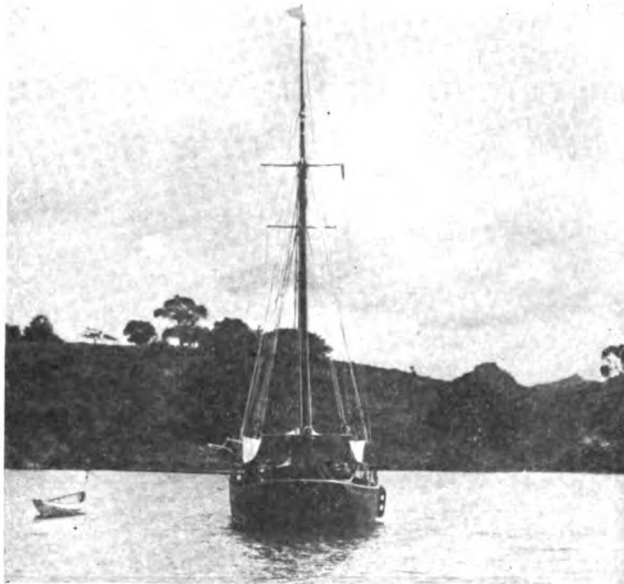
OUR FRIENDS IN THE WEST INDIES

ONE of THE RUDDER's good women friends, Mrs. Catherine Lindsay Fenger, of Boston, writes to Winfield M. Thompson, of THE RUDDER staff, a breezy letter dated "On Board Diablesse, St. Georges, Grenada, British West Indies," from which we take the liberty of making a few excerpts, as follows:

"Some time ago, after our arrival here, we borrowed all the back numbers of THE RUDDER we had missed, and among other good things—for I read them as eagerly as did my husband—we enjoyed your story of the Twister. I suppose many people have written you in like vein, but I am sure no one enjoyed it more than we did; except possibly a man in St. Lucia, to whom I recommended you as a keen sailor and an old one. He is Captain Harry W. Turner, a splendid fellow, not much over 45, he having retired from the Royal Mail Service to the position of harbor master at Castries. The day we arrived at Castries, on a little run to dock at Barbados, we dined with the Turners. I saw a brand-new issue of THE RUDDER and pounced upon it. In this way the conversation turned to boats, and Captain Turner told how he designed and built the Psyche.



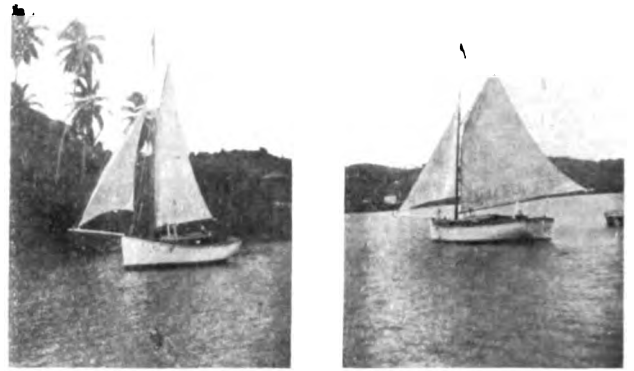
Maumee River Y. C.'s One Design Fourteen-Footers



Schooner Diabesse of Boston, at Castries, St. Lucia

“There is one man I should like to know,” he said. “That is Winfield M. Thompson, who has made me hungry with his story of the Twister. I should like to have a good talk with him.” He likes your boat so much! If building down here were not what Sherman said about war, he would have a cat.

“We have heard many people in the West Indies speak of your articles in THE RUDDER, for you are read with interest even by the layman. You carry a message from the sea; not every one could do that. I am enclosing a picture of Captain Turner’s boat, which his small boy sails alone about Castries Harbor.”

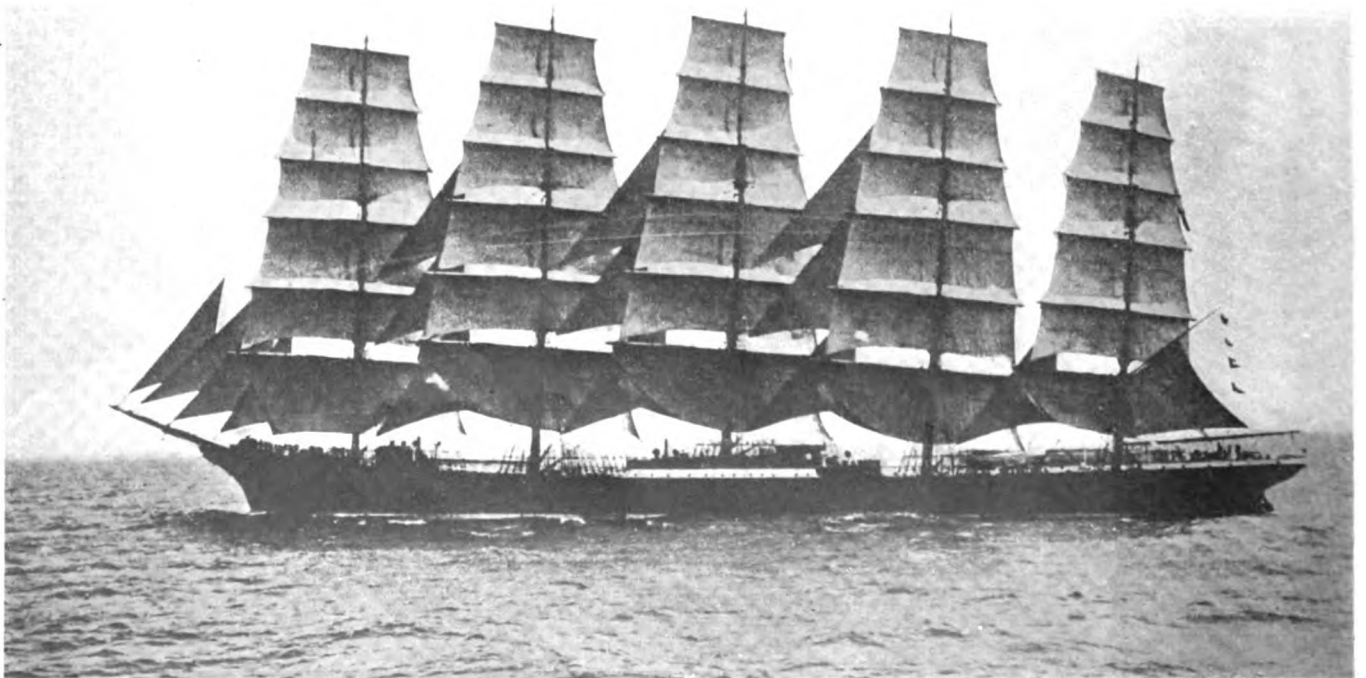


Psyche at Castries, St. Lucia. Built and Owned by Capt. Harry W. Turner, Harbor-Master

PREUSSEN

THIS fine steel ship was built in 1902 by J. C. Tecklenborg at Geestemünde, Germany. She was 407.8 feet long, 53.6 feet breadth of beam, 27.1 feet deep, 5,142 tons gross and 4,826 tons net. In 1908 she loaded 194,000 cases of kerosene oil, two 5-gallon square cans in a case, at the Tide Water Oil Company’s docks at Bayonne, N. J., in New York Harbor, and made the run to Yokohama, Japan, in 112 days.

In 1911, when outwardbound from Hamburg, she was in collision with a steamer in the English Channel, and lost her bowsprit, fore and main topmast. A gale sprang up and she was lost on the English coast near Dover. She carried a crew of about fifty men, who were berthed in the midship house. Her halyards and lower braces were of wire and led to hand winches on deck, and her steering wheel was on top of the midship house.



Ship Preussen Wrecked off Dover in 1911

ROUND THE CLUBHOUSE FIRE

WHEW! It's just like Spring today, and the old water hunger is growing strong. Night after night I watch Sirius; he is my clock. The bright, pulsing fellow is getting around. Now, when I go home, he is in the South; soon it will be Sou'west, and then Ho, for the seas once more. The other day I was talking to an auto crank. His idea of heaven is to ride round in a car, and he won't let anybody else paint a different paradise. "What have you got," said he, driving a clinch, "that we have in our good sport?" "Everything, my boy," answered I, "but the dust and the road houses." But the boat man has that which no other man has—absolute liberty. When afloat he leaves all social boundaries, all legal restraints and civic restrictions astern. His boat is his kingdom and he is king. That is what makes yachting what it is. The freedom of the seas, the glorious feeling that everything under, over and around belongs to you, and no man, or men, can ever fence it in.

* * *

But hold on, shipmates, let's cast her aback, and make a bit of a sternboard on that palaver. Lubbers and landsmen have an idea that the ocean is like a big pond, and if you want to cross it, you can do so in any direction you please. But the sea, like the land, also, has its right of way, its roads, lanes, bypaths and cut-offs. You can't start and sail from this port to that port without regard to where you are going, just heading straight there, as many suppose. Full-power steamers can, but low-powered vessels, small craft, and windjammers have to make concessions to breeze and current. If they don't, it takes days and days, and sometimes they can't get there at all. If you have a small-powered vessel you must go with the wind and tide, if you expect to make a safe and quick voyage. This is especially so in the West Indies, where the currents absolutely dominate navigation. Listen to this: On February 1st the steamer *El Alba* reports that she was set 92 miles in 24 hours by the Gulf Stream. Some flow of water, that, for a small power-boat to buck. To a 20-knot steamer a four-mile head-current means not much, but to an 8 or 10-knotter it means almost standing still.

* * *

My tirade last month on the nonsense of sending boats to Colon by the way of the Yucatan passage, and the general remarks on the folly of people who know nothing about navigation laying off courses for those who do, has brought the below poetical effusion from a reader. It is too good to suppress, even if the joke is on Commodore Own-it-all:

O. Shipmates, dear, and did ye hear, the news that's round today?
That yachtsmen are forbidden to sail upon the say;
Saint Davids Head no more they'll see, or fair Bermude's shore,
The lashin's of good whiskey will welcome them no more.
I met a Brooklyn skipper, he took me by the hand:
Says he, my hardy sailor, why do ye sthop on land?
Says I, 'tis most distressin', and wiped a tear away,
We can't sail on the ocean, it belongs to Tommy Day.

He's gone an' took possesshun, an' it's his from Pole to Pole,
He's fencin' in the Gulf Strame where the mighty billows roll.
His backyard's in the Injes, an' his wash is on the Line,
He's raised the rint on Neptune an' the Tritons must resign.
O. Shipmates, 'tis forbidden our colors to display—
We can't race on the ocean—it belongs to Tommy Day.

Sure Yankee boys will ne'er forgit the races they have run,
When down furninst old Conies Isle we heard the starting gun;
No man can sthop our sporthin' while we have our chairs to rock,
We'll sail our ocean contists from the clubhouse to the dock.
And may the Devil take him who sthole our sport away—
We won't sail on an ocean that belongs to Tommy Day.

* * *

Now, boys, I don't own the ocean, but I do own a wide knowledge of its winds and currents, its general features, and active conditions. For years it has been a hobby, and every bit of writing on the subject that my mind could range alongside of has been ransacked and robbed, and this knowledge it is my purpose to use for the benefit of the sport. Also I know men—that is, men in action—and therefore, when my voice is raised in protest against certain things, it is fortified with knowledge born of study and experience. Any man who has been in these long races will bear me out in the statement that such contests are like war. They are for blood. And that any attempt to put them back in the kindergarten class will not add to their popularity. Once over the line in a race like this, all hands want to put it through. You have no mercy on yourself, your boat, your crew or your opponent. It is drive, drive, drive!

* * *

What sense is there in stopping in a lot of places, only to make expense and trouble? Every port of stop means an additional expense of from one to two hundred dollars. It means crew trouble, engine trouble, and steward trouble. And, may I ask, who is going to time the boats at the different finishes and starts? The first boat in, a committee or a local helping-hand? What time are you going to use—Greenwich, 75th Meridian or Local? We know all about timing by first boat in and local sports. Here's an instance: On arrival of first boat, local committee inquires how far second boat is behind. The captain of first furnishes answer, "Hours." So L. C. jumps on first boat and goes into the harbor to help extend welcome. Consequence, an expressive souse in prolongation of which, second boat is entirely forgotten. Second finish is timed by boatman in markboat, but this man lost the paper with record of the time overboard, but remembered it was twenty minutes past nine. Captain of second boat said it was twenty to nine, difference of forty minutes and a dispute, soreness and general dissatisfaction. I'm an easy man, but dang me if I'd accept the time taken by another boat that finished ahead. Racing skip-pers are men, not angels.

* * *

You won't feel hard if I jack you people up a bit so as to make life happier for all hands. It is an old complaint that, like the shad, comes around regularly every Spring. I get dozens of letters of all lengths and

diameters, sent in by people who have absolutely no claim upon my time or brains, which I try to answer. If you are a subscriber or man who, in any way, helps to support the magazine, you have a right to my time and I am always glad to answer your letters and inquiries. But why should I give my service to people who never do or have done anything for THE RUDDER? Men will write in and ask us to calculate the displacement of their boat, measure their sail area, draw a plan for them, buy merchandise, look up lost friends and a dozen other jobs and not even send a postage stamp to pay for the reply. Why not, as some few do, send in a subscription or two subscriptions with your letter? Every man is supposed to be worthy of his hire and hereafter you must either be a subscriber or become one to have your letters answered.

* * *

Another thing; please do not send in manuscripts unless you first write and ask us whether or not we want to see them. I get dozens of these and have to return them each week. If we had ten RUDDERS instead of the one, we could not use half the copy that is sent in. Many professional writers send in stories that are entirely unsuited for a yachting publication. Many of these yarns are written by people who don't know one end of a boat from another, and who make a business of writing on every subject from Acidity to Zulus. One came in yesterday and I had to return and pay 16 cents postage. What we do want are short, crisp letters from our readers about things of interest to those who are active in the sport. What we want is the readers to take more interest in the magazine. What we want is the reader to catch us making mistakes and incorrect statements. Last month several errors were made and a few readers came to life, worked aft and gave the quarterdeck crowd a call down. This magazine is not an authority; its Editor and staff are not infallible, and it is up to the readers to keep our heads so that we can wear our hats well trimmed fore-and-aft.

* * *

May being the 25th Anniversary of the founding of THE RUDDER, we would like to get the name of the oldest

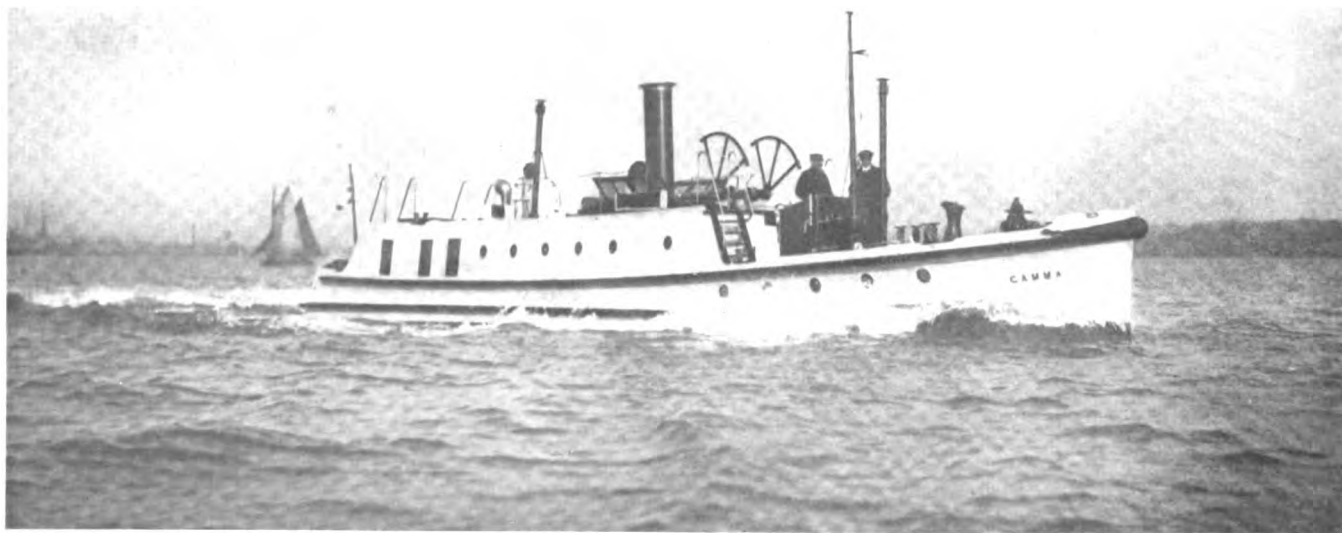
continuous subscriber to the magazine. We have the name of the oldest advertiser. If the oldest subscriber, and those who think they are, will send in their claims and photographs we will be obliged. THE RUDDER was started in May, 1890; at that time yachting was a very small sport, and it was the work of the magazine to build it up to be the sport it is today.

* * *

On going through the dunnage lately, we found twenty copies of Kenealy's Races for the America's Cup, being a tale of the contests from 1851 to 1893. The book is illustrated with splendid line drawings by Cozzens. This book is now out of print; therefore, is valuable as well as interesting. Some of you people might as well have these books. Send us in a subscriber and we will mail you a copy for your library.

* * *

It shows how little interest you people take in learning anything, but how to do wrong, is the fact that out of our thousands of readers only four accepted my offer and sent in for the Sextant Book. If we had published a serial article on "How to Mix Intoxicating Beverages," and offered a nickel-plated mixer for 25 cents, the mail would have overflowed with demands. The average yachter's aspirations on the navigation line are like those of a man I once cruised with. One night, running down Long Island Sound, he kept coming on deck and asking me when we would pass the next lighthouse. After two or three visits I inquired whence proceeded his intense interest in these aids to navigation. "Well," said he, "I'm trying to break off and promised myself not to take a drink except when passing a lighthouse." Just at the shut of the middle watch I called him on deck. We were entering the Race. "Look, there's Gull Island, Race Rock, New London, Plum Gut, Dumplings," etc., naming all in sight, some eight or ten. He looked sadly and confusedly to starboard, port, ahead, astern, and then asked, "Is the cook awake?" "Yes, I heard him in the galley just now." "Well, I guess then I'll take a cup of coffee." And he did.

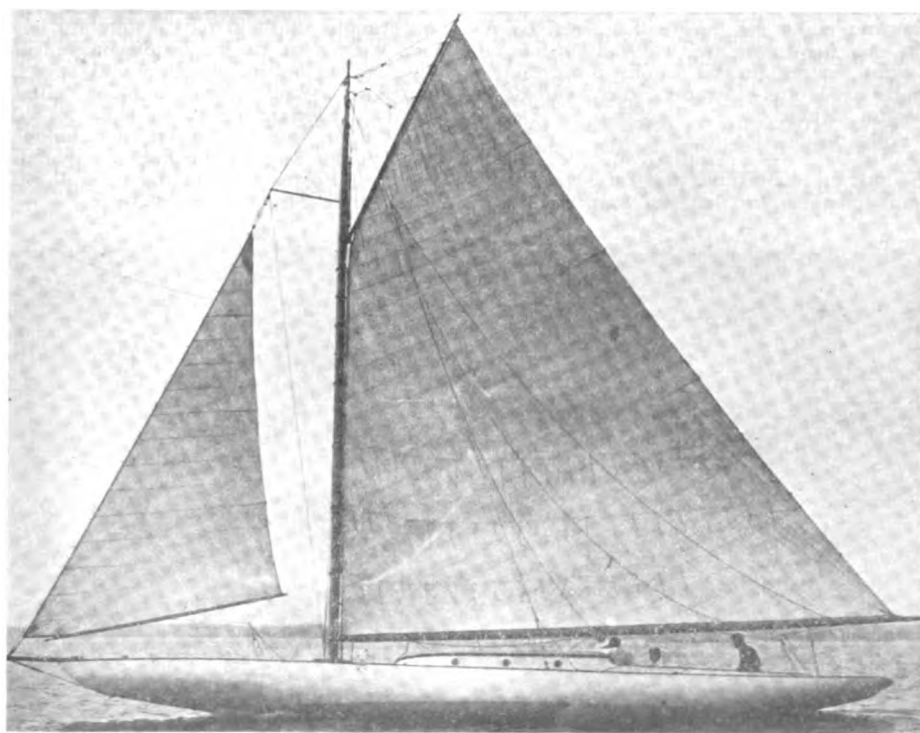


British Gasolene-Driven Fireboat Gamma

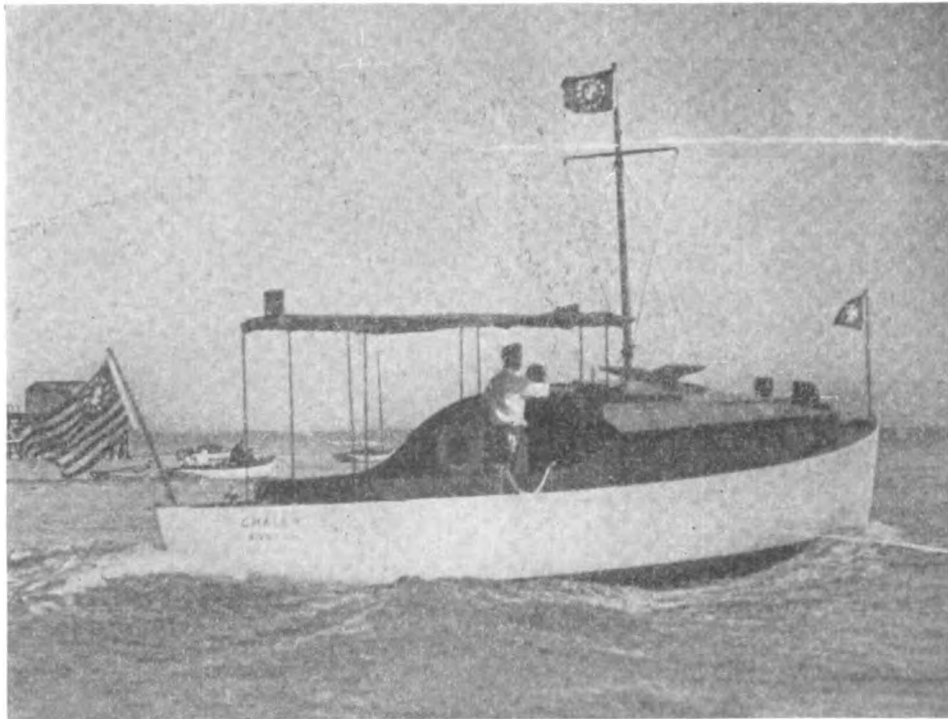


No. 12063—For Sale—30 ft. w. l. sloop yacht Pontiac, 50 ft. o. a., 10 ft. 9 in. beam, 7 ft. 3 in. draught. Designed and built at Marblehead, Mass., in 1905. Double planked and copper fastened. 5,800 lb of lead on keel. Wilson & Silsby sails, about 1,300 sq. ft. in area. 10-ft. watertight cockpit. Wide transoms in cabin. Toilet and wash-basin. 40-gal. water tank, tender

and complete equipment. Pontiac is a very fast boat and a splendid cruiser. Winner of Boston Y. C. Championship for 1914, and many other trophies. Cost about \$5,500. Bargain price of \$950 takes her. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12063

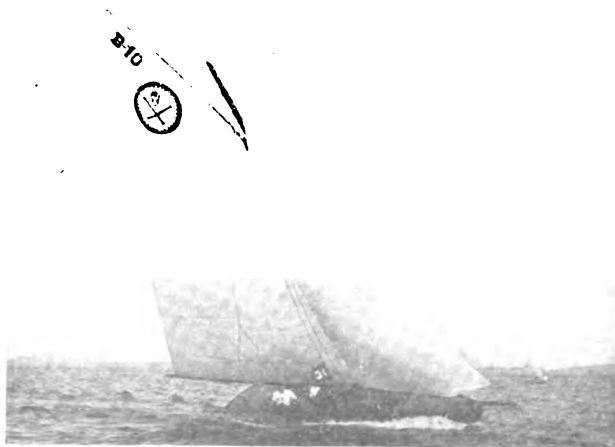


8733

No. 8733—For Sale—Desirable 39-ft. motor boat, 9 ft. beam, 3 ft. 2 in. draught. Built in 1907 and in perfect order. Equipped with a 20-24-h.p. Murray & Tregurtha motor, new in 1910, and just overhauled at Lawley's Yard, Boston. Electric lighting plant. Beautifully built, planked with cedar, brass screw fastened, with oak frames. Handsome strip deck with oak and mahogany strips. 10-ft. watertight cockpit. Cabin 16 ft. long with 6 ft. 3 in. headroom, finished in white. One stateroom forward; four berths and four transoms; toilet room forward. Very complete equipment, including tender, lights, cushions, hair mattresses, pillows, table and bed linen, cooking utensils, two-burner stove, binnacle, folding washstand and galley sink, both connected to fresh-water tanks, etc. As will be seen from the photograph, this is a very handsome and well-designed boat and has a very large cockpit, seating several people comfortably. Reasonable price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12622—For Sale—Fast and handsome keel raceabout, 31.3 x 21 x 7.5 x 5.3 ft. Mahogany planked, full lengths, natural finish.

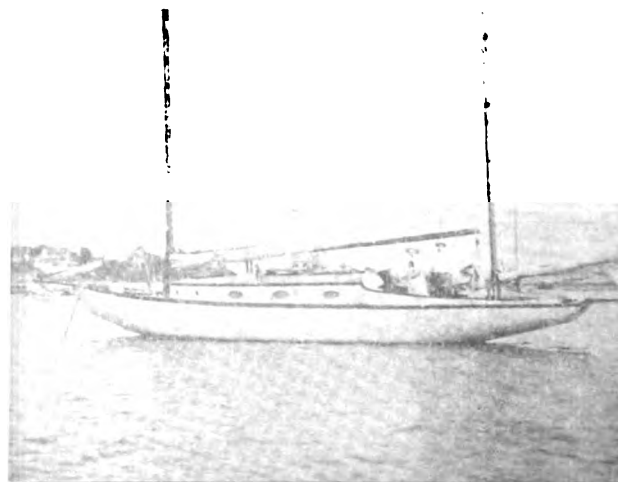


12622

Lead outside ballast, 3,500 lb. Hollow mast, roomy cabin and cockpit. Two suits of sails, one 600 sq. ft. raceabout; one 578 sq. ft. Class R.; light sails, covers, etc. Is very fast under all conditions, exceptionally so in light airs, easily handled, dry and does not pound. An excellent boat for racing, cruising or for a boy or lady to learn in, as it is sound and tight and practically non-capsizable. Price, \$550. Seen in Boston. Apply R. S. Landers, 80 Kingston Street, Boston, Mass., or your broker.

* * *

No. 12601—For Sale or Charter—Very attractive auxiliary yawl. 40 ft. 2 in. o. a., 26 ft. 6 in. w. l., 11 ft. 6 in. beam and 5 ft. 9 in. draught. Built in 1903 in the best possible manner. Roomy cabin with 6 ft. 2 in. headroom, finished in mahogany and white. Four berths in cabin and two large transoms. 10-ft. watertight cockpit. Four tons of ballast on keel, toilet and lavatory. Electric lights. 8-h.p., 1913 Lathrop motor under cockpit floor, giving a speed of 6 miles an hour under power alone. A fine single-hander and a splendid cruising boat. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12601



12595

No. 12595—For Sale—Handsomesteam yacht, 117 ft. o. a., 87 ft. w. l., 15 ft. 10 in. beam and 7 ft. 6 in. draught. Built in 1906 from designs of Arthur Binney. Very well constructed with double white oak frames, 4x4 in., hard pine planking and metal fastenings. Flush deck. Two tons of lead on keel. Cabin has 7 ft. headroom and is finished in mahogany and white. Four staterooms. Two bathrooms and three toilets. Eight berths forward for crew. Sails made by Gordon & Hutchins. 350-h.p., triple-expansion Sullivan engines. Almy water-tube boiler. Normal speed, 13 knots. 12 tons fuel capacity. Consumption for 10 hours, 1½ tons. Electric lighting plant. Steam heat throughout the cabin. Carries two boats on davits, launch and dinghy. Eight water tanks of 2,000 gal. capacity. Deck dining room. Two searchlights, fore and aft. Two binnacles, fore and aft. Silk velour furnishings. Extra set of Ostermoor cushions for cruising. Boat, engine and boiler in perfect condition, overhauled in the Fall of 1914. This splendidly built and comfortable steam yacht can be purchased at a bargain price. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

easily seating twenty persons. Unusually complete cruising equipment, including tender, hair cushions, lights, binnacle, etc. This very desirable yacht can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 7933—For Sale—42-ft. glass cabin cruiser, berths four. Mahogany finish. Electric light. 30-h.p. Ralaco motor; speed



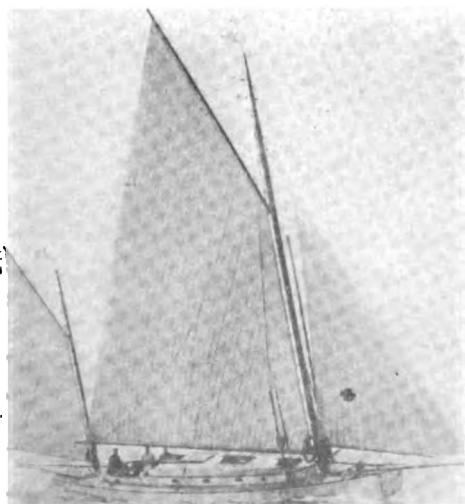
7933

11 miles. Complete equipment, including tender. Bargain price. Stanley M. Seaman, 220 Broadway, New York City.

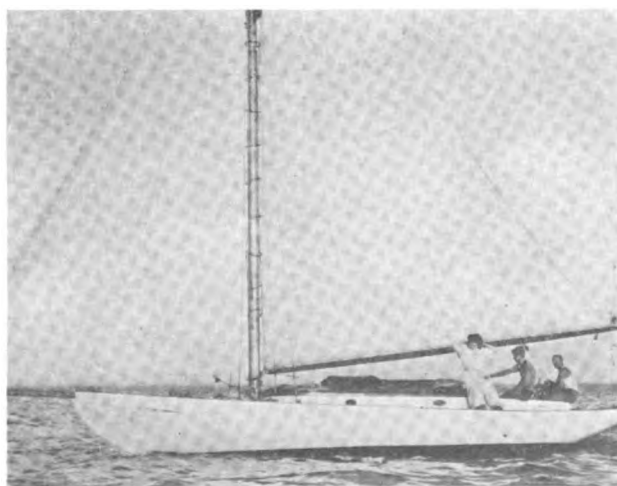
* * *

No. 12552—For Sale—Auxiliary cruising yawl, 44 ft. o. a., 33 ft. w. l., 11 ft. 7 in. beam, and 6 ft. draught. Designed by I. B. Mills and built by Hodgdon Brothers at East Boothbay, Me., in 1902. 9-h.p., 2-cylinder 1908 Palmer motor under cockpit floor entirely out of sight, which will drive her 6½ miles per hour under power alone. This yacht is very strongly constructed and is extremely stiff, able and seaworthy. Her cabin is divided into two rooms with two berths and two transoms in each room with 6 ft. 2 in. headroom the entire length. Splendid boat for two married couples, the two cabins affording complete privacy. Acetylene and electric lights throughout. Toilet and lavatory in forward cabin. Pipe berth in the forecabin, stove, ice-chest, etc. Sail area, 1,127 sq. ft. Very large cockpit

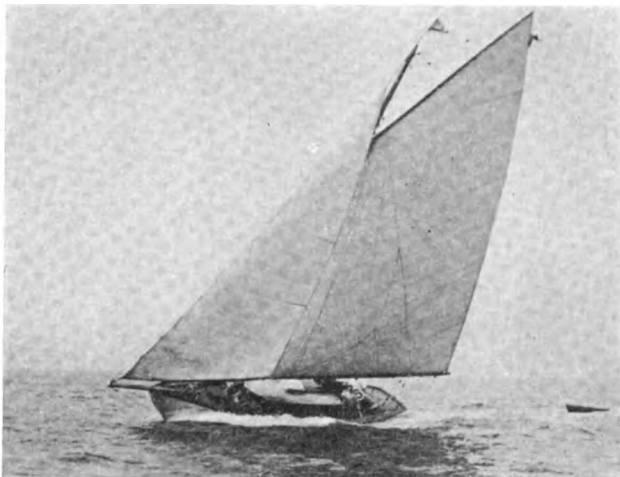
No. 12588—For Sale—Exceptional bargain. Cruising keel sloop, 32 ft. 6 in. o. a., 22 ft. w. l., 9 ft. beam and 6 ft. draught. Built by Rice Brothers, East Boothbay, Me., in 1901. Deck and cabin top bright. Lavatory and w. c., ice-chest, water tanks, steps, dishes and tender, etc. Plush curled hair cushions to fit extension transoms. Cruise four comfortably and pipe berth forward. Watertight cockpit. Brass mounted wheel. 5,000 lb outside ballast and 1,000 lb inside ballast. Cabin has 5 ft. 4 in. headroom and is finished in mahogany. A splendid sea-boat, able and fast. Bargain price of \$375 takes her. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12552



12588



5777

No. 5777—For Sale—One of the fastest and best cruising sloops of her size. Modern form; designed by Crowninshield; built 1907; all outside lead. Dimensions, 43x31x10.6x6.6 ft. Fine cabin with full headroom, sleeps four. New suit of Ratsey sails last season. Inspectable near New York. I can strongly recommend this boat. Frank Bowne Jones, Agent, 29 Broadway, New York City.

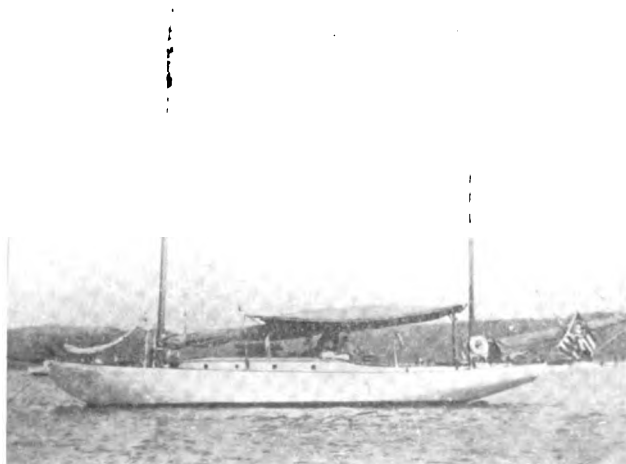
* * *

No. 12590—For Sale—High-speed steam launch, 45 ft. 6 in. o. a., 8 ft. beam, 3 ft. 6 in. draught. Designed and built by W. Starling Burgess Company in 1907. 110-h.p., 4-cylinder, triple-expansion Daring-type Thornycroft engine, Herreshoff water-tube boiler (retubed, 1910). Sustained speed 16 miles per



12590

hour. Main cabin 8 ft. long, with sofa 7x3 ft., good galley and toilet. Has cruised from Boston to Nova Scotia. Ideal for fast ferry service between city and Summer residence. Would make an excellent boat for patrol duty, as engines run perfectly silent. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



4047



12606

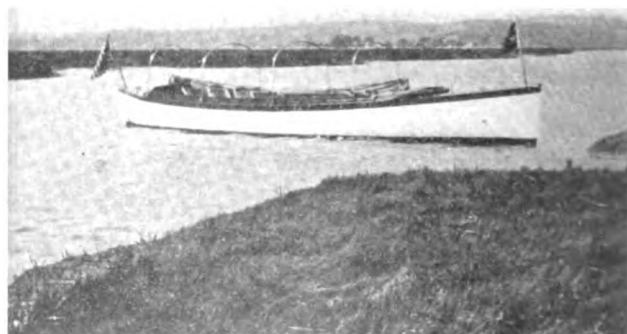
No. 4047—For Sale—Cruising yawl (auxiliary). Dimensions, 50 ft. on deck, 37 ft. w. l., 14 ft. beam, and 5 ft. draught. Of the best construction and good design. Accommodations include one double stateroom, two berths and two transoms in saloon. Full headroom. Sails and equipment excellent. 25-h.p., 2-cylinder, 4-cycle motor; electric lighted. Inspectable at New York. Frank Bowne Jones, Agent, 29 Broadway, New York City.

* * *

No. 12606—For Sale—Lawley-built 21-ft. w. l. knockabout, 32 ft. o. a., 9 ft. 6 in. beam and 3 ft. 2 in. draught. Built in 1900 from designs of Fred Lawley. Combination centerboard and keel with centerboard passing through. 2,600 lb outside lead ballast. Cabin is very comfortable and has good headroom. Cousens & Pratt sails, made in 1911, 550 sq. ft. in area. Complete cruising equipment. Very easy to handle, absolutely uncapizable and very stiff. Always been kept up in the best possible condition. Is now painted white and all ready to be launched this Spring. Can be seen in Buzzards Bay by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12610—For Sale—Very attractive launch. Built in 1912 at Gloucester, Mass., by P. A. Wheeler, 35 ft. 8 in. o. a., 35 ft. w. l., 6 ft. 8 in. beam, 2 ft. 6 in. draught. Planked with cedar and copper fastened. Equipped with a Campbell 3-cylinder, 4-cycle, 18-h.p. motor and at a normal speed of 600 revolutions, makes 12 miles per hour. Two cockpits, one 4 ft., forward; the other aft, 8 ft. Has folding awning the whole length and seats thirty-five people. Mono metal fittings. One tender. Cost over \$2,500 and can be purchased at a reasonable figure. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12610



12476

No. 12476—For Sale—Auxiliary yawl, 41x29x12x3.6 ft. Keel and centerboard. Designed by Small Bros. Built at Marblehead, Mass., 1903. Heavily and well built. Oak frames, long-leaf Georgia pine planking. This is one of the best boats of her type. Good speed and very able and a good looker and easily handled. Steers with wheel. Outside and inside ballast. Self-bailing cockpit. The full headroom below and the double stateroom, together with the fixed berths and transoms in the large saloon, make a most comfortable cruiser for six guests. Separate toilet room. Good size galley. Speed under power, 5 miles. Motor, installed 1911, is under companion steps—out of the way, yet readily accessible. Nothing has been omitted to make this boat an ideal cruiser. Has cruised nearly the whole coast. Fully equipped in every way. Everything in absolutely perfect condition. Will bear closest inspection. Owner, for family reasons, is unable to use and will sell at a sacrifice. This is a chance to pick up a real bargain. Further particulars from Southern Yacht Agency, 1108-a American Bldg., Baltimore, Md.

Herreshoff in 1905. This boat has two suits of sails, both in good condition; usual equipment. Offered at a reasonable price. Inspectable near New York. Frank Bowne Jones, Agent, 29 Broadway, New York.

* * *

No. 12634—For Sale—Auxiliary yawl, 47.6x12.6x6.6 ft. 5-ton iron keel. New cordage and rigging, 1914. Cabin sleeps four, with a length of 16 ft. Stateroom sleeps two, if desired. Two forward. Full headroom (7 ft.) throughout. All below decks, mahogany. All conveniences, and with a most complete inventory. 12-h.p. Bridgeport engine drives her 5 miles per hour. Thoroughly overhauled and reinstalled and in first-class condition. Under steps, but most conveniently placed. Dry as a bone and is sound, able and a most attractive boat. Price, \$1,800. Box 16, Care of The Rudder Publishing Co., 254 W. 34th Street, New York City.

No. 4493—For Sale—New York Y. C. 30-footer; one of the best boats of this well-known class. Dimensions, 43 ft. on deck, 30 ft. w. l., 8 ft. 10 in. beam and 6 ft. 3 in. draught. Built by



4493



12634



12571

No. 12571—For Sale—42-ft. w. l. cruising schooner, 61 ft. o. a., 14 ft. 4 in. beam and 8 ft. 3 in. draught. Built by C. F. Brown, at Pulpit Harbor, Me., in 1905 from designs of Norman L. Skeene. Very heavily built, and one of the most comfortable yachts of her size in this country. 10,000 lb of iron ballast on keel and 20,000 lb of iron ballast inside. Roomy cabin with 6 ft. 2 in. headroom, tastefully finished in mahogany and white enamel, with dark green upholstery. Two double staterooms. Two toilets. Roomy forecabin with three berths. Sails complete in every respect. One brand-new mainsail made by Wilson & Silsby in 1915. Also complete suit of 1914 Wilson & Silsby sails, 1,950 sq. ft. in lower sails; also topsails, staysails, etc. Two tenders on davits. Two water tanks of 200 gal. capacity. Acetylene lights. Electric-lighted binnacle, large Shipmate range, galley and refrigerator. Complete cruising equipment, including cushions, air mattresses, dishes, crockery, glass and tableware, flags, etc. Perfect condition, both as regard to the hull and equipment. This yacht has cruised three times to Nova Scotia, and many times along the Maine Coast. A very comfortable boat for long cruises or family headquarters. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 12587—For Sale—33x9x2½ gasolene cruiser. 10-ft. cabin 20-ft. cockpit. Sleeps four to six; w. c. Plenty of locker room and storage. Cabin upholstered in green velour; cockpit in red pantasote. French-plate mirror. Pullman hammocks for clothes in cabin. New 9-ft. cedar tender, mahogany-trimmed. Boat boom. Compass. Twin 9-h.p., 2-cylinder, 2-cycle, make-and-break, magneto-equipped, Fairbanks-Victor motors. Joe's reverse gear. Hydrex silencers. All in A-1 shape. Cruised between Boothbay and Marblehead all last Summer. Proved to be an exceptional able sea-boat and very comfortable. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 12583—For Sale—43-ft. motor boat, width 9 ft., draught 4 ft. Double cabin, sleeps six; large galley, Shipmate stove, sink, large lockers, dish rack, toilet, etc. Palmer engine, nearly new, 4-cylinder, 4-cycle, 5x6 in.; give speed 10 miles per hour; in large engine room by itself. Has proved herself the best sea-boat of her size on the coast of Maine. Boat handles from glass pilothouse. All controls so arranged as to be handled by one man. Can be seen at Belfast, Me., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12587



12583



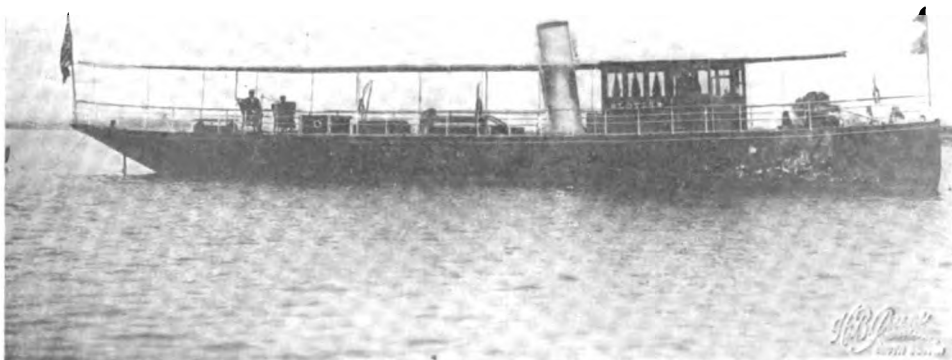
12516

No. 12516—For Sale—Comfortable cruiser, 55x11x3.6 ft. Gielow design. Built 1909. New 6-cylinder 6x8 Standard motor installed 1913. Speed, 12 miles. Steers from midship deck. Roomy cabin. Complete bathroom, an abundance of lockers, large galley and separate forecabin for the crew with toilet. Roomy cockpit aft. Electric lights. Very well equipped throughout. This boat has always had the best of care and attention. Is now in fine order. For further particulars, apply to Gielow & Orr, 52 Broadway, New York City.

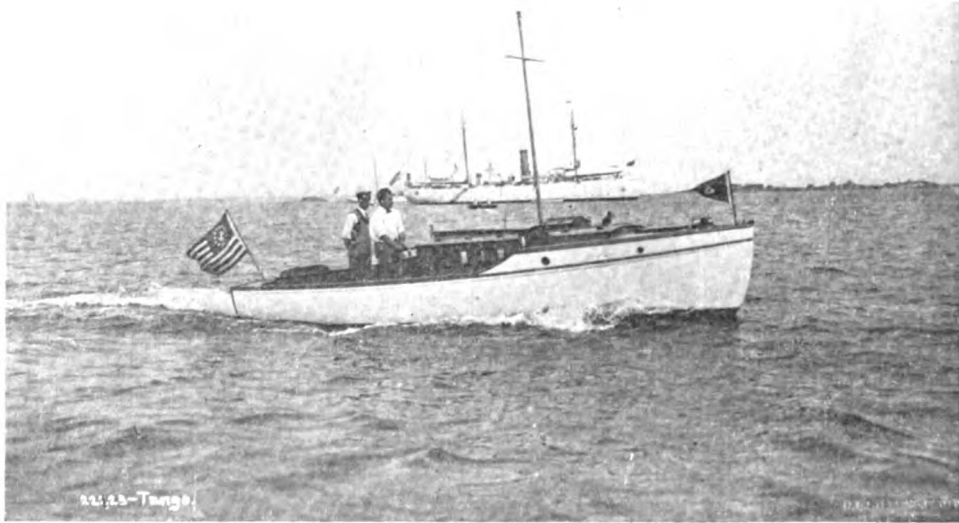
* * *

No. 10500—For Sale—Very attractive steam launch, 87 ft. o. a., 75 ft. 6 in. w. l., 11 ft. 6 in. beam, 5 ft. draught. Designed by R. M. Wood and built by Ambrose Martin, at East Boston,

Mass. Exceedingly well constructed with double hard pine planking, copper fastenings, and oak frames. Full headroom in cabin, which is finished in mahogany, and sleeps four people. Stateroom aft of cabin. Three berths forward for crew. Owner's toilet aft and toilet for crew forward. Equipped with Gurney triple-expansion engines, 7½x11½x19x10 in., 250-h.p., which gives her a speed of 12 knots an hour. Boyer water-tube boiler, retubed in 1908 and in perfect condition. Acetylene lighting plant. Fuel capacity 8 tons. This yacht and her equipment are complete in every detail and in perfect order. Carries two boats, one a motor tender; eight water tanks, of 375-gal. capacity, etc. Can be seen in Boston. Cost \$20,000 when new, but can be purchased at a reasonable figure. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



10500



12569

No. 12569—For Sale—The finest 25-ft. cabin cruiser in Boston waters. 6 ft. 6 in. beam and 2 ft. 11 in. draught. Built by James E. Graves, at Marblehead, Mass., in 1913, from designs of Samuel H. Brown, Jr. 8-10-h.p., 2-cylinder, 4-cycle Sterling motor. 12-ft. cabin finished in white enamel with 4 ft. 7 in. headroom. Two extension transoms and w. c. forward. 8-ft. watertight cockpit. 14-gal. water tank. 40-gal. gasolene tank in cockpit. Complete equipment, including cabin cushions, electric sailing lights, Pyrene fire extinguisher, life-preservers, flagpoles, etc. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12562—For Sale—35-ft. w. l. auxiliary cruising yawl. The ablest and most powerful yacht of her size on the Atlantic Coast. 49 ft. o. a., 13 ft. 6 in. beam and 7 ft. 6 in. draught. Large cabin with two berths and two transoms. Comfortable stateroom with double berth and lavatory. Toilet, large galley and forecabin with two berths. Equipped with a 24-h.p. Gray motor last year with clutch, dynamo and Thompson feathering propeller, giving speed of 7 miles an hour. Motor entirely out of sight in tight compartment. Dynamo and electric lights. Two

50-gal. water tanks; two 40-gal. De Koven gas tanks behind bulkhead. Completely equipped last year for a cruise to Provinces with new running rigging, chains, bed springs, cushions, mattresses, etc., at a cost of \$1,500. New masts and sails in 1912. Two handsome, bright tenders, one rowing, one power. 15,000 lb lead on keel. This yacht is in perfect condition and for ocean cruising is without an equal. Bargain. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

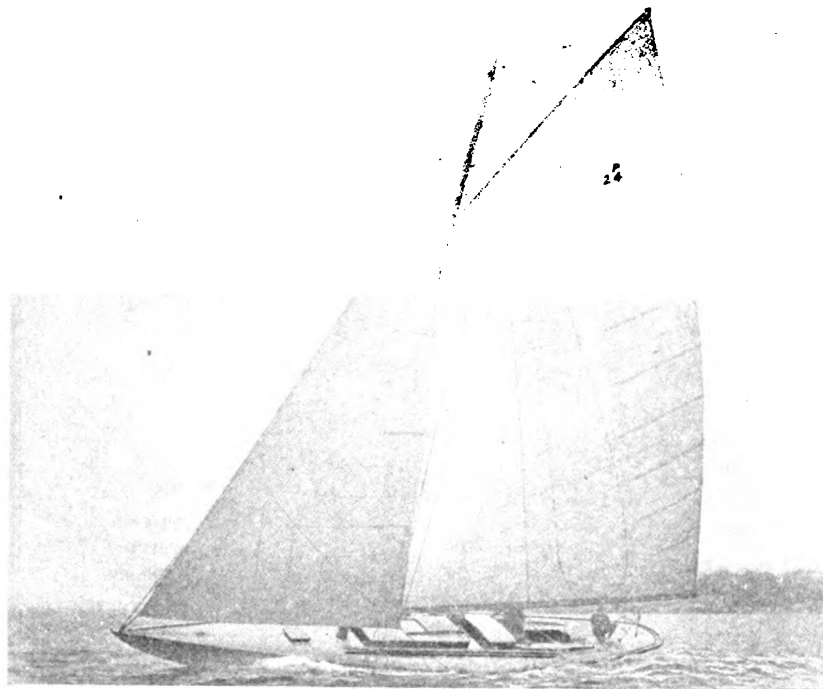
No. 9036—For Sale—35-ft. w. l. cruising yawl, designed and built by Lawley at South Boston, Mass. 46 ft. 4 in. o. a., 10 ft. beam, 7 ft. 8 in. draught. Heavily constructed and will last a lifetime. Big cabin with 6 ft. 3 in. headroom and one stateroom aft, sleeping five persons comfortably. Interior finish mahogany. Outside ballast; watertight cockpit. Sails made by Wilson & Silsby in 1908. Full cruising equipment, including tender, cushions, bedding, linen, dishes, silver, galley utensils, large binnacle, two anchors and chains, two storm jibs, 100-gal. water tank, etc. One of the best cruising yawls on the Atlantic Coast. Reasonable price. Seen near Rockland, Me. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12562



9036



12603

No. 12603—For Sale—Champion Class P sloop yacht Italia, 50 ft. o. a., 33 ft. w. l., 10 ft. beam and 7 ft. draught. Built by Hodgdon Brothers at East Boothbay, Me., in 1911, from designs of George Owen. Double planked, copper fastenings, 9-ft. watertight cockpit. Full headroom in cabin. Stateroom aft. Two berths and two transoms in cabin and roomy berth in stateroom. 9,000 lb of outside lead ballast on keel. Cabin finished in mahogany and white. Toilet and lavatory. Berths forward for two men. Three suits of sails, practically new. Plow steel rigging, bronze blocks, hollow spars and mainsheet windlass on deck. Mahogany deck trimmings. Complete cruising and racing equipment, including tender, light sails of every description, cushions, flags, lights, binnacle, etc. A perfect sea-boat, as she does not pound at all. May be inspected near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12608—For Sale—Attractive raised deck cruising launch, 41 ft. long, 10 ft. 6 in. beam, 3 ft. 4 in. draught. Designed and built by Britt Brothers at West Lynn, Mass., in 1908. Very strongly constructed. An ideal boat for long cruises, as she is fast; an excellent boat in heavy weather, being high-sided,

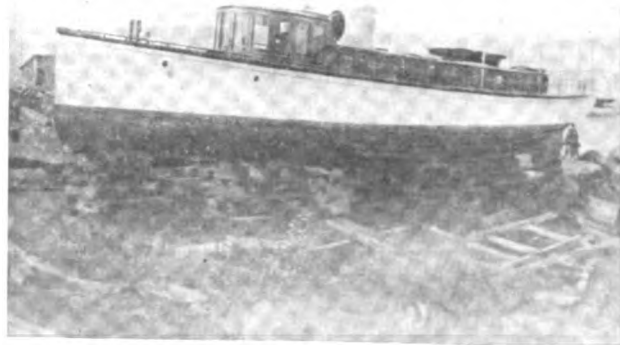
steady and absolutely reliable, and has a very roomy cabin. Cabin house is 20 ft. long, entirely finished in mahogany; cabin is divided into two separate compartments by heavy curtains. There are two double berths in each cabin, hanging lockers, shelves, etc. Five heavy ports on each side of the cabin house and a large skylight insure perfect ventilation. Comfortable watertight cockpit with awning over it. Equipped with a 4-cylinder, 20-h.p. Ralaco motor, giving her a speed of 11 miles an hour. Complete cruising inventory, electric lights, tender, etc. One of the handsomest and most serviceable power cruisers ever built. Price, \$2,500. Can be inspected in Marblehead, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

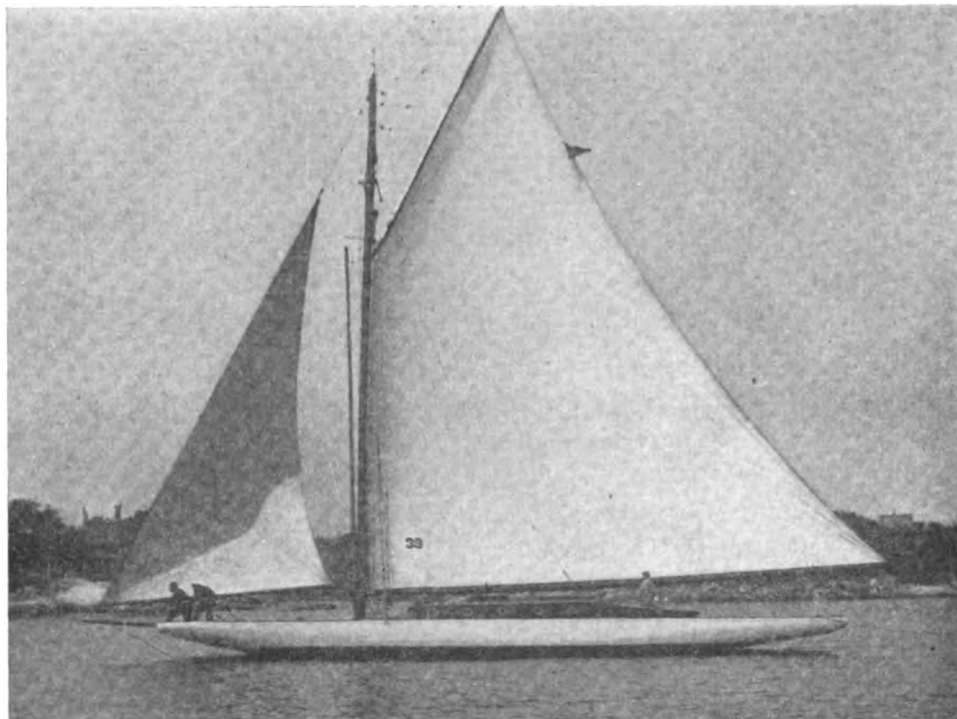
No. 7006—For Sale—Fast steam launch. Dimensions, 80x12.3x4 ft. Best design and build. Accommodations include owner's stateroom and saloon with a dining saloon forward. Lawley triple-expansion engine; Almy water-tube boiler; speed 16 miles per hour. Equipment and furnishings in best condition. Inspectable on St. Lawrence River. Low price. Frank Bowne Jones, Agent, 29 Broadway, New York City.



12608



7006



8621

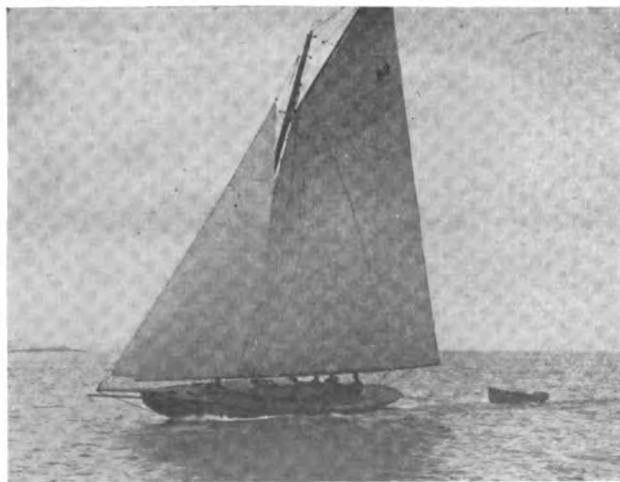
No. 8621—For Sale—The famous 35-ft. w. l. sloop yacht Golden Rod. One of the fastest yachts of her size ever built and a good cruiser, as she has a very large cabin, 16 ft. long, with four transoms; also two good staterooms, toilet room and spacious forecabin. Designed by Gardner & Cox and built by Embree Brothers in Quincy, Mass. 61 ft. o. a., 13 ft. 2 in. beam, 8 ft. draught, 8,000 lb of lead on keel. Beautifully constructed, double planked and copper fastened. Golden Rod is perfectly balanced and steers with the greatest ease. Has complete inventory, including Wilson & Silsby sails, two boats, two 40-gal. water tanks, cooking utensils, crockery, cushions, blankets, linen, awnings, lights and navigation instruments. Roomy cockpit, mahogany cabin house, finest steel rigging and the very finest spars. This is an exceptional opportunity to purchase this celebrated yacht at a low figure. Can be inspected in Marblehead, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 9049—For Sale—Very fast cruising 25-ft. w. l. sloop, 40 ft. o. a., 10 ft. beam, 6 ft. 5 in. draught. Built by George Lawley from designs by Crowninshield. Beautifully constructed

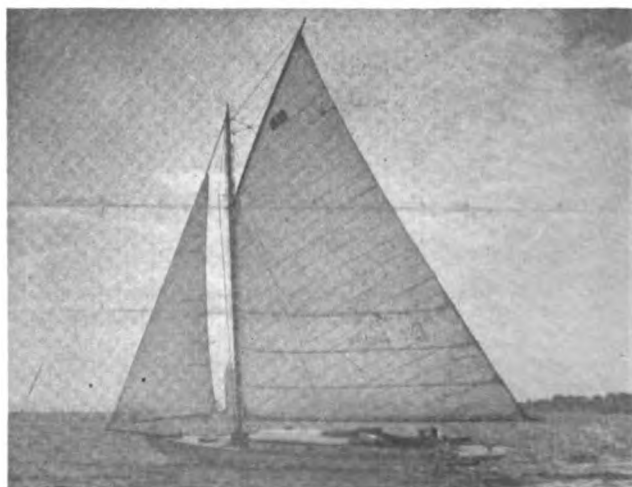
with Spanish cedar; double planked, and copper fastened. 7,000 lb of lead on keel; 10-ft. watertight cockpit; attractive cabin finished in mahogany and oak. Two wide transoms, toilet, etc. Complete equipment, cushions, side lights, ice-chest, binnacle, etc. Will make a name for herself wherever she goes. A splendid boat for the Handicap Class on Long Island Sound. Handles beautifully and a first-class cruiser. Bargain price. Can be seen in Portland, Me., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

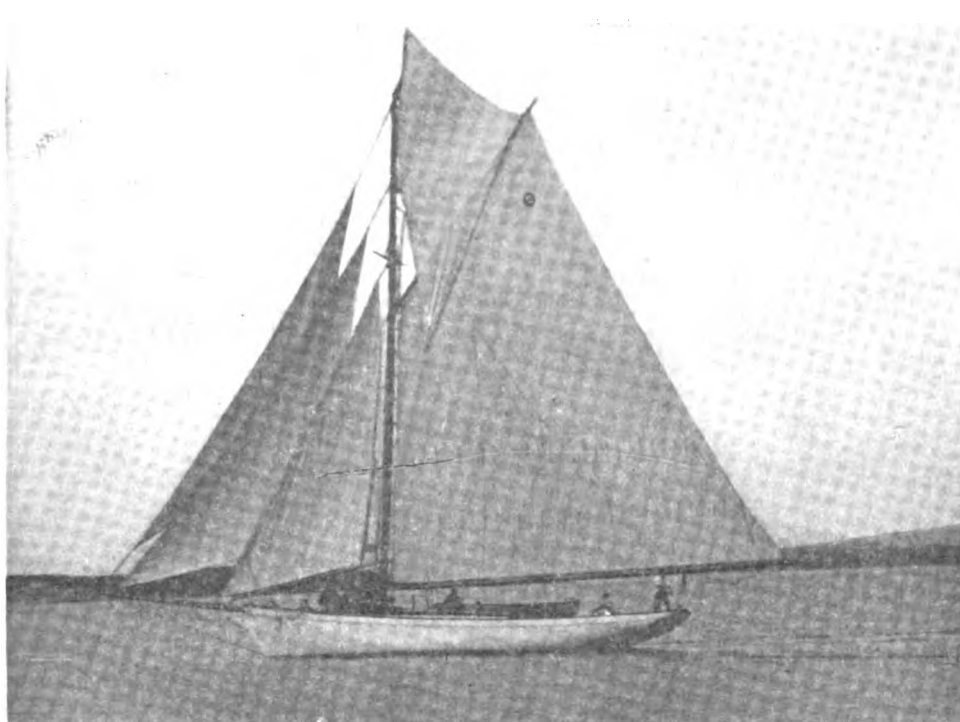
No. 8653—For Sale—Keel cruising sloop, designed by Arthur Binney and built by T. L. White, at Manchester, Mass., in 1901; 36 ft. 7 in. o. a., 25 ft. 6 in. w. l., 9 ft. beam, 6 ft. draught. Very best of construction, with cedar planking and copper fastenings. 4,500 lb ballast on keel. Watertight cockpit; cabin finished in mahogany, with toilet and one berth forward for man. Two suits of sails, made by Wilson & Silsby, 750 sq. ft. in area, one set new 1913. Good inventory, two anchors and cables, water tanks, cushions, etc. Bargain price, \$500. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



9049



8653



12556

No. 12556—For Sale—The strongest built, most able and seaworthy yacht of her size on the Atlantic Coast. Built to last a lifetime by W. Irving Adams, of East Boothbay, Me., in 1907, from designs of Melville McLean. Gross tonnage 19, net tonnage 11. Length o. a. 51 ft., 42 ft. w. l., 15 ft. 3 in. beam. 8 ft. draught, 6 tons of iron and cement inside and 4,400 lb outside iron ballast. Very large cabin with 6 ft. 6 in. headroom. Roomy stateroom. Will easily sleep eight people in the cabin and four forward. 10-ft. watertight cockpit. Wilson & Silsby sails, made in 1911, and in excellent condition. Carries two boats on davits, one of them a motor tender. 300-gal. water tank. Completely equipped in every respect. Ample room under floor of cockpit to install an auxiliary motor if so desired. Anyone wishing to purchase a very strong and rugged craft, able to cruise anywhere, at a moderate price, should not fail to inspect this yacht. Can be seen at Portland, Me., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

20 ft. w. l., 7 ft. beam, 5 ft. draught. Mahogany and cedar planking, copper fastenings. 2,000 lb lead on keel. 9-ft. watertight cockpit. Two suits of Ratsey sails, 550 sq. ft. in area. A splendid boat for afternoon sailing, as she handles perfectly. A consistent prize winner. Has always been kept up in perfect condition. Usual sonderboat equipment. Can be purchased at a very reasonable figure. Seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12580—For Sale—Massachusetts Inter-Club Yacht Racing Association Champion Sonder Class boat Robin. Built by David Fenton Company, Manchester, Mass., in 1911. 35 ft. 9 in. o. a.,

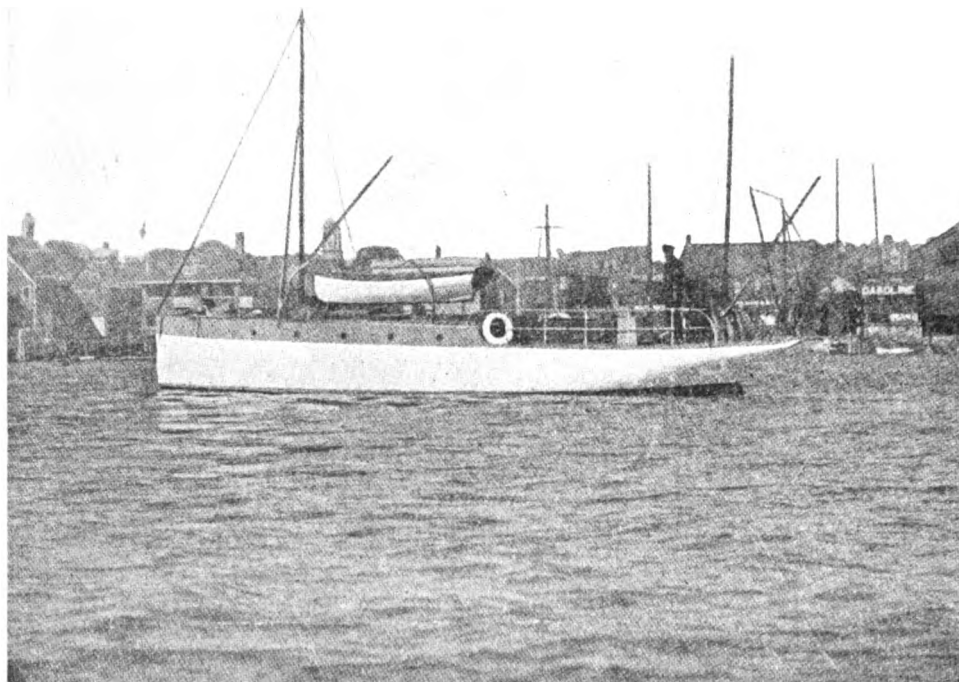
20 ft. w. l., 7 ft. beam, 5 ft. draught. Mahogany and cedar planking, copper fastenings. 2,000 lb lead on keel. 9-ft. watertight cockpit. Two suits of Ratsey sails, 550 sq. ft. in area. A splendid boat for afternoon sailing, as she handles perfectly. A consistent prize winner. Has always been kept up in perfect condition. Usual sonderboat equipment. Can be purchased at a very reasonable figure. Seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12586



12580



12612

No. 12612—For Sale—45-ft. power cruiser with auxiliary ketch rig. 8 ft. 7 in. beam, 3 ft. 6 in. draught. Equipped with a 24-h.p. Murray & Tregurtha, 4-cylinder, 4-cycle motor, giving an average speed of 10 miles per hour. Has large main cabin finished in mahogany, with 7 ft. headroom. Also stateroom, toilet, galley and forecabin. Cabin and stateroom are lighted with swinging ports, which also provide excellent ventilation. Back of the transoms in the main cabin are Pullman berths over each of which is a long shelf. Buffets, lockers, skylights in cabin. Stateroom has transom and Pullman berth. Sails made by Cousens & Pratt, 750 sq. ft. in area. Flush deck for entire length, though the deck aft of the cabin is lower than the forward two-thirds of her, and is broken by a large hatch or cabin trunk over the engine room. Pipe railing runs full length of deck and awning extends from jigger mast to amidships. Khaki windshields along the rails. Very complete cruising equipment, including tender on davits, lights, cushions, flags, etc. This is a splendid boat for long cruising. Has cruised from Boston to Norfolk, Va., and all along the Maine Coast. Would be fine craft to sail from Boston to the Panama Exposition. Can be purchased for less than one-third of her

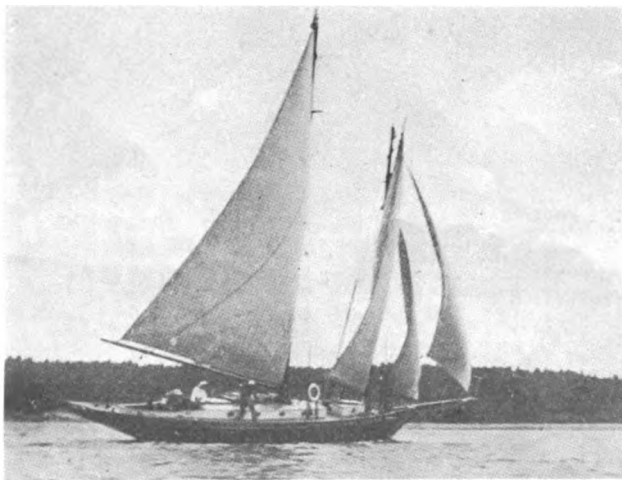
cost. May be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

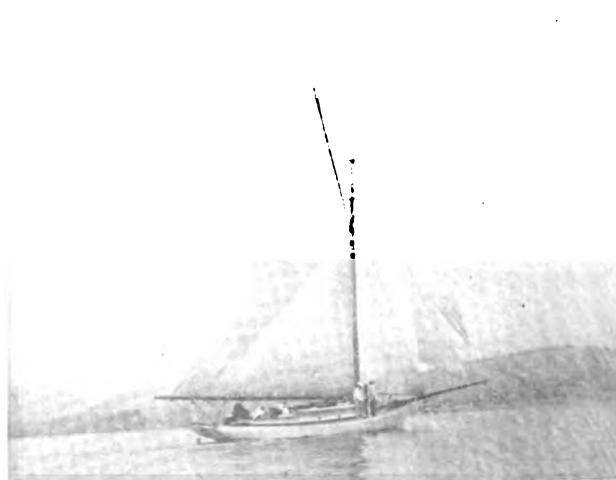
No. 501—For Sale—Pole-mast keel schooner, 52x35x13.6x7.9 ft. draught. Unusually fine sea-boat. Well constructed. Double stateroom. Main cabin about 10-ft. long, 6 ft. 2 in. headroom. Sleep six in owner's party. Will be sold at reasonable price. Gielow & Orr, 52 Broadway, New York City.

* * *

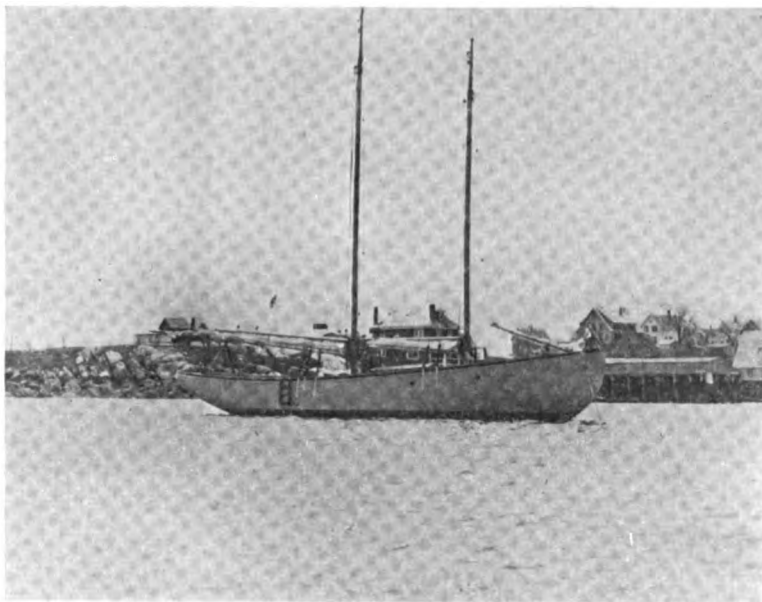
No. 12609—For Sale—Cruising sloop, 39 ft. o. a., 31 ft. 6 in. w. l., 13 ft. 3 in. beam and 6 ft. draught. Very heavily built. 4½ tons inside ballast, 1½ tons outside ballast. 8-ft. watertight cockpit. Roomy cabin with 6 ft. headroom finished in mahogany, sleeping eight persons comfortably. Toilet room. Wilson & Silsby sails. Carries two boats, one of them a power tender. Complete cruising equipment, including cushions, blankets, binoculars, lights, etc. A splendid boat to spend the Summer on. Staunch, able and seaworthy. Price, \$1,000. Can be chartered for \$75 per week. Seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



501



12609



12577

No. 12577—For Sale—Very able keel auxiliary knockabout schooner. Built by Charles A. Morse at Thomaston, Me., in 1913. 23 gross tons. 52 ft. 8 in. o. a., 43 ft. 6 in. w. l., 13 ft. beam and 7 ft. 9 in. draught. Very heavy planking and frames. Flush deck with 8-ft. watertight cockpit. Comfortable cabin with 7 ft. headroom and three berths and two transoms. Double stateroom, toilet, etc. Sleeps seven aft and two forward. Sail area 1,600 sq. ft. 25-h.p., 3-cylinder Lathrop motor under cockpit floor, giving speed of 6 knots. Has cruised extensively along the Maine coasts and New Brunswick; also made a trip from Boston to Halifax, Nova Scotia, in 60 hours. Complete cruising outfit, including sailing tender. Economical to run, as there is little brass work or mahogany to look after. Ideal boat for long ocean cruises on account of the moderate sail plan and substantial construction. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12582—For Sale at Low Price—The finest sailing houseboat in America. An ideal boat to live on and has been used by her owner as a Summer home. 60 ft. o. a., 16 ft. beam, 4 ft. 6 in. draught, with centerboard up. Gross tonnage, 40. Very heavily constructed with 2-in. yellow pine planking. 6,000 lb inside ballast, 3,000 lb outside ballast. Spacious cabin with 7 ft. headroom. Double stateroom aft and single stateroom on port side. Coppered bottom. Not only a perfect houseboat, but also



12582

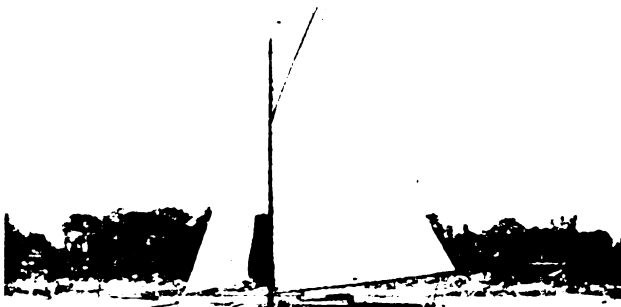
a most excellent sea-boat. Built for long outside cruises with a small snug rig for easy handling. Sail area about 2,000 sq. ft. in all. Has four anchors, chains, and cables. Three w.c.'s, lavatories, etc. Complete cruising equipment, including a 19-ft. launch, a 16-ft. lifeboat and a 10-ft. tender. Water-tank capacity about 1,000 gal. Can easily be handled by two men. This boat on account of her moderate draught is ideal for Southern cruising and her bottom is coppered for use in warm waters. Rigging, hull, and sails in absolutely first-class condition. This is a chance to get a splendid cruising vessel at a bargain. Will take a smaller boat in part payment. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12611—For Sale—Exceptional bargain. 71-ft. steam launch. Built by Lawley in 1901 from designs of Arthur Binney. 10 ft. 6 in. beam and 4 ft. 6 in. draught. Trunk cabin aft, deckhouse and galley forward with bridge deck above. Cabin has berths for two with large toilet and ample locker room. Room for two in forward deckhouse. Finished in mahogany inside and out. Lawley triple-expansion engine and Roberts' water-tube boiler. Average speed, 14 miles. Tender on davits. Searchlight, anchors and complete equipment. The finest boat of her type in Boston waters. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



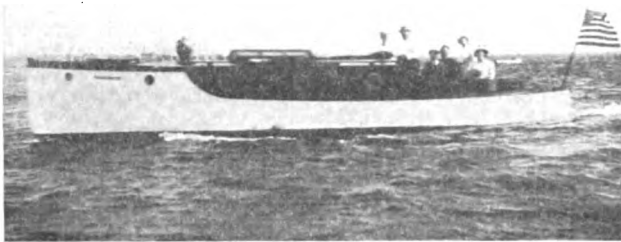
12611



1404

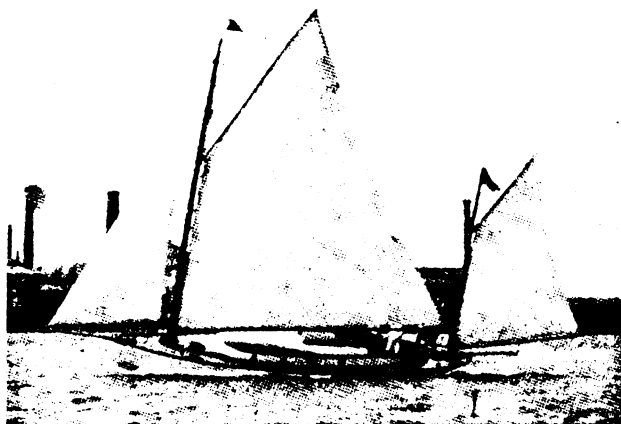
No. 1404—Combination keel and centerboard knockabout. Dimensions, 32 ft. o. a., 21 ft. w. l., 7 ft. 8 in. beam and 4 ft. draught. Cabin has 4 ft. 8 in. headroom; sleeps two. Complete suit of sails. Inspectable at New Rochelle. Low Price. Frank Bowne Jones, Agent, 29 Broadway, New York City.

No. 12597—For Sale—35-ft. cabin cruiser, 7 ft. 6 in. beam, 20 in. draught. Built in 1907. Roomy cabin with 6 ft. headroom and finished in mahogany. 8-ft. watertight cockpit. 16-h.p. Fairbanks (Smalley) 1907, 2-cylinder motor. 80-gal. gasolene

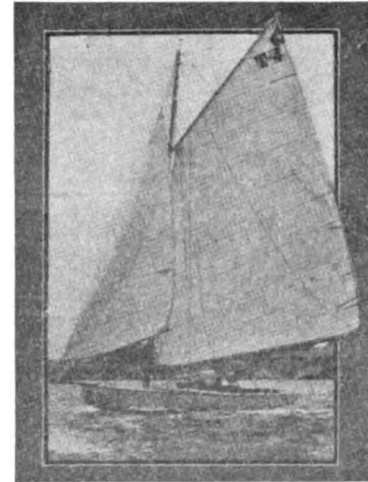


12597

tank forward. Complete equipment, including anchors and cables, flags, lights, cushions, etc. A well built, able and good-looking boat. Price, \$1,000. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



4056



12594

No. 4056—For Sale—Keel cruising yawl, 38 ft. o. a., 28 ft. w. l., 9 ft. 6 in. beam and 6 ft. draught. 7,200 lb of lead on keel. Headroom in cabin 6 ft. 2 in. Two transoms in cabin and two pipe berths forward; w. c. in forward part of cabin. Sails in excellent condition. Good cruising equipment, including tender, two anchors and two cables, brass side lights, riding light, two-burner Primus stove, spirit compass, large ice-chest, 50-gal. water tank, good cushions, spinnaker, dishes and cooking utensils, etc. Very easy to handle, quick in stays, and a splendid sea-boat. Low price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

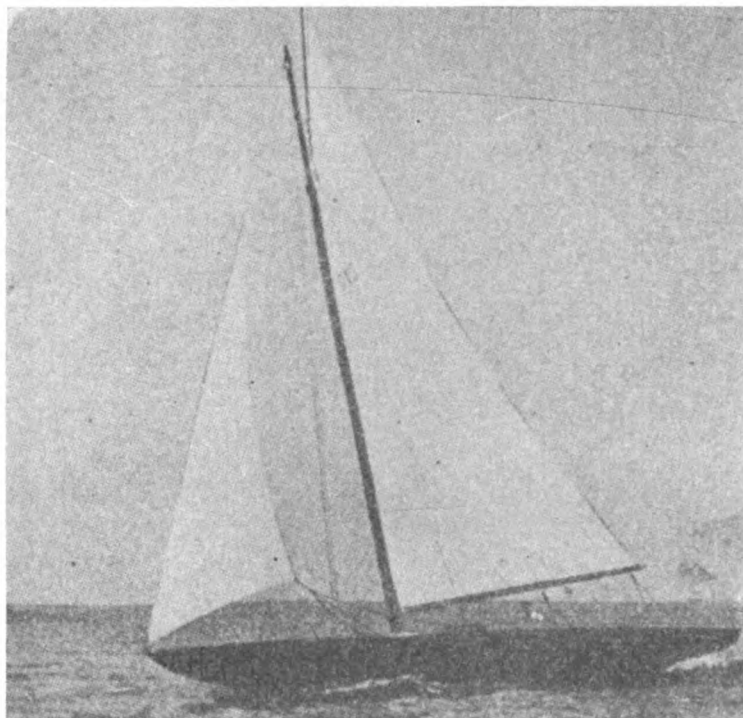
No. 12594—For Sale—Massachusetts Bay 15-ft. w. l. Restricted Class Champion, Gaby, formerly Teaser, 25 ft. o. a., 7 ft. 10 in. beam and 3 ft. draught. Built 1904, from designs of Small Brothers. 1,000 lb of lead on keel. Roomy watertight cockpit, finished bright. Bulkheads forward and aft, making her absolutely unsinkable. She is also uncapizable, is not over-rigged, and is an ideal boat for a boy or girl to handle in any kind of weather. Safe, very fast and extremely stiff in a strong breeze. Two suits of sails, 375 sq. ft. in area, one suit brand-new, made in 1914 by Hamblin. A continuous champion in her class. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12528—For Sale—A big little, able cruiser, 28 ft. by 7 ft. 6 in. Inspect this boat and note its numerous good qualities, too many to mention here. Fully equipped, toilet, etc. No reasonable offer refused, as owner must sell at once on account of leaving town. Can be seen at Cordes' Yard, City Island, N. Y. George A. Tiernan, Earle Place, New Rochelle, N. Y.



12528



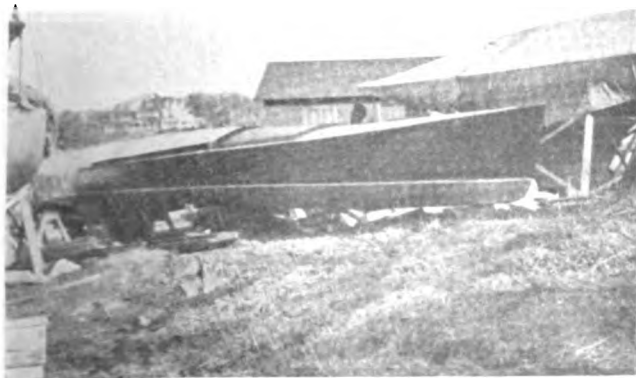
10954

No. 10954—For Sale—The best 21-ft. w. l. knockabout in America. Designed by N. G. Herreshoff and built by the Herreshoff Manufacturing Co. at Bristol, R. I., in 1911. 38 ft. o. a., 8 ft. 4 in. beam and 6 ft. draught. Built of mahogany and finished bright. Brass screw fastenings and white oak frames. Canvas deck; 10-ft. cockpit, 9-ft. cabin with over 4 ft. headroom, finished bright; 3,000 lb of lead on keel. The finest plow steel rigging with bronze blocks, turnbuckles and deck fittings. The best of running rigging throughout. Has two suits, 600 sq. ft. in area, one made by Herreshoff, the other by Briggs & Beckman. Complete set of light sails. Anchor and cable and usual equipment. This beautiful craft was built for the Buzzards Bay 21-ft. cabin class and cost over \$3,000. Hollow spars and beautifully fitting sails. This is one of the fastest yachts ever turned out from the Herreshoff shops and is sure to prove a sensational prize winner wherever she may go. Is absolutely as good as new. Now hauled up on Buzzards Bay, where she can be easily inspected. Owner has a larger boat and will therefore sell this really beautiful craft at a very reasonable figure. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

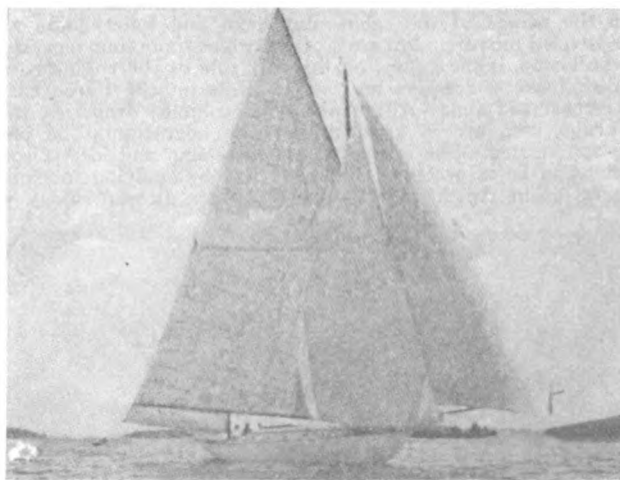
No. 12633—For Sale—Bargain. 30-ft. speed boat, 6-cylinder motor, 40-h.p. 26 miles; very dry and seaworthy. Paragon gear, auto control. Imported dual magneto, storage battery, electric horn, self-bailer, all lamps, tools, etc. Must sell immediately. Best offer over \$450 cash takes her. Full particulars and permit to inspect. C. A. Singer, Jr., 13th Street and Boulevard, Long Island City, N. Y.

* * *

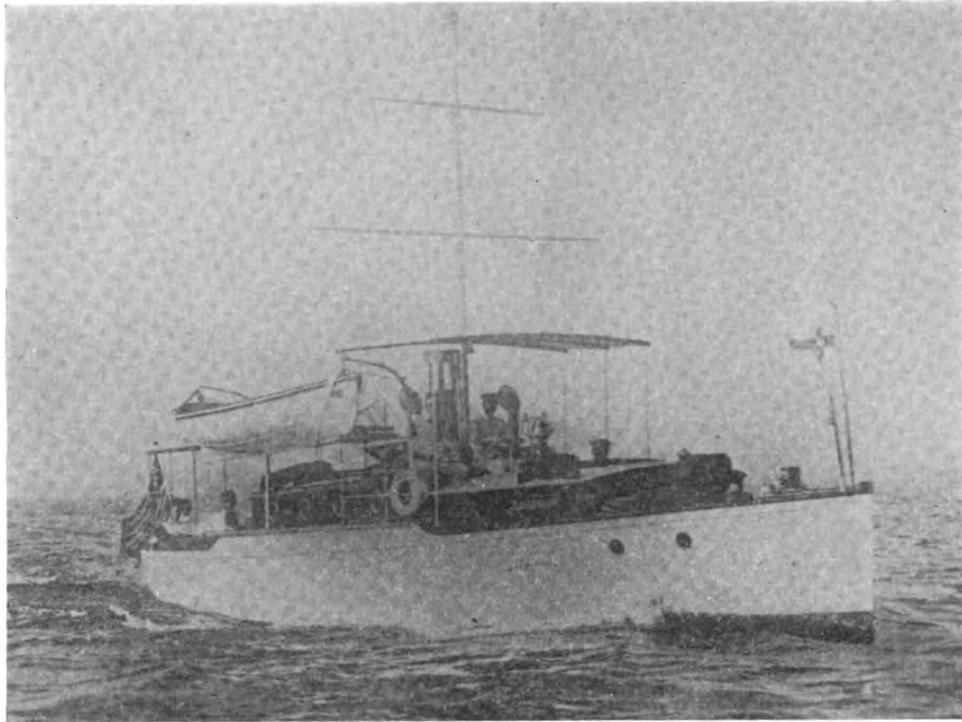
No. 12568—For Sale—Comfortable cruising yawl, 43 ft. 7 in. o. a., 29 ft. 6 in. w. l., 13 ft. beam, 3 ft. 9 in. draught. Designed by Small Brothers and built by Pendleton, Wiscasset, Me., in 1901. Combination keel and centerboard, making her a splendid boat for shallow waters on account of her light draught. Very large cabin, with four berths on each side, and also transoms, giving sleeping accommodations for eight. Pipe berth forward. Full headroom, toilet, galley, etc. Ample space under cockpit for installation of auxiliary motor if desired. Sails new in 1912, 1,350 sq. ft. in area. Complete cruising equipment. Price very reasonable. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12633



12568



12604

No. 12604—For Sale—Cruising launch, trunk cabin type, 42x10.6x3 ft. Speed cruising 10 miles, maximum 12 miles. Construction oak, cedar, and mahogany. Style of bow, plumb; stern, compromise. Two trunk cabins, cockpit aft; steers from bridge and cockpit; large main saloon, 12 ft., finished in red and white mahogany; headroom full; single stateroom; four berths, two double and two single; total sleeping accommodations for owner and guests, seven. Two toilet rooms, one forward and one aft. Water tanks 250 gal., gas tanks 150 gal. Signal mast, two yards. Anchor and chain cables, etc. Awnings over bridge and cockpit; one tender on davits. Standard engine, 24-h.p., excellent condition. Windlar searchlight; electric light; running water; fully found. A very smart-looking, seaworthy craft. There is a bridge deck between the two trunk cabins, from which the steering is done. Cabin is entered from cockpit. On each side of the companion ladder is a locker with two drawers above. Back of the transoms are various lockers, some with leaded glass doors. The whole cabin is illuminated with seven electric lights in attractive fixtures of the husk pattern. Forward, on the starboard side, a door leads into the owner's stateroom, which is furnished with a narrow transom over which a Pullman berth lets down; a large wardrobe placed amidships directly aft of the engine room opens into this stateroom. Opening from the port side of the cabin is the toilet. Upon the panels of the cabin, stateroom and toilet doors are large beveled mirrors. Forward of the toilet room, but separated by a bulkhead, is the galley, on the port side of the engine room are dish lockers, dressers and stove, while on the starboard is an ice-chest and sink. All furnishings, cushions, draperies, carpets, rugs, etc., are in good taste. The boat should be seen to be appreciated. She is a great big little ship and in A-1 condition. Can be inspected at Buzzards Bay by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



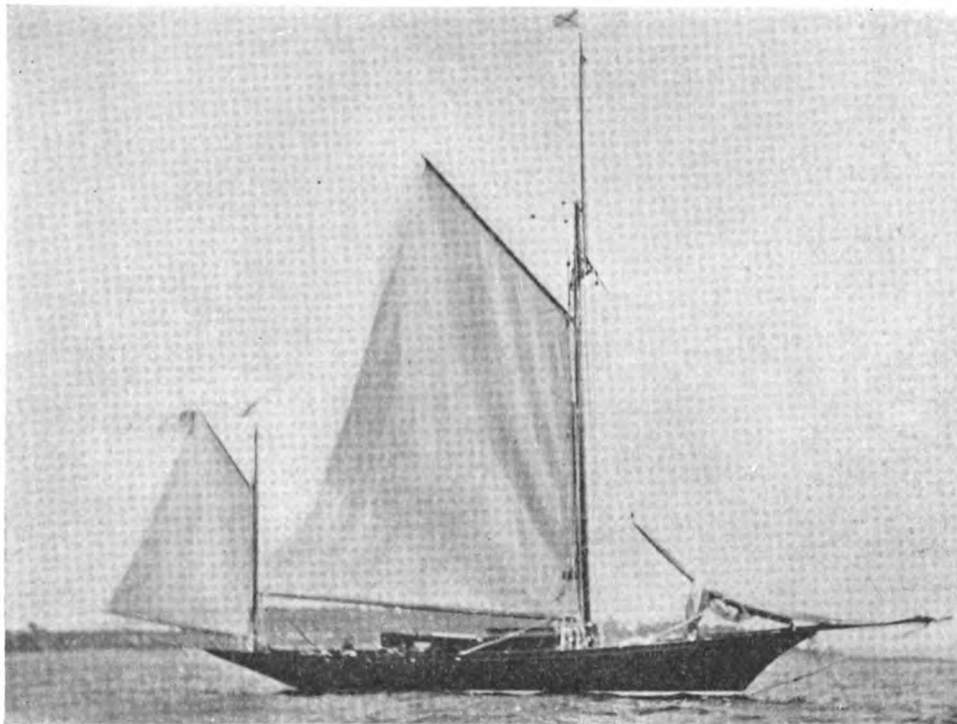
12566

No. 12566—For Sale—Very attractive open motor boat, built in 1911, and equipped with a 4-cylinder, 10-h.p. Buffalo motor, overhauled 1915, 25 ft. 6 in. long, 6 ft. 8 in. beam, 2 ft. 8 in. draught. Exceptionally well constructed with cedar planking, copper fastenings, and oak frames, with handsome mahogany decks. 18-ft. cockpit comfortably seating a dozen people; 35-gal. gasoline tank under forward deck. Good equipment, consisting of cushions, flags, whistle, anchor and cable, spray-hood, etc. A high-grade boat which can be purchased at a reasonable figure; in commission, ready to use. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass. * * *

No. 12602—For Sale—Attractive 29-ft. motor boat. Built in 1911. Very well constructed with cedar planking, copper fastenings and oak frames. 14-ft. cabin with 5 ft. 6 in. headroom. 10-ft. watertight cockpit. Toilet in bow. 12-h.p. Fairbanks-Morse 1912 motor, giving speed of 9 miles an hour. All fittings brass, inside and out. Pressure outfit for whistle. Automatic bailer. Reverse clutch, Apple dynamo, battery and switchboard. Boat been thoroughly overhauled this Winter and in first-class condition. Price, \$700. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12602



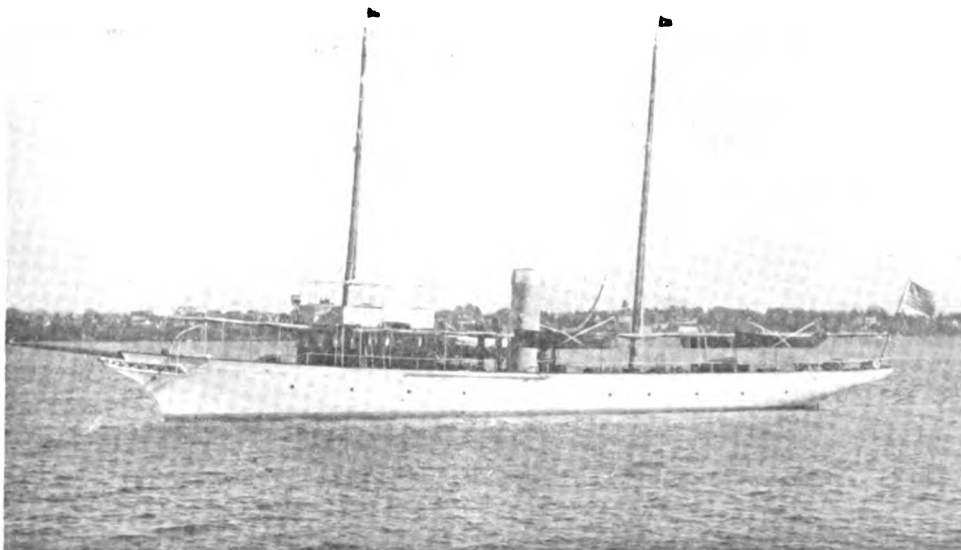
1005

No. 1005—For Sale—Auxiliary keel yawl, 39 ft. o. a., 29 ft. l. w. l., 9 ft. 3 in. beam. Built by Lawley from one of the last designs of Ed. Burgess. Is as sound and tight as when launched. Has outside ballast and full headroom. Is beautifully finished in paneled mahogany. Entire equipment, including sails, nearly new and in most exceptional condition. Four berths in cabin, toilet, galley, 14-h.p. Lathrop used two years, giving speed of 7 knots. Completely equipped, including tender on davits. For sale at a low figure. Apply J. G. Alden, 131 State Street, Boston, Mass.

* * *

No. 12553—For Sale—103-ft. w. l. steam yacht, 127 ft. o. a., 16 ft. 7 in. beam, 7 ft. 6 in. draught. Designed and built by

Geo. Lawley & Son Corporation in 1901. Gross tonnage 104, net tonnage 60. Triple-expansion, 500-h.p. Lawley engine. 1912 Almy water-tube boiler. Speed 12 knots. Roomy cabin finished in mahogany and white with 6 ft. 6 in. headroom. Three state-rooms. 1,500-gal. water tanks; 21 tons fuel capacity. Completely equipped in every respect. Carries two launches. This yacht is in perfect condition and does not require any overhauling whatever, as she is kept in commission the year round. Just been inspected. All tanks nearly new. All outside wood, rails, cabin, pilothouse, made of teak. This yacht is so comfortable and so completely equipped that the present owner lives aboard her almost all the year. Can be seen near Providence, R. I., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



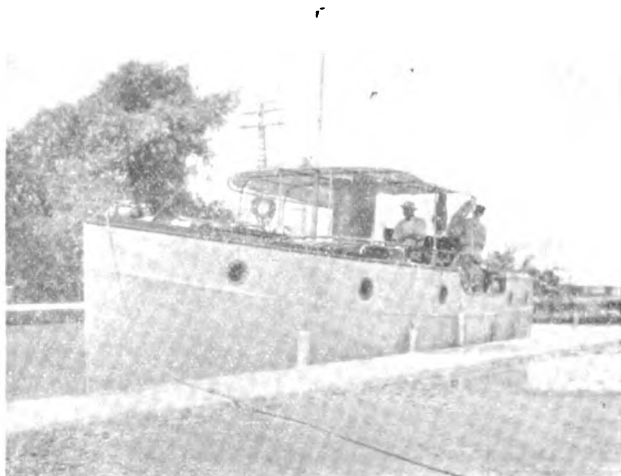
12553



12561

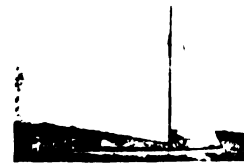
No. 12561—For Sale—Very attractive motor boat. 37 ft. 5 in. o. a., 35 ft. w. l., 8 ft. 9 in. beam and 3 ft. 6 in. draught. Designed by John Small and built by F. F. Pendleton, at Wiscasset, Me., in 1912. 30-45-h.p., 4-cylinder Sterling motor. Speed 11 miles. Very complete electric lighting plant, with Edison battery and generator. Eleven inside lights, electric-lighted binnacle, side lights and searchlight, also an electric cooker. This boat is beautifully built. Her cabin finish is mahogany and her cabin fittings are unusually handsome. 6 ft. 2 in. headroom. One stateroom forward. Two extension transoms and two berths forward. Has a jib and mainsail for auxiliary use. 100-gal. gasoline tanks under bridge deck. Large water tank. Toilet room between cabin and stateroom. Very complete equipment, including tender, velour cushions and mattresses, plain and fancy blankets, eight pillows, bed pillows, sheets, dishes, galley equipment, etc. Comfortable watertight cockpit with chairs and a stern seat. This is a particularly fine boat and it is for sale simply because the owner is obliged to move inland. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 4809—For Sale—Midship deck cruiser, 35x10.6x3.3 ft. Built 1914. Speed 8 to 9 miles. 4-cylinder, 30-h.p. motor. Bridge controls. Two staterooms. 10-ft. cabin, 6 ft. headroom. Electric lights. Roomy and seaworthy type. Well found. Reasonable. Gielow & Orr, 52 Broadway, New York City. Telephone, Broad 4673.



4809

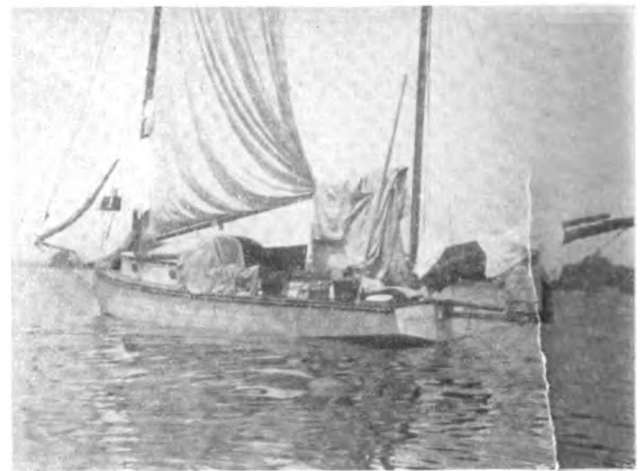
No. 11852—For Sale—Centerboard jib and mainsail. 27.4 ft. o. a., 18 ft. w. l., 7.9 ft. beam, 30 in. draught. In first-class condition throughout. Rigging and sails in good shape. Completely equipped for boat of her type. Very fast sailer having won every race in which she has been entered. Unusually large



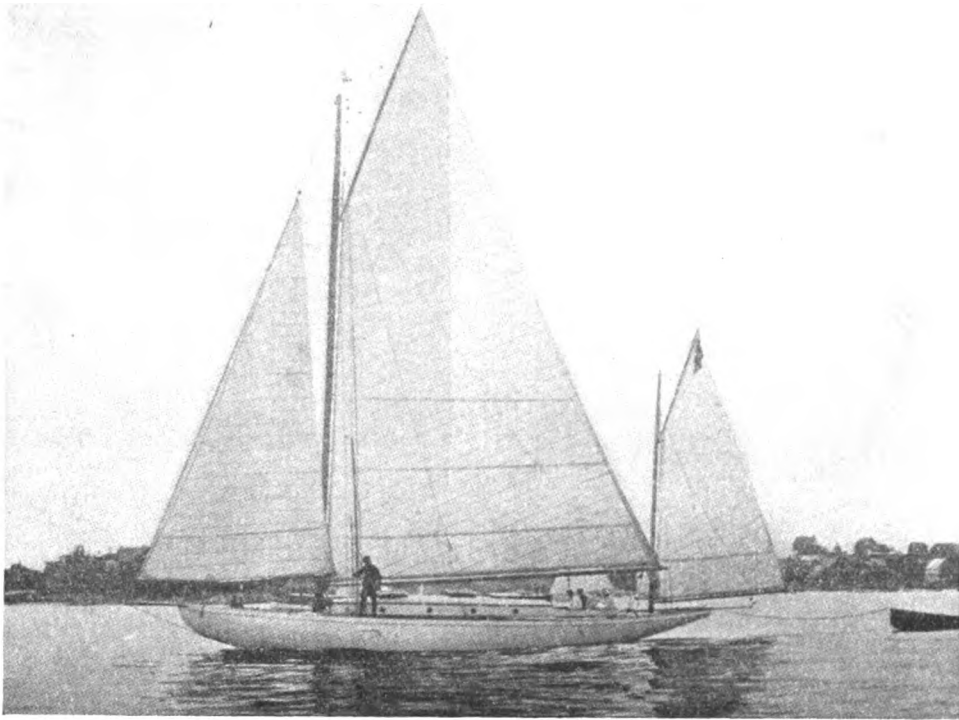
11852

centerboard, holding her well to windward. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.

No. 12535—For Sale—20-ft. o. a. Sea Bird. Sound and able. Owner and his wife cruised Down East on her last Summer. Just the boat for two boys. Fully equipped for cruising. Price \$175. Apply to R. B. Harding, Care of Plymouth Cordage Co., North Plymouth, Mass.



12535



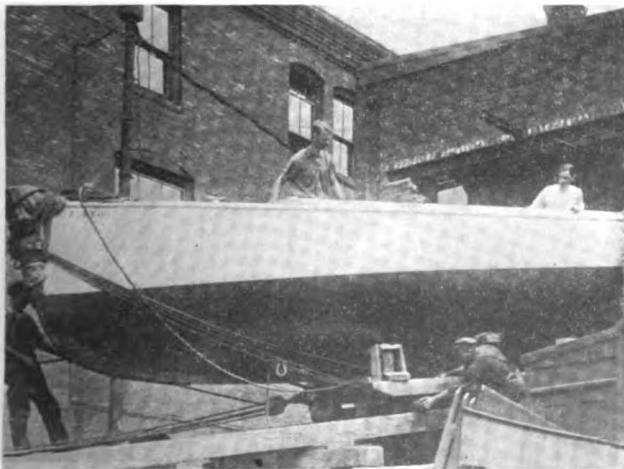
12560

No. 12560—For Sale—Auxiliary yawl. Handsome, able and fast. 53 ft. 7 in. o. a., 34 ft. w. l., 12 ft. 7 in. beam and 5 ft. 8 in. draught. Built by George Lawley and Son Corporation, at South Boston, Mass., from designs of Crowninshield. 10,000 lb outside lead ballast on keel with centerboard under cabin floor. Large cockpit and main cabin, also owner's stateroom, toilet room, fine galley, etc., 6 ft. 2 in. headroom. Very attractive interior, finished white, with mahogany trimmings and handsome upholstery. New suit of sails in 1913. Curtains and other furnishings, new 1914. Main cabin contains two fixed berths and four extension transoms, also sideboards, desk and numerous lockers. Rigging, including masts, new 1914. 17-h.p., 2-cylinder horizontal-opposed engine, under cockpit floor, driving boat 7 miles per hour. Acetylene lights, brass binnacle, full equipment. Two tenders, on davits, one of which is a power tender whose motor is being overhauled together with engines of the large boat in owner's shop, both to be re-installed in Spring. This yacht and her equipment were thoroughly overhauled in 1914 and everything is in perfect condition. May be inspected at Vineyard Haven, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

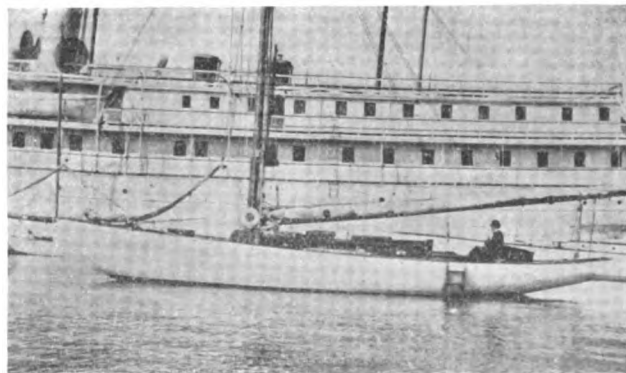
No. 12532—For Sale—The hull of the experimental boat Fulton, built for the Massachusetts Institute of Technology in 1912, used but two seasons. L. o. a. 34 ft. 3 in., l. w. l. 30 ft. 9 in. breadth 7 ft. Exceptionally strong construction, sawed, white oak frames, doubled, and 7/8-in. white cedar planking. Interior unfinished. 30-in., 4-bladed, bronze, Hyde propeller and steel shaft, included. An exact model, one-third size, of the Government tug Sotoyomo, one of the best towboat hulls experimented with at the Government experimental tank at Washington. With small modifications should make a splendid motor towboat or an excellent cruiser. Price for immediate sale, \$300. Inspectable in Boston. Apply to Massachusetts Institute of Technology, Department of Naval Architecture, Boston, Mass.

* * *

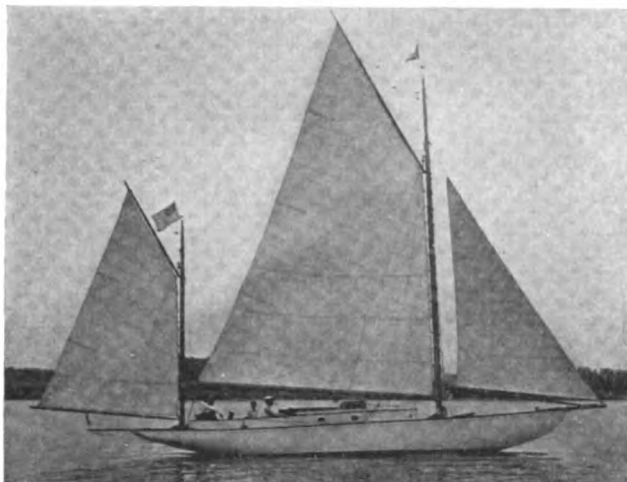
No. 12540—For Sale—Topsail sloop, 44x30x12x7.3 ft. Ferris design, Rice Bros. build; iron keel, able, fast to windward, seaworthy cruiser, wide, bright decks, self-bailing cockpit, mahogany trim, cypress interior. Two crew's berths, four berths and two transoms in cabin, full headroom, toilet room, lavatory, hanging lockers, range, 500-lb new refrigerator, gasolene and water tanks. 15-h.p. auxiliary, folding propeller, 3-h.p. tender, large equipment, yacht and inventory in excellent condition. Easily handled, economically maintained. Thoroughly cared for and must be seen to be appreciated. Inspectable near Boston. Price low. Apply to brokers.



12532



12540

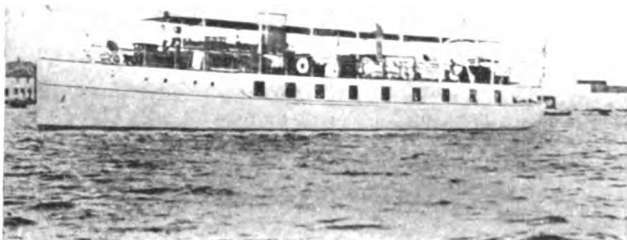


12543

No. 12543—For Sale—She is a 40-ft. o. a. auxiliary cruising yawl, only 8 years old. A creation of the Herreshoffs. Enough said. If you have been searching for a bargain, get busy and look me up for particulars. C. L. Carson, Belasco Theatre, New York City.

* * *

No. 1662—For Sale or Charter—Modern gasolene houseboat; 90x17x3.5 ft. Now in Florida waters. Speed 10 to 12 miles.



1662

Large dining saloon, smoking room, four staterooms, two bathrooms; all conveniences. Cox & Stevens, 15 William Street, New York City.



12550



12477

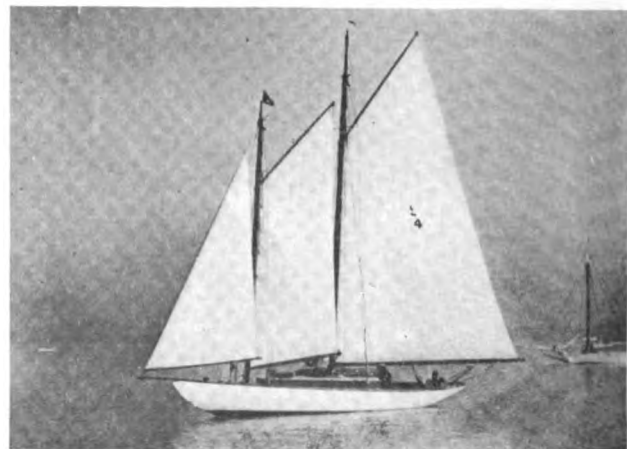
No. 12550—For Sale—Fast runabout Folome, 30 ft. o. a., 5 ft. beam; speed 23 miles. Engine, 4-cylinder, 5½x6 in. Sterling. Built by Leyare, at Ogdensburg, N. Y., for present owner. Can be inspected at Longport, N. J. Complete equipment and all in first-class condition. Apply to H. L. Hess, Jr., Bridgeton, N. J.

* * *

No. 12477—For Sale—28-ft. Racine raised deck cruiser, 7 ft. 2 in. beam, 30 in. draught. Engine, 2-cylinder, 5x6 in. Racine, 450 r.p.m.; 3-bladed 25x30 in. bronze propeller. Sleeps four persons. Strictly one-man control. Equipment: cushions, flags, canopy top, side curtains, military mast, marine lights, compass and binnacle, fog bell and horn, power bilge pump, electric lights, dynamo, storage battery, switchboard, toilet, galley, marine stove, dishrack, cupboard, anchor and line, ice-box, gasolene capacity 120 gal. (two tanks), fire extinguisher, power whistle, tank and accumulator. For sale for \$950. R. H. Hose, 450 Melville Street, Rochester, N. Y.

* * *

No. 12474—For Sale—Auxiliary schooner. Perfect single-hander. 30 ft. w. l., 41 ft. o. a., 8 ft. beam, 5 ft. 10 in. draught. Crowninshield design. Copper fastened; cedar planked; built 1912. Three berths, toilet, ice-chest, separate cabin. Fully found. Fast; sound. Two suits sails, one by Ratsey. 6,000 lb outside lead. 2-cylinder, 12-h.p. engine (under bridge deck); reverse gear; Thompson automatic feathering propeller. Bridge deck; new cockpit; copper gas and water tanks; electric lights, etc., installed 1914. Engine controls from tiller. Excellent sea-boat; sound; cruised Maine to New York. Bronze blocks; pin-rails, etc. Price, \$1,700. Speed under power 8 miles. Would consider fast power boat for Southern cruising, Hand V-bottom preferred. Inspectable here. Engine running. 30 minutes from Boston. P. O. Box 375, Hingham, Mass.



12474



12541

No. 12541—For Sale—Famous cruising cat "Twister." This well-known boat, the subject of many articles in THE RUDDER by Winfield M. Thompson, of THE RUDDER staff (see issues of April, May, 1906, and from January to September, 1914, inclusive), will be sold, with her equipment for \$600. Twister (25x10.6x23 ft.), was built in 1905 by D. Crosby & Son, Osterville. As she has always had the best of care, and has been housed eight months in every year, she is practically as sound and fully as handsome as when new. Cabin is large and very comfortable, headroom 4.6. Her sail was new in 1913, and as the boat was little used in 1914, is nearly as good as new now. Engine, 5-h.p. Lathrop, new in 1913, has been run very little. Has Schebler carbureter, silent exhaust, copper tank and Hyde wheel. Power is strictly auxiliary, sending boat from four to five miles in moderate weather. Other equipment includes: One 50-lb anchor with 80-fathom heavy rode; one 25-lb anchor and small rode; khaki sail cover; fresnal running lights; lantern; cabin lamp; green corduroy cushions, made over last year; Shipmate range and some cooking gear; grub locker; a few dishes; mop, pump, oar, boathook and boom crotch. Twister is an ideal boat for two young fellows who like cruising, or for an old boy, for that



12531

matter. Will be sold to the first man making a deposit on purchase price. Can be seen in Boston. Address Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 606—For Sale or Charter—Seagoing power yacht; 90x14.6x6 ft. Lawley-built from our designs. Speed 12 to 14 miles; Standard motor. Large accommodation includes dining saloon, three staterooms, two bathrooms, etc. Price attractive. Cox & Stevens, 15 William Street, New York City.

* * *

No. 12531—For Sale—Auxiliary yawl Idella. Combination keel and centerboard, 41x30x11.8x4.10 ft. 6,000 lb outside ballast. 1 1/4-in. full-length planking, built by Hanley. New canvas 1914, best quality 10-oz. duck, by McClellan. 2-cylinder, 4-cycle heavy-duty Jaeger engine; Apple dynamo; speed 6 miles. Everything in first-class condition. Full inventory for cruising. Refrigerator, 50-gal. water tank, toilet, stove, awning, dinghy, anchors and chain. Large roomy cabin, 6 ft. headroom; four spring berths; hair mattresses; pipe berth forward. Seen Charlotte, N. Y. Price very reasonable. Address John A. Taylor, 18 Front Street, Rochester, N. Y.

* * *

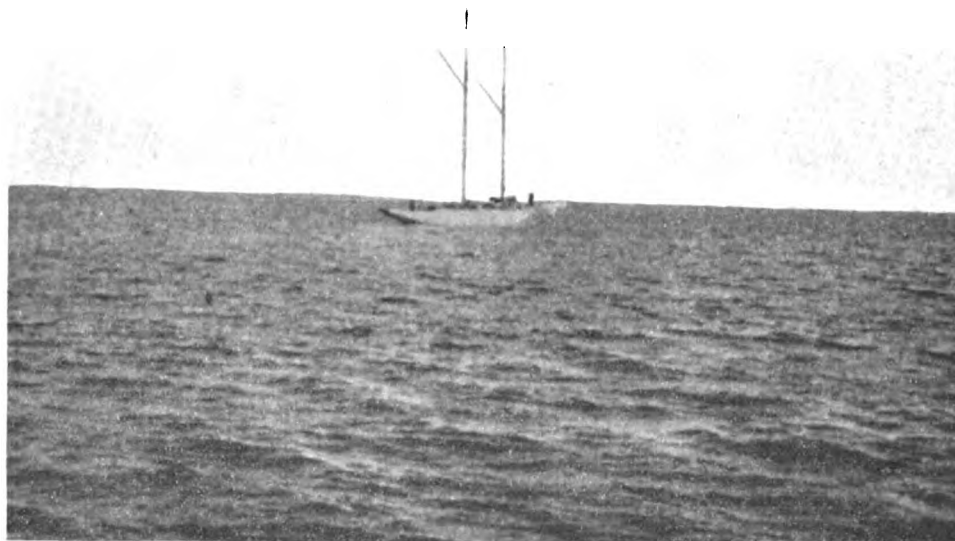
No. 12480—For Sale—21-ft. raceabout Chevy Chase, built to restrictions of that class in Buzzards Bay; first-class and complete in every respect; cedar planked; copper and bronze fastened; bronze fittings throughout; Wilson & Silsby sails, in good condition; very fast in all conditions but extremely so in medium to light; winner of three 1914 championships—Boston Y. C., North Shore and Corinthian Y. C. Midsummer Series—2nd Special Class; bright deck; cockpit finished in mahogany; owner not going to use boat 1915, and would sell at very low figure. Sails, Box 3284, Boston, Mass.



606



12480



12599

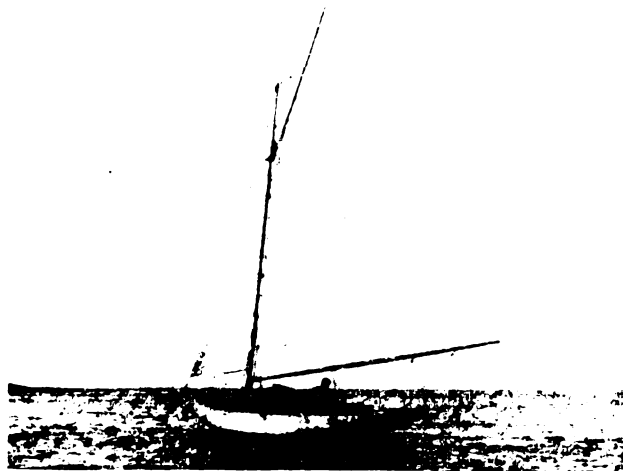
No. 12599—For Sale—Lawley-built auxiliary schooner. 68 ft. 9 in. o. a., 47 ft. 9 in. w. l., 15 ft. 6 in. beam and 6 ft. 6 in. draught. Designed by B. B. Crowninshield and built by Geo. Lawley & Son Corporation in 1910. Oak frames and hard pine planking. Copper fastened. Bright deck. 10-ft. watertight cockpit. 6 ft. 10 in. headroom in cabin, which is 14 ft. long and finished in mahogany and white. One stateroom, two toilets, and roomy forecabin. Complete suit of Cousens & Pratt sails, made in 1913. Equipped with a Lamb motor, 30-35-h.p., 1910 model, 4-cycle, 4-cylinder, 5¼x6 in. Electric lighting plant. 50-gal. gasoline tank on deck, covered with mahogany hatch, two water tanks, large capacity. 31 gross tonnage and 27 net tonnage. This is one of the finest yachts ever turned out by Lawley and has always been kept up in perfect condition. Complete cruising equipment, including two boats, one brand-new gig, handsome cushions, flags and everything necessary for a well-found yacht. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

board. 3,500 lb on keel with centerboard passing through it. Good cabin, sleeping four people. Two suits of sails, one of them as good as new, made by Wilson & Silsby. Boat is in first-class condition, as she has been well kept up. New tender dory, two anchors and cables, hair cushions and sweep, etc. Sacrifice price of \$250. Can be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

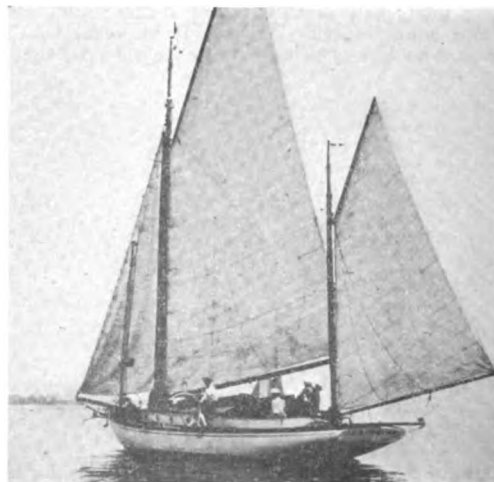
* * *

No. 12584—For Sale—A dandy 21-ft. w. l. sloop, 33 ft. o. a., 8 ft. beam and 3 ft. 6 in. draught. Combination keel and center-

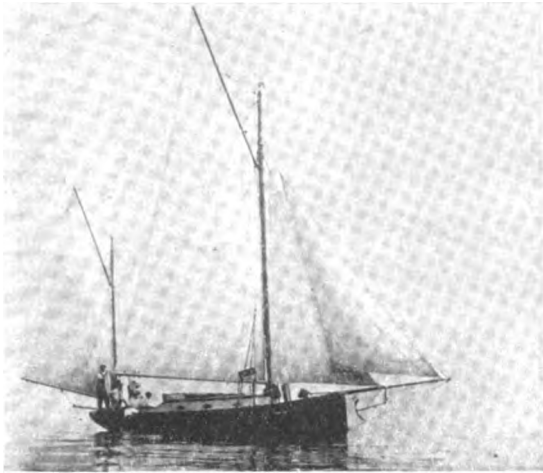
No. 12575—For Sale—Auxiliary yawl, 37 ft. 6 in. o. a., 26 ft. w. l., 11 ft. 6 in. beam, and 4 ft. draught. 5,000 lb of outside ballast on keel with centerboard passing through it. 5 ft. 10 in. headroom in cabin. Four berths with springs and hair mattresses and transoms in front. Toilet room with closet and wash bowl piped to water tank. This splendid cruising boat was built by Crosby at Osterville, Mass., and is in excellent condition. 10-h.p. Vulcan (1913) motor, giving speed of 7 miles an hour under power alone. Complete equipment, including tender. This very desirable boat can be purchased at an attractive price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12584



12575



12555

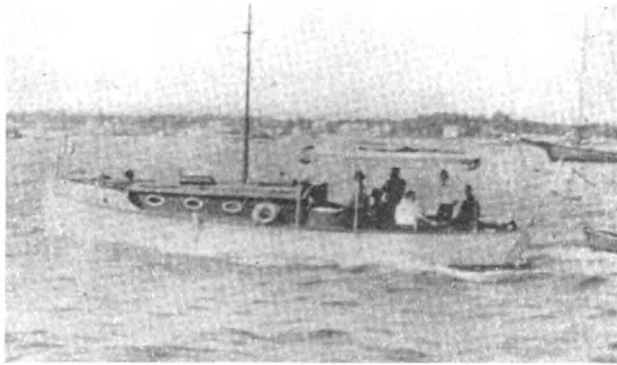
No. 12555—For Sale—Bargain price of \$450. 30-ft. w. l. keel yawl, 34 ft. o. a., 13 ft. beam, and 5 ft. 6 in. draught, 5 ft. 10½ in. headroom. 4,000 lb outside ballast, 1,000 lb inside ballast. Roomy cabin with two double berths and one single. Sands' toilet. Berth forward. Complete cruising equipment, including tender, cushions, cooking utensils, dishes, lights, two anchors and cables, curtains, rugs, etc. Sails new in 1911. This boat was burnt off last Spring and all seams were carefully calked so that she is perfectly tight. This is one of the best yawls of her size and type in Boston waters. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Room 45, Boston, Mass.

No. 2662—For Sale—Keel cruising auxiliary sloop yacht; 40 ft. o. a., 33 ft. w. l., 12 ft. beam, 6.6 ft. draught. Cabin accommodates four to six persons; 6.6 ft. headroom; toilet room, etc. Speed under power 8 miles; 18-h.p., 3-cylinder Stand-



2662

ard motor, installed under cockpit floor. Sails by Wilson & Silsby, new August, 1913. Exceptionally able craft in first-class condition; thoroughly overhauled in 1913. Price very low. Apply to Cox & Stevens, 15 William Street, New York City.



7926

No. 12576—For Sale—Beautiful Herreshoff 21-footer, 31.9x 21x7.9x5.6 ft. Built in very best manner, sound and tight, double planking, brass screws. 3,500 lb lead outside. Uncap-sizable; watertight cockpit; mahogany finish. Nice cabin. Ex-ceptionally fast and able. Splendid simple handler and easy steerer. A very high-grade boat. Complete outfit. Will be sold less than third of her cost. Hauled out in Boston. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

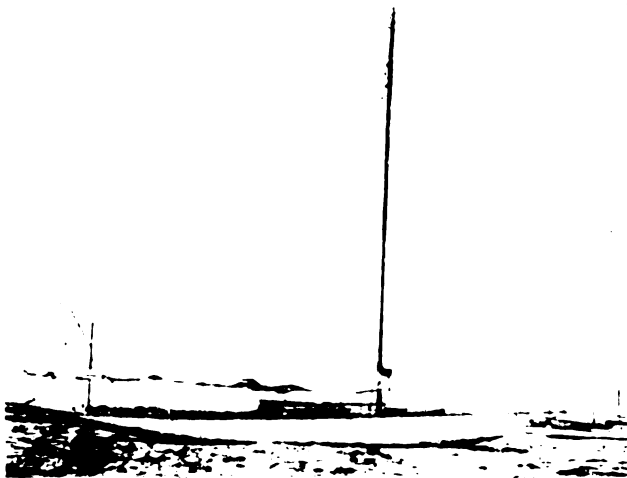
No. 7926—For Sale—Raised deck cruiser, 33 ft. 6 in. o. a., 8 ft. 4 in. beam. Large cabin; toilet; galley. 18-h.p., 4-cycle motor; speed 10 miles per hour. Completely equipped, includ-ing tender. Thoroughly overhauled 1914, including new decks. Whole outfit in first-class condition. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

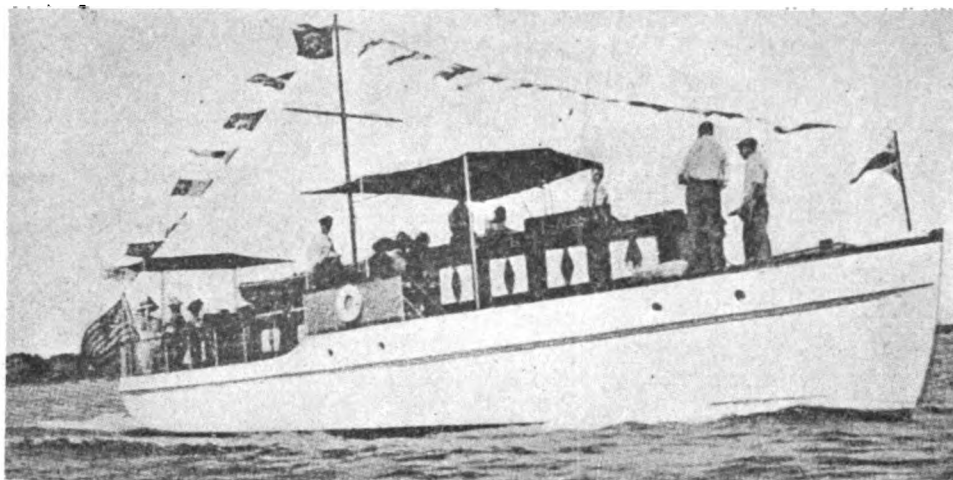
No. 2829—For Sale—Lawley-built keel and centerboard auxil-iary schooner yacht; 76.6 ft. o. a., 54.6 ft. w. l., 17.4 ft. beam, 7.3 ft. draught. Excellent sea-boat. Located on Great Lakes. One double and three single staterooms, large saloon, two toilets, etc. Interior finish butternut and mahogany. Ratsey sails. Speed under power 6 miles. Has been kept in first-class con-dition by owner, a well-known yachtsman. Price attractive. Apply to Cox & Stevens, 15 William Street, New York.



2829



12576



12572

No. 12572—For Sale—The finest 51-ft. motor boat in Boston waters. 11 ft. beam, 4 ft. draught. Built in 1912 from designs of William J. Deed, Jr. Equipped with a 4-cylinder, 30-40-h.p. Murray & Tregurtha motor. Roomy cabin with 6 ft. 6 in. headroom, finished in mahogany throughout. Two staterooms. Built in the strongest possible manner with hard pine planking, white oak frames and copper fastenings. Electric lighting plant. Tender on davits. Very light and well ventilated cabin. Two awnings. Completely equipped with cushions, lights, binnacle, flags, cooking utensils, dishes, carpets, etc. Good-sized toilet room. Berth for engineer. This boat is very steady in rough weather and is a fine boat for a long cruise or on which to spend the Summer. In perfect condition throughout. Can be purchased at a very reasonable figure. May be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12530—For Sale—Raised deck cruiser, 33 ft. long. Designed by Gielow, of New York, and built under his personal supervision for present owner. Copper fastened throughout. Completely found and furnished. Tanks and plumbing by Sands. Upholstery and hangings by Fogg. Twin-screw engines, built and installed under special specifications by Lathrop, of Mystic. Speed 9 miles. Cockpit staving, seats, and all trim, mahogany, including cabin. Owner has purchased larger boat. Apply by letter or telephone to Professor Harold Jacoby, Columbia University, New York City.

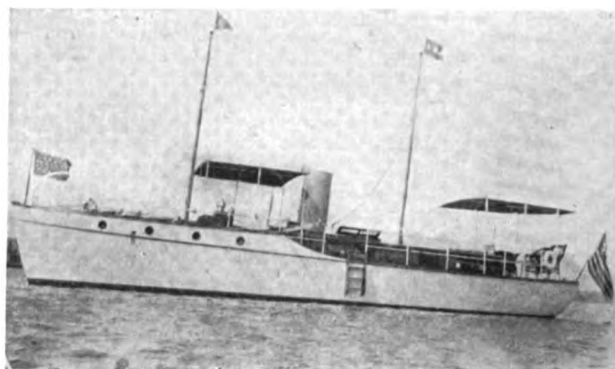
* * *

No. 1305—For Sale—Bridge deck cruiser; 50x10.9x3.6 ft. Speed 11 to 12 miles; 25-35-h.p. Standard motor. Double stateroom, saloon, etc. Handsomely finished in African mahogany.



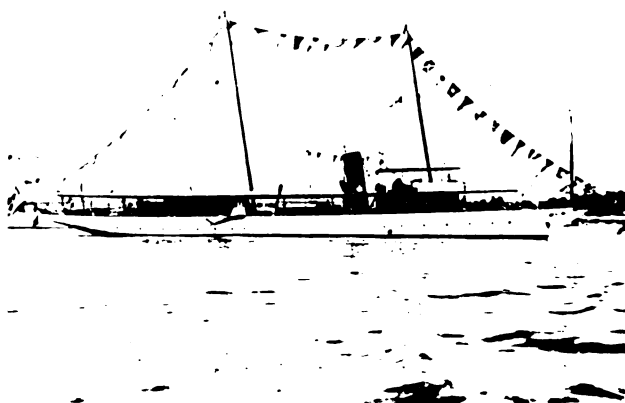
12530

Price very low. Cox & Stevens, 15 William Street, New York City.

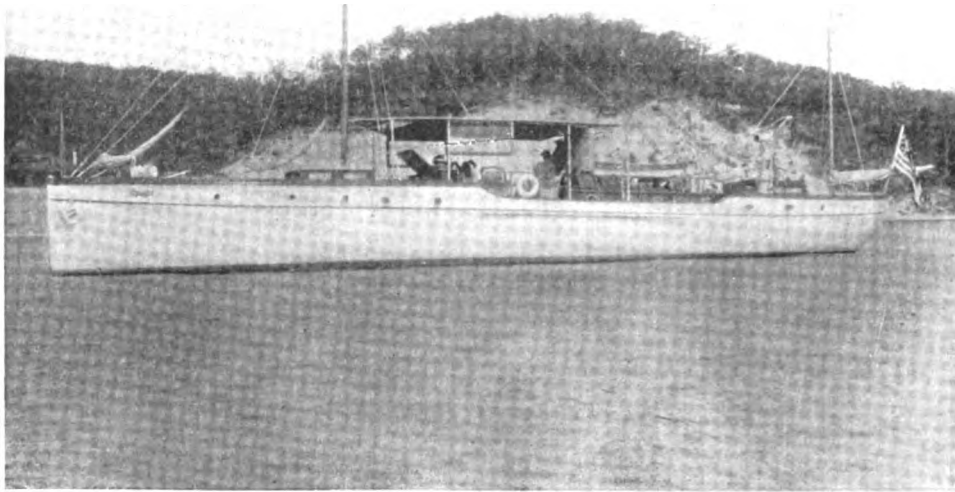


1305

No. 478—For Sale—Handsome, fast steel steam yacht; 142 ft. o. a., 115 ft. w. l., 15 ft. beam, 8 ft. draught. Speed, 12 to 16 knots; triple-expansion engine; Almy water-tube boiler. Dining saloon and social hall on deck; three double and two single staterooms, bath, three toilets, etc. Handsomely fitted and furnished. Steam heat; electric lights. Low figure considered, as owner has gasoline yacht. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York City.



478



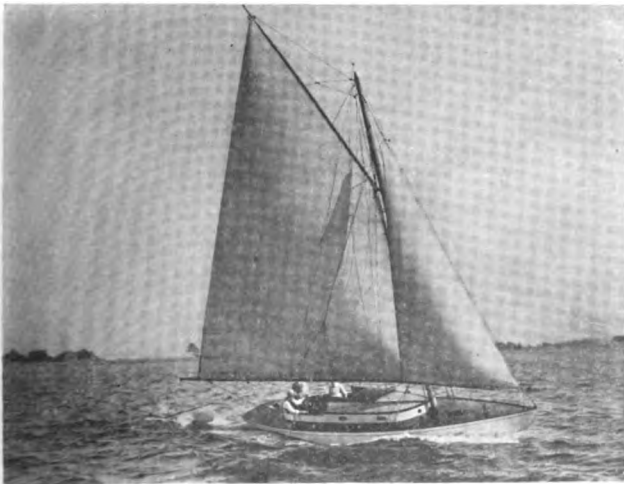
10843

No. 10843—For Sale—Best and most comfortable cruising yacht of her class built; 73x13.10x4.6; fine sea-boat, extra strong construction. Teak deck trim, mahogany cabin, white and mahogany staterooms. Twin-screw, two Murray & Tregurtha 30-40 engines. Engine control on bridge deck. Cruising speed 12 miles. Auxiliary engine, driving dynamo, force and bilge pump, power windlass for anchors and power capstan for hoisting davit boats. One man can hoist boats, anchor, and get underway alone if necessary. Storage battery and complete electric lighting plant. Two large double staterooms, bathroom, two toilets and lavatories forward, running hot and cold water. Dining saloon (two extension transoms), galley and crew's quarters aft of midship lounge and bridge deck. Latter can be completely enclosed in bad weather by folding sash and storm cloths—as good as glass deckhouse, without its disadvantages. Fine cedar and mahogany power launch. Full suit sails and covers, double awnings, and complete outfit. In first-class order throughout; used just long enough to put in perfect working shape by the best of skilled care. Inspectable New York. Any broker, or owner, W. H. B., 22 Lakeview Park, Rochester, N. Y. If not sold will charter all or part of season.

No. 12554—For Sale—Cruising knockabout, Lawley-built. 32 ft. o. a., 21 ft. w. l., combination keel and centerboard, draught about 3 ft. 6 in. without board; all outside lead ballast; in excellent condition, varnished deck, mahogany trimmed, toilet, water tank, ice-chest, and full cruising inventory, including cushions, awning, sailing and riding lights, anchors, rodes, binnacle, etc. This is one of the largest and best-handling 21-ft. knockabouts afloat, an exceptionally good sea-boat. Can be inspected in Boston. J. F. Hyde, 383 Washington Street, Boston, Mass.

* * *

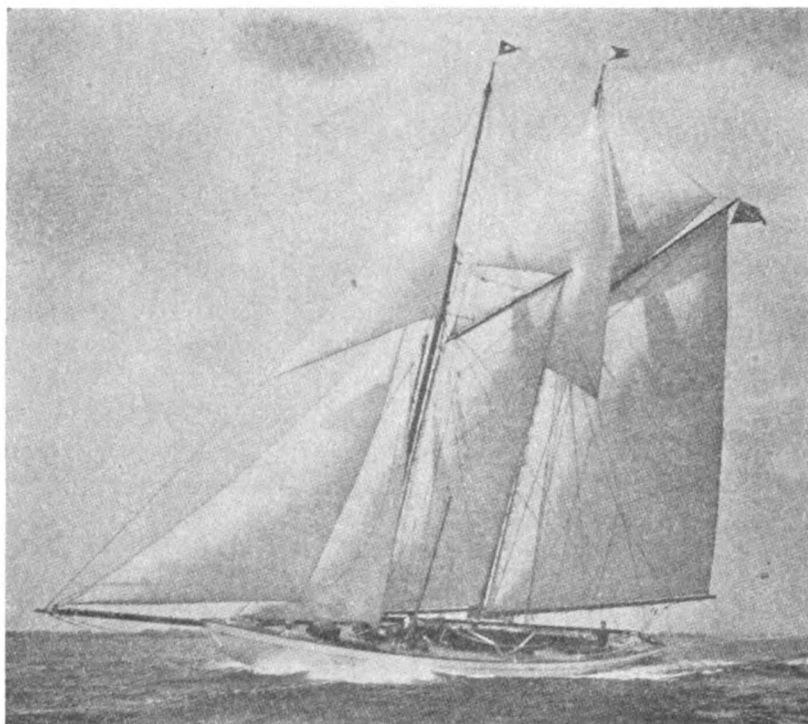
No. 12563—For Sale—35 ft. w. l. sloop, 42 ft. o. a., 12 ft. beam, 7 ft. 8 in. draught. Very heavily constructed. 6 tons outside ballast. Roomy cabin with full headroom. One stateroom. New sails, 1912. Complete cruising equipment, including 12-ft. round-bottom tender, brass cannon, dishes and cooking utensils, lights, hair cushions, 32-gal. water tank, etc. This is an unusually able seaworthy craft and is a splendid boat on which to spend the Summer. Can be seen at Portland, Me., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12544



12563



12551

No. 12551—For Sale—44-ft. w. l. auxiliary schooner yacht. 65 ft. 5 in. o. a. length, 14 ft. 4 in. beam, and 9 ft. draught. Designed and built by George Lawley & Son Corporation at South Boston, Mass., in 1905. Gross tonnage 25, net tonnage 15. Has two 1914 7½-h.p. Knox motors installed under cockpit floor, which are entirely out of sight and drive her at good speed under power alone. Very handsome cabin finished in mahogany throughout with attractive lockers, bureaus, etc., 6 ft. 6 in. headroom. Two very large staterooms. Sails made by Ratsey in 1910, 1,940 sq. ft. in area and in perfect condition. Outside lead ballast. Roomy watertight cockpit. Carries two boats on davits. This is one of the very best yachts ever turned out by Lawley, as she is beautifully built, speedy and can be handled with a small crew. Her equipment is complete to the last detail and she can be put in commission in the Spring at practically no expense. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

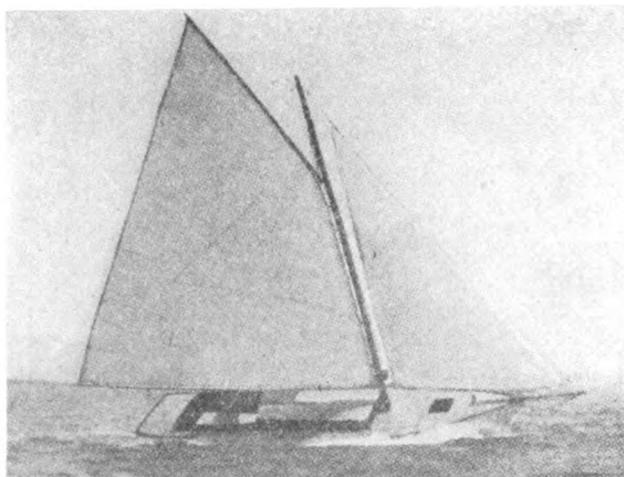
* * *

No. 12589—For Sale—Fast single-hander. 30 ft. o. a., 26 ft. w. l., 8 ft. beam and 5 ft. 3 in. draught. Rates in Class Q, Universal Rule. Very well constructed with cedar planking and

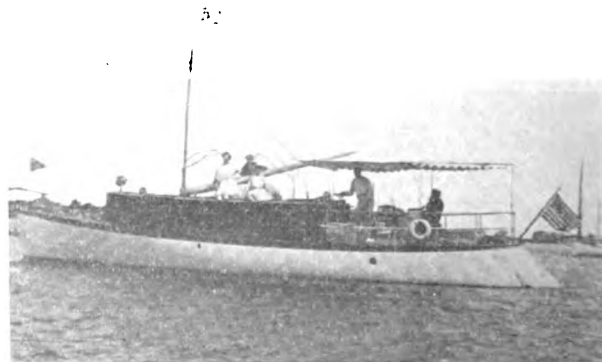
copper fastening. 3,500 lb of lead on keel. Mahogany house and trimmings throughout. Good cabin, with 5 ft. headroom. New suit of sails made by Wilson & Silsby in 1914. Handsome green cushions. Ice-chest, stove, cooking utensils, etc. 8-ft. watertight cockpit. An ideal boat for boy or girl to learn to sail in as she is very easy to handle and uncapizable. Cost over \$2,000, and a sacrifice price of \$800 takes her. Can be seen at Buzzards Bay by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

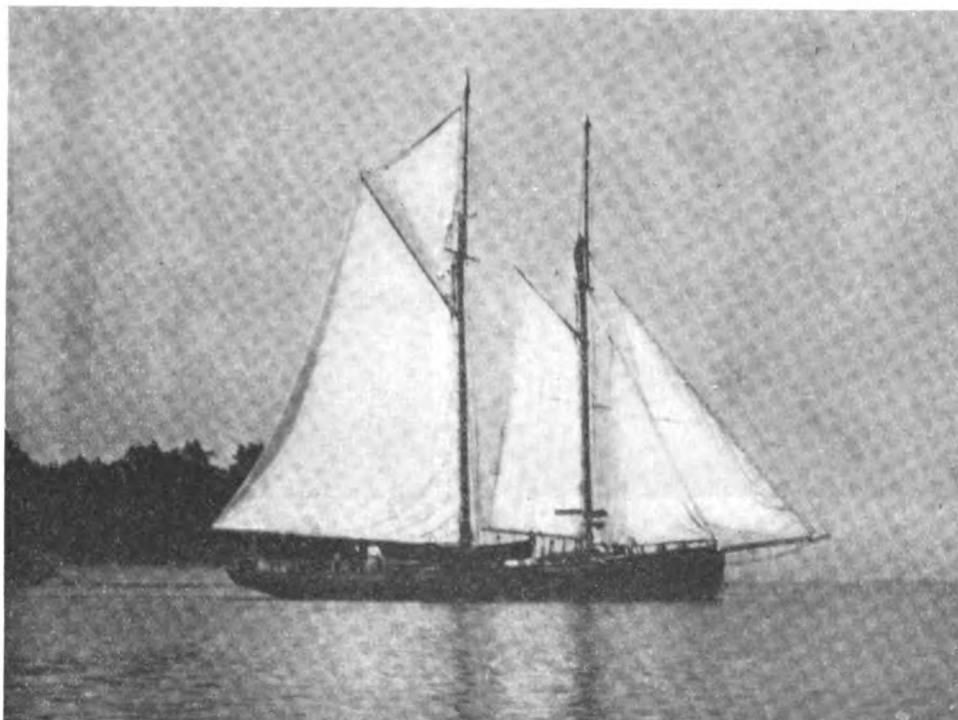
No. 12579—For Sale—Genuine bargain. 45-ft. gasolene launch, 8 ft. beam, 2 ft. 11 in. draught. Designer and builder, Murray & Tregurtha Co., at South Boston, Mass., in 1905. 3-cylinder, 4-cycle, Murray & Tregurtha motor. Roomy cabin and large watertight cockpit, covered by full-length awning. Complete equipment, including tender, searchlight, cushions, flags, etc. A splendid boat for Southern cruising, as her draught is moderate and the cabin windows afford perfect ventilation. Has always been kept up in perfect condition. Sacrifice price, \$1,000. Can be seen at Fall River, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12589



12579



12069

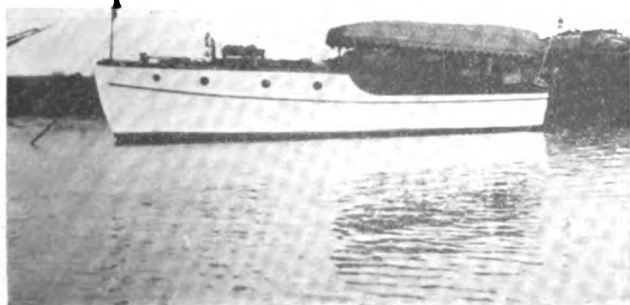
No. 12069—For Charter—For the entire season or any part of it, 49-ft. w. l. auxiliary schooner yacht; 62 ft. o. a., 14 ft. 2 in. beam, 7 ft. 6 in. draught. Built in 1904 on the lines of a Gloucester fishing vessel, the ablest type of cruiser known. Heavily built. Large forecabin. Very large cabin with three double staterooms and transoms in front, four double berths in cabin. Two Knox motors under cockpit, which can drive her 8 miles an hour under power alone. 7 ft. headroom. Big toilet room. Shipmate range. Sails made by Cousens & Pratt, in 1912. Carries three boats on davits, one a power tender. New khaki covers for sails and hatches, and new khaki full-length awning. Spars, blocks, hatches, rails and all bright work scraped during this Winter. Everything both above and below decks in first-class condition. This yacht has cruised to Labrador and all along the Atlantic Coast, and is fit to sail around the world if desired. Can be chartered at a reasonable figure or purchased for \$3,500. Inspectable in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

from designs of William Deed. 16-24-h.p. Murray & Tregurtha 1913, 4-cylinder, 4-cycle motor. Cruising speed, 9 miles an hour. 16-ft. cabin with full headroom. 12-ft. watertight cockpit. Two 30-gal. gasolene tanks and 25-gal. water tank. Electric lights. Complete cruising equipment, including tender. Heavily built, staunch and seaworthy, and an admirable family cruiser. This boat is a genuine bargain. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

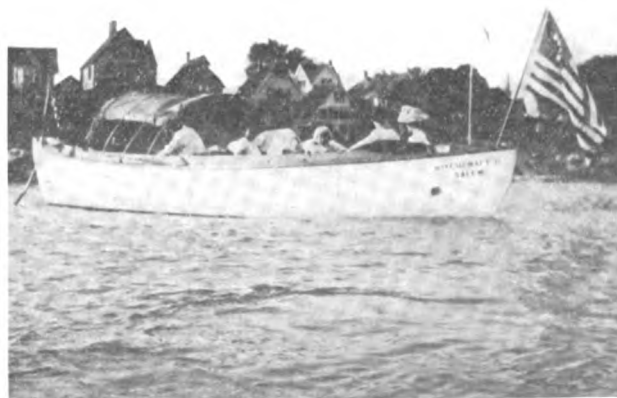
* * *

No. 12559—For Sale—30-ft. cabin cruiser, 8 ft. beam, 2 ft. 6 in. draught. Built in 1912 by Holler at Dorchester, Mass.,

No. 12070—For Sale—Attractive open motor boat, with awning top; 28 ft. 6 in. long, 7 ft. beam, 2 ft. 6 in. draught. Very strongly constructed. Equipped with a 2-cylinder, 4-cycle, 10-h.p. Ralaco motor, which gives her a speed of 9 miles an hour. Seats fourteen people comfortably. Very complete equipment, including Badger fire extinguisher, Chase leather cushions, side lights, inlaid linoleum carpet, nickel-plated fittings, mahogany backboard, flags and flagpoles and all equipment required by Government. Built for use around Marblehead, where rough water is often encountered, and is an ideal boat in a heavy sea. Inspectable in Marblehead by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12559



12070



12539

No. 12539—For Sale—Unusual bargain. Keel cruising auxiliary schooner, 90 ft. o. a., 68 ft. w. l., 19 ft. beam, 9 ft. draught. Flush deck and cockpit. Two double and one single stateroom; large saloon, bath, two toilets, etc. Speed under power 7 miles. 25-35-h.p. Standard motor. Ratsey sails. Fully equipped and found in every particular. In excellent condition, having had the best of care. Very able and comfortable. Rice Brothers Company, East Boothbay, Me.

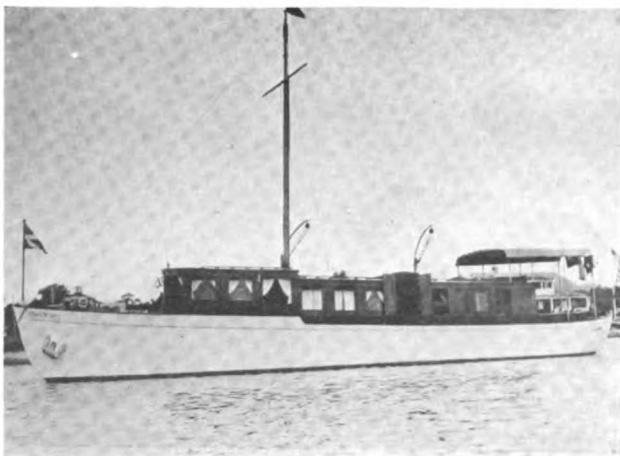
* * *

No. 1526—For Sale—Very able, twin-screw power yacht; 75 x14x6 ft. Recent build. Very heavily constructed; splendid sea-boat. Speed 11½ miles. Two staterooms, large saloon,

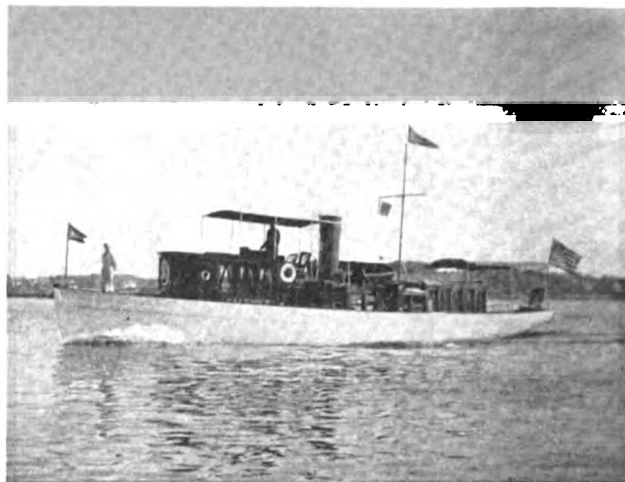


1526

bath, electric lights, etc. Large deck space. Price attractive for immediate disposal. Cox & Stevens, 15 William Street, New York City.



12557



12564

No. 12557—For Sale—Very attractive motor boat. 45 ft. 2 in. o. a., 41 ft. w. l., 9 ft. 3 in. beam and 3 ft. draught. Built in 1909 by E. H. Brown, of Taunton, Mass., from designs of F. D. Lawley. 16-h.p., 2-cylinder, 4-cycle Standard motor. Fine cabin 25 ft. long with 6 ft. 3 in. headroom. Beautifully finished in mahogany. Sleeps four people comfortably in main cabin and one more in engine room. Complete cruising equipment, including tender. 150-gal. gasoline tank and 75-gal. water tank. Just the boat for Southern cruising on account of light draught of 3 ft. Can be seen at Taunton, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

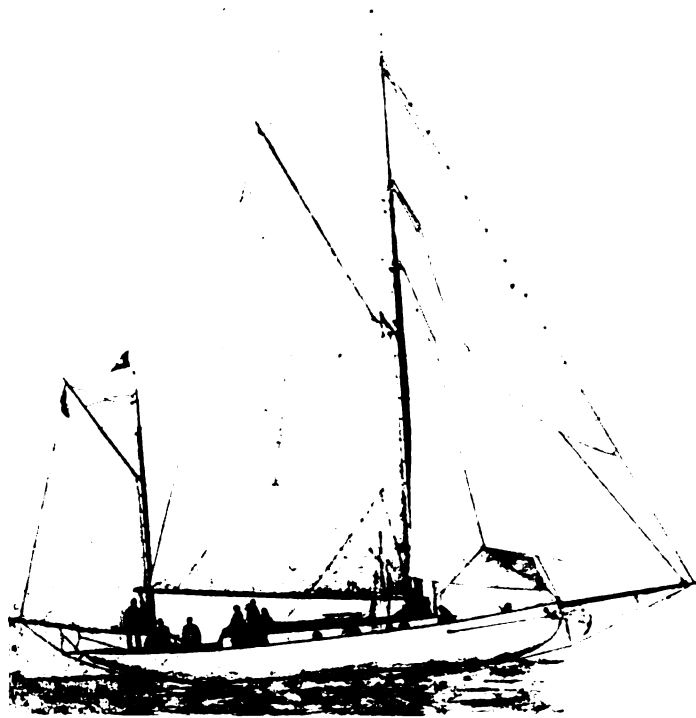
No. 12564—For Sale—Very attractive steam launch, 60 ft. o. a., 50 ft. w. l., 11 ft. beam, 3 ft. 10 in. draught, designed by Crowninshield and built by Rice Brothers at East Boothbay, Me., in 1902. Equipped with a 75-h.p. Seabury engine, 6x13x8, in 1911. Orr & Jennings boiler. Speed, 10 miles an hour. Electric lights throughout. Comfortable cabin with one stateroom, all finished in mahogany. Complete cruising equipment. This boat is in the very best of condition and has always been well cared for. She is one of the best steam launches of her size ever built and can be purchased at a reasonable figure. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12478—For Sale Cheap, or Charter—Steam yacht Endion, built by Seabury, 103x14 ft., draught 5 ft. Electric light, storage batteries and searchlight. One naphtha launch and two boats, good speed. Address Chas. J. Donnelly, McCormick Building, Chicago, Ill.



12478



12481

No. 12481—For Sale—Auxiliary yawl. Combination. 53 ft. o. a., 14 ft. 7 in. beam, 5 ft. draught, without board. Full headroom. Two staterooms; large cabin, seat ten at table; running water all over the boat; very large ice-chest. This boat is one of the finest constructed on the Atlantic Coast. Double planked, copper fastened; Victor bronze trimmings throughout; teak decks, natural teak inside; two tenders; three anchors and cables. Sails in A-1 condition. The boat is in as fine condition as the day it was launched. 2-cylinder, 18-h.p. Barbour motor, run less than 300 miles. Well found in everything. This boat could not be duplicated for \$10,000. No better sea-boat on the coast. Will sell at a bargain, as owner has moved West. Can be seen at Crandall's Boat Yard, Pawtuxet, R. I. For further particulars address W. E. Taft, 117 Sycamore Street, Providence, R. I.

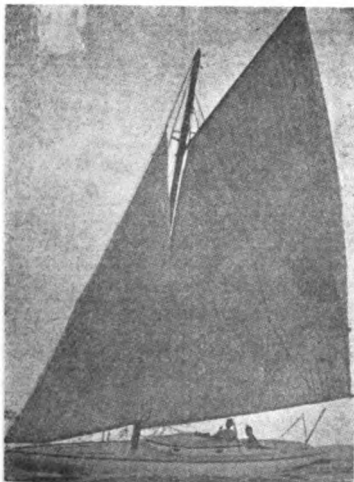
* * *

No. 12570—For Sale—21-ft. w. l. sloop, 34 ft. 4 in. o. a., 9 ft. beam and 4 ft. 6 in. draught. 2,500 lb of lead on keel with centerboard passing through it. Beautifully built and only four

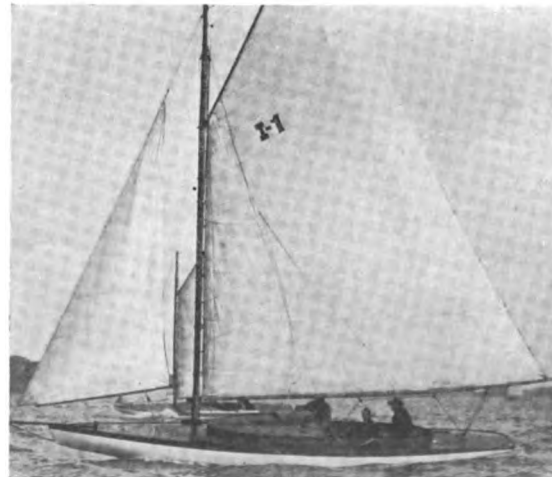
years of age. Two suits of sails made by Wilson & Silsby, 600 sq. ft. in area, one new in 1910, the other in 1911. Built for the Buzzards Bay 21-ft. Cabin Class. Very fast and a splendid boat for afternoon sailing or cruising. This is an ideal boat for racing on Long Island Sound or Massachusetts Bay. Can be seen at Monument Beach, Buzzards Bay, by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12565—For Sale—18-ft. w. l. cabin sloop, 31 ft. o. a., 7 ft. 6 in. beam, 3 ft. draught. Designed and built by George W. Shiverick at Kingston, Mass., in 1902. 1,700 lb of lead on keel with centerboard passing through it. 8-ft. watertight cockpit. Good cabin with two transoms. Two suits of sails, 450 sq. ft. in area. Cedar planked and copper fastened. Easy to handle, fast and able. An ideal boat for a boy or girl to sail, as she is uncapizable and perfectly safe. This fine little craft can be purchased for the bargain price of \$350. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



12570



12565



12592

No. 12592—For Sale—Moderate draught 21-ft. w. l. sloop, 36 ft. o. a., 9 ft. 3 in. beam and 3 ft. 4 in. draught. Designed by E. A. Boardman and built by T. L. White, at Manchester, Mass., in 1903. Combination keel and centerboard. 3,500 lb of outside lead ballast with centerboard passing through it. Comfortable cabin with transoms, 7x4 ft. 40-lb ice-chest, toilet, stove, and berth forward for man. Good tender. Wilson & Silsby sails, 600 sq. ft. in area. Very complete inventory, including blankets, cooking utensils, dishes, cushions, lights, awning, charts, binnacle, etc. Cost \$3,200. \$900 takes her. Laid up at Buzzards Bay. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 885—For Sale or Charter—Exceptionally handsome, fast, steel, twin-screw cruising power yacht; 118x16.6x5 ft. Built from our design. Speed up to 18 miles; three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.;

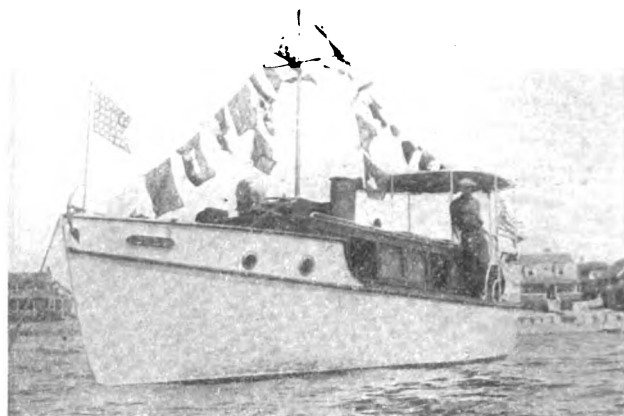


885

handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William Street, New York City.



12573



12591

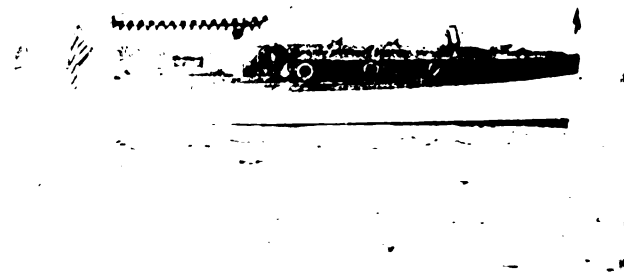
No. 12573—For Sale—Fast 22-ft. w. l. keel cabin sloop, 38 ft. o. a., 6 ft. draught, 10 ft. beam. Built in 1904 from designs of Small Brothers. Good cabin with 5 ft. headroom. 3,000 lb of lead on keel. Cousens & Pratt sails, 900 sq. ft. in area. Mahogany trimmings throughout. Bronze blocks. Plow steel rigging. Hollow spars. 8-ft. watertight cockpit. Well constructed, with cedar planking, copper fastenings and white oak frames. One of the fastest boats of her size ever built and Champion of the Massachusetts Bay 22-ft. Cabin Class in 1904. A good cruiser and ideal for day sailing on account of her ease of handling. Exceptional bargain. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

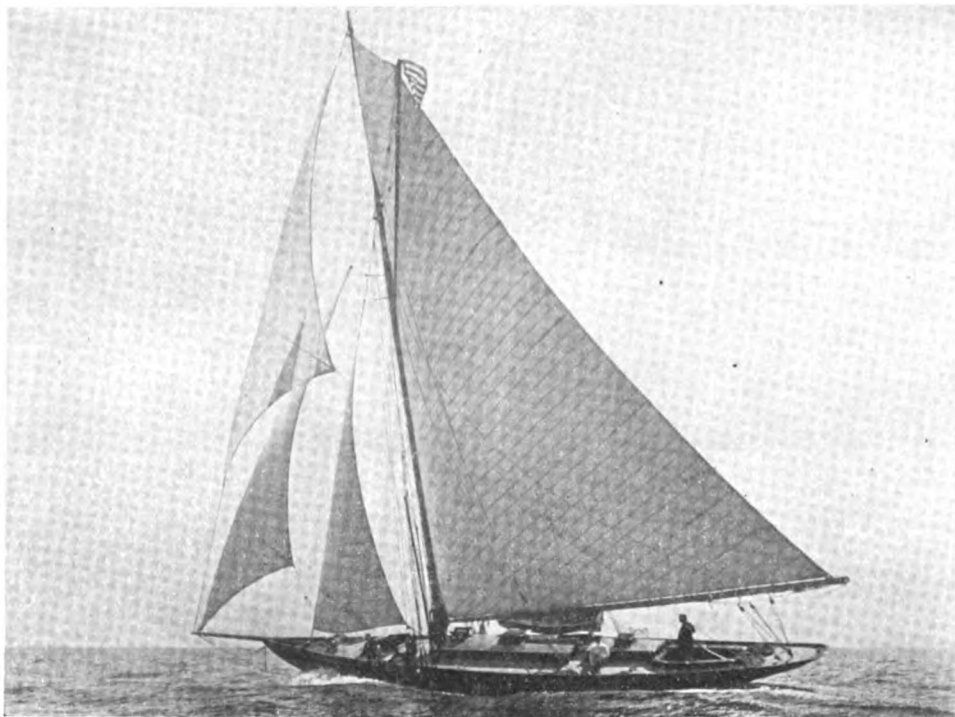
No. 12591—For Sale—Very attractive motor boat. 33 ft. 6 in. o. a., 9 ft. beam and 3 ft. 6 in. draught. Built in 1911. Has a 4-cylinder, 4-cycle, 24-40-h.p. 1912 Loew-Victor motor. Roomy cabin with 6 ft. 4 in. headroom. Stateroom forward, sleeping two. Toilet room aft. Electric lights. Very well constructed. Complete cruising equipment, including tender, lights, cushions, cooking utensils, etc. Well ventilated cabin with large windows. Awning over cockpit. A splendid sea-boat and very comfortable as her wide beam makes her extremely steady. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 7627—For Sale—Raised deck cruiser, 35 ft. o. a., 9 ft. beam, 2 ft. 6 in. draught. Two cabins berth four people. Toilet room. Headroom 6 ft. New 16-h.p., 4-cycle motor installed 1914. Speed 9 miles per hour. Complete inventory, including tender. Exceptionally able sea-boat, capable of coast cruising. Inspectable near New York. For further particulars, address Stanley M. Seaman, 220 Broadway, New York City.



7627



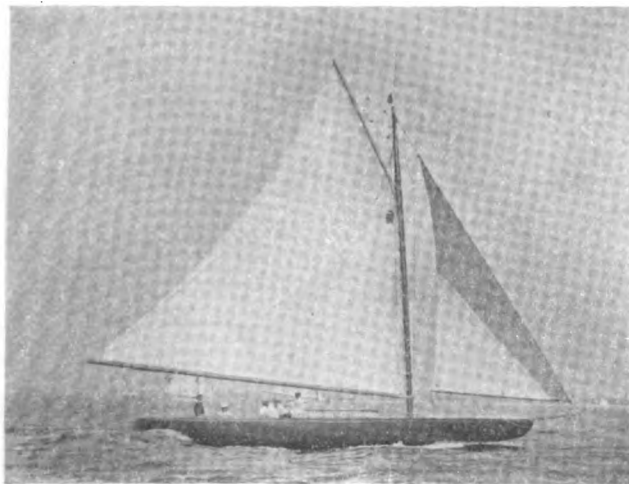
12600

No. 12600—For Sale—Keel cruising sloop. Gross tonnage 22, net tonnage 19. 62 ft. o. a., 41 ft. w. l., 13 ft. 6 in. beam and 8 ft. 3 in. draught. Built in 1910 by Lawley from designs of Crowninshield. Exceptionally well constructed, as she is double planked, with outside planking of mahogany. White oak frames and copper fastenings. Very handsome white pine deck. 17,900 lb of outside lead ballast on keel and 2,000 lb inside lead ballast. Mahogany house and deck trimmings throughout. Roomy cabin with 7 ft. headroom, beautifully finished in mahogany and white. Large double after stateroom. Hollow spars. Cousens & Pratt sails, 1,920 sq. ft. in area, good as new. Cabin and stateroom well lighted by skylights and ports and each have separate lavatory and toilet, also two berths in cabin and two in stateroom. Three extension transoms, three berths forward for crew. Acetylene lights. Crew's toilet forward. Carries two boats on davits, one a 13-ft. motor tender. Ample room to install an auxiliary motor if desired and keel has been bored for this purpose when boat was built. Fast, able and seaworthy. Cost about \$17,000, and is altogether the best built, best arranged and most completely equipped boat of her size and type on the coast. Inspectable in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 2053—For Sale—Centerboard sloop with Summer cabin; one of the best and fastest boats on Great South Bay. Designed by Crane and built by Wood. Double planked mahogany construction; 3,500 lb outside lead. Dimensions, 43 ft. on deck, 26 ft. w. l., 13 ft. beam and 3 ft. draught. Splendid day sailer. Frank Bowne Jones, Agent, 29 Broadway, New York City.

* * *

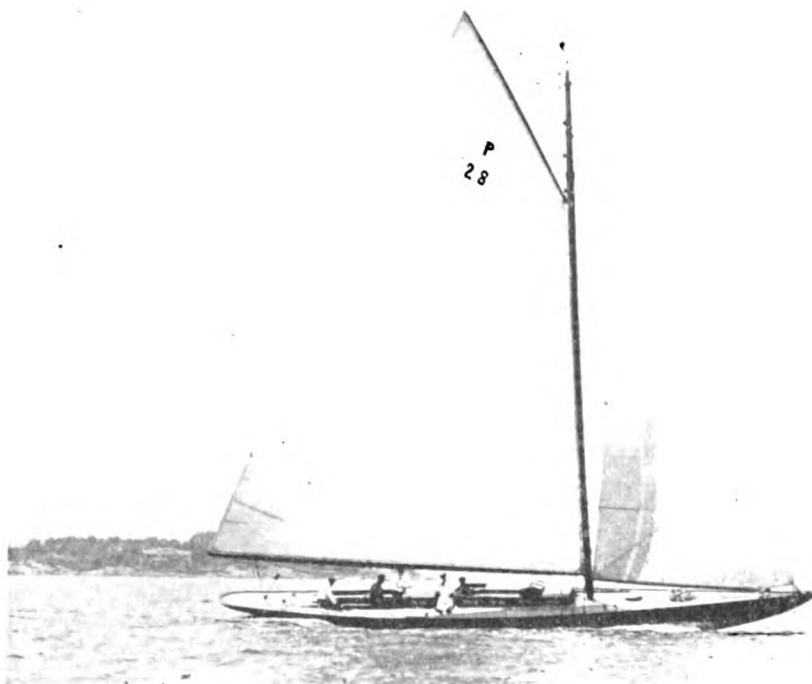
No. 12593—For Sale—Exceptionally roomy and able centerboard auxiliary cruising yawl. 45x30x12.7x3.5 ft. Designed by Small Brothers. Four large cabin bunks, besides transoms and forward bunk. 6.2 ft. headroom. Finish white and mahogany; new toilet, wash-basin with running water, copper sink, very large refrigerator, wine locker, book case over engine, silver locker, oilskins closet. Complete outfit, china, glass, silver, kitchen utensils, blankets, linen, two box-spring mattresses. All lights. Three anchors, chain and hand-tarred storm hawser. Able dinghy. Cockpit cushions. Mahogany rail. All outside finish mahogany. Six open portholes. Speed—six miles under engine. Can be seen near Bar Harbor, Me., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



2053



12593



1209

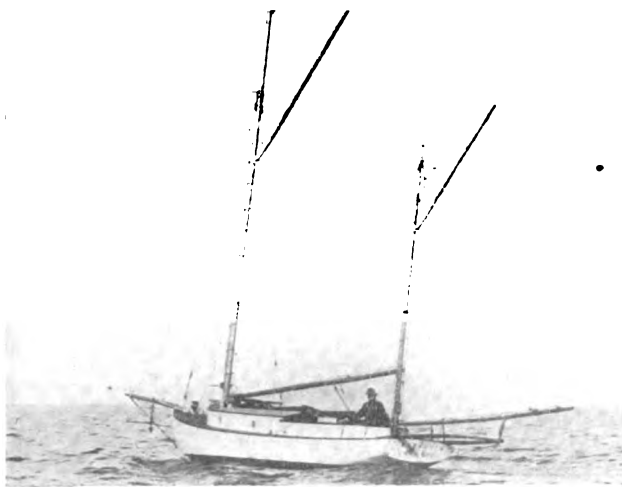
No. 1209—For Sale—Crack Class P boat. 55 ft. o. a., 35 ft. w. l., 10 ft. 8 in. beam, 7 ft. draught. Designed by Owen, built by Hodgdon Bros. in 1913. Double planked with Spanish cedar, about 6 tons outside lead ballast. Has excellent accommodations, consisting of stateroom aft with two berths, roomy main cabin with two berths, large galley and toilet room. Very handsomely finished in white enamel paneled and mahogany. Is in most exceptional condition throughout and completely equipped for cruising. With slight alteration made Fall 1914, great improvement was shown and boat is probably a match for any in this class. Two suits of sails, one used very little, cedar tender, etc. Apply John G. Alden, 131 State Street, Boston, Mass.

No. 12558—For Sale or Charter—Auxiliary yawl. 34 ft. o. a., 25 ft. w. l., 10 ft. 6 in. beam and 5 ft. draught. Has 7-h.p. Bridgeport motor, which can drive her 6 miles an hour under power alone. Roomy cabin with 5 ft. 10 in. headroom. Extension transoms comfortably sleeping four people. Pipe berth forward. Toilet room aft. Complete inventory, including transom cushions, Shipmate range, brass sailing lights, awnings,

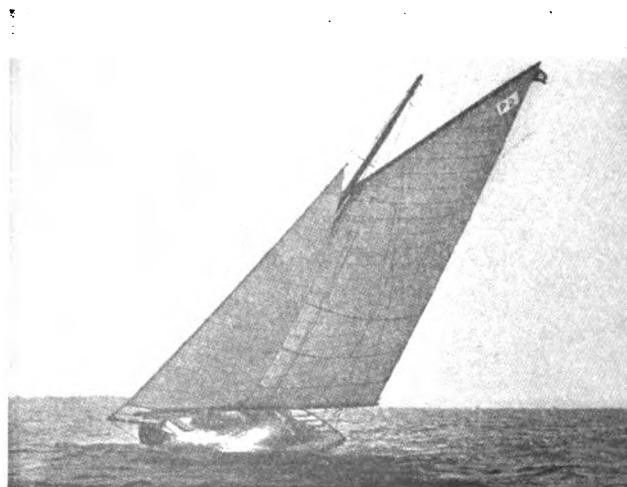
5-in. compass, 70-lb ice-chest, cooking utensils, china ware, etc. A perfect single-hander. Has cruised extensively along the New England Coast with great comfort. Good sea-boat and very stiff. Can be chartered in commission at Boston for \$35 a week, or \$150 a month. Sale price \$1,100. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 10594—For Sale Cheap—Very fast and able Massachusetts Bay 22-footer, Medric II, designed by Small Brothers, and built by Hodgdon Brothers in 1905. 38 ft. o. a., 22 ft. w. l., 10 ft. beam, 6 ft. 7 in. draught (keel). Well constructed, copper fastenings, oak frames, etc. Outside lead ballast with bronze sheathing. Good headroom in cabin. Wilson & Silsby racing sails, 900 sq. ft. Also full set light sails. Hollow spars. Comfortable craft. Full cruising equipment. Winner of great many first prizes. Champion Class P, N. B. Y. R. A., 1910. In commission 1914. In first-class condition. Fastest boat of her size and type afloat. Under shed at Nock's, East Greenwich, R. I. Apply to Walter B. Frost, 42 Weybosset Street, Providence, R. I.



12558



10594

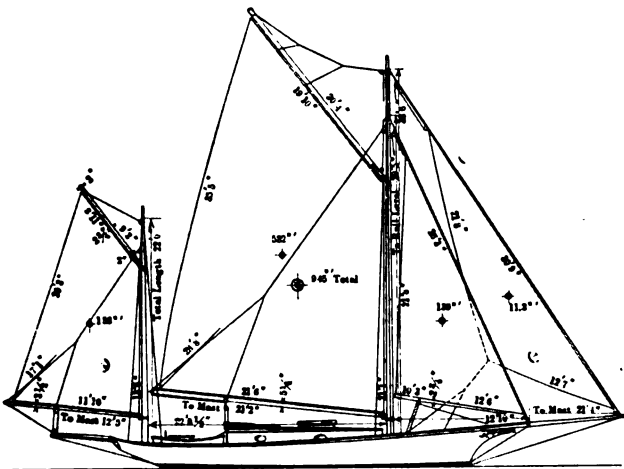


3095

No. 3095—For Sale—Raised deck cruiser. Gielow design. 60x12x3.2 ft. draught; interior finished in mahogany with white ceilings. Accommodations for six and crew; three transoms in cabin; one double and one single stateroom, two toilets, two wash rooms, crew forward. Lamb engine, 40-h.p. Independent electric system. Carpets, curtains, cushions, awnings. Engine only used one season. Gielow & Orr, 52 Broadway, New York City.

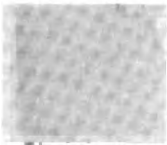
* * *

No. 12581—For Charter—By the month or for the entire season, cruising auxiliary yawl, 38 ft. o. a., 29 ft. w. l., 11 ft. 3 in.

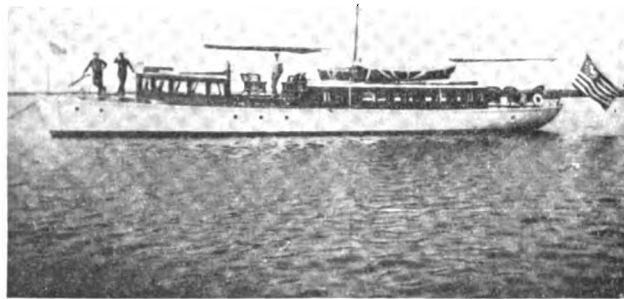


12581

beam, and 6 ft. 10 in. draught. Designed and built by Lawley.



2928



429

Roomy cabin with 6 ft. 1 in. headroom and one stateroom, sleeping two. Sails new in 1914. 18-h.p., 1913, 2-cylinder Frisbie motor, which can drive her 7 miles an hour under power alone. 7 tons of ballast on keel. 9-ft. watertight cockpit. 175-gal. water tanks. Very complete cruising equipment, including three anchors and cables, two awnings, Shipmate range, mattresses, electric lighted binnacle, toilet, large double ice-box and everything necessary for comfortable cruising. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

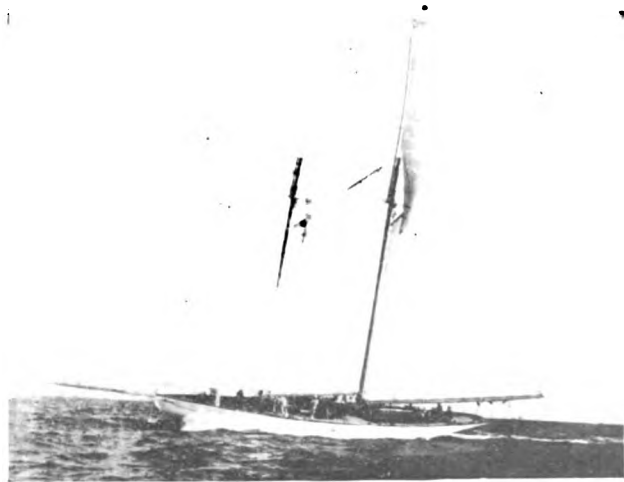
No. 2928—For Sale—Lawley-built keel sloop yacht, 39x25x9.7x5.10 ft. Copper fastened. Accommodations for four in roomy saloon. Full headroom. Interior finish white enamel and mahogany trim. Wired for electric lights. Sails by Wilson & Silsby, new 1914, including light sails. Standing and running rigging O. K. Has had best of care and is in first-class condition. Fast and very able. Bargain to quick buyer. Further particulars, price, location for inspection, etc., from Cox & Stevens, 15 William Street, New York City.

* * *

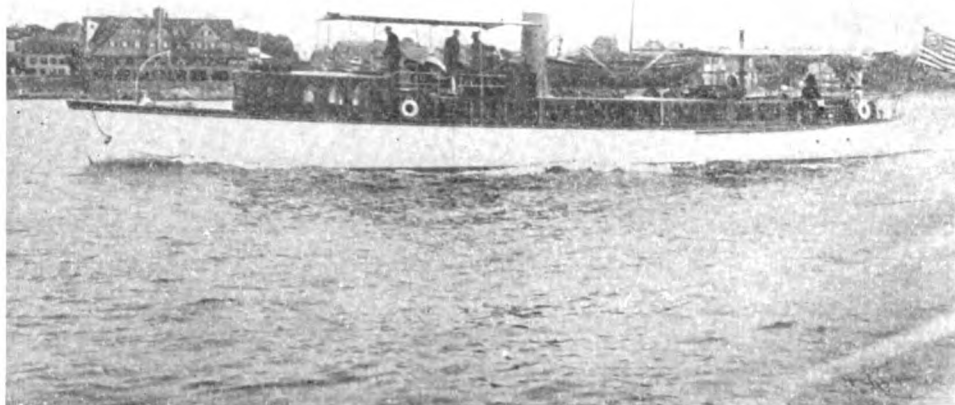
No. 429—For Sale—Excellent Bargain. Handsome power yacht, 68x12.3x4 ft. Best construction and finish. Speed 12 to 13 miles; 50-60-h.p. Standard motor. Double stateroom, large saloon, two toilets, etc. Large deck space. Cox & Stevens, 15 William Street, New York City.

* * *

No. 1015—For Sale—Auxiliary keel schooner, 84x61x19x8.2 ft. draught. Gielow design. Built by Jacob, City Island. Outside lead ballast. One double, three single staterooms. 10-ft. cabin; 6 ft. 2 in. headroom. Ratsey sails. 40-h.p. Craig engine. Well found. Unusually good sea-boat. Fast and able. Reasonable. Gielow & Orr, 52 Broadway, New York City.



1015



1895

No. 1895—For Sale—One of the best seagoing and best equipped boats on Atlantic Coast. 86x14x4.6 ft., built 1907 by N. Y. Y. L. & Engine Co. Hull sound as day launched. Boat always had first-class care. Easy cruising speed, 12 miles. Three double staterooms, one 8x9 ft., bath 5x9 ft.; ample locker space. 100-h.p., 20th Century, 6-cylinder engine, installed 1911. Engine today perfect condition. 4-cylinder, 4-cycle General Electric engine and dynamo, installed 1913; also copper gasolene independent tank for same. New porcelain Bohn ice-box, fills from deck, 1913. In 1914, new mahogany rail and waterway, new awnings fore-and-aft; new khaki curtains enclosing whole of bridge deck; new awning frames and stanchions; new curtains and carpets (except saloon carpet); interior woodwork (finest mahogany) refinished; new galley and stove; storage batteries completely overhauled. Full equipment ropes, cables, fenders, etc. 14-ft. power launch; 10-ft. dinghy. Mahogany landing stage. Complete set of charts, etc. Gielow & Orr, 52 Broadway, New York City.

* * *
No. 2386—For Sale at Bargain, or Charter—Exceptionally desirable auxiliary yawl; 66.4x44x15.5x5.6 ft. Construction of highest grade. Double and single stateroom, large saloon, toilet room, etc. Speed under power, 7 miles; 18-h.p., 3-cylinder Craig motor. Independent electric lighting plant. Without doubt the best all-around yawl of her size available. Apply to Cox & Stevens, 15 William Street, New York City.



2386

No. 1071—For Sale—At low figure. Fast, flush deck, cruising steam yacht, 115x14.3x6.5 ft. Speed up to 18 miles. Lawley-built. Triple-expansion engine; boiler new 1912. Large accommodations; dining and main saloons, toilet room, etc., for-



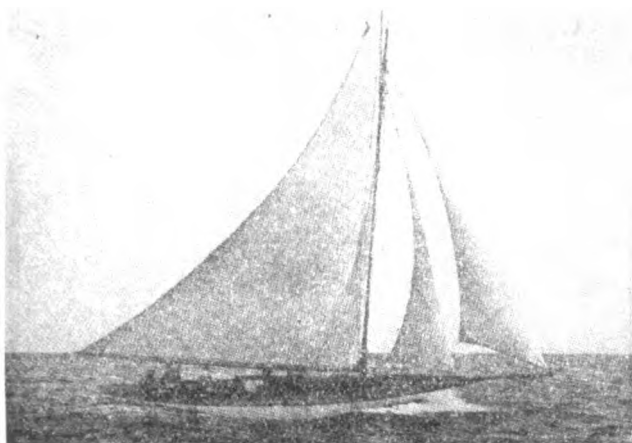
1071

ward; two double staterooms, after saloon, bath and two toilets aft. Handsomely furnished. In excellent condition. Bargain for immediate disposal as owner has purchased larger yacht through us. Cox & Stevens, 15 William Street, New York City.

* * *
No. 12473—For Sale—Comfortable, fast bridge deck cruiser, 38x8.6x3 ft.; 40-h.p. Loew-Victor motor; speed 12 miles; interior arrangement consists of stateroom with two berths, engine room, galley, toilet room, main saloon with two berths; boat is steered from bridge; completely equipped; in good condition. Apply to J. Murray Watts, 328 Chestnut Street, Philadelphia, Pa.



12473

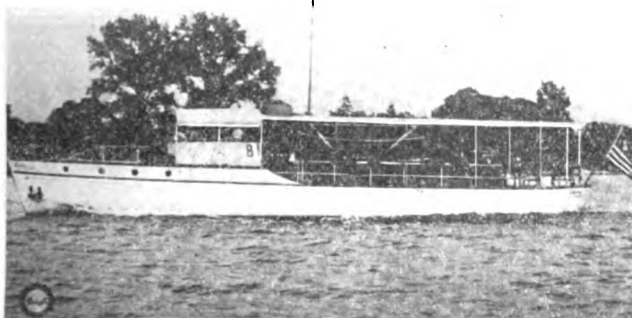


815

No. 815—For Sale—Cruising sloop, 47 ft. o. a., 30 ft. w. l., 10 ft. 10 in. beam, 5 ft. 4 in. draught. Designed and built 1902 by Herreshoff. Has small centerboard entirely under floor, narrow cabin trunk and roomy cabin with four berths, transoms, etc. Large toilet room and galley. Has Herreshoff cedar tender, complete suit of sails, light sails, etc. Owner will consider trade, taking 18-ft. knockabout in part payment. For sale at bargain price of \$1,200. Apply John G. Alden, 131 State Street, Boston, Mass.

* * *

No. 12654—For Sale—Very desirable power cruiser, 60 ft. o. a., 52 ft. w. l., 11 ft. 6 in. beam and 4 ft. draught. 20th Century, 4-cycle, 4-cylinder motor giving a cruising speed of



12654

11 miles and maximum of 12 miles per hour. Built in very best possible manner in 1910 and is practically as good as new. Her accommodations are very ample, having large saloon, with ex-



12616

tension berths, one double, one single stateroom and five persons can sleep separately. Bath and toilet room for cabin and toilet forward for crew. The finish is paneled mahogany. Headroom 6 ft. 6 in. in the clear. Electric lighting. Copper gasoline tanks, capacity 225 gal. Water tanks, capacity 130 gal. As will be seen by the accompanying picture, this is a very handsome and stylish yacht, well worth the inspection of any one; a thoroughly first-class, up-to-date craft. Price very reasonable, or can be chartered. Can be seen by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

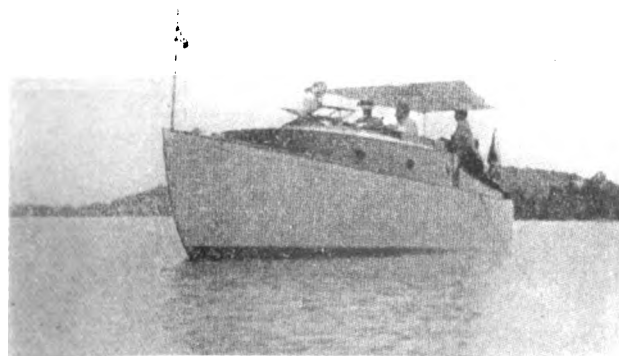
No. 22083—For Sale—Cruising cabin launch, 36 ft. by 8 ft. 4 in. by 2 ft. 8 in.; designed by Small Bros.; built by Rice Bros. in 1906; used only six weeks; trunk and watertight cockpit are of mahogany, deck of white pine, white oak timbers, yellow pine planking; copper fastened; Edson steering gear; cabin finished in mahogany and butternut, 6 ft. headroom, sleeps four; Sands' toilet; complete inventory; cushions, carpets, lights, etc.; 1912 4-cylinder, 35-h.p. Blount and Lovell motor, speed 12 miles per hour, perfect machine; fine sea-boat, and all fittings, material and construction of highest grade, better than new. Now painted black. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

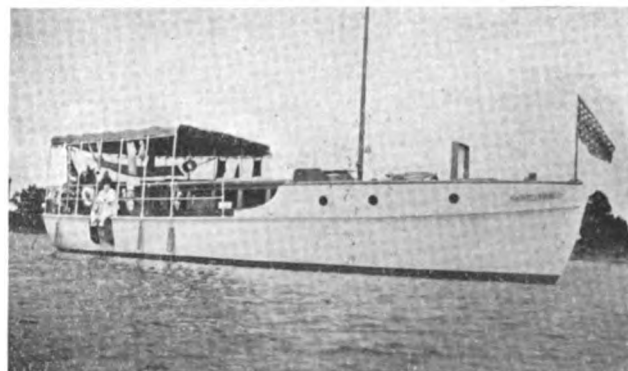
No. 12616—For Sale—Fast day cruiser. Very attractive 32-ft. motor boat. Cedar planked with copper fastenings and oak frames. 15-h.p., 4-cylinder, 4-cycle Buffalo motor, giving speed of 12 miles an hour. Nice little cabin. 80-gal. gasoline tank. Good equipment, including tender, lights, flags, anchor and cable, whistle and everything required by the Government regulations. Price \$1,000. May be seen near Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

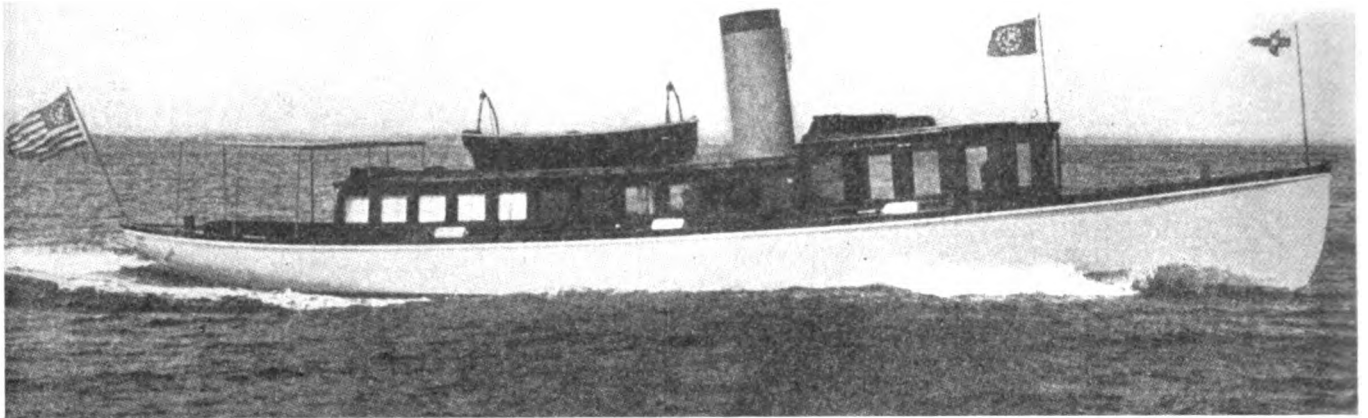
No. 4979—For Sale—Raised deck cruiser, 41x10x3.6 ft. draught. Built 1911. Well constructed; fine sea-boat; new 4-cylinder, 20-h.p. Vulcan engine installed in 1913. Deck control. Will be sold at low price. Gielow & Orr, 52 Broadway, New York City. Telephone, Broad 4673.



22083



4979



1094

No. 1094—For Sale—One of the finest steam launches of her size ever built; 61 ft. 6 in. o. a., 54 ft. 9 in. w. l., 13 ft. beam, 4 ft. 6 in. draught. Designed by F. D. Lawley and built by the Geo. Lawley & Son Corporation, at South Boston, Mass., in 1904. Very best of construction with oak frames, yellow pine planking and copper fastenings, with mahogany finish inside and out. Holystoned deck in perfect order. 6 ft. 2 in. headroom in cabin, which has four berths for owner and guests, one toilet, etc. The engine is a triple-expansion Lawley engine, new 1904, of 150-h.p.; diameter of cylinders, $5\frac{1}{2}$, $8\frac{7}{8}$ and $14\frac{1}{4}$; stroke, $8\frac{3}{8}$. This engine is in perfect condition and ready to run. The boiler is a Roberts' water-tube surface condenser in excellent condition, inspected last year, and allowed a pressure of 240 lb. The fuel capacity is 3 tons, and she has a normal speed of 10 knots and a maximum speed of 11 knots. She has a four-bladed bronze propeller. Her inventory is complete in every particular, including a 12-ft. tender, lights, lamps, 100-gal. water tank, two anchors and cables, set of davits and falls, megaphone, lead and line, six lanterns, cable lamp, curtains for after cabin, two clocks, barometer, 12 life-preservers, set of fenders and mooring-buoy, set of signal flags, fog-bell, binnacle, two axes, cushions, carpets, mats, fire buckets, boathooks, flagpoles and engine tools. The ice-chest is located aft and is very large. This boat is in every way a superior craft, and any one desiring a steam launch of this size should not fail to investigate. Can be

seen at St. John, N. B. Reasonable price. No duty to pay to bring her back to the United States. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

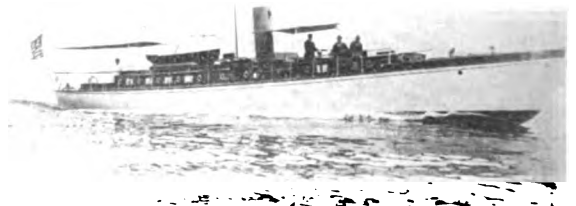
No. 12673—For Sale—53-ft. cruiser, 11 ft. beam, 3 ft. 6 in. draught; 50-h.p. 20th Century, 4-cylinder engine, with electric lighting attachment, salt-water fittings throughout, two toilets, sleeping accommodation for seven, refrigerator, full cruising equipment. Cost \$6,500. Will sacrifice for any reasonable offer. Owner unable to use. Apply any broker or W. E. S. Dyer, Land Title Building, Philadelphia, Pa.

* * *

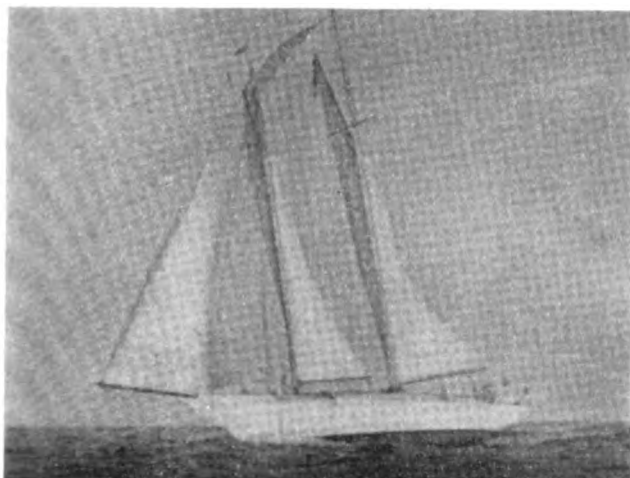
No. 7186—For Sale—Price attractive. Fast modern motor yacht, 90 ft. o. a., 80 ft. w. l., 12 ft. beam, 5 ft. draught. Designed by us and built in 1907. 300-h.p., 6-cylinder motor; speed up to 19 miles. Carries 1,000 gal. of gasoline. Electric lighted; has two staterooms, main saloon, dining saloon, three toilet rooms, good galley, engine room and crew's quarters. Hull, motor and equipment in excellent shape. Full particulars from Tams, Le-moine & Crane, 52 Pine Street, New York City.



12673



7186

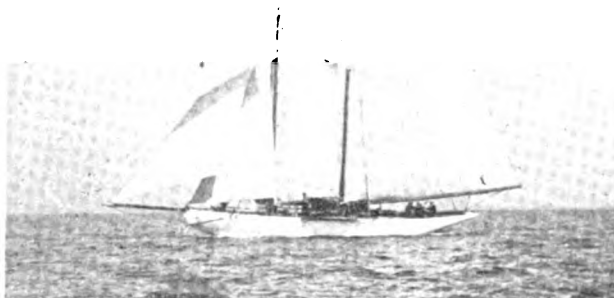


12475

No. 12475—For Sale—Clione, polemast schooner, designed by Crowninshield and built by Hodgdon Bros., East Boothbay, Me., 1906. 37 ft. l. w. l., 54 ft. l. o. a., 14 ft. beam, 5 ft. 6 in. draught. 9-h.p. Knox engine. Sails used one Summer; made by Wilson & Silsby. Two boats. Will sleep two forward, six aft. Large galley. Many lockers. Very roomy. Will sell cheap. H. S. Colton, Ardmore, Pa.

* * *

No. 12534—For Sale—Look! This 50x12-ft. cruiser is built of white cedar planking with copper fastenings, the cabin being



1830

gas. There are two toilets and wash-basins, and everything considered, she is fully equipped. This boat has a bridge deck control and therefore can be handled by one man. She is a beautiful and comfortable cruiser throughout, being of heavy construction, very seaworthy and handsomely furnished. Full particulars can be obtained from Julius Petersen, Nyack, N. Y.

* * *

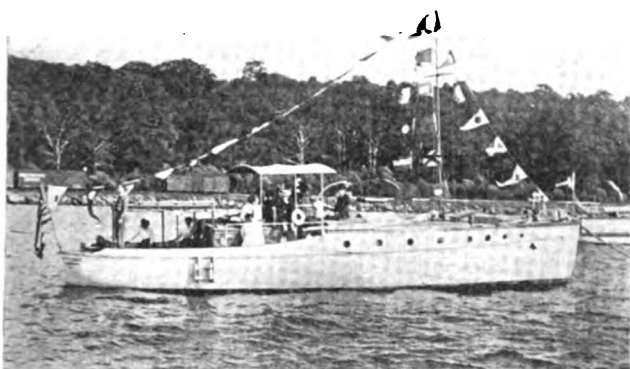
No. 2930—For Sale—Exceptional Bargain. Fast Herreshoff steam yacht; 82x10.9x3.4 ft. Speed up to 20 miles; triple-expansion engine; water-tube boiler. Best construction; double planked. Dining saloon and galley forward; saloon, toilet, etc., aft. Especially adapted for ferry or day service. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 1830—For Sale—Bargain. Lawley-built, flush deck, keel auxiliary schooner yacht, 70 ft. o. a., 45 ft. w. l., 15 ft. beam, 9 ft. draught. In fine condition. Two staterooms, large saloon. Ratsey sails. Speed under power, 6½ miles; 20-h.p., 20th Century motor (new 1914). Excellent equipment. Electric lights. Low figure considered for immediate disposal as owner has purchased larger through us. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 2189—For Sale (May Charter)—One of the well-known Stamford Y. C. One-Design schooner yachts, 62 ft. o. a., 40 ft. w. l., 11 ft. beam, 7 ft. draught. Built 1913 by Robert Jacob from our designs. Ratsey sails. Two staterooms, saloon with two transoms, etc. Very fast, easily handled craft, and has proven able sea-boat. Price low for immediate disposal. Apply to Cox & Stevens, 15 William Street, New York City.

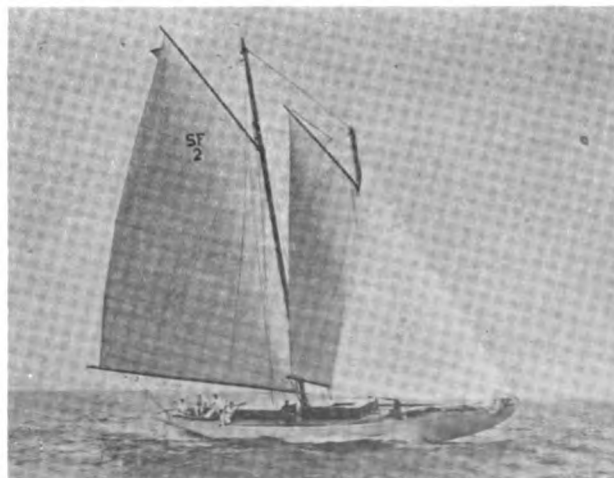


12534

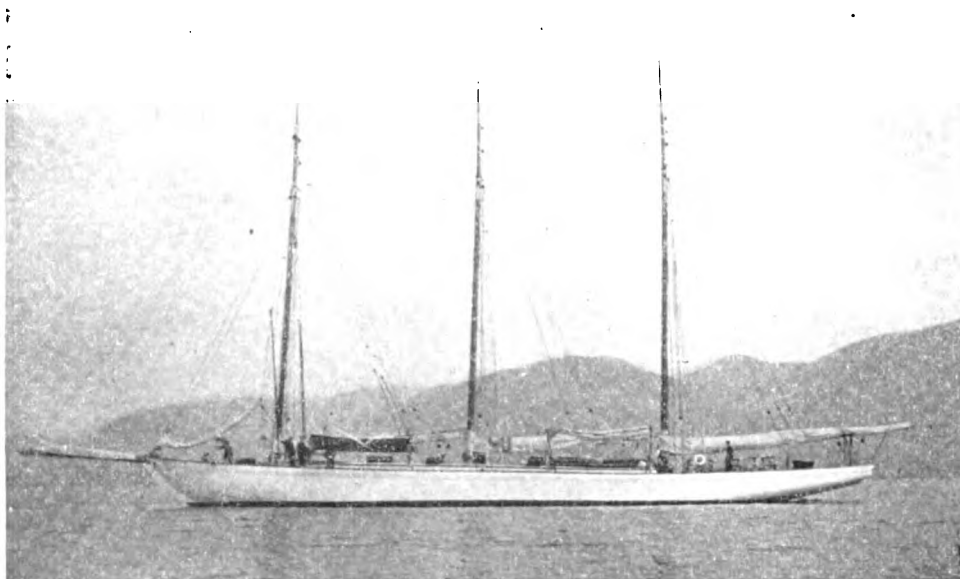
finished in maple. She has a 20-h.p. Ideal motor, sleeping accommodations for five people, and is equipped with acetylene



2930



2189



1512

No. 1512—For Sale at Bargain Figure—Centerboard auxiliary schooner yacht; 125 ft. o. a., 91.6 ft. w. l., 23 ft. beam and 4.6 ft. draught. Recent build; extra heavy construction. Speed under power, 10 knots; 100-125-h.p., air-starting Standard motor. Independent electric lighting plant. Large water capacity. Three double and one single stateroom, containing enamel beds, large saloon, two bathrooms, etc. Offer desired. Opportunity to secure unusual bargain. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York City.

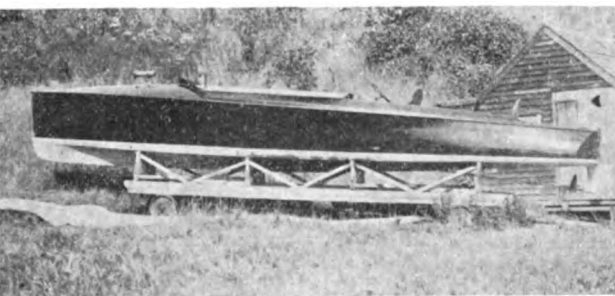
Mahogany hull. Seats six. 40-h.p. Reliance-Continental motor. Electric lights. A safe, beautiful boat at an attractive price. Full equipment. William Harnden Foster, 71 Chestnut Street, Andover, Mass.

* * *

No. 222—For Sale—Especially attractive 120-ft. twin-screw high-speed steam yacht. Ideal craft for ferry service. Cruising speed 20 miles; maximum, 27. Two triple-expansion engines; new water-tube boiler. Large dining saloon on deck forward; roomy saloon, owner's stateroom with brass bed, and bathroom aft. Handsomely finished and completely furnished. In fine condition; always had the best of care. Price very attractive for immediate sale. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York City.

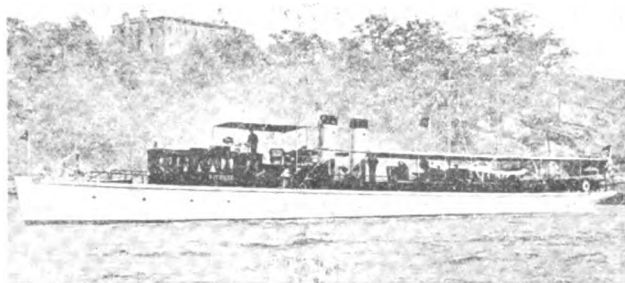
* * *

No. 1535—For Sale—High-speed day cruiser, 40x7x2.8 ft. draught. Built 1911 in first-class manner. Speed up to 21 miles; 90-100-h.p. Van Blerck motor. Saloon 8 ft. long, containing two transom berths; headroom 5 ft. 10 in.; toilet room. Interior finish mahogany. Very able boat of her type. Excellent boat for ferry service or use as a tender. Cockpit aft, 13 ft. long. Inventory complete. In first-class condition. Inspectable near New York City. Price attractive. For further particulars apply to Cox & Stevens, 15 William Street, New York City. Telephone, Broad 1375.

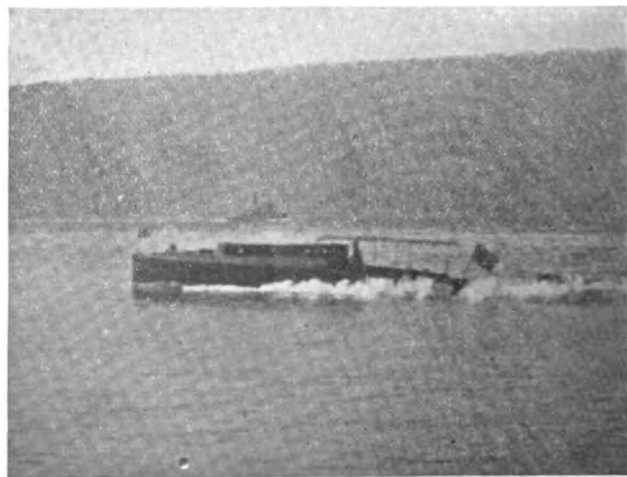


12536

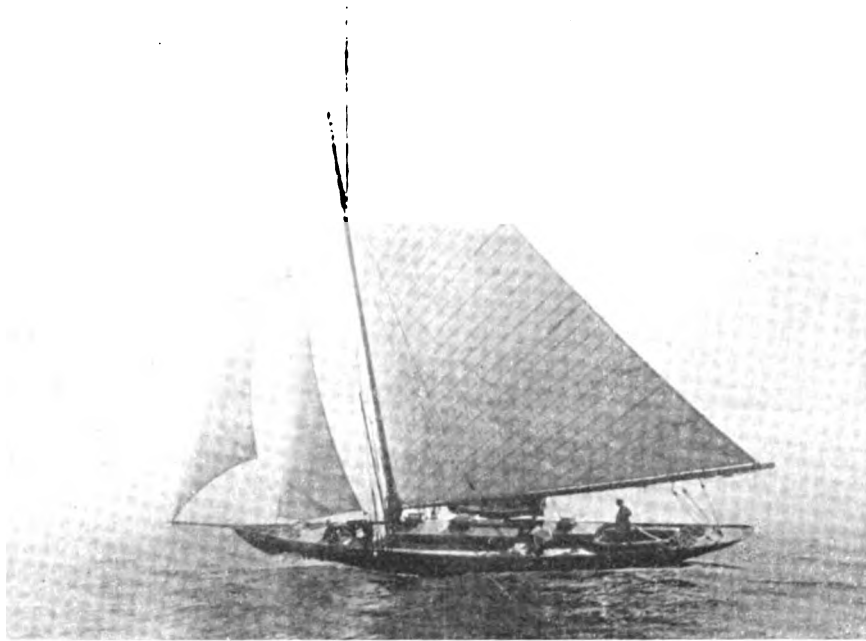
about in best condition. Official record 27.27 m.p.h. 26x5 ft.



222



1535



4849

No. 4849—For Sale—Keel cruising sloop, 62 ft. 41x13½x8¼ ft. draught. Built by Lawley in 1910. Exceptionally well built. In excellent condition. Hull double planked, outside planking mahogany. Hollow spars. Superior cabin accommodations. Has main cabin and after stateroom, both good size and well lighted with unusually good headroom, and each having separate lavatory and toilet; two berths in main cabin and two in stateroom; there are also three extension transoms, acetylene lights. Boat carries one rowing and one motor tender on davits and has unusually complete general equipment. Has good speed and is very able and seaworthy. Altogether the best built, best arranged and most completely equipped boat of its size and type on the coast. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 12529—For Sale—Auxiliary catboat Kiffaria, an extra strongly built centerboard boat; 18x7.6 ft.; draught 18 in.; three years old; bronze and copper fittings. 3-h.p. Mianus engine; silencer; full equipment. 12-ft. skiff. Everything in first-class condition. Well designed; well built, of the best material; has no faults. Picture shows her just after she was launched last year; now laid up at Staten Island. Will sell launched or as she is; price reasonable. Any further information and photo-

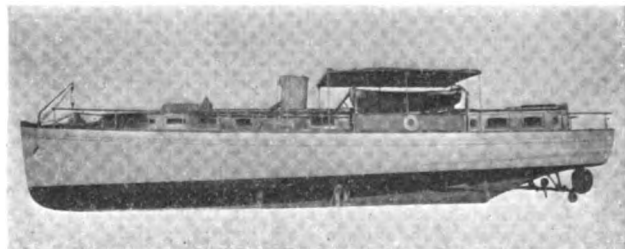


12529

graphs will be furnished by H. W. Sharwell, 20 Mead Street, Newark, N. J.

* * *

No. 12542—For Sale—A 16-mile, 50-ft. mahogany yacht, twin-screw, self-starting motors, all lights electric, seven berths, upholstering hair on springs, gasolene 500-gal., water 80-gal.,



12542

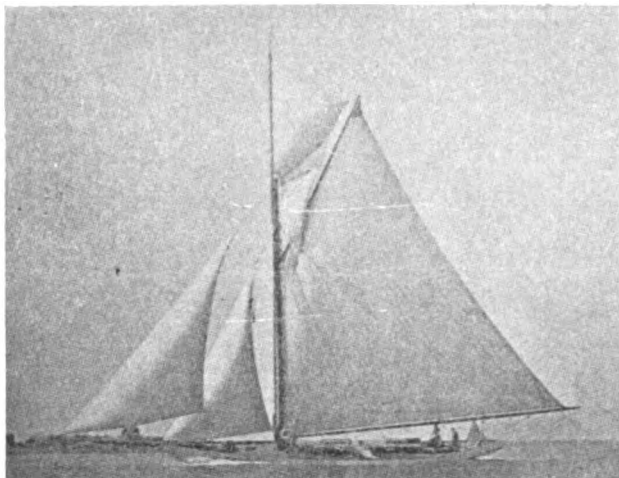
furnishings, refrigerator, coal stove, toilets, lavatories, steel bulkheads, anchors, 100 fathoms 5/16 chain, sails, rigging, etc. Albert A. Morton, Worcester, Mass.

* * *

No. 1692—For Sale—Modern gasolene cruiser; 66x13x4 ft. Highest-grade construction by well-known firm. Speed 11 to 12 miles; Standard motor. Dining saloon and galley forward; two double staterooms and bath aft. Price low. Cox & Stevens, 15 William Street, New York City.



1692

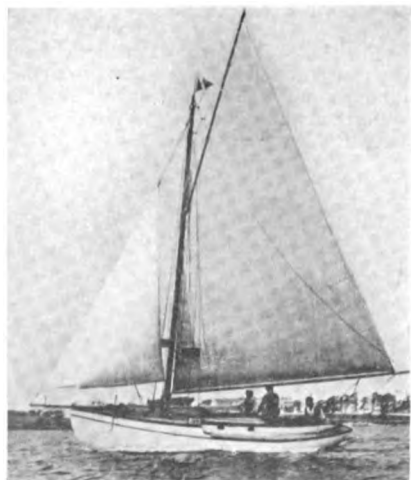


1376

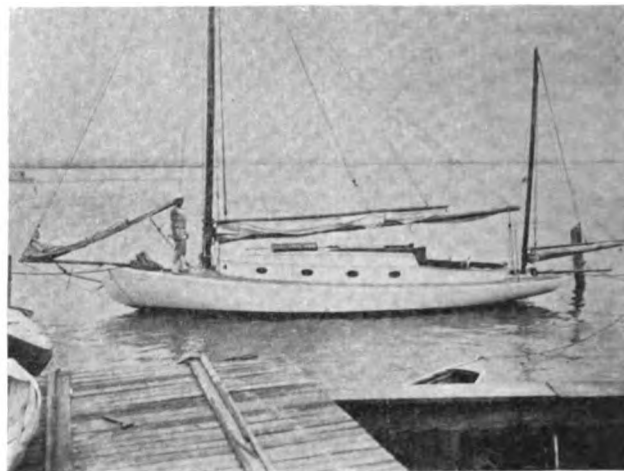
No. 1376—For Sale—Cruising sloop. Dimensions 58 ft. o. a., 41 ft. w. l., 14 ft. 6 in. beam, 8 ft. 6 in. draught. Built by Rice Bros. 16 tons outside ballast. One of the roomiest boats afloat; sleeps six comfortably besides crew. Sails in good condition and equipment complete. Splendid cruising yacht with good turn of speed; offered at a bargain price. Inspectable at New York. Frank Bowne Jones, Agent, 29 Broadway, New York City.

No. 12619—For Sale—Auxiliary single-hander, 26 ft. o. a., 24 ft. w. l., 7 ft. 4 in. beam, 3 ft. draught. Built in 1910. 700 lb outside ballast. Watertight cockpit with bridge deck at forward end and hatch in the floor, giving access to the engine, which is a 4½-h.p., single-cylinder Gray, and which gives under ordinary conditions a speed of from 5½ to 6 miles an hour. Roomy cabin with good locker and storage space. Flush deck forward gives good room for anchor, chain, spare sails and other gear. Khaki-covered cushions, linoleum carpet on floor. Very comfortable for three persons and has slept five. An excellent sea-boat and very dry. Has cruised 2,500 miles between New London, Conn., and Newburyport, Mass. Has rounded Cape Cod four times. Lowest price \$550. Can be seen in Newport, R. I., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 12643—For Sale—Cruising auxiliary centerboard yawl; l. o. a. 36 ft., l. w. l. 26 ft., beam 10 ft. 7 in., draught 3 ft. 4 in. Splendid construction and condition. Oak frames and keel; cedar planking; bright decks; ballast inside and heavy iron shoe on keel. Comfortable sleeping berths on transoms; ample locker and closet room for clothes and supplies; toilet room with patent w. c. and wash-basin; galley with stove, food and dish lockers and ice-box; berth forward for one man. Interior finished with quartered oak, headroom 6 ft. New 8-h.p., 2-cylinder, 4-cycle engine under cockpit floor. Three suits sails in fair



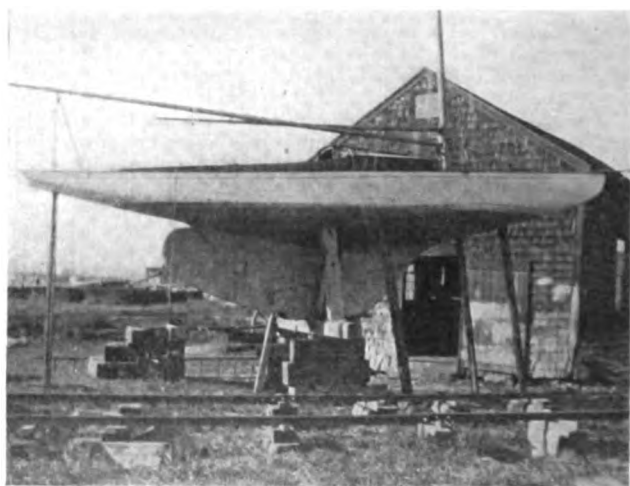
12619



12643

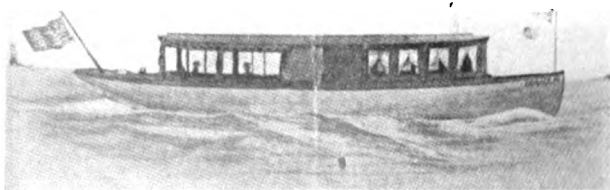
condition. Price \$1,200. Your broker or 3240 Amber Street, Philadelphia, Pa.

No. 2560—For Sale—Able sloop, good condition, 33.6x22x8x6 ft.; Crowninshield design, 1901; two transoms in trunk cabin; cockpit 12x4 ft., self-bailing; round-bottom tender, 1913; sails

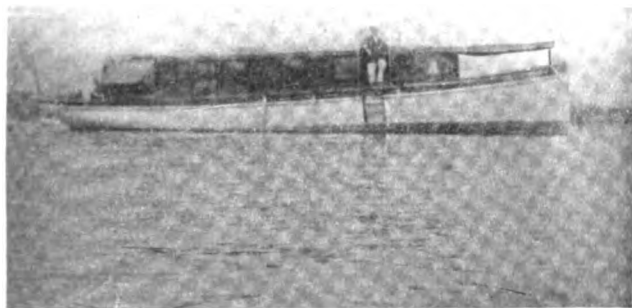


2560

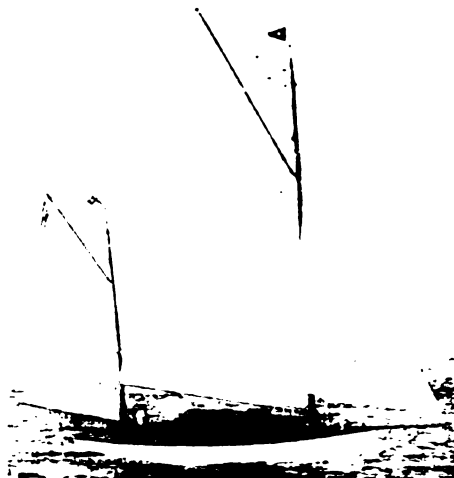
1913; complete outfit; hollow gaff, cedar planked, copper fastened, hatches, coaming, etc., mahogany. Bargain. Tams, Lemoine & Crane, 52 Pine Street, New York City.



12620



12618



9053

No. 12620—For Sale—36-ft. motor boat, 8 ft. 5 in. beam and 4 ft. draught. Very heavily constructed, as she was built by Higgins & Gifford, the well-known Gloucester fishing vessel builders. Cockpit is 22 ft. long and there is a 9-ft. cabin with 6 ft. headroom forward of it. 15-20-h.p. Jaeger motor. Toilet on port side. Complete equipment, including cushions, lights, stove, curtains, etc. A splendid craft for a party boat, as she is very seaworthy and comfortable. Cost in the neighborhood of \$3,000 but \$1,000 takes her. Can be seen in Gloucester, Mass., by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass. (See photo, p. 176.)

* * *

No. 12618—For Sale—50-ft. launch hull, 10 ft. beam, 2 ft. 6 in. draught. Designed and built by The Gas Engine & Power Co., at Morris Heights, N. Y. Very roomy cabin divided into two large staterooms, also pilothouse with two extension berths seating six at table. Pullman berths, folding lavatory and toilet. Interior woodwork, even to the carlines, is of the very finest paneled San Domingo mahogany, cabinet construction finish. New Bramhall Deane palace car range with hot water tank, warming oven, etc. 400-lb ice-chest, 130-gal. fresh water tank. This is a splendid boat to live on and a motor can be installed at a slight expense, as everything is ready. Has been used by the present owner as a comfortable houseboat. Can be seen near

Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

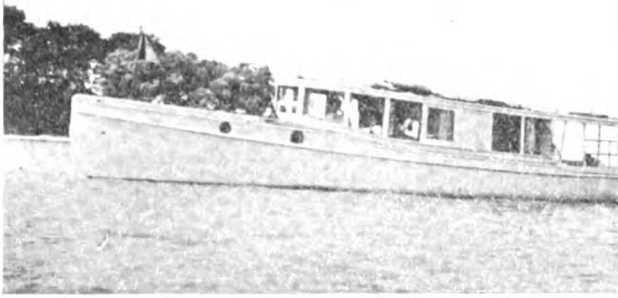
No. 9053—For Sale—Auxiliary yawl, 36 ft. o. a., 26 ft. w. l., 11 ft. beam, 3 ft. 8 in. draught. Built in 1902 in the very best manner. Outside ballast, 4,000 lb, with centerboard passing through it. Watertight cockpit 8 ft. long. Comfortable cabin, finished in mahogany, 13 ft. long with 5 ft. 10 in. headroom. Toilet, wide transoms, berth, etc. Equipped with a 4-h.p. Sagamore motor, which can drive her 5 miles an hour. Two suits of sails, made by Wilson & Silsby and Cousens & Pratt, one suit new, 1909. Complete set of cushions, dishes, compass, ice-chest, tender, two anchors and cables, etc. Inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 12408—For Sale—Auxiliary schooner Clio, sound and tight, 55x40x15.6x5.8 ft.; two staterooms, big cabin, galley and toilet; sleeps eight; full cruising inventory, sails, boats, anchors, chains, etc. In excellent order. 10-h.p., 2-cylinder Bridgeport motor under the companionway and 35-gal. gasolene tank, installed by the makers, new last June and runs to perfection. Price, \$2,000. Alanson Bigelow, Jr., Care of Bigelow, Kennard & Co., Inc., Boston, Mass., or your broker.



12408



12537

No. 12537—For Sale—Cabin launch, 45x8x3.6 ft. Full cruising equipment, including two anchors, lines, sailing lights, whistle, horn, bell, binnacle, life-preservers. Toilet room; two-burner gasolene stove. White enameled iron sink; ice-box holding 100 lb. Electric lights from storage battery. Gasolene tank in bow holds 120 gal. Engine is Model "T" Gray, 2-cylinder, 2-cycle, rated 24-h.p. Detroit reverse gear, bronze shaft. Hyde bronze wheel, 22x24 in., turning 600 r.p.m. Speed 10 miles per hour. Sleeping accommodations for five or six. Boat is hauled out at Toledo. Price if taken at once, \$600. R. M. Bellman, Care of The Shaw-Kendall Engineering Company, Toledo, O.

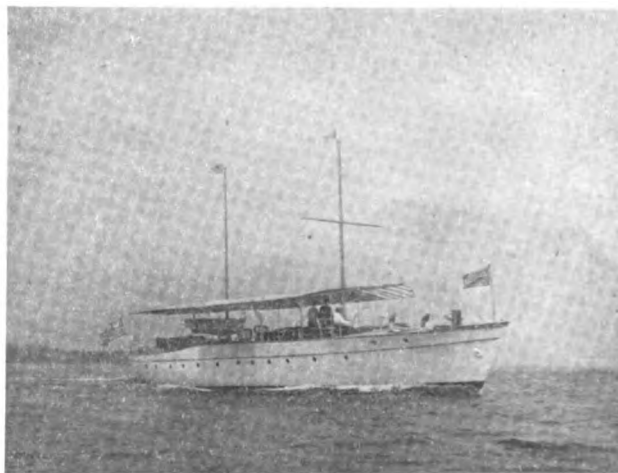
* * *

No. 767—For Sale—High-speed launch, 39.4 ft. long, 5.4 ft. beam, Seabury build; teak planking, brass screw fastenings.

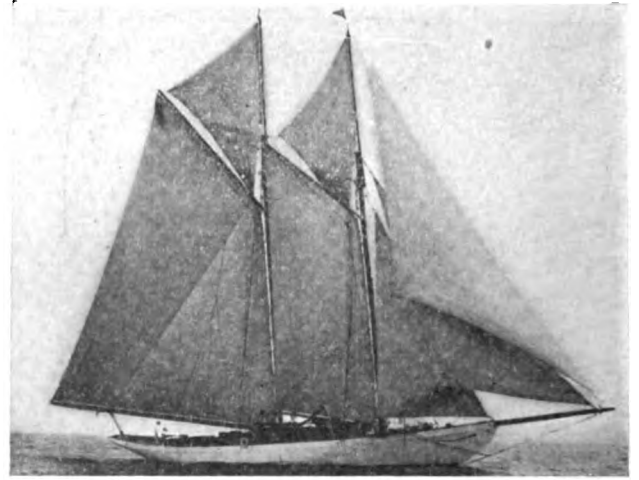


767

Speed up to 30 miles. 125-h.p. Speedway motor. Offer wanted. Cox & Stevens, 15 William Street, New York City.



7352



10413

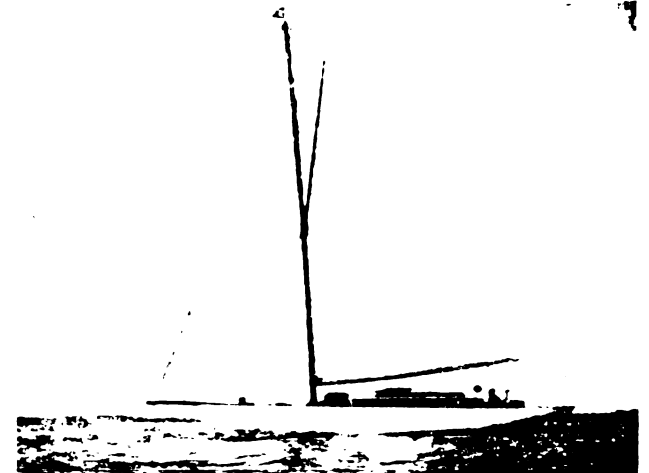
No. 7352—For Sale—Flush deck seagoing gasolene cruiser. 75x15x5 ft. Owner's quarters aft provide double stateroom, single stateroom with double berth and saloon with two transoms, sleeping six separately. Bathroom. Headroom 6 ft. 6 in. Very heavy construction; three watertight bulkheads. 75-h.p. Standard motor; speed 12 miles. Electric lights. Complete equipment, including launch and dinghy in davits. For price and further particulars address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 10413—For Sale—Auxiliary cruising schooner, 88 ft. 6 in. o. a., 68 ft. w. l., 19 ft. beam, 10 ft. draught. Large cabin and five staterooms, bathroom, two toilets, etc. Equipped with a 4-cylinder, 25-h.p. Standard motor. Very completely furnished for cruising and in perfect condition. A splendid vessel for long offshore cruises, as she is extremely able and seaworthy. Heavily built, good bulwarks, and high freeboard. Just the yacht for a cruise to the Panama Exposition. Gross tonnage 50; net tonnage 47. Can be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 3033—For Sale—Handsome centerboard auxiliary sloop, 44x30x12x2.10 ft. draught. Built 1905. Outside lead ballast. Trunk cabin and cockpit, the latter about 8 ft. square; cabin, 12 ft.; fine headroom. An excellent cruiser. New 2-cylinder, 15-h.p. Ferro gasolene engine, installed 1913. Attractive, fast and able boat. Non-capsizable. Built in the very best manner. Very handsomely finished in mahogany. Excellent toilet room. Large galley. Sails, spars and rigging all in good condition. Well found. Price reasonable. Gielow & Orr, 52 Broadway, New York City.



3033

SCRIPPS

The Magnet of the Shows

Supreme and conclusive was the triumph of the 1915 Scripps marine motor at the show. The claims of its makers were proved by the verdict of public opinion,—a public opinion more exacting and motor-wise than ever before.

Show goers saw in the new Scripps a marine engine whose simplicity, compactness and sturdy construction makes it a marvel of marine engineering. They saw a machine with every moving part enclosed, even the flywheel—with large valves, silent gears and cam action, accessible working parts, automatic lubrication, oil-tight reverse gear, removable bearings of ample size, enclosed wiring, and equipment of the highest grade.

In short, a clean, silent, powerful engine of unexcelled finish and construction embodying Scripps quality—built for Scripps service and backed by Scripps reputation and guarantee

BRIEF SPECIFICATIONS: Bore, 4½ in; Stroke, 5 in. Every moving part enclosed; enclosed flywheel; enclosed valves; integral reverse gear; Bosch Dual Ignition; Bronshell babbitt-lined removable bearings; helical timing gears; positive lubrication; non-stallable electric starter; one piece drop forged camshaft with integral radial cams. Semi-speed and medium duty types.

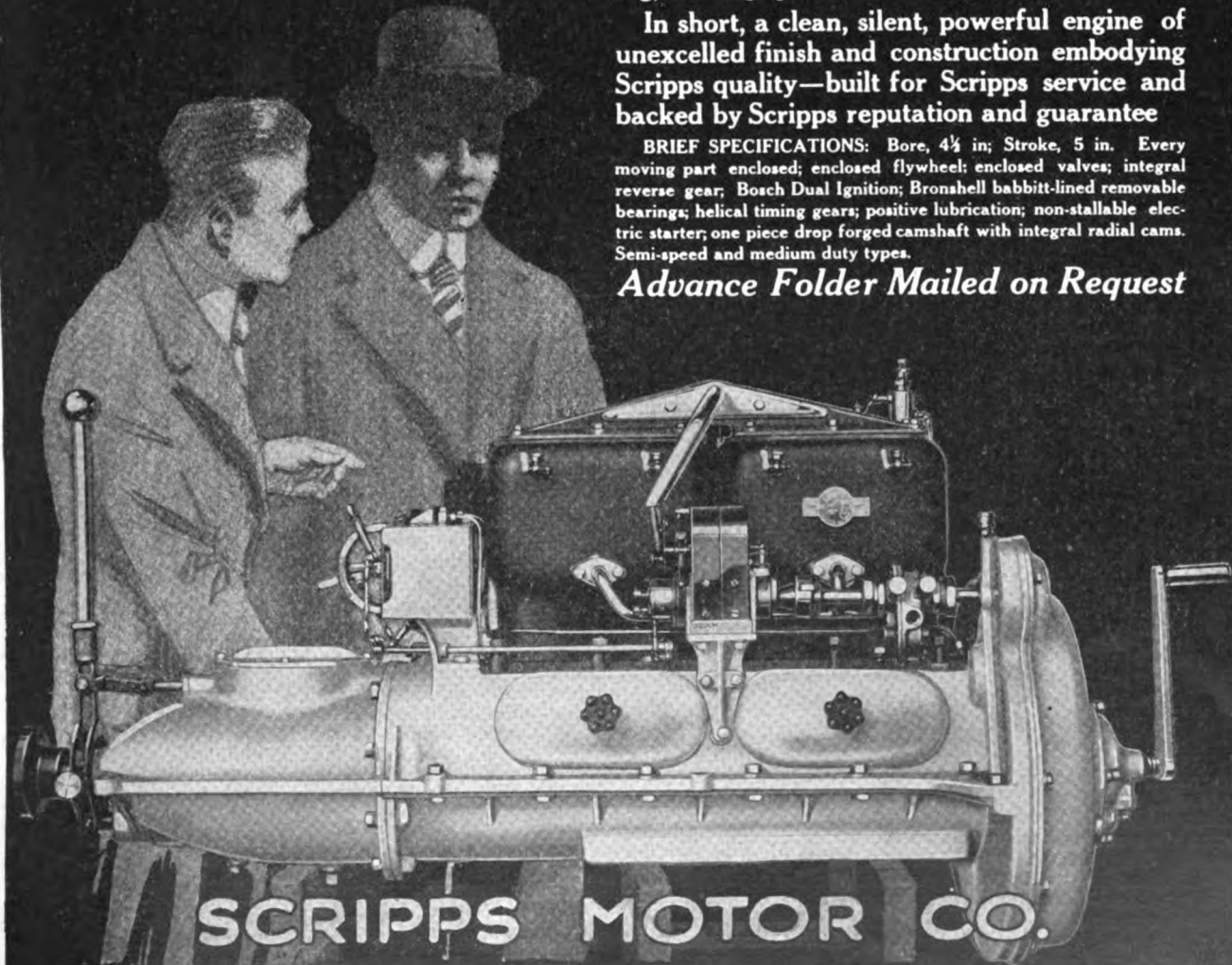
Advance Folder Mailed on Request

4-Cylinder, Model HB

18 HP. at 600 RPM.; 34 HP at 1200 RPM. PRICE—without Electric Starter, \$675.00; Including Electric Starter, \$750, F. O. B. Detroit.

6-Cylinder, Model EB

27 HP. at 600 RPM.; 51 HP. at 1200 RPM. PRICE—without Electric Starter, \$1025.00; including Electric Starter, \$1100.00.



SCRIPPS MOTOR CO.

632 Lincoln Avenue, Detroit, Michigan

Please mention **THE RUDDER** when writing to advertisers

QUARTER-DECK TALK

CORINTHIAN Y. C., OF PHILADELPHIA

Commodore, G. W. C. Drexel; vice-commodore, Charles Longstreth; rear-commodore, J. Willis Martin; secretary, Addison F. Bancroft, care of the club, Essington, Pa.; treasurer, J. Murray Watts. Racing Committee: Addison F. Bancroft, Ruben B. Clark, Samuel L. Kent.

KEYSTONE Y. C.

Commodore, A. B. Cartledge; vice-commodore, R. P. Smith; rear-commodore, John A. Thompson; treasurer, F. B. Fisher; secretary, J. W. Broomhead, 5335 Leshar Street, Frankford.

RED STAR Y. C.

Commodore, James Milne; vice-commodore, John Eastwood; treasurer, Frank Bean; secretary, Harry Harms, care of the club, Bridge Street, Bridesburg.

OFFICERS FOR 1915

The New Rochelle Y. C.: Commodore, J. A. Mahlstedt; vice-commodore, J. L. Givan; rear-commodore, Herbert L. Stone; secretary, C. A. Marsland, and treasurer, H. M. Lloyd. The Regatta Committee for 1915 is to be made up of G. C. Molloy, H. W. Patterson and D. E. Dealy.

Hudson River Yacht Racing Association: President, Commodore William H. Frank; vice-presidents, David Crow, of the Columbia Y. C.; Oscar Holbrook, of the Shattemuc Y. C.; C. H. Leyton, New York M. B. C., Colonial and Columbia Y. C.'s; Sanford B. Chamberlain, of the Newburgh Y. C.; secretary, Joseph H. Acker, Yonkers Y. C.; treasurer, E. Lester Crocker, Tarrytown Boat Club, and measurer, Professor Charles O. Gunther, Tappan Zee and Columbia Y. C.'s.

Whitestone Y. C.: Commodore, Grand S. Kelley; vice-commodore, William A. Banta; rear-commodore, Richard Battin, Jr.; secretary, Joseph Ramsay; treasurer, Clarence T. Timpson.

The West Hudson Y. C. have elected the following officers for the year 1915: Commodore, Captain John Williams; vice-commodore, Captain Malcolm McGregor; rear-commodore, Captain Benjamin Pierce; treasurer, Captain William Yates; financial secretary, Captain David Gillow; corresponding secretary, Captain Augustus Dulje; measurer, Captain Joseph Porter; Sergeant at Arms, Captain Henry Rupp; fleet captain, Captain John Griffin.

PHILADELPHIA Y. C.

Commodore, Philip H. Johnson; vice-commodore, William Anear; rear-commodore, Robert J. Williams; recording secretary, S. W. Bookhammer; financial secretary, C. Carroll Cook; measurer, Alexander G. Rea; fleet surgeon, Dr. Frederick J. Haerer; harbor master, Thomas W. Boyd.

BALTIMORE Y. C.

Commodore and President, Isaac E. Emerson; vice-commodore, W. B. Hurst; rear-commodore, Arthur D. Foster; treasurer, J. A. Davis; secretary, J. A. Dinning; measurer, H. M. Foster.

SAN FRANCISCO Y. C.

Commodore, Captain John Barneson, schooner Edris; vice-commodore, J. M. Punnett, sloop Monsoon; secretary, L. C. Koster; financial secretary, F. W. Dulfar; treasurer, Gordon Thomson.

HUGUENOT Y. C.

Commodore, H. M. Williams; vice-commodore, George E. Vigouroux; rear-commodore, J. H. H. Wheeler; secretary, G. C. Allen; treasurer, George G. Bell.

PACIFIC COAST

Mr. James M. Shuck, manager of the Marine Engine & Supply Co., of Los Angeles, who have recently made arrangements with Mr. W. H. Hand, Jr., to be the sole licensed boat builders of Hand V-bottom boats on the Pacific Coast, advises us that his company has just closed a contract with Mr. Stewart Edward White, the well-known author, for a 24-ft. mahogany-finished Hand V-bottom boat, this boat to be equipped with Model 30 Loew-Victor motor, equipped with rear starter, and regular equipment.

Mr. Stewart Edward White will use this boat in the vicinity of his Summer home, at Lake Tajo, Cal., and no expense is being spared to make this outfit the finest in that part of the state.

IMPORTANT CHANGES IN LIGHTS AND BUOYS

Florida—West Coast—On December 19, 1914, the following lights were established in Santa Rosa Sound:

Hurricane Crossing Range Front Light, fixed white, of 40-c.p., 15 ft. above the water, on a white post, with triangular slatted daymark on the channel face, on Santa Rosa Island, on the axis of Hurricane Crossing Dredged Channel, Santa Rosa Sound, 1½ miles 267° from Santa Rosa Sound Range Rear Light.

Hurricane Crossing Range Rear Light, fixed white, of 40-c.p., 25 ft. above the water, on a black post, with square slatted daymark on the channel face, about 300 yards 244° 30' from the front light.

Nicaragua—East Coast—The master of the British steamer Chelston reports that on December 9, 1914, an unwatched flashing white light, visible 13 miles, was established at Cape Gracias á Dios Light-station.

Chesapeake Bay—Maryland—Patuxent River—A flashing white light of 40-c.p., every 3 seconds, thus, flash 0.3 second, eclipsed 2.7 seconds, was established off Petersons Point.

The light is exhibited 15 ft. above the water from a red 3-pile slatted structure erected in about 1¼ fathoms of water on the Southern end of the shoal off the point, on the bearings.

Chesapeake Bay—Dividing Creek Light—Characteristic changed—The characteristic of Dividing Creek Light was changed from fixed to flashing white, of 15-c.p., every 3 seconds, thus, flash 0.3 second, eclipsed 2.7 seconds.

Passage for Small Boats Across the Lower Peninsula of Florida—There is a passage for small boats not drawing more than 3 ft. from the Gulf to the Atlantic by way of San Carlos Bay, Caloosahatchee River, Lake Flirt, Caloosahatchee Canal, Lake Hicpochee, Three-Mile Canal, Lake Okeechobee, North New River Canal, and New River.

From Fort Lauderdale to Lake Okeechobee the journey is through New River and North New River Canal, in which there was sufficient water for the launch. From entrance to Lake Okeechobee from North New River Canal to Ritta the route is along the South shore of Lake Okeechobee. On either side of this channel there are banks of long grass commonly called "Saw Grass Banks." The trip from Ritta to Fort Myers is along a route Southwest of Ritta Island, around the Eastern and Northern side of Observation Island to Three-Mile Canal, thence through Three-Mile Canal, Lake Hicpochee, Caloosahatchee Canal, Lake Flirt, and Caloosahatchee River. The waters in these localities were rather low, 2½ in. below normal. The keel of the launch, draught 3 ft., touched bottom North of Observation Island at the entrance to Lake Hicpochee, and at certain sections in Caloosahatchee Canal and River to La Belle. From La Belle to Fort Myers the water is of sufficient depth, excepting for a few short stretches where the launch dragged slightly. At certain periods craft of deeper draught than 3 ft. can make this trip. By addressing the Caloosahatchee River Steamship Company, Fort Myers, Fla., information regarding how much water can be carried through this route can be obtained. On November 26, 1914, the condition of the water was about 14 inches. [From a report by the Caloosahatchee River Steamboat Company, Fort Myers, Fla., December 7, 1914, to the Branch Hydrographic Office, New Orleans, La.]

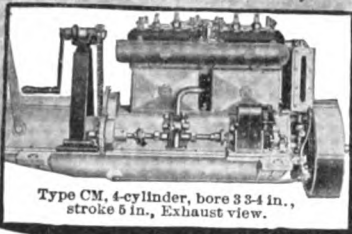
It is the intention of the Department of Marine of Canada to establish a uniform system for the characteristics of lights of gas-lighted buoys and beacons, the lights on the buoys or beacons which are to be left on the starboard hand in going up-stream being intermittent red, and those to be left on the port hand intermittent white; that is to say, red buoys and beacons will carry red lights and black buoys and beacons white lights.

For special positions, such as middle grounds, fairways, etc., special arrangements will be made. White lights will, however, be favored when possible.

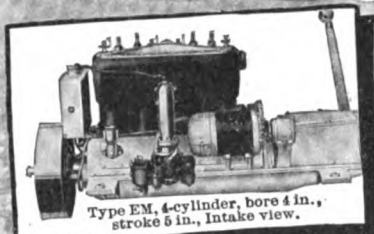
It is proposed to make the changes on the opening of navigation or by May 1, 1915.

NEW CHART OF PANAMA CANAL

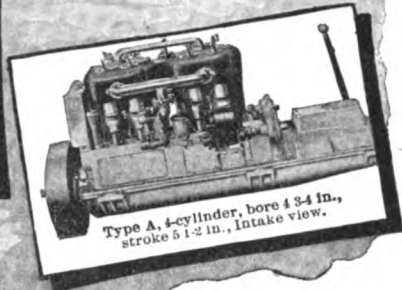
A chart of the Panama Canal and its immediate approaches has been published by the Hydrographic Office. It is in two sheets, price 30 cents each. Catalog number 5,000 designates the Northern or Atlantic portion and 5,001 the Southern or Pacific portion.



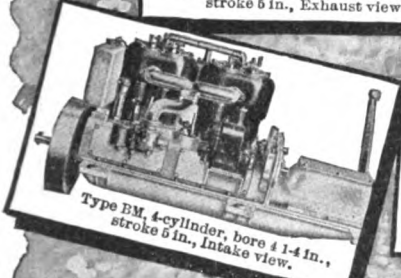
Type CM, 4-cylinder, bore 3 3/4 in., stroke 5 in., Exhaust view.



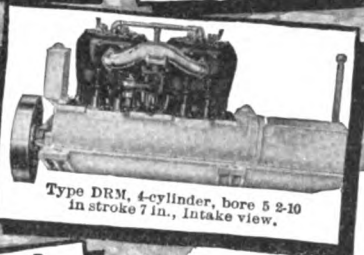
Type EM, 4-cylinder, bore 4 in., stroke 5 in., Intake view.



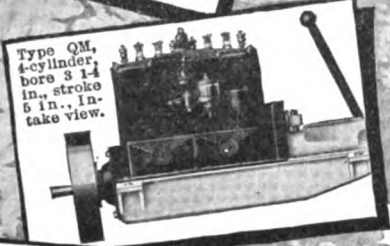
Type A, 4-cylinder, bore 4 3/4 in., stroke 5 1/2 in., Intake view.



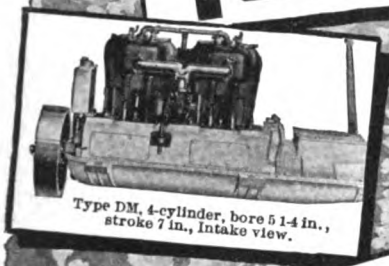
Type BM, 4-cylinder, bore 4 1/4 in., stroke 6 in., Intake view.



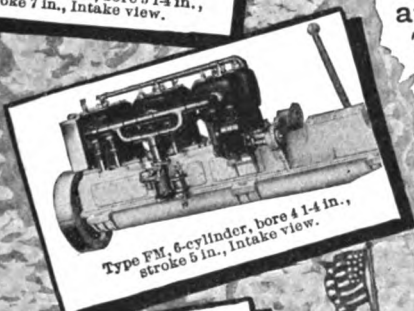
Type DRM, 4-cylinder, bore 5 2/10 in stroke 7 in., Intake view.



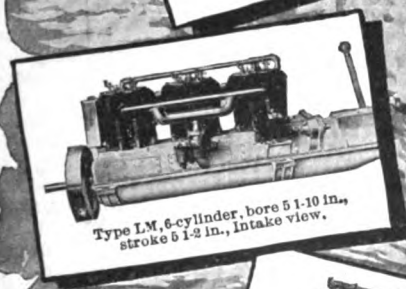
Type QM, 4-cylinder, bore 3 1/4 in., stroke 5 in., Intake view.



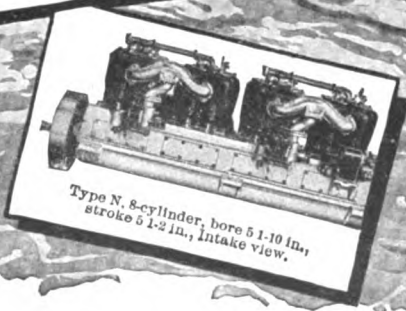
Type DM, 4-cylinder, bore 5 1/4 in., stroke 7 in., Intake view.



Type FM, 6-cylinder, bore 4 1/4 in., stroke 5 in., Intake view.



Type LM, 6-cylinder, bore 5 1/10 in., stroke 5 1/2 in., Intake view.



Type N, 8-cylinder, bore 5 1/10 in., stroke 5 1/2 in., Intake view.

"It's a Wisconsin"

When you say that, anyone who knows motors, or motor boats, or race records, knows you've got a power plant that's accessible, light in weight, smooth and quiet running, without vibration, and that at all times you've got plenty of power. That's why the man who has a Wisconsin Motor is glad to say so.

Wisconsin Motors

CONSISTENT

are the product of concentration and specialization. They are designed and constructed by men who do nothing else but design and construct motors and whose years of experience have made them masters of their craft. Correct design, perfect balance of all reciprocating parts, thorough and dependable lubrication, excellence of material and perfect workmanship, have placed Wisconsin Motors first with the man who knows.

Wisconsin Motor Mfg. Co.

Station A, Department 207
Milwaukee, Wis.



Your copy of the new catalog awaits your request.

Please mention THE RUDDER when writing to advertisers

IF YOU have a good boat, what kind of an engine will you install? You have the choice of purchasing an ordinary engine—or an **AUTOMATIC**.

From the former you get ordinary service, and you pay full price for every ounce of power. The **AUTOMATIC**, on the other hand, will give you thoroughly efficient service at minimum cost of operation and upkeep. Talk over the matter with us and we will show you why the **AUTOMATIC** (in design and construction) is the best. In hundreds of tests it has been proved that the engine for efficiency is

The
Automatic

The Automatic Machine Co.
Bridgeport, Conn.

THE VALSPAR TESTS

The Valspar exhibit at the Motor Boat Shows comprises the most complete series of varnish tests ever shown to the public. These tests naturally lay special emphasis on the qualities necessary in a varnish for marine use—waterproofness and durability under every conceivable condition of service. Valspar possesses these two absolutely essential qualities to the utmost degree, and in addition, it dries with extreme rapidity and hardness. This unmatched combination—quick and hard drying, extreme elasticity and durability, and absolute waterproofness—makes Valspar supreme in the marine field. These same qualities fit Valspar for almost every kind of finishing work where a high-grade varnish of extreme powers of resistance to destructive agents of all kinds is needed.

Test No. 1—The Famous Valspar Submarine—As usual, the famous Valspar submarine occupies a prominent position in the exhibit—three models showing its appearance before, during and after test being on view. The first model shows the black submarine varnished on alternate strips with Valspar and eight other high-grade clear varnishes. The second model, submerged in water at the beginning of the show, shows the gradual change of all the varnishes except Valspar, from their original brilliant transparency to a dullness and whiteness that finally completely hides the black surface underneath. The Valsparred sections of this model remain absolutely unchanged, no matter how long the test is continued. The third model shows the result of the complete test—this particular model having been under water for six weeks. The Valspar is as transparent and brilliant as when the test began, the other varnishes are absolutely white and opaque, having lost all lustre, transparency, and protective quality. This series of models shows clearly the difference between Valspar, which is absolutely waterproof, and other so-called waterproof varnishes, which are merely near waterproof. The other varnishes used in this test are four of the best-known spar varnishes and four of the best-known floor varnishes on the market.

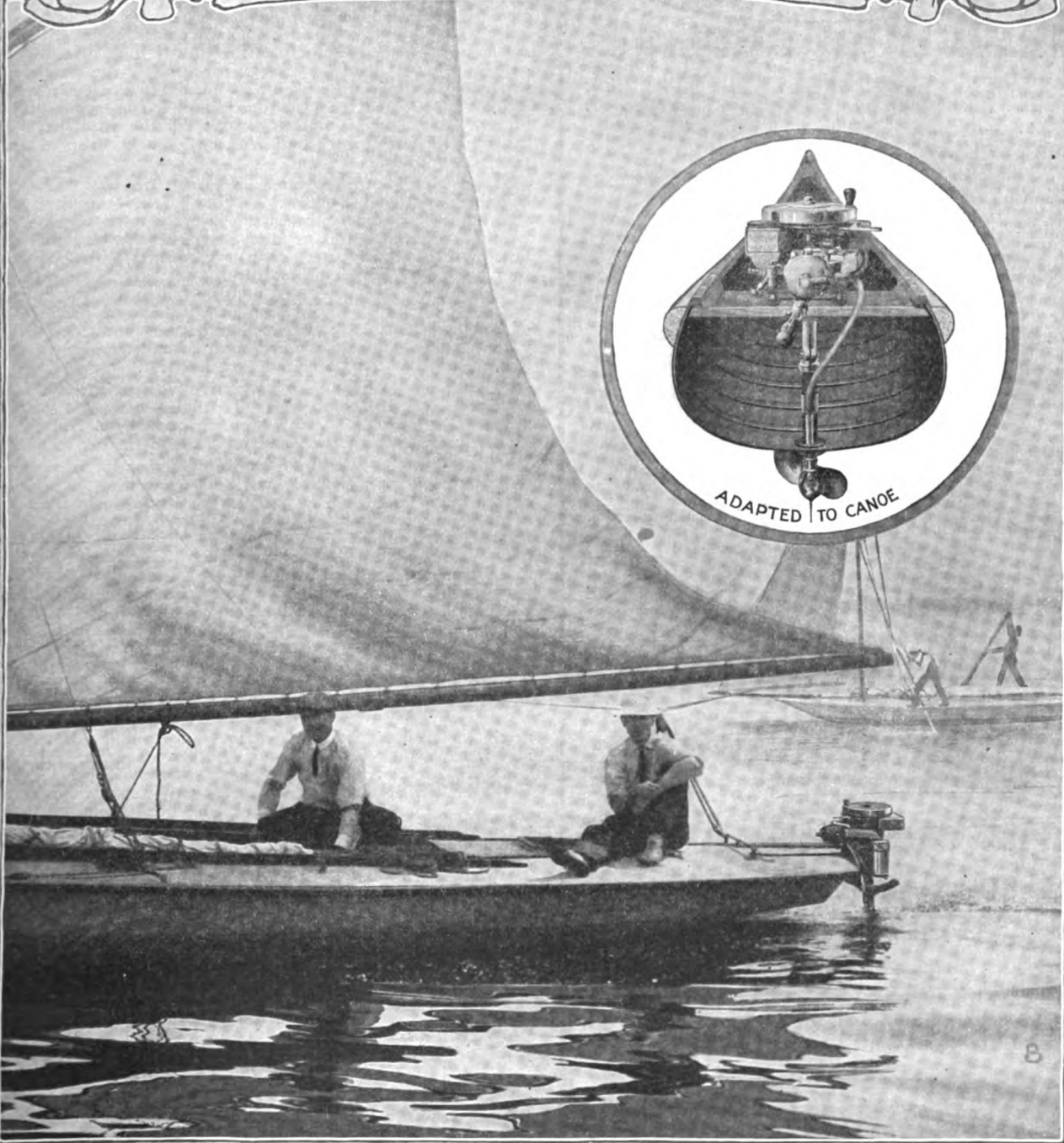
Test No. 2—The Running Water Test—The central feature of the Valspar exhibit is the large testing machine for showing the effect of running water on various varnishes. The result of the test is, of course, the same as though the varnishes were on the exterior of a rapidly moving boat. The water is driven against the varnishes at more than 30 miles an hour by a high-speed centrifugal pump, and the effect upon them is the same as though they were on the bottom of a 30-knot hydroplane traveling at full speed. The Valspar on the middle section of the panel undergoing test in this machine remains absolutely unharmed in toughness, lustre and transparency, while the other eight varnishes on the panel turn white and perish under the action of the rapidly moving water. A duplicate panel at the back of the booth which has already been tested on the running-water machine, completes the demonstration of the superiority of Valspar for the bright work of a high-speed boat, and, in fact, for any varnished surface that is liable to come in contact with water.

Test No. 3—The Water and Weather Test—Perhaps the most valuable test of the qualities necessary in a varnish for boat use is the "water and weather test." The six mahogany panels shown in this test are varnished on the middle sections with three coats of the six best-known spar varnishes on the market. Three of the panels show the appearance of the varnishes before the test began, and the other three show their appearance after this severest of all varnish tests was completed. These tested panels were exposed for six months to the alternate action of water and weather. They were laid face down in water for a week—then taken out and exposed to the weather, facing South, for a week. Then back in the water, then out in the weather again, and so on, changed every week for six months. This test reproduces more closely than any other the actual conditions of marine service, for with the fog, rain, Spring dew, etc., the bright work of a boat is wet just about half the time. These panels were tested from the end of July, 1914, to the end of January, 1915, so that they have been through Summer heat and Winter cold, and the result is surely startling. The Valspar has come through this terrific test practically unharmed—its lustre undimmed and its toughness unimpaired. The other varnishes have cracked, perishing, and turned white—most of them have gone to pieces before the test was half over. No more conclusive proof of the superiority of Valspar for exterior work could be offered.

Test No. 4—The Straight Weather Test—At the back of the exhibit is shown the result of a straight weather test on Valspar and the eight best-known spar varnishes on the market—the

(Continued on page 22)

EVINRUDE + ROWBOAT = MOTORBOAT



EVINRUDE Detachable Rowboat and Canoe Motor with Automatic Reverse

The 1915 Evinrude Rowboat and Canoe Motor with Automatic Reverse has made a great sensation in the detachable motor field. 100% more flexibility—forward—reverse—maneuver as you choose—by simply giving the tiller handle a quarter turn. Must be seen to be fully appreciated. Ask your dealer for demonstration.

Standard Equipment includes Built-In Magneto, Maxim Silencer. Catalogue sent free upon request

12 BEAUTIFUL POSTER STAMPS SENT FOR 4 CENTS.

EVINRUDE MOTOR COMPANY, No. 20 Evinrude Block, Milwaukee, Wis., U. S. A.

Distributing Branches: 69 Cortlandt St., New York, N. Y. - 218 State St., Boston, Mass. - 182 Morrison St., Portland, Ore. - 436 Market St., San Francisco, Cal.

Please mention THE RUDDER when writing to advertisers

Kahlenberg

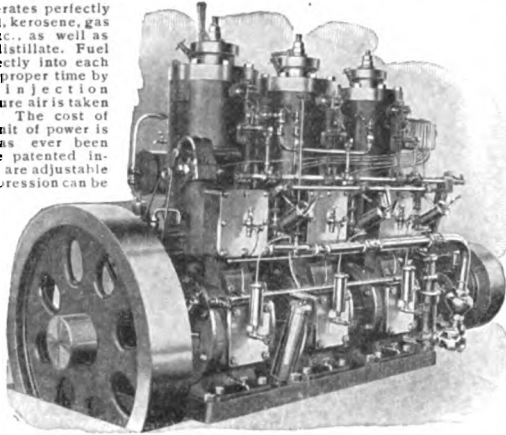
MARINE HEAVY DUTY OIL ENGINES

For severe Heavy-Duty service in cruisers, commercial boats, tugs, etc., the Kahlenberg "Semi-Diesel" type engine is so far in advance of other marine power plants, that it has no real competitor in efficiency and economy.

The engine operates perfectly on crude fuel oil, kerosene, gas oil, solar oil, etc., as well as on gasoline or distillate. Fuel is injected directly into each cylinder at the proper time by individual fuel injection pumps. Only pure air is taken in at the base. The cost of operation per unit of power is lower than has ever been achieved. The patented internal hot bulbs are adjustable so that the compression can be changed as desired while the engine is in operation.

This Semi-Diesel engine is started on gasoline or distillate and in two or three minutes when it has heated the bulbs, the gasoline or distillate is turned off and the fuel pumps turned on. Any cylinder can be operated individually if desired.

If you want a business engine, built for business, an impartial investigation of the Kahlenberg "Semi-Diesel" will convince you.



85-H.P. Semi-Diesel Type

WE BUILD ENGINES from 2-H.P. UP.
MEDIUM DUTY and HEAVY DUTY

No matter what kind of marine power you need, let us tell you the exclusive advantages of the Kahlenberg model which is built for your purpose. There isn't a better engine in design, material or workmanship. It isn't fair to yourself to buy another engine before you have our catalog.



Write today for catalog and booklet, "What Users Say."

KAHLENBERG BROS. CO.
Main Office & Factory 1706 12th St., Two Rivers, Wis., U. S. A.

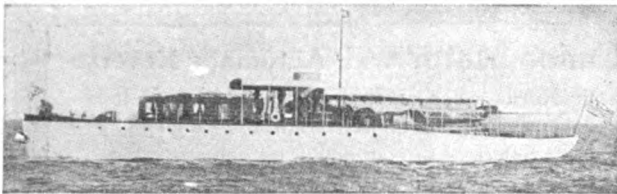
JAMES CRAIG

Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

Designers and Builders of Craig Marine
Oil Engines (Diesel Type)
Gasolene Engines



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9' x 11

(Continued from page 20)

same six as used on the water and weather test, and two others. Again Valspar shows its superiority, for the other varnishes have all cracked and perished, while the Valsparred center sections of the panels look as well as when the test began—being still brilliant and unharmed. These panels were exposed for six months—facing South from the end of July, 1914, to the end of January, 1915, and they refute conclusively the statement that in making Valspar waterproof, its durability had been sacrificed. Also the statement that its quick and hard drying properties injured its toughness and elasticity. All the varnishes used in this test dried slower than Valspar, yet in every case they perished quicker.

Test No. 5—Comparative Severity of the "Water and Weather" and the "Straight Weather" Tests—Another and instructive set of panels shows the much greater severity of the weather and water test as compared with the straight weather test. Of the four panels shown, varnished with Valspar and four other high-grade spar varnishes—two panels were subjected to the water and weather test and the other two, varnished with the same varnishes, to the straight weather test. On both sets of panels Valspar has remained unharmed but the four other varnishes have perished much more completely on the panels that were given the water and weather test.

The comprehensive and instructive Valspar exhibit is completed by two handsome sets of panels—one set showing the mirror-like finish of Valspar over various woods and the other set showing seven of the beautiful Valspar enamel colors.

All the tests shown in the exhibit were conducted under conditions that were absolutely fair. The varnishes were all purchased in the open market from fresh stock, during the Spring of 1914, and in their application and subsequent tests were all treated exactly alike. The time allowed between coats and for finish drying before testing was sufficient for the proper drying and hardening of the slowest of the varnishes used. The results shown can be, and have been obtained by others under like conditions. Two notable examples were the elaborate tests carried out by Professor La Wall, of Philadelphia, for the Curtis Publishing Company, and by Professor Rogers of the Pratt Institute, of Brooklyn, for Good Housekeeping Magazine. These eminent chemical authorities made comparative tests of Valspar and thirty or forty competing varnishes, and found Valspar superior to all. Professor La Wall, for instance, kept a panel varnished with Valspar in boiling water for two hours and a half, and could find no evidence of deterioration even when he examined the panel under a microscope. Professor Rogers, whose tests included one of two weeks in cold water, one of an hour in boiling water, and one of an hour in hot soapy water, concludes by saying that "Valspar stood every test applied to it without the slightest damage to its protective quality or brilliancy," and that "none of the varnishes tested stood up as well as Valspar," and that "Valspar is the most perfect varnish on the market."

More important still, practical service tests conducted the world over by varnish users, have placed Valspar in the fore front of high-grade varnishes, and have made it the "Standard for Quality," wherever varnish is used.

* * *

STERLING SALES IN LATITUDE 25° N.

Motor boating activities in Miami, Fla., and vicinity are now at their height. This means that the Sterling Engine Company have plenty to do just now down in the land of palms and pomegranates. One of their expert mechanics has just returned with sun-tanned face from a prolonged tour through this territory where he supervised the installation of new engines and rendered desired services to boating men who were already Sterling owners. Mr. A. B. Gardner, of Coconut Grove, Fla., a little South of Miami, has just placed a B-2, 20-35-h.p. Sterling in his new Southern-built cruiser. The Miami Beach Improvement Company have installed a 45-h.p., heavy-duty Sterling in one of their boats, while Dr. W. H. Lawrence, of Coconut Grove, has purchased a B-3 type, 20-35-h.p. Sterling. Mr. Huston Wyeth, owner of the Nemaha, the pride of the Miami fleet, has placed two of the famous "Sterling Kids" in his tenders, that the high standard of refinement seen throughout this entire yacht may be maintained in this important department. Many of the Northern cruisers now hibernating in the warmer climes of Southern Florida are equipped with Sterling engines. Among these may be mentioned the Matthews 50-footer Traveler, which was a feature of the New York Show a year ago, and which is equipped with a 25-35-h.p., heavy-duty Sterling.

Ved Henveudelser til Annoncerende bedes De referere til THE RUDDER

THE RUDDER

APRIL, 1915

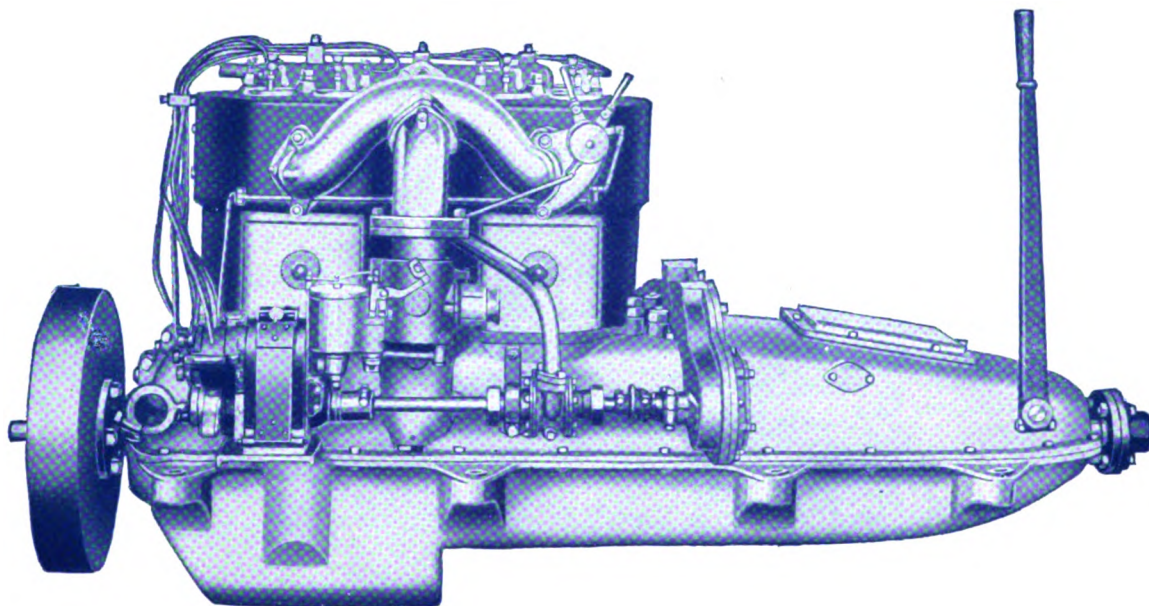
Vol. XXXI

No. 4



PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

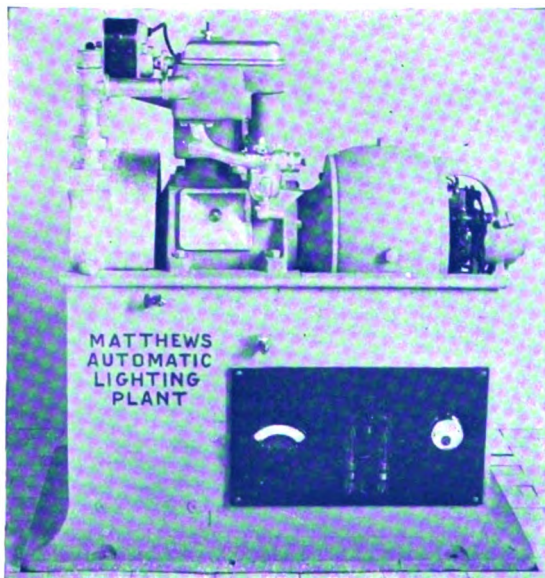


The Motor You Would Like to Have in Your Boat

Van Blerck engines are all of the same cylinder size—5½ in. x 6 in.—and built in units of four, six and eight cylinders. Write today for the Van Blerck catalog, it's really interesting.

VAN BLERCK MOTOR CO.
— MONROE, MICHIGAN —

Matthews Lighting and Power System



Full automatic and hand control, especially designed for boat service. Four-cycle motor, 1 and 2-K. W. capacity

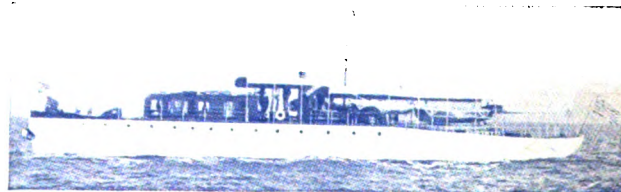
Can be used for suburban home lighting. The most satisfactory small plant yet built. Sold on a guaranty of satisfaction or money refunded. **QUALITY**—the same as in the Matthews Cruiser.

THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio
New York Office, Hudson Terminal Bldg. Concourse

JAMES CRAIG Engine and Machine Works

807 GARFIELD AVENUE
JERSEY CITY, N. J.

**Designers and Builders of Craig Marine
Oil Engines (Diesel Type)
Gasolene Engines**



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught
Two 4-Stroke, 6-Cylinder Craig "Diesels" 9½ x 11

The Rudder

Vol. XXXI

APRIL, 1915

No. 4

BOAT HOUSEKEEPING

Winfield M. Thompson



MOST of us are familiar with the good old story of the Scotch hand who came aboard with one loaf of bread and a dozen bottles of "whusky," and was greeted by the owner with "What are you going to do with all that bread?" A Joe Miller like this survives because it reflects a certain condition to be found in yachting—an absence of a sense of proportion in men who have

to do with the victualing end of the fleet. Not one amateur in a hundred knows how to order food for a cruise, and not one in a thousand how to cook and serve it under cruising conditions. Professional stewards and cooks do it very well, but they put a crimp in the owner's pocketbook in so doing that makes their employment a luxury.

I once cruised with a friend who employed a Japanese cook. He was the best of his sort, and that is saying a lot; but the way the bills ran up for food and drink on that ship was amazing. The grocers along the coast looked for her to arrive. Every time she dropped anchor in their waters meant a new dress for the wife or an addition to the house. She was a floating gold mine. No delicacy of the season was untried by the Japanese cook. He had the first new asparagus and green peas, the fanciest fruits and chickens, the earliest mackerel and the freshest eggs. He also brought aboard cream and butter enough to serve three times as many men as could bunk in the owner's end of the brig. Since the owner agreed to all this, and paid the bills cheerfully, there was no kick coming; while we poor cruisers in our small craft loved to sail astern of that schooner about dinner time to get a whiff of the good things we knew to be preparing in her galley.

When invited to cruise on the ship of luxuries I let a loop out of my belt and accepted. Within a week I was

thinking about my own plain fare on the catboat at home. Chickens' livers and truffles are all right for a time, but one tires of them. When good and tired of a thing, one picks faults with everything concerning it; and I found myself watching that Jap disparagingly. I was sure he was a grafter, and I soon discovered that he was a most extraordinary drunkard. He drank a quart of whiskey a day without blinking. His second quart was the one that brought trouble. One night dinner was not served on time, and the Jap steward—who was taking a course in the Science of Government at Harvard when not on the briny—said the cook was sick. We went forward, to minister to him, and found him under the table, smiling blandly up at the crew, and breathing soft words that the steward told us were Japanese blessings. We got him up and upon a locker, to slumber. The steward proved to be a cook in disguise, and got us up a very good meal, in the course of which the owner declared that with morning he would give the cook a tremendous talking to.

In the morning there proved to be no cook to talk to. He had disappeared in the night. As no boat had been struck out, we marveled at his disappearance. A hail from a nearby vessel cleared the mystery. Our cook had been found at daylight clinging to her bobstay, smiling up at the Swede who hailed him over the knight heads. He was returned to us, none the worse for his swim, and went about his work as usual.

This incident made a strong impression on me, as to the unreliability of sea cooks, and of Japs in particular. The best of them have some weakness, it seemed to me; and that made me inclined more strongly than before to an ingrained belief that the man who does his own cooking afloat is happier than the one who hires a high-priced cook and foots the bills for the food to boot.

Not having the means to hire a cook, or to pay for fancy food, I find it comforting to reflect on the pleasures of boat housekeeping. It is really a great part of the sport of cruising to a man who likes it. To one who does not, it is worth cultivating for a number of reasons, foremost of which is the importance of treating one's stomach well on sea as on land, in the interest of health.

Copyright 1915, by THE RUDDER PUBLISHING Co., New York. NOTICE—The contents of this magazine, including all articles, illustrations, plans and designs are covered by copyright, and their reproduction is absolutely forbidden without the consent and permission of THE RUDDER PUBLISHING COMPANY.

A good many young men who follow boating as a sport wonder why their stomachs are "knocked out" after a few days afloat. Reason enough! Irregular eating of cold food or canned food, baker's bread and poor pastry accounts for many cruising ills. I have seen a racing crew dine from cold canned beans and milk because no one of them had the ability to prepare a meal. I have rounded Cape Cod in Wintry weather with only a frying pan and a miserable little one-burner oil stove as galley equipment, and tinned goulash and doughnuts as stores. I sailed one Summer with a man who fed us, at the end of each race, on tinned Eastport herring and soda crackers. He said he never felt hungry when on the water. I doubt if an appetizing meal was ever prepared on his boat. She was not equipped for housekeeping, and any one suggesting that time be given to cooking would have been talking heresy.

This boat was a type of the larger racing boats of the Atlantic Coast, so far as her want of equipment for comfort goes. She was skinned out to the last ounce, and her cooking gear was a little galvanized iron affair fed by alcohol, that could be picked up in one hand and passed into the dinghy before each race. Most of us have seen such things so often that they excite no comment, unless we are in a reforming mood. Then we risk being called "Old Betty," or something like it, if we urge the need of living quarters on racing boats. Very well, say I, every man to his poison; but give me the boat with a comfortable galley, in which I can prepare a meal to my liking.

This possibly is evidence of plebeian taste. So be it. I laid the foundation of my likings as to sea cooking on a New England fishing schooner, on which I sailed as a lad with my father. I can see the forecabin now, with a big stove, that had a big oven, out of which came many savory dishes of baked hash, so skilfully made that one did not know its main ingredient was salt horse. Biscuits, soups and stews, fried fish, flaky raisin pies, and great pans of gingerbread, rise before my memory's eye at this moment, when I think of the forecabin of the good schooner Ripley Ropes, or the Australia, ancient packets in which I took brief juvenile trips that made a far deeper impression on my mind and character than I suspected for many a year. The men who sailed on those vessels were hard-working, fearless, rough chaps, who faced death often without appearing conscious of danger, and who lived, some of them, to ripe years, and to die in bed. But if they worked hard and fared hard at sea, they lived well. This will be found true of all New England fishermen. You will never want for a meal among them, and it will be a good meal. I think the same may be said of most fishermen. I have noted especially among the fishermen of the Gulf of Mexico, that their cooking was good and their supplies abundant, though plain. So, say I, if the man who follows the deep for a livelihood finds time to study the proper preparation of food, and the proper arrangement of cooking facilities on a boat, why should not a man who sails for pleasure?

There may be differences of opinion as to what constitutes a proper galley on a small boat. Theory usually places it in the eyes of the boat, where you are obliged to sit on your haunches to get at the stove, stand on your head to reach the stores and curve your spine the wrong way to get around the foremast and interview the ice-box. Such a galley, besides being impossible in dimensions, is so situated as to send all the odors of cooking back into the cabin. It usually has no independent entrance, so that all stores pass through the cabin on their way forward, and

all waste on its way overboard. Such a galley is unsanitary and altogether wrong.

In practice, so far as I have been able to observe, the location of the galley should be determined by the size of the boat. I think it a good general rule to locate the galley aft in all boats that do not have full headroom forward. A galley forward is proper and desirable so long as it has full headroom, an independent hatch, light and ventilation over the stove, free access to the ice-box and stores, lockers and room for a small sink. Such a galley is rarely possible in a boat less than 50 feet over all. In such a boat the galley should be aft, beside the companionway.

On power boats the same arguments for the galley amidship hold good, although in most medium-sized cruisers there is sufficient headroom to have it well forward. One argument in a power cruiser against a galley forward, besides those cited, is the thumping the cook gets when the boat is being driven into a head sea. I recall making a trip once around Cape Cod, in a race to New York, in which the boat pounded so hard that she threw the kerosene stove clean over its guard rails and landed it bottom up on the cabin floor. By the grace of God we extinguished the resulting flames; a fortunate circumstance for us, as we were then in a wallow of cross sea off Monomoy, and in case of accident there were five men of us to one little cockleshell tender, made to meet rules, but not for that sort of service.

Some people object to a galley aft on æsthetic grounds. "Why," said a young designer to me recently, "you don't want your stove right out in sight, right in the cabin, do you?" I answered, "Why not?"

Why deny the existence of so useful an article as a stove, or so important a process as cooking? It reminds me of some of the "nasty nice" folks one meets occasionally in what passes for society on shore, who avoid any reference to the common facts of existence, such as cooking, as if they did not exist, and affect to think that persons who talk of them are low and vulgar. Most of us, to live, have to eat three times a day, and why not make the preparation of one's meals a pleasant part of the day's work? For me, it is no disgrace to see a well-kept galley given a place of prominence in a boat; and I notice that some of the chaps who own racing boats, or near-cruisers, in which all cooking gear is banished to the forepeak, are not above coming around and sniffing the fish chowder when I am preparing a meal.

In your galley arrangements much depends on the character of your stove and of its installation. A small range, in which charcoal can be burned for cooking a single meal, and pea coal for wet, cold days, should be placed beside the companionway, in a space neatly sheathed with yellow metal. This metal is easily kept bright, and never corrodes, like zinc. In the locker under the stove a space for fuel may be lined with this metal before the stove is installed. Care should be taken to have it watertight, as water from the bilges otherwise will wet your fuel. With dry charcoal always at hand, you can light a fire in short order, on the wettest day; and get heat in a few minutes for a cup of coffee. Even on the hottest days, a stove placed beside the companion heats a cabin less than the average liquid-fuel stove in the forepeak, while the objectionable fumes of some liquid fuels, and their consumption of oxygen in the air of the cabin, are done away with. I understand a new alcohol stove is advertised as an improvement on the old-style liquid-fuel stoves, but I have not seen it tested.

I know of nothing snugger on a nasty day, when you are riding to a long rode in a safe harbor, waiting for a head wind to blow itself out, than a cheery fire in a little Shipmate range, a pot of something savory on the stove, and a few callers from some less comfortable boat to sit on your cushions and envy you your quarters. At night, on such a boat, when your fingers are numb from gripping tiller or wheel, you come below to find a steady warm glow coming from the stove, and turn in, after warming up hands and feet, with the assurance that it will be there when you turn out.

Thoughts of the stove bring questions as to cooking outfit. They are easily answered, after indulgence in a few don'ts. First, don't use agateware on a boat. Money put into it is wasted, for with banging about, agate is easily chipped, and once it is chipped, the iron is quickly eaten through by rust. Don't use common tin, for that rusts out very quickly. Neither is common aluminum entirely satisfactory, as the exfoliation of the metal when touched by salt water is rapid. The best utensils are made of copper, tinned on the inside. They cost a little more than the varieties named, but last indefinitely.

Any good tinsmith can make a set of cooking gear for you, in any size you desire. I had a pot for lobsters and chowders made from a sketch for \$1.80, at Boothbay Harbor, Me., that has been a source of much satisfaction. Every pot preceding it had rusted out in a season. This one is good for a lifetime. For frying, I use the old-fashioned, heavy cast-iron spider. Once "broken in," such a dish does not readily rust, if care is taken to leave it greased when not in use. For tea, an old-fashioned, brown china teapot fills the bill, at a cost of 25 cents. Coffee is made in a china percolator, costing \$1.50; but this is a luxury, for the madam, as the Old Pirate drinks tea. One article that I find indispensable in the galley, but to which most amateur yachting cooks are a stranger, is a tea kettle. It is copper, nickel-plated. The nickel is not necessary, but that is the way they come in this country. I couldn't "keep house" on my ship without that tea kettle. The first act of the cook, after making the fire, is to half fill the tea kettle at the water tank faucet—which can be reached without getting off the seat in front of the stove—and to put it on the fire to boil. Three minutes after it boils, my first drawing of tea is ready.

Since we are fairly launched on the subject of grub, let us take a look at the question of stores. Personally, I go in for the staples, and let somebody else have the fancy stuff. A bushel of potatoes, half a bushel of onions, a peck of cornmeal, a strip of bacon, some salt pork, tea, sugar and prunes will go a surprisingly long way as the makings of sound and satisfactory meals on shipboard. A few tinned vegetables are good, such as green beans and beets. Baked beans are all right, also, but they are much better when baked aboard than when tinned. Eggs are a staple, which can be obtained in almost any port. As for bread, the best sort I know about for a hard-working cruiser is "Johnny cake," made of cornmeal. It is quickly made, and in your stove it is quickly baked; and when done right, nothing is better. Any old housewife can give you a recipe for Johnny cake.

One very important article of diet to the experienced cruiser is fish. I cannot conceive of a successful cruise without plenty of fish, clams, oysters or lobsters on the table. Every sea cook should have a fish line and a clam hoe as part of his personal outfit. Very often I have dined off a cod, bluefish or flounder who was doubly welcome for coming over the side to a nearly empty

larder. If a haddock can be had, the best of all cruising dishes, in the fish line, can be accomplished in short order—a fish chowder. Pork, potatoes, onions and water—if milk is not to be had—make the basis of the chowder, or "muddle," as fishermen sometimes call it. The cruiser who has not eaten such a chowder, made in North Atlantic waters, has something to look forward to. It is as distinctive in its way as the chicken gumbo one eats in Louisiana.

To have good food one must take good care of his stores. They should be carefully stowed, even though their quantity be small. If you have a special locker for vegetables, canned goods, etc., see that it is divided into bins, so that things can't shake around in a seaway. There is a great difference in boats as to their ease in taking the sea, and a very marked difference between sailing and power boats; but all will worry and bruise things that are left loose. Power boats particularly need watching in this connection. I recall that before starting on the cruise mentioned, when the stove turned upside down, I was called upon to stow in the forepeak ten dozen bottles of ginger ale. I stowed them as I would have stowed them in a sailing boat, in their rush jackets. When we arrived in quiet water up Long Island Sound, I went to get some of the bottles and found only a jumble of glass and straw in the space where the bottles had been. She had pounded those bottles into powder. When we sounded the pump it vomited ginger ale and cylinder oil in about equal parts.

For your light stores you can get of any grocer a number of painted tin cans, such as cocoa comes in, and these can be fitted, with a little labor, into snug chocks in your grub locker. In one may be coffee, in another tea, in another block sugar. Salt is best carried in a screw-top jar to keep out damp, and the same with butter, though for another reason. If you are not carrying ice—and seasoned cruisers do not, as a rule, carry it—you can always cool your butter by lowering the jar over the side to bottom when at anchor.

In writing of food, and eating, I realize that I am touching on a subject much abused by many would-be writers of yachting cruises. Some of the dullest reading I find in their narratives are lengthy references to what they had to eat; not that eating is a dull subject, but because they drone on about it to the exclusion of the things of real interest about which they should write. Few of us rise superior to our stomachs, afloat or ashore, but in the log of our daily lives, it is not well to let eating take a disproportionate share of our attention.

In boat housekeeping there are other items to be considered besides eating and cooking. The careful yachtsman gives close attention to the sanitation of his boat. He uses hot water and soap liberally on floor and finish. Dirt gains headway fast on shipboard, unless you keep after it. A well washed floor, and a good hot fire to dry it, makes a cabin sweet and wholesome. Occasionally the cabin floor should be taken up, and the space beneath given a good washing in water impregnated with corrosive sublimate or some other disinfectant. Foul bilges, shaken up whenever a boat jumps into the sea, are a menace to health. Get after them!

Another of the first principles of boat housekeeping is to keep bedding and clothing from mildewing and souring. Blankets and pillows should be aired every day, and cushions at least once a week, to keep them from mustiness. Clothing hung in lockers should be aired every few days. I have seen a coat hung a week in

a closed locker come out as green as a landsman's bile in the Gulf Stream. Shoes are perhaps the greatest gatherers of mold, and should never be left long in a locker. An old shoe left aboard ship hastens the end of the vessel, by breeding the bugs of rot.

This brings us to a consideration of the best kind of interior arrangement on a boat for preserving both dunnage and the boat itself. In my opinion it is one with a minimum of closed lockers. I once saw a boat that was filled with lockers, one in every possible space, and some in impossible ones. Each locker was shut by a closed door. Such an arrangement is a fine one for shortening the life of the boat. I was looking for a boat to buy, but I did not buy that one, though she was otherwise promising. I have also seen boats without lockers at all, which is the other extreme. Herreshoff is fond of

turning out such boats, which have the double advantage of freedom from rot-breeding holes, and of costing less for the same money. Get that? The ideal boat as to lockers is one that has enough of them to stow stores properly, and those enclosed only with pierced or slatted doors or similar removable fronts. The best coat locker I have seen had a blind-slatted door; the best grub locker a door with lattice front of light slats interwoven; the best locker for heavy stores, a bin of small compartments with no door at all.

With a good, clean, well ventilated cabin, and good plain food, properly prepared and served, you will find your cruises far more beneficial to your health than on a sloppy, greasy, gummy, neglected boat on which nobody is shipped as cook.



SAILS

Charles G. Davis

PART VII

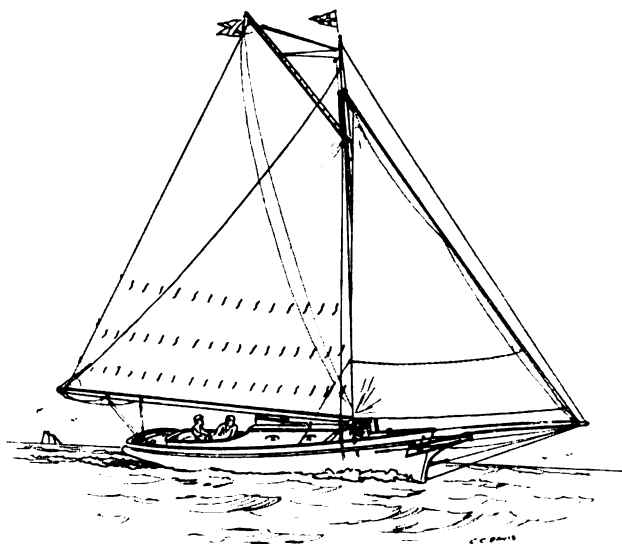
THE charm of sailing is the flexibility of all the component parts of a boat. The novice, learning only the first principles of sailing, sees only a few simple theories; but the more he learns about the sport, the more he will see there is yet to learn.

The boat itself is apparently subjected to whims, the spars and rigging are like banjo strings, all requiring tuning up to the proper tension to give the best results, and the sails are a soft, pliable cloth that can be mal-

I am not enumerating all these conditions to scare the novice, for the first rudiments—enough to sail a boat—are very simple; but have done so to show the man who takes to this sport what an endless variety of fine points he has to expend upon.

A great many sports are like a single musical instrument, while yacht racing is a whole orchestra.

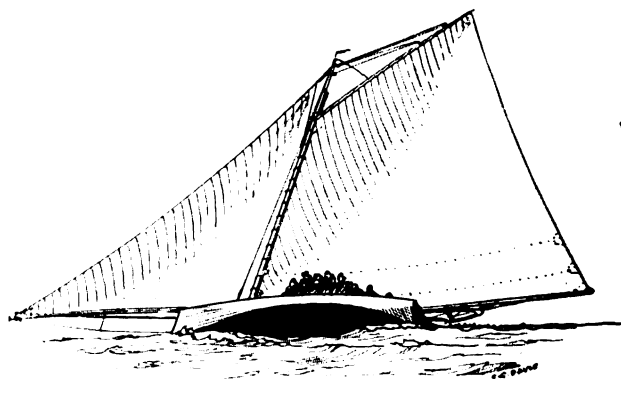
Experience is the best teacher, but some pupils, quick to see, quick to hear, to move and to analyze cause and effect, will learn much more rapidly than others. That is where the personal element enters in. Take a one-design class of boats, for instance—why does one man beat another in sailing his boat when both are just alike? Some men grasp the idea quicker; then again, there have been



An Old-Time Cruiser

treated or skilfully handled, according to the experience of the man in charge of them.

Add to all this the fact that the winds and waves are ever varying and what looks at first like a very simple problem one begins to realize is really a sport that will keep a man studying for some years. Then again, every type of boat has peculiarities of its own and every change in size produces an entirely different set of conditions, to anticipate which one must, like a physician, understand the underlying principles of boats.



An Old Sandbagger

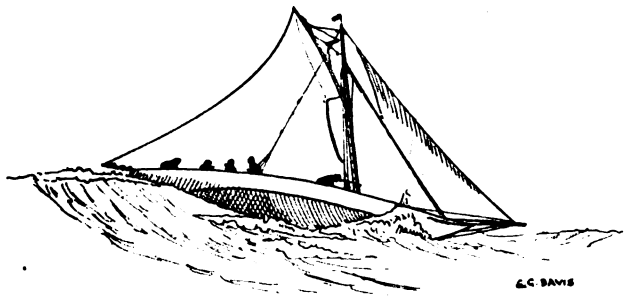
men who for a year or more have come in last nearly every race—now they are coming in winners, or up with the winners every time.

They were slower to pick up the idea of handling their boats, but none the less sure when they did. A great many people like to sail a boat, but lack confidence in themselves when it comes to racing. It is just this close competition which racing gives that puts the fine edge on a man's experience. He might sail about for years cruising by himself and never meet with one-half

of the conditions that can arise in one yacht race. How much more instructive then is racing?

As an illustration of this, watch a dozen different men start in a race and see how some, judging their boat's speed against the moving second-hand of a watch and the distance to the starting line, bring their boats across the line just as the starting signal is given—within a few seconds—and then see how slow others are to do the same thing. What better training can a man have in learning to sail a boat? None.

A man who goes through the training such a race gives him acquires skill and judgment that allows him to round up to a mooring in perfect confidence, while this is looked upon as a most difficult manœuver by the man who never has raced.



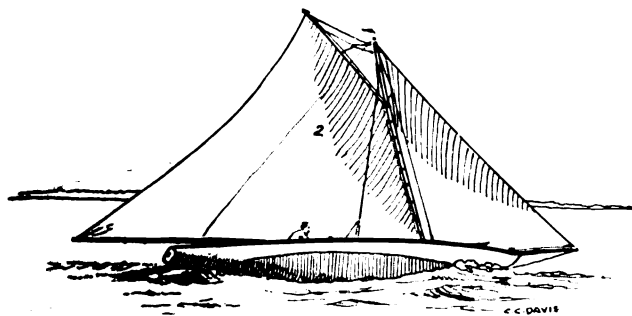
She Gathers Speed as You Crack on the Light Sails

We all of us like to go away occasionally on a cruise, to jog along wherever one's fancy dictates, making a harbor of whichever port is easiest to reach, or go sailing along all night, under a big bright moon, for the novelty of it. When it breezes up fresh, isn't it glorious to carry on sail and feel your boat, which seems almost human as it bounds along, gather speed as you crack on the balloon jib! You enjoy the speed, the flying spray, the roar under the lee bow and the white, eddying wake astern. It's a pleasure to watch her speed increase as you adjust the trim of her sails so they pull to the very best advantage.

In a yacht race you have even a better chance to try the trim of your sails, for close alongside of you is a rival, also doing his best to make his boat go as fast as she can be made to.

Every alteration you make then in the set of your sails or trim of your sheets, is made apparent as to whether it has helped or hindered the speed of your boat, for the other boat, like a thermometer, soon shows the result; she falls behind if the change is for the better, or vice versa.

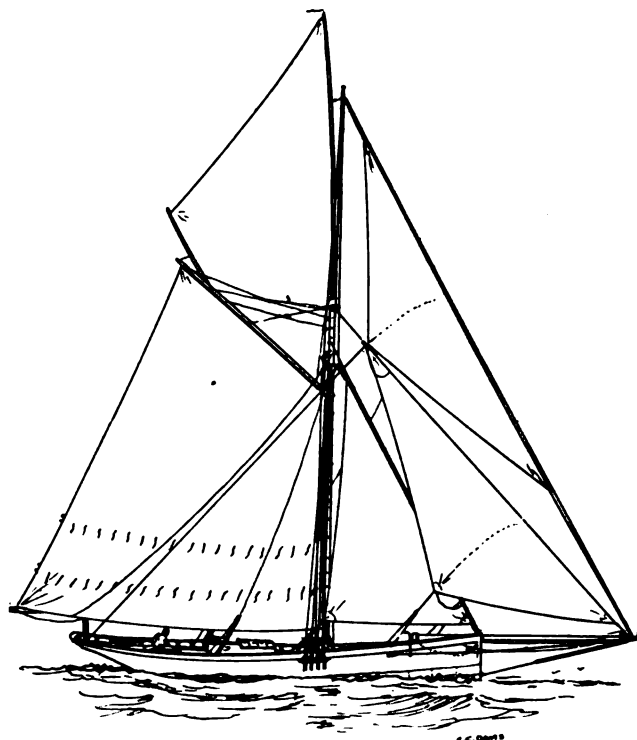
Take a modern sloop as an illustration. If we were going to race this boat, the first thing is to see that she is in good condition. One of the most important things



One of the Early Fin Keel Sloops

of all is to have a smooth, clean bottom. If she is a new boat, the swelling of the wood squeezes the putty so it sticks out in ridges—she has "split her putty," as sailors say, and this offers considerable resistance to the passage of the hull through the water. She should have been hauled out or else landed on the beach at high water and when left high and dry, had her seams all scraped off smooth.

A great many men make the mistake of putting on fresh paint the day before the race. While this makes her look nicely, it is detrimental to her speed. Fresh paint causes the water to cling to it, as if it were sticky. Lean over the side and watch how, when the boat rolls, a film of water is dragged up by the boat. It will make a far better racing bottom if the underbody, and topsides, too, for that matter, had been rubbed and polished with very fine sandpaper. The old paint was hard, and this rubbing would have given it a hard smooth surface,



Type of British Cutter

which is what is needed. "Paint between races and polish before races" is advice worth remembering.

The next most important thing is to see that the spars and gear are all in first-class order. You can't expect the sails to set well if the spars bend so they let the sails sag out of shape. This can be corrected in many cases by shifting the bridles so the spars are held where the greatest strain comes.

Many gaffs are corrected in this way by shifting the peak halyard bridle out or in on the gaff. The mast, however, is the principal spar to look out for. There is a very heavy strain put upon the jibstay when the mainsail is trimmed down hard in beating to windward. Even wire rope stretches under such a strain, and this stretch allows the mast to tip back. This shifts the whole sail plan aft, and the boat is apt to gripe and carry a hard weather helm.

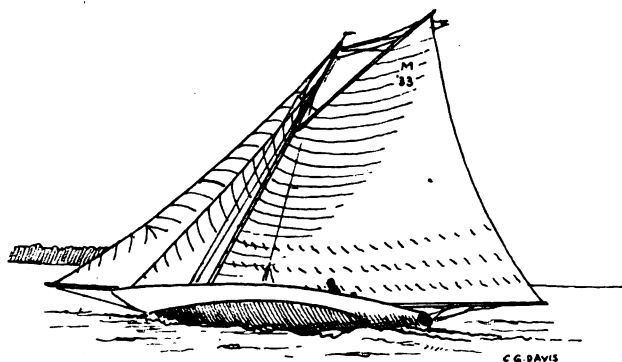
By tightening up this stay—and you want to watch the bobstay that holds the bowsprit down, as that, too, is apt to

stretch—this hard helm can be corrected. You don't have to cut the wire and re-splice it; simply twist it up and this will shorten the length of the stay. See also that the mast stands straight and plumb, and is not pulled over to one side more than another.

The use of turnbuckles has made it so easy to set up the shrouds many men are doing so who are not competent to do so. They take up too much slack on one side—or they screw the mast down through the bottom of the boat. That is, they take up every particle of slack on both sides instead of allowing the shrouds to have some little slack, so the spar takes part of the strain. The deeper and narrower the boat, the tighter the shrouds can be—but wide, shallow boats should be given a little slack. Go carefully over all the ropes and pulleys and see that none of them is defective; many a race has been lost for want of a little attention of this sort.

Now we come to the sails, the most important of all, as they are the sole propelling power the boat has, and upon their condition all depends.

The hoisting of the sails may seem a very simple matter, but it is not so simple as it looks. In a very light air of wind they should not be hove up too tight; much greater speed can often be coaxed out of a yacht when the breeze dies down by slacking down on the halyards, so the sail hangs limp and loose. But if it is blowing



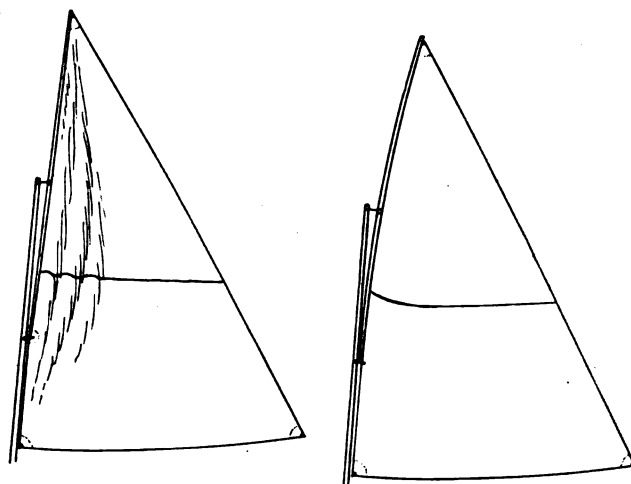
Thirty-Foot Racing Sloop

hard, it is difficult to keep the sails from bagging and they should then be jiggled up as hard as they will go.

For real hard racing rope halyards are tabooed. Rope stretches too much and shrinks so when wet or damp that you cannot depend upon them to hold the sails up as wanted, and in a close race you have no time to stop and swig them up.

Flexible steel wire rope is best, and in a boat of any size have a hauling end and a jig end as well. There is generally a great deal of difficulty experienced in keeping the throat of a sail hoisted, as the hoisting of the peak throws a heavy down-thrust on the gaff and that spar acts more or less as a pry to stretch the throat halyards. To jig up the throat when in a race is almost impossible. Realizing this, there has been a mainboom gooseneck invented, arranged with a spring that serves to keep the hoist tight. On the old, loose-footed mainsails on English cutters this was overcome by the use of a tack-tackle, but this arrangement is impractical with a mainsail that is laced to the boom. On a jib, however, that is the proper scheme. To hoist the jib on a wire halyard and then tack it down at the bowsprit or at the stem if she is a modern raceabout type with no bowsprit, by means of a wire pennant and single whip purchase.

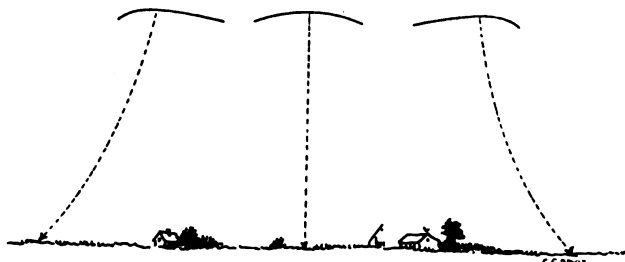
You can get purchase enough in this way to pull the masthead clear forward so it slacks the jibstay, while



Sail Properly Hoisted and the Way It Sets When the Wind Fills It

the old way, where the jib has a permanent tack, it is sometimes impossible in a breeze to even tighten the jib sufficiently to prevent its sagging between the jib hanks.

A common fault in hoisting the mainsail is in not getting the peak up high enough. As the boat lays head to the wind at her moorings, the peak should be set up so a line of wrinkles shows from peak to tack. You will be surprised to see how quickly the apparent fullness disappears as soon as you fill away and start to sail. If she has rope halyards this will be particularly noticeable, and before starting in a race it will, more than likely,



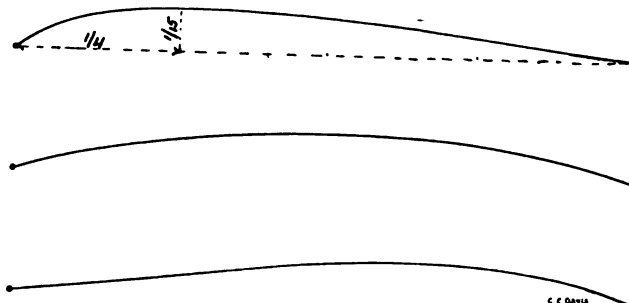
Action of an Aeroplane Wing Dropping to the Ground

be necessary to luff her up into the wind and jig up again on both halyards.

A sail not peaked up enough is a most miserable-shaped piece of cloth to try and get any speed out of a boat with, either reaching or beating to windward.

There used to be a great deal of controversy over the merits of a curved surface or a perfectly flat surface for a sail, but aeroplanes have tested this out to the undeniable advantage of the curved surface.

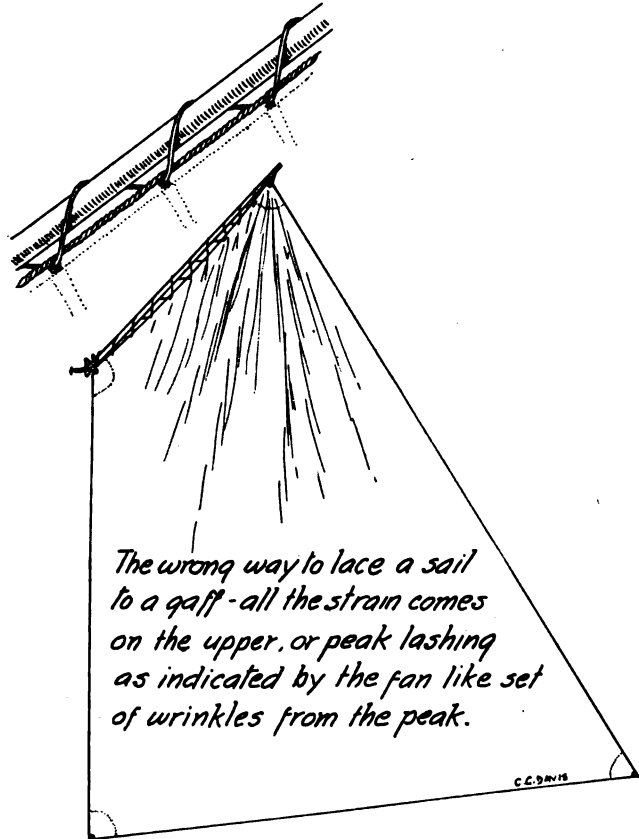
But the exact shape of this curve is of equal importance; it should be a parabolic curve, the greatest depth



Figs. 24, 25 and 26

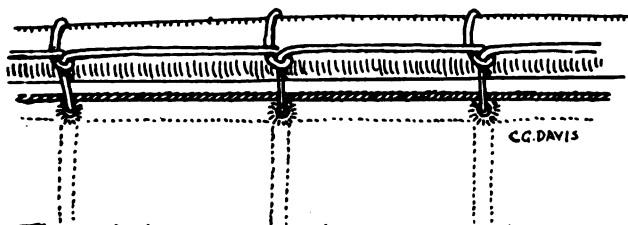
of which from a straight line between mast and leech being about one-quarter the distance from the mast and the depth of the curvature in the sail about one-fifteenth of the width across the sail. The wind's action on such a curve (Fig. 24) gives a greater forward thrust than on either a true arc (Fig. 25) or a reversed parabolic curve (Fig. 26). An aeroplane that has wing surfaces as in Fig. 25 would drop straight down while one shaped like Fig. 26 would actually go backwards.

Sailmakers, yacht designers and experienced yachts-



The wrong way to lace a sail to a gaff—all the strain comes on the upper, or peak lashing as indicated by the fan like set of wrinkles from the peak.

C.C. DAVIS



C.C. DAVIS

The right way to lace a sail each turn is hitched so it cannot slip.

men had figured this curve out their own way years before scientists began to experiment with flying machines.

But in yachting, as in every other sport, new men come and the old men go, and what the old men have learned by a life-long study of boats generally dies with them; the new, younger men have to pick up their knowledge piece by piece, just as those old men did.

Some of their experience is rendered obsolete owing to the radical changes made from time to time in the yacht's model. The trick, for instance, of luffing an old skimming-dish sandbag jib and mainsail boat out of a bad

squall is of no use aboard a modern fin-keel canoe-shaped racer, but even then all is not lost, for the confidence one gets in his ability after a training under such conditions is valuable.

The methods employed in trimming sail on the two types of boats, however, are radically different. On the sandbagger the man at the "stick," as the tiller was called, gave her a luff; the jib-sheet tender slacked off the lee sheet, "flowed his jib," to relieve the pressure on the big jib and assist the mainsail aft in turning the boat's head up toward the wind as a weather vane would turn. The sails were such immense pieces of cloth on those boats the helmsman relied as much on the quick action of his sail trimmers or sheet tenders to get speed out of the boat and keep her on her feet as he did on the helm; but on a modern fin-keeler, instead of having a crew of about eight or ten men, counting sandbag slingers, sheet tenders and all, only about two men are carried. Such boats cannot capsize; they have a sinker of lead weighing tons hung well down under the boat on a thin fin of wood or bronze. They simply sit low down in the cockpit out of the wind and let her lay down to the puffs, the weight of the keel weighing out automatically the weight of the wind on the sails, and the hull is so shaped that even when heeled clear over on one edge she still has an easy canoe-shaped form in the water that glides ahead without a hand touching the main or jib sheets. The man at the tiller has the sole guidance of the ship in his hands.

With flush decks and small, narrow, bathtub-like cockpits, such boats cannot swamp or sink, but generally carry away their mast, rigging or sails; but the poor old jib and mainsail sandbagger—look at what he was up against! If the puff hit him too suddenly to turn his boat up into the wind, so he could luff through the squall, he could not very well luff when the lee deck edge was under water, for the reason that the stern is the part of the boat that swings when the rudder is turned, and to try to swing her stern around when its lee edge was under tended to cut it down deeper into the water and swamp her, for those boats had wide, open cockpits. It is one of the most ticklish moments and largely up to the sheet trimmers as well as the man at the stick to get her up into the wind a point or two and not bury the lee coaming. Many a sandbagger has come staggering out of such a squall with several barrels of water shipped over her lee coaming.

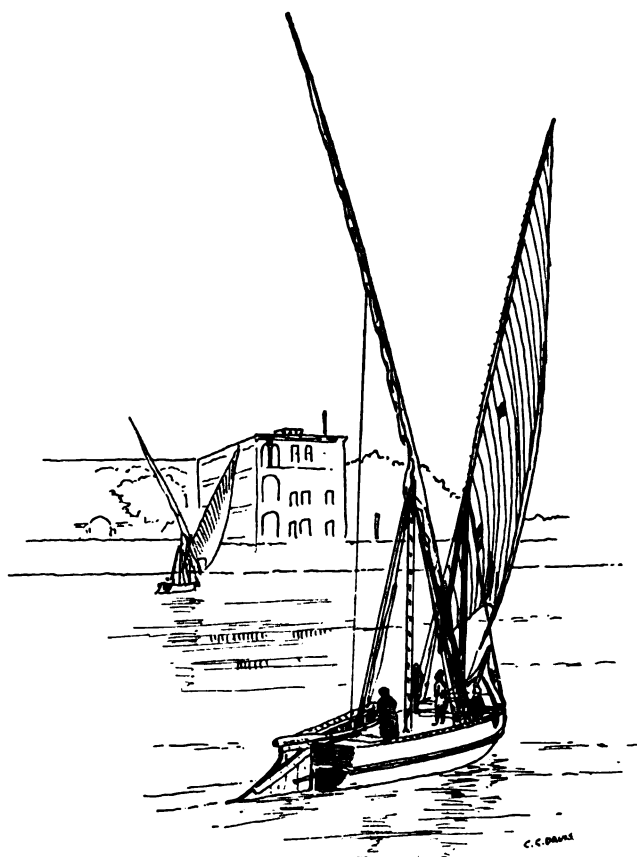
Such boats, however, bred sailors, for they carried a gang of men, not only one or two, as the boats of today do, but ten or twenty men, and there were more people per boat—friends of these men as spectators interested in watching the races as a consequence. On the other hand, we have ten or twenty yachts now, where there used to be one—and the sport is still growing.

To come back to the subject of sails. Many a first-class sail has been injured, if not ruined, by abuse in the way it is attached to the spars, and inefficiency in the spars to carry the sail properly.

Let me cite a few of these instances to you. A brand-new sail, for instance, is to be bent on for a race—maybe you think the fact that it is brand-new is an advantage—it is, just as a new pair of shoes are a comfort to the wearer. Why? For the very same reason the new shoes are a torture, generally, and that is their newness; they have not been stretched sufficiently to take out any of that natural elasticity which any new object has.

If it should so happen that the first race was sailed

in a nice light breeze, the new sail is the best you could have, but if it should come on to blow hard, the new sail, as sailors say, "would go all to pieces," which doesn't mean it would tear, but that the natural elasticity would be unduly pulled out locally; the four corners would be stretched in excess of the body of the canvas. This is what you don't want, and is the most common error made in bending a new sail. So common, that sailmakers generally attach a tag to the head and foot of each sail telling how far it should be stretched, and cautioning against stretching it any farther. Some inexperienced



men used to put a tackle on the head and foot of a sail and make it come out to the end of the gaff and boom, points it should not stretch to for a month or more. Only haul a new sail out "hand taut," as they say, and little by little; as the whole sail stretches, just take up enough along the gaff and boom to smooth out any slack cloth that appears.

Many yachtsmen, rather than stretch a new sail in a hard breeze, withdraw from a race, and few will ever reef a brand-new sail, as it pulls the sail out of

shape. If it has to be done, however, the sail will generally stretch itself back into shape in time.

More harm can be done a new sail than reefing it by not properly bending it onto the gaff. Not lacing it on with a rolling hitch or running hitch, which holds the sail firmly at each grommet as it should, but lacing it around and around, so the greatest strain and sag comes in the middle of the sail, and all the strain is put upon the upper outer clew lashing. This generally develops a fan-like set of wrinkles from the peak down through the upper part of the sail, the lacing not supporting the sail uniformly along the gaff as it should.

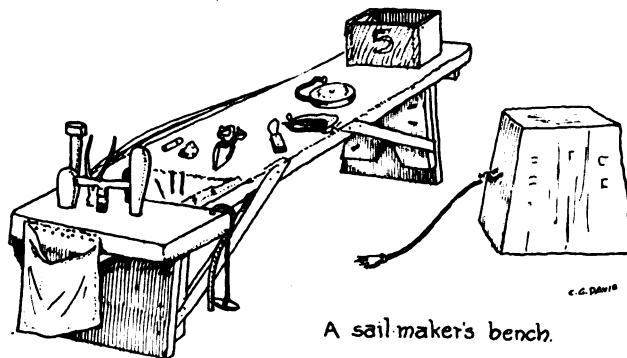
You very often see instances where this same sort of defect is produced at the tack, owing to the clew of the sail being shackled into a part of the boom gooseneck too close in to the mast to correspond to the distance the mast hoops allow the sail to set away from the mast.

To preserve the springiness or "life," as it is called, of a new sail, the outer lashing on the gaff and boom should be slacked up after each race. On the boom, where it is more practical to do so than on the gaff, and where a greater body of the sail cloth is affected, a brass track is generally fitted along the top of the boom and the sail seized to brass slides that work in and out on this track, of which there are about a dozen different varieties.

The clew is fitted to haul out by means of a wire pennant rove over a sheave in the outer end of the boom, and either attached direct to the clew or more generally to a bronze casting that also slides on this track and extends the sail to the extreme end of the boom, for on a racing yacht every inch included in the measurement must be made use of. On very small yachts I have found it a still better practice to fasten the outer ends of the sail to the gaff and boom and then do the slacking up and hauling out from the inboard end, where it is much more get-at-able. Another reason for so doing is that in a one-design class, where all the boats have exactly the same sail area, by this means you are making use of the whole area it is possible to spread on the spars given. You can slack up your sails right from the mast and do not have to monkey around in a rowboat trying to come up with a wet, swollen peak or clew lashing.

On larger boats, the boom outhaul is by far the more shipshape rig of the two; if the mainsail be slightly damp and then begins to dry out and stretch, this slackness can be pulled out with such a purchase and outhaul at any time. Should it be a dry day when the race started, and on account of no wind, the finish be delayed until along towards sundown, when the air begins to get damp, or should a shower come up suddenly, a sail with no means of slacking it up would be badly stretched as the moisture shrinks up the canvas. With an outhaul the tackle can be slacked up a few inches and the life of the sail preserved.

(To be Continued)



A sailmaker's bench.

MODERN MARINE MOTORS



AND T. ORCHARD LISLE, A.M.I.MAR.E

BOATS

THE NINE-NINETY-NINE CLASS

OPERATION OF A TWENTY-ONE-FOOT RESTRICTED CLASS IN CONJUNCTION WITH THE \$999 CLASS

IT is obvious that, while the \$999 class will make quite a sporty racing fleet (for five have already been actually ordered), one-design craft have their limits because, in these days of rapid motor-boat development, of their liability to become out-of-date before many seasons. What we mean will be readily understood when we mention that when the International 21-foot class was first formed some six years ago, it was set down as "a useful type of runabout capable of 16 to 18 miles an hour." Yet, because of unlooked-for developments in hull design and engine construction, last year's boats attained 35 miles an hour with the same restrictions.

Hence, the officers of the Motor Boat Club of America have decided to operate a section of 21-foot boats in conjunction thereof. These will be known as the \$999 Restricted 21-Footers, while the parent branch will be termed the \$999 One-Design 21-Footers. Together, as a whole, they will be called the Nine-Ninety-Nine Class.

These restricted boats will be eligible to participate in all races for the one-design boats and separate prizes will be offered. They will race together and win the prizes allotted to their particular section and there will be prizes for the fastest times irrespective of the section. Thus it is optional for an owner to have a one-design, or a restricted boat. So we understand from an interesting interview with Commodore Blackton.

As is now fairly well known, the 21-foot one-design boats have Whitaker semi-displacement hulls and Loew-Victor engines; but no such rule will apply to the restricted section of the class. Thus if he so prefers, an owner will be at liberty to select his design, engine or builder, provided the complete craft conforms to the restrictions that very properly will be made. As yet, these have not definitely been decided upon, but briefly the chief are likely to be as follows:

- A. The maximum length shall be 21 feet.
- B. The minimum breadth shall be 3 feet 9 inches.
- C. The minimum length shall be 20 feet.
- D. The maximum cost of hull, engine and fittings shall be \$999.
- E. The cylinder cubic capacity shall be 251 cubic inches.
- F. The minimum thickness of planking (finished) shall be $\frac{1}{4}$ inch.
- G. No stepped hydroplanes shall be allowed, any boat having a broken keel line (stem to stern) shall not be eligible.

Such rules insure of a seaworthy boat at a low price, and a change of engine later would bring them within the

International rules, provided the buttock line of the hull was unbroken. The maximum cylinder capacity as given is a little smaller than the cubic capacity of the engine of the one-design class.

It will be realized that rule G allows of the latest types of hull design, known as monoplanes; bow-wave-collecting; air-cushioned; and semi-displacement boats, which are proving to be even more seaworthy than the ordinary fine-lined pure displacement craft, also the V-bottomed boats, so is an excellent rule, for it tends to develop hull design and construction in its most desirable form.

Possibly a simple form of handicapping by points may be adopted later, which will allow of even the slowest boat winning at times, provided she races regularly and without breakdown. We refer to the system used with the 21-foot International class, which after six years' testing, has proved to be satisfactory. One reason being that an owner always knows what his handicap will automatically amount to, yet he is unable to impose upon it. Thus, if ultimately the restricted section proves much faster than the other, good racing on a perfectly equal basis will be provided for the one-designers, which, by the way, are splendid little runabout racers. Bang-and-go-back racing should prove unusually exciting with these boats.

Again, the new section forms a magnificent opportunity for speed and engine development, and already we know of a new American-built marine motor which comes well within the restrictions, that will develop 46-b.h.p. at 2,000 r.p.m., at the price, without gear, of \$250. In fact, the cylinder capacity is about 230 cubic inches ($3\frac{3}{4}$ inches bore by $5\frac{1}{4}$ inches stroke). Another new engine, having four cylinders, 4 inches bore by 5 inches stroke, (251 cubic inches) develops 46.2-b.h.p., at 1,500 r.p.m., on a weight of 425 lb. This motor should be capable of giving a similar speed, but its price is \$425, with gear. However, either of these engines in a well-built semi-displacement hull should be capable of giving close upon 30 miles an hour. To any yachtsman seriously contemplating building one of these boats, we shall be pleased to render all the assistance in our power; in fact, we strongly advise him to get in communication with us.

Special races for the \$999 class will be held during the coming season at the Atlantic Y. C., Columbia Y. C., Tappan Y. C. and at Oyster Bay, Huntington Bay and Manhasset Bay; also a special series of events will be held on the same days as the races for the Gold Challenge Cup. Thus plenty of good sport is promised for the Summer.



Fleetwing Racing Scripps III

DEVELOPMENT OF THE TWENTY-ONE-FOOT CLASS IN NEW ZEALAND

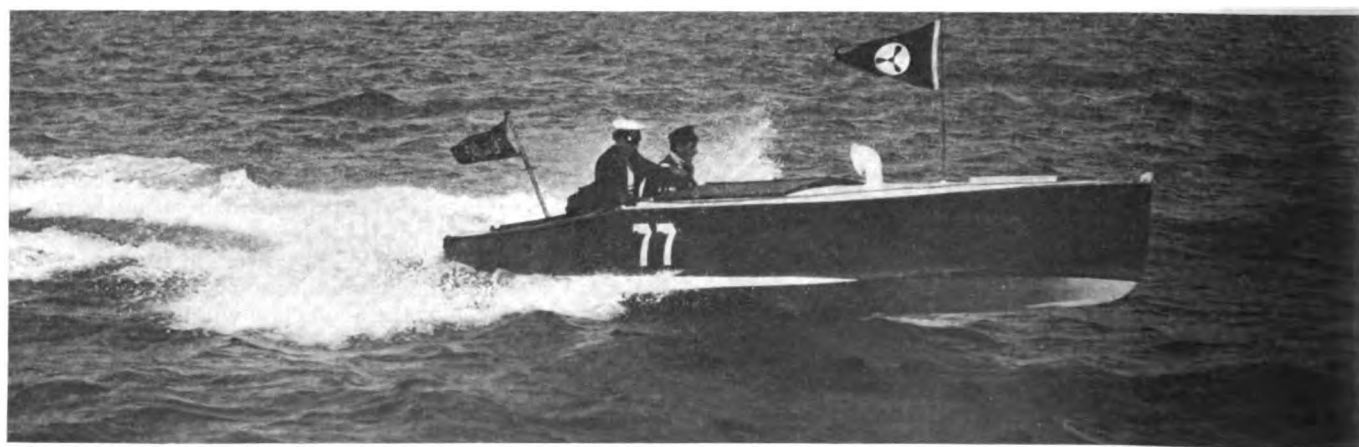
SUCCESS OF AN AMERICAN-BUILT MOTOR IN THE FIRST BOAT

SO great and world-wide has been the interest in the International 21-foot class that boats built to the rules and which have proved successful in racing have been eagerly sought after by sportsmen in all waters of the Globe, consequently many of the boats have been purchased and shipped to all parts, including Russia and Australia. In New Zealand one enterprising firm of boat-builders has made developments for themselves with great success, and the result has been a boat that not only has proved worthy of its name in racing, but is a very handsome craft that will race at full speed in a choppy sea—in fact, in a seaway that it would be very risky and unpleasant to race many of the modern skimmers, or hydroplanes. For the information given, we are indebted to Mr. C. J. Collings, of Collings & Bell, boat-builders, of Ponsonby, Auckland, N. Z., while the striking pictures were taken by Mr. J. H. Kinnear, a well-known New Zealand amateur photographer.

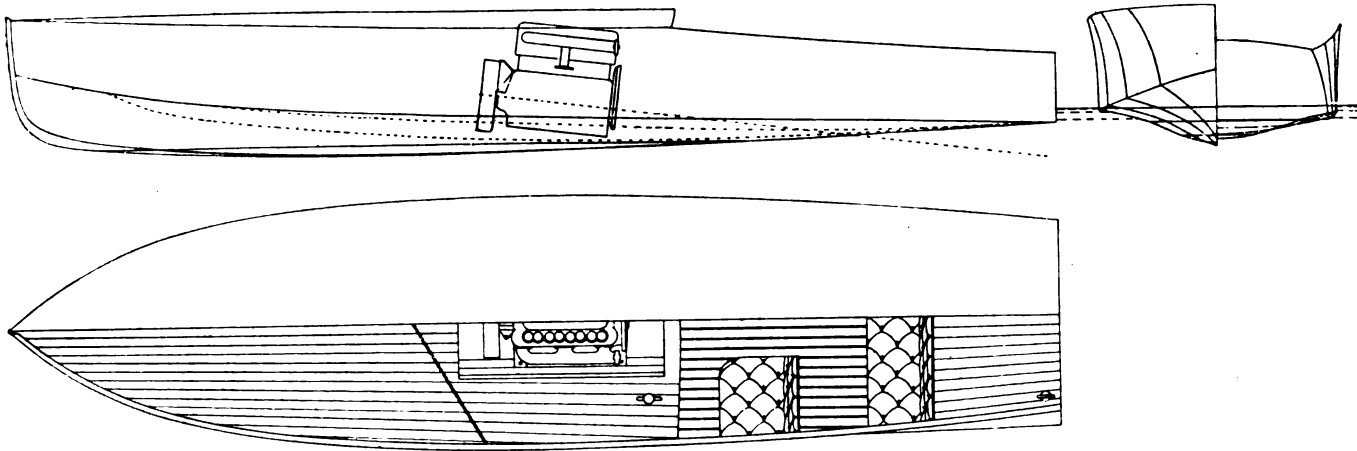
Several designs and models were first tested in an experimental tank, including a Hand-type V-bottom and other shaped hulls; eventually the hull illustrated was adopted as being the best all-round design. To us this seems to have resulted in a compromise between Mr. Morris Whitaker's air-cushioned boat and the Cox & King bow-wave-collecting type, although, of course, the lines of neither of these craft were available to the builders, nor a boat that they could study, which repudiates any suggestion of copy, other than is perfectly fair and reasonable from a point of development.

The hull is 20 feet long by 4 feet 9 inches breadth, and it is fitted with a four-cylinder, four-cycle type 28-36-h.p. Redwing Thorobred, having $4 \frac{1}{16}$ inches bore by 5 inches stroke, turning in the boat at 1,400 to 1,500 r.p.m. Owing to the revolution counter ordered not having arrived, they have been unable to accurately check the engine speeds while racing, which has made propeller trials rather difficult for them, so the best possible results have yet to be attained. The engine, which was installed without reverse gear, has run without trouble, smoothly, quietly and well. Like the first American 21-foot class boat built, the engine cylinder dimensions do not conform to the International rules. Several attempts were made by Mr. Collings to get such an engine in America without success and the Redwing Thorobred was the nearest that met his requirements. This, and other instances, only show that if such an engine is placed on the market, there will come a demand. Naturally, motor-boat enthusiasts, knowing that such an engine does not exist, do not bother to make useless inquiries; hence the apparent absence of demand. The 1915 Redwing is even nearer the rules than the one in the New Zealand boat.

Some of the engine power is lost in the silencer which is fitted, the exhaust being taken through the transom. The hull is built of Kauri, except the stem and knees, which are of Pohutukawa, the bottom planking being $\frac{7}{16}$ inch thick with $\frac{1}{4}$ -inch battens, while the topsides planking is $\frac{1}{4}$ inch thick with $\frac{1}{4}$ -inch battens over the seams. The solid frames are 2 feet 5 inches apart, with built-up



Fleetwing Is a Dandy Boat—Clean Running Too



Profile, Plan and Sections of Fleetwing

frames between and bent timbers between each on the bottom only. Two watertight bulkheads of 1/4-inch, three-ply are fitted, and the engine bearers are full length between bulkheads, while the decking is of 1/4-inch, three-ply. The following are the general weights:

Weight of hull.....	620 lb
Weight of bracket, shaft, thrust bearing, silencer, battery and piping }	110 "
Weight (list) engine.....	400 "
Weight fuel	80 "
Weight crew	308 "
Weight anchor and steering wheel.....	30 "
Total	1,548 "

Taking 36-b.h.p. as the maximum output, this means a total ratio weight with crew of 43 lb per b.h.p., or with-

out crew and fuel, of 32.2 lb per b.h.p., which is a very suitable weight for this class of hull design. This is a good bit heavier than many of the C. & K. boats, but much lighter than the Whitaker Whizzer. Another point of differentiation is that with the Collings & Bell hull there is no sheer line, and the sides are slightly concave, whereas the Whitaker sides are straight and the C. & K. design shows convex sides. All the pictures were taken in what is rough weather for a boat of her size, but the photographs fully demonstrate how dry is the hull when running at full speed. She is, however, rather hard to steer at speed, and so it is quicker to slow down when turning sharp angles. There is one balance rudder, hung on a bracket, the propeller being forward of the rudder.

Fleetwing, as this little craft is named, on her first



Fleetwing in Rough Water. Note How Dry She Is, Also the Absence of Oilskins and Life-Preservers



Depicting the Shape of Her Underbody Forward of Amidships

speed trial, covered one round of the N. Z. P. B. A. racing course ($3\frac{1}{2}$ sea miles) in 10 minutes $29\frac{3}{5}$ seconds, which equals 20 knots (23 miles an hour).

This speed was officially averaged a few weeks later in a race held in rough weather during the Auckland Anniversary Regatta, under the auspices of the N. Z. Power Boat Association. On the first smooth day following, Fleetwing was taken out and covered the course (unofficial) at the rate of 22 knots (25.33 miles an hour). This course is a triangle, with two turns and permanent marks, the distance being certified by the harbor master, so over the straight flying mile she should be capable of 26 to 27 miles an hour, especially after further propeller

trials have been made. In two days' racing she won two gold medals, two champion pennants and second in her class from scratch. In one race, Fleetwing beat the 50-h.p. Scripps III by $3\frac{1}{2}$ minutes over a $3\frac{1}{2}$ -nautical mile course in a rough sea. Scripps III is a fast cabin cruiser not unlike Mr. Taylor's Flyaway III in appearance.

The builders are to be congratulated on the success of their first attempt with the semi-displacement type of hull, which, by the way, we believe will be generally adopted in the near future for runabouts and high-speed cruisers, as well as racing craft, by reason of the seaworthy qualities obtained with high speed. We should think that such a boat as the Fleetwing could be marketed, if turned out in quantities of six to a dozen at one time, and built of a low-priced wood, for about \$999, as the cost of the engine is \$285, which leaves \$714 for the hull, gear and fittings. The new 1915 model H Redwing motor as just mentioned, even seems more suitable, as it develops more horsepower, 46, to wit, at 2,000 r.p.m. with a smaller cylinder bore and stroke, namely $3\frac{3}{4}$ inches by $5\frac{1}{4}$ inches, at a price which is \$35 lower. A boat similar to Fleetwing's hull and so equipped, should be capable of 26-28 *real* miles an hour, *not salesman's speed*, over the measured course. This would be equivalent to the average runabout that "makes" 35 miles an hour. However, by this time it will be realized how desirable a type of runabout is the 21-foot semi-displacement class; hence our untiring efforts to get these little craft generally adopted.



THE VULCAN ENGINE

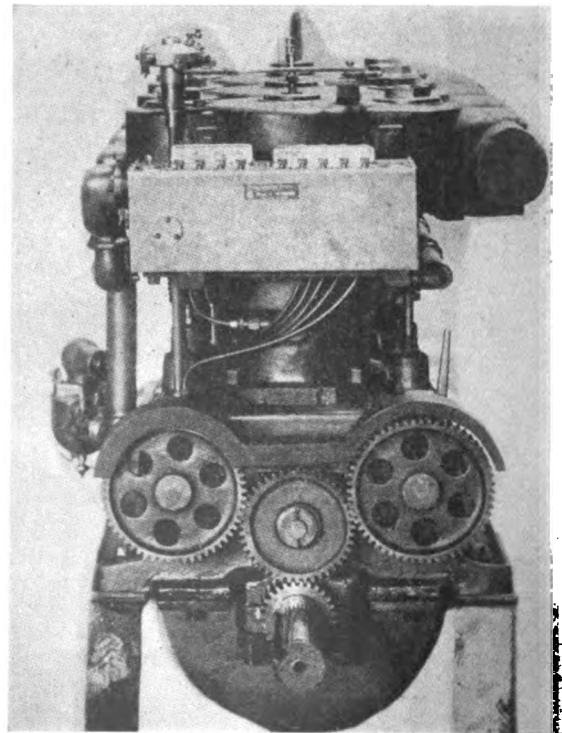
A FOUR-STROKE MOTOR OF PLAIN, RUGGED CONSTRUCTION

AMONG many power users, particularly with fishermen, and other work boat owners, there always is a demand for a simple type of four-stroke marine motor. The four-stroke type is often required because of the important point of economy of fuel, while the design must be simple because these men who earn their livelihood on the water have little time to spend adjusting the hundred-and-one little accessory fittings, such as many modern marine outfits are equipped with. Their motors must contain only such "gadgets" as are absolutely necessary for reliable running with as little attention as is possible.

In the four-cylinder, 20-h.p. Vulcan is such an engine to be found. There are quite a number of other models built by the Vulcan Engine Works, but these do not concern us at the moment. The motor in question has a bore of $5\frac{1}{4}$ inches by 7 inches stroke, and develops its rated horsepower at 500 r.p.m., so is of the medium-heavy-duty type, such as is also desirable in a cruiser where high speed is not required.

The cylinders are of the T-headed type, with the inlet and exhaust valves on opposite sides, operated by plungers and tappets from below in the orthodox manner off a cam shaft on either side. With earlier Vulcan engines the gears that drive the cam shafts were not enclosed, but with more recent models the crank case has been extended at the forward end, making a neat housing for the gears, access to which is furnished by a removable end plate. The crank case is of cast-iron in two pieces, the lower carrying the main bearings which, by the way, are of babbitt metal, cast directly into the crank case and bearing caps. We were shown an engine that had had a little over five years' steady wear in a boat and the cranks

were still quite smooth, while the bearings were worn comparatively very little, illustrating that in actual practice this system of arranging the bearings is effective.

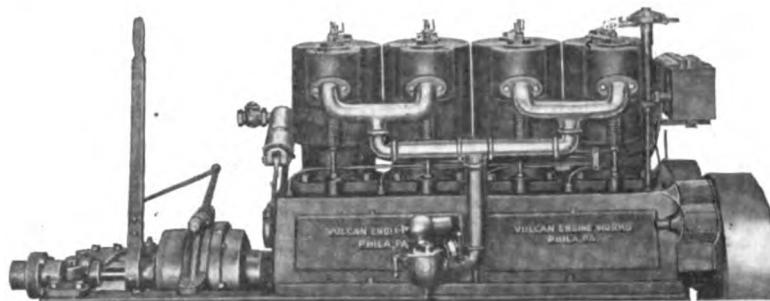


End View of Vulcan Engine Showing Gear Case Removed

On either side of the upper half of the crank case are large doors, affording access to the connecting-rod ends and the crank shaft. Water circulation is by a plunger-type pump, and the water is forced direct along the cylinder feed pipe, thus dispensing with an intermediate piping and allowing a clear flow. The lubrication of the engine is by the well-known Detroit oiler, which consists of a series of pumps, and an individual feed to all the working parts. One of the cylinder feeds injects oil into the hollow gudgeon pin, where it oils the brasses and then runs down a tube to the big-ends and cranks.

Ignition is by low-tension make-and-break, or by the high-tension jump-spark system. In some cases both are fitted as a safeguard, but this is not necessary. The make-and-break system as used on this motor is very simple. The igniter is contained in one piece, in an elliptical bronze cap, which is placed over the position of the inlet valve port and secured by means of two stud bolts. The under surface of this cap is formed into a recess to receive the igniter hammer and insulated plug. The igniter hammer, with its bronze bushing, is screwed into the cap in a horizontal—and the insulated igniter plug in a

vertical—position, the position of the hammer and plug being such as to allow the forming of the make-and-break contact. Wear of the points is compensated for through two adjusting nuts which are placed under the spring which lifts the hammer. The contact is made by means of



General View of Vulcan Engine

a push-rod which reaches from the igniter to a hardened tool steel lift; one end of the lift being fastened to a link projecting from the throttle rod, the other end working over a hardened steel quick drop-cam. Thus the advancing or retarding of the spark is obtained by moving the "drop" forward or backward over the cam.



ELECTRICAL ACCESSORIES FOR MOTOR CRAFT

No. 2—HANDY DEVICES AND EQUIPMENTS MANUFACTURED IN AMERICA

IN the January RUDDER, the first of this series of articles on electrical accessories for motor craft dealt with the electric lighting of a 45-foot cruiser, and we now give further details of some smaller and larger lighting plants. There are many different systems on the market, each having their own particular claims and advantages, and it is best left to the reader to select that which appears to be the most suitable for his boat. All the outfits that are dealt with here are to be recommended, for where there is any doubt about the reliability of an equipment we omit any reference to its existence, although other equally excellent makes as well as those described will be dwelt upon at length in future issues, as soon as space permits.

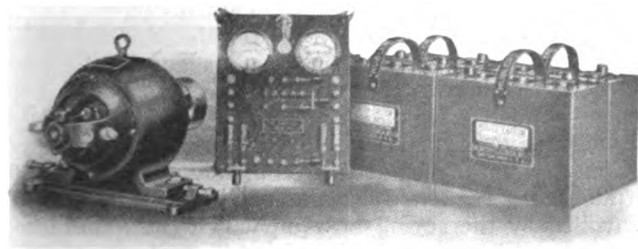
THE DAYTON PRODUCTS

A concern that has given much thought and attention to the development of electrical accessories is the Dayton Electrical Manufacturing Company, and in connection with their system, a switchboard of radical design is used, which has been designed especially for cabin cruisers. It consists of a hardwood cabinet lined with asbestos sheeting, making the cabinet practically water-

proof and entirely spray and dampproof. Inside this is enclosed the automatic cut-out, which is used for disconnecting the circuit whenever the engine slows down to the point where the generator is not producing sufficient current to charge the battery. This cut-out automatically closes the circuit when the generator again begins to operate at the proper speed. The field rheostat is also enclosed inside, and this instrument is used for regulating the charging rate of the generator. The panel of the board is made of ebony asbestos-wood and is equipped with two 4-inch flush type meters, one charging switch, and one main lighting switch. The lid of the cabinet closes over this panel, and is so arranged that it can be locked, in this way preventing any injury to the instruments enclosed in the cabinet. This board is equipped with a set of brackets, so that it can be placed in the cabin with the other controlling instruments of the boat, and its handsome mahogany finish is especially attractive and should appeal to those who desire absolutely the best equipment on their boat.

The batteries used with this system are 12-volt sets, assembled in oak crates, and contain plates manufactured especially for marine work. These batteries have a capacity of 85 and 120 amp-hours, according to the size of the plant desired. They furnish sufficient current to carry eight 12-c.p. lights for eight hours on one charge of the battery in the case of the 85-amp-hour battery, while the 120 amp-hour battery will carry fifteen 12-c.p. lights for the same period.

The generator for use with the 8 and 15-light outfits is entirely enclosed and also is especially designed for marine work. Both generators are built in the same frame, but the one used with the 8-light system is an



Dayton 15-Light Outfit

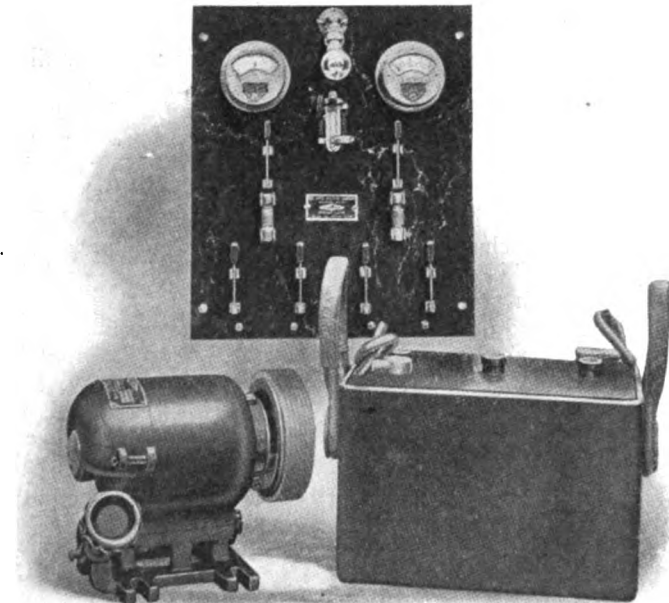
8-volt, 10-ampere machine, while that used with the 15-light plant is a 17-volt, 15-ampere. In such cases, where the outfit is to be used on auxiliary schooners, or yawls, the generator is equipped with a silent chain-drive mechanism, to be used with an auxiliary engine of about 1½-h.p. The entire outfit takes up very little space, so is suited for work of this nature.

In addition to the new systems mentioned, the Dayton Company will have on the market in a short time a 30-volt lighting equipment for larger cruisers, ranging in capacity from a 10-light, 30-volt system to a 30-light, 30-volt system. All of these ratings are based on the capacity (in 12-c.p. lights) of the storage battery only, and no consideration whatever is taken of the combined capacity of the generator and battery, as in many cases.

Another addition to the Dayton line, which will prove of undoubted interest to the motor-boat world, is a complete refrigerating system for large cruisers, which will do away entirely with the necessity of storing aboard large quantities of ice. This plant will be operated by electricity from a 30-volt system, and all the mechanism required for making ice will be confined in the ice-box, which goes with the system. This outfit will be marketed at a low price, and will add to the many conveniences to be found on modern yachts.

THE APELCO SYSTEM

Many novel and excellent features of design and construction are incorporated into the various electrical fittings manufactured by the Apple Electric Company, particularly their dynamos, the field frames of which are cast from a special electrical steel with both the bearing



Apelco Electric Lighting Equipment

heads in one piece. This arrangement insures a good and permanent mechanical alignment, and it is claimed, overcomes the possibility of parts becoming loosened by vibration.

The armatures are built up of laminated discs of electrical sheet steel, and the coils are placed in slots in the periphery of the armature, with carefully made insulation. Segments of drawn copper and Indian mica are used for



A Pretty Saloon Wall Fitting Made by the Apple Co.

Apelco Deck-Control Searchlight

the commutators, and in order to improve commutation the voltage between bars is reduced by having a large number of segments. By placing the brushes on the commutator at an angle of 45° accumulation of dirt is avoided, and the brush holder is so designed that it cannot drop on the commutators should the brushes become worn down.

For boats of 16 to 25 feet length, the Apple B-1 system has been designed, which consists of a 5-ampere dynamo, indicating switch, and a 6-volt, 60-ampere-hour storage battery. The dynamo is rated at 6 volts, and will deliver its rated output when driven at a speed of about 1,500 r.p.m., either by friction or belt, as desired. When a belt is used a governor pulley is furnished, which controls the speed of the generator; but with friction drive governing is obtained by a friction governor pulley, supplied with the dynamo. After the generator reaches a pre-determined speed the action of the governor pulley allows of a certain amount of slippage, thereby holding the speed at a constant value.

The indicating automatic switch is mounted in the circuit between the dynamo and battery, and when the generator is generating sufficient current to charge the battery, this switch automatically closes, allowing the current to flow into the battery. When the generator is running too slowly to charge the battery, or is stopped, the switch opens, thereby preventing a discharge of current back through the generator. The battery weighs 37 lb, and the dynamo weighs 14½ lb, as described; this model will supply 30-c.p. of light in addition to ignition for the engine. This power may be distributed as follows: One 6-c.p. lamp in a combination port and starboard running lamp, one 4-c.p. bulb in the riding lamp, and one 20-c.p. searchlight on the foredeck. When the latter is not in actual use, a 6-c.p. hand lamp may be used for working round the engine, and a couple of lamps can be hung from the cockpit awning.

For boats of 25 feet to 40 feet in length, the Apple B-2 system is desirable, and this is composed of a 10-ampere-hour dynamo and a 6-volt, 100-ampere-hour storage battery. The dynamo will give its output of 10 amperes at 6 volts when driven at approximately 1,450 r.p.m., the output being regulated by the driving speed. This is controlled by the spring base on which the generator is mounted. Where the friction drive is used, the pressure of the friction pulley against the flywheel of the engine

can be increased by simply turning the hand-wheel of the spring base. This increases the tension, drives the dynamo at a higher speed and causes a higher current output to be generated. Decreasing the tension, decreases the speed, thereby cutting down the current output. Where a belt-drive is used, the spring base acts as a belt tightener, accomplishing the same results.

This outfit will supply 60-c.p. of light, which can be distributed as follows: One 4-c.p. bow lamp, two 6-c.p. running lamps, one 6-c.p. riding lamp, and one 20-c.p. searchlight, which leaves a margin of 18-c.p. for the

cabin lights, or 38-c.p. when the searchlight is not in operation.

There is a larger size Apple outfit, designed for yachts of 40 to 65 feet length, which will furnish 150-c.p. of light in addition to ignition current for the engine. This total candle-power may be distributed as follows: One 8-c.p. bow light, two 8-c.p. running lights, one 8-c.p. riding light, one 20-c.p. searchlight. This leaves 100-c.p. available for cabin and other lights, or 120-c.p. when the searchlight is not in use. Unfortunately pressure on space prevents our dwelling at length upon this equipment.



TRUNK CABIN SIXTY-FOOTER

A BOAT WITH MANY GOOD FEATURES

TH**ERE** has recently been designed for Mr. Chas. F. Wall an attractive offshore motor yacht of the trunk cabin, of which we publish the plans on this page, these being from the boards of Mr. J. Murray Watts, of Philadelphia. Her length over all is 64 feet by 62 feet 6 inches on the water-line, with 13 feet 8 inches breadth and 4 feet draught. Right amidships is the engine room, where is arranged a 70-h.p. motor. This compartment is between bulkheads, and so has a ladder and hatchway to the deck. On the port side is a bench for the auxiliary machinery, with folding berth over, while on the starboard is another folding berth, with work bench and lockers below.

Aft of the machinery space is a two-berthed state-room equipped in the usual manner, and having two wardrobes. The door at the after end leads into the vestibule. On the port side of this vestibule is the companionway to the deck, and to the port is a toilet with shower bath and a linen cupboard. Aft again is a two double-berthed cabin, which has one large wardrobe,

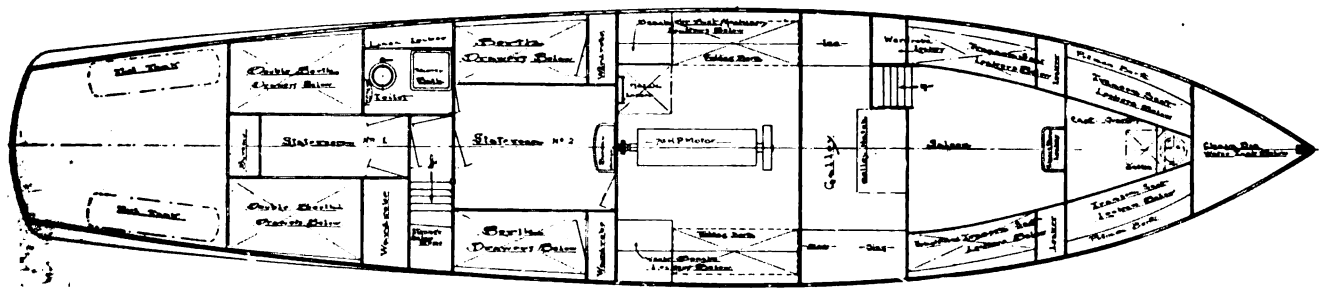
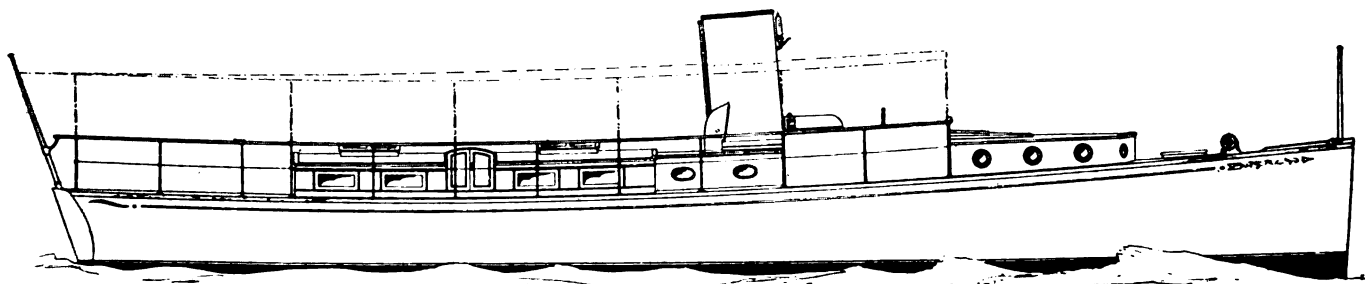
bureau, lockers, etc. Aft of this the space is given over to two fuel tanks and stores.

Forward of the engine room is the galley, which contains stove, range, sink, ice-chest and a wardrobe locker. Next forward comes the main saloon, which is arranged to make a very cozy compartment. Forward of this and separated by a bulkhead is the captain's cabin, where are two Pullman berths, toilet, two transom seats with lockers below, etc. In the peak is a chain bin and the fresh-water tank. She should make a very fine cruising boat and capable of sleeping eight persons, and if desired a crew of four all told.



A CORRECTION

In the article on the Hall-Seeley engine, 8.34 lb per gallon was given as the weight of gasolene. This, of course, is the weight of water. The weight of a gallon of gasolene, 62° test, is 6.094 lb.



Mr. Chas. F. Wall's New Sixty-Four-Footer Cruiser

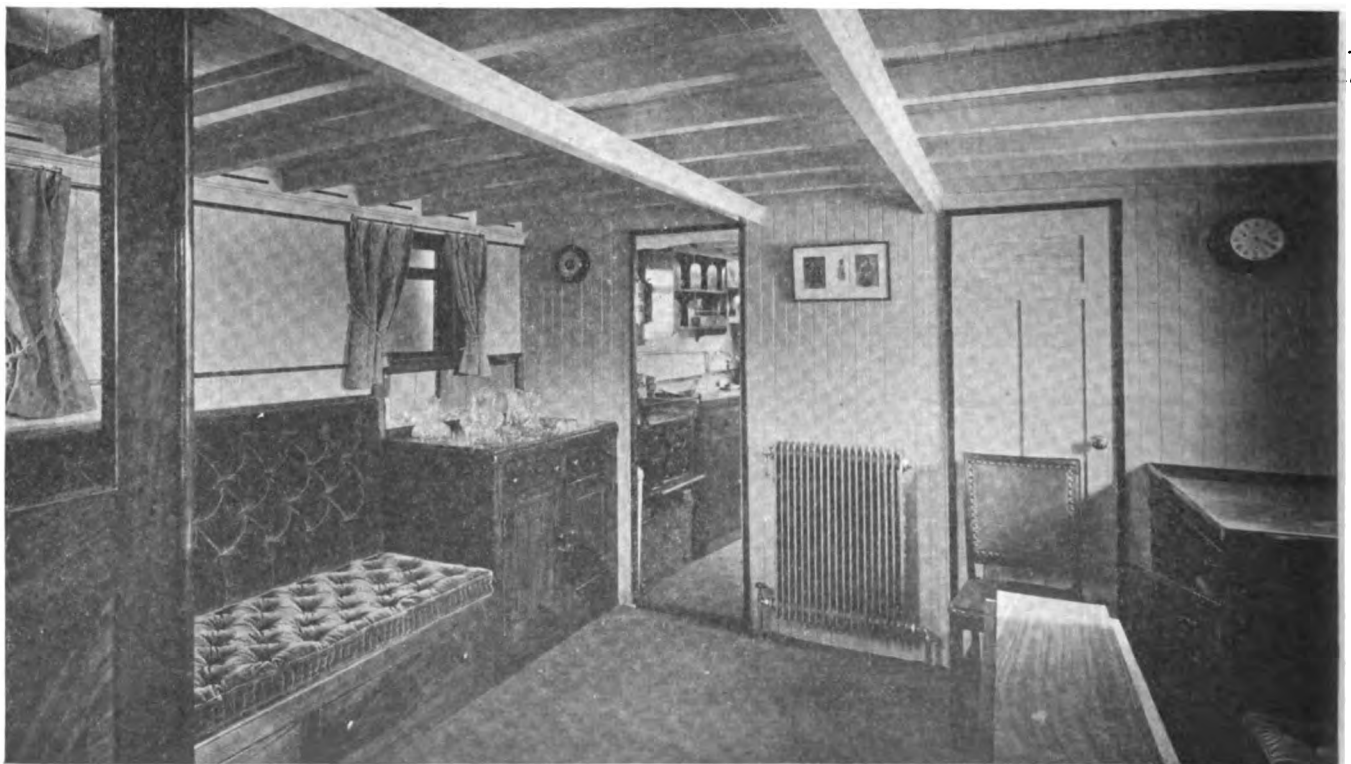


MATHIS HOUSEBOAT CRUISER

A HOME ON THE WATER

IT is remarkable that more people in the New York City district and other cities close to the water do not live all the year round on cruising power yachts, particularly of the houseboat type, which are often far more roomy and comfortable than the average apartment. Naturally, with many families, such an arrangement is not convenient or suitable; but there must be many married couples, or groups of young bachelors to whom such a scheme would be ideal. From the early Spring to the late

Autumn the boat, when not cruising, could be moored in various harbors within easy automobile or train reach of town, while in the Winter, a mooring could be made in some builder's yard in the city. Not only does this prove cheaper in the end than an apartment, but the life is delightfully free and healthy, without interfering with business in any way. The expenses are very low, because the cost of the craft should be regarded as if it were spread up over the whole year, or rather over a



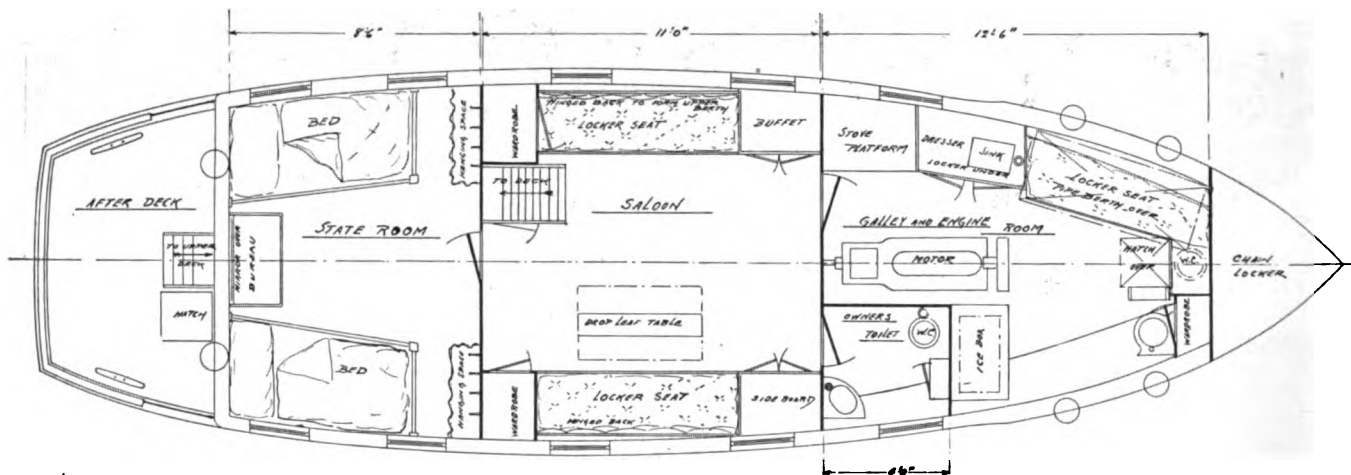
The Main Saloon



The After Deck. There is Enough Room for an Impromptu Dance



The Cabin, Showing the Wide and Comfortable Beds



Accommodation Plan of Mathis Houseboat Cruiser

number of years, for there is no rent to pay, apart from the absence of doctors' bills, while after a few years the boat can be sold for nearly her purchase value.

An ideal little vessel for this purpose is the houseboat cruiser turned out by the Mathis Yacht Building Company, of Camden, N. J.—a 43-footer fitted up in a manner that not only makes her a home, but a really cozy home, ready furnished, for \$5,500. Her breadth is 12 feet 10 inches by 2 feet 6 inches draught and a four-cylinder, 24-h.p., four-stroke-type Standard gasoline engine gives her quite a nice turn of speed.

As she is of the flush deck type, there is an unusually large amount of space for a boat of her size, so it makes a comfortable lounging place, and even an impromptu dance could be held when friends are aboard. There also is a small after deck which is handy for fishing, or sitting when cold winds are blowing, as it is sheltered. There is sleeping accommodation for eight persons, so if purchased and used by eight young fellows, the first cost is about \$685 apiece, and then they can say good-bye to landladies.

Regarding the accommodation below decks: Under the after deck is a large space for stores and forward

of this is arranged the main sleeping cabin, a compartment 8 feet 6 inches by 11 feet, which is fitted up with two wide beds, dressing table, and two curtained clothes hanging spaces. A door in the bulkhead leads through to the dining and main saloon, which is 12 feet by 11 feet. On either side is a wide locker seat, with a hinged back that forms an upper berth, so that four persons can sleep in this compartment. At the after end of each seat is a wardrobe, while forward on the port side is the buffet and a sideboard on the starboard side. To the starboard of the center line is a drop-leaf table, and there also are several chairs.

Forward again is the engine room, on the starboard side of which is partitioned a toilet room and bathroom, fitted with tub and shower, wash-basin, etc. The engine room also forms the galley, and there is a stove, dresser and sink, with a locker under, ice-safe, wardroom. There is a locker seat, with a pipe berth over, also another toilet, so should a crew of one, or two, be carried, this arrangement is very desirable and convenient. At the extreme forward end is the chain locker. A special feature is the ventilation, and every space behind the lining and below floors is ventilated so as to prevent rot. Each window is equipped with a sliding blind inside, with upper sections of the same in frosted glass, affording light and air, with privacy. In davits is carried a little rowing dinghy.



Engine Room



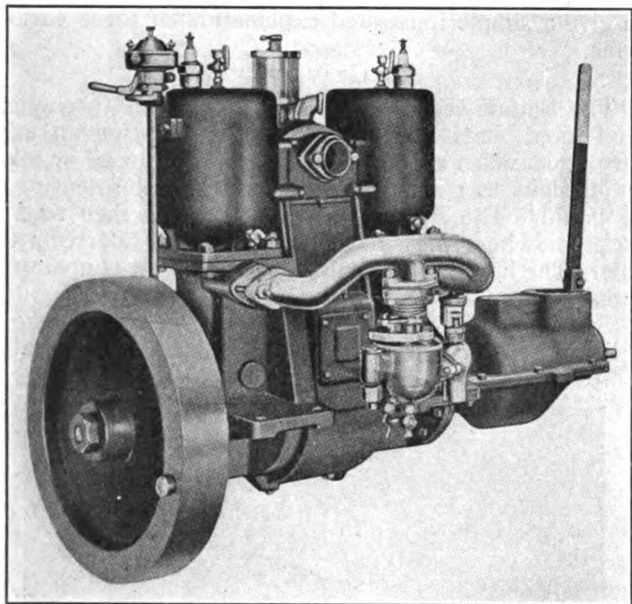
The International Trophy for the Twenty-One-Foot Restricted Class of Motor Boats—Value \$600

TWO-STROKE-CYCLE MOTORS

No. 3. THE PENROSE

A New Series Written in Simple Techniques

SEEING that the two-cycle motor is the most simple in design and construction of all internal-combustion motors, radical departures from conventional practices are hardly to be expected, but this has been done with the Penrose motor. At the same time a simple form of design has been retained, yet allowing of the following



Two-Cylinder Penrose Motor

features, namely, absence of crank case compression, the bearing surfaces do not come in contact with the gasoline vapor, positive suction with high pre-compression of gases, which result in better carburetion, and lastly, flexibility.

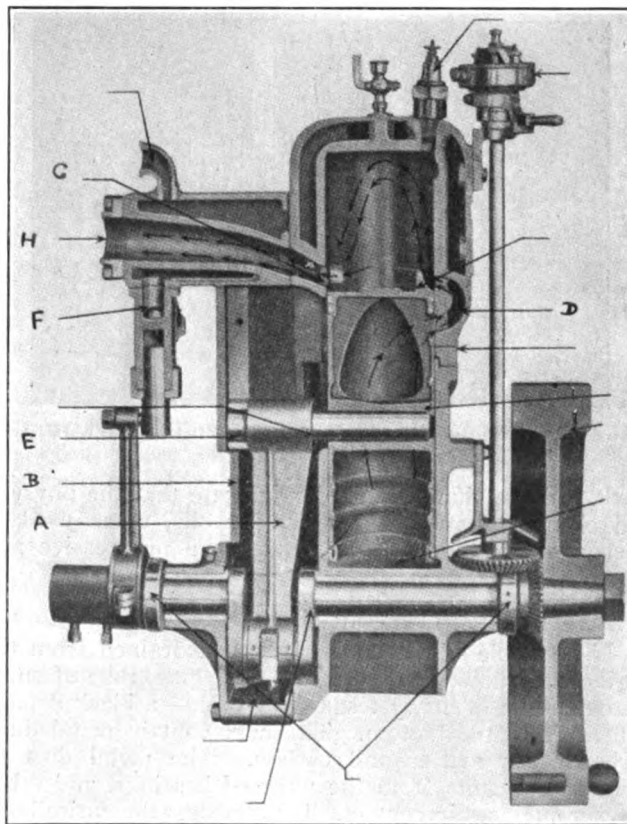
It will be seen from the sectional view how different are the internal arrangements from that of an ordinary two-cycle motor. The crank and connecting rod (A) work in a chamber (B) quite separate from the compression chamber, and are not directly below the piston as is usual, but the piston pin is extended and there is a slot in the cylinder wall for the purpose of giving it a free up-and-down movement. Again, the piston is of double length, forming an extra guide, while the lower half compresses the unused gases in the lower chamber where it is exploded.

It will be realized that the gas is taken directly into the lower cylinder under the piston on the upward stroke of the latter. The downward stroke of the piston traps the charge which passes to a port or opening located near the piston head (D) (see also arrows). Near the bottom of the stroke, the top of the piston registers with the exhaust port (C), the fired charge passes out and the charge compressed within the piston is forced around the by-pass into the working cylinder where it is deflected towards the head of the cylinder, pressing out the remainder of the old charge (see arrows), and as the piston rises to the top of the cylinder the new charge is compressed and

fired. While one charge is being compressed in the lower chamber, the previous charge is being combusted in the upper chamber, this cycle of operations continuing while the motor is running.

Lubrication is effected by splash; the bearings being well away from the working cylinder, run in a bath of oil, which is prevented from splashing on the underside of the piston head and thus forming carbon, which will cut the bearings. The piston pin and crank pin bearings are located in an oiltight housing, and the removal of a plate makes these parts accessible. Again, the peculiar construction affords large bearing surfaces, particularly for the main bearing that is below the mixture chamber. It also will be noticed that the wrist pin is supported by the addition of the guide (E).

From the water-cooled exhaust outlet (H) is suspended the body of the circulating water pump, which is of the plunger type, the ram being attached to a small connecting rod, worked off an eccentric on the crank shaft. On the opposite end of the crank shaft are bevel



Section of Penrose Engine

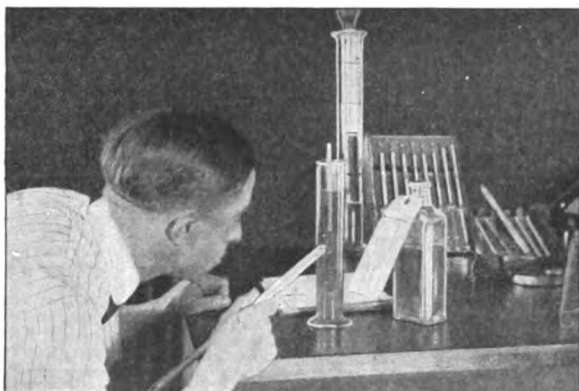
gears which drive a vertical shaft, on the top of which is the ignition distributor, this being fitted with an advance and retard spark timer. Altogether there are four models, viz., the 4-h.p., single-cylinder; the 7-9-h.p., twin-cylinder; the 10-h.p., twin-cylinder, and the 20-25-h.p., four-cylinder engine.

OILS, AND LUBRICATING DEVICES

SOME IMPORTANT MATTERS EVERY POWER-BOAT MAN SHOULD KNOW

EVERY owner of a motor boat should make a careful study of lubricating oils and engine lubrication and the ultimate result of a little care is bound to favorably reflect upon the life of a power plant. In the past too little attention to oils and their suitability for each particular motor has been paid by owners. Too much importance cannot be placed upon this subject. After the oil has been used in the engine for a while it is false economy not to throw away all that remains in the crank case and sump, for not only has the oil lost much of its lubricating powers, but it is full of minute particles of steel, brass, white metal and carbon, which will rapidly "eat away" the bearings and cylinder walls. Fifty per cent of the "pannes" in motor-boat racing are due to faulty lubrication.

To judge when the oil should be replenished is by no means a difficult matter. When the motor has been running for a few hours the oil will have turned from a yellow or amber color to a bluish yellow, if not entirely blue by reflected light. After several days' running a darker blue color will result, and ultimately it will turn



Finding Out the Gravity at the Platt & Washburn Laboratories

black. These changes in color indicate that the physical and chemical nature of lubricating oils, when used in internal-combustion engines, undergo a progressive and destructive alteration.

TESTING USED OIL

If a sample of the used oil is then drained from the engine and allowed to stand in a long glass tube of small diameter—an ordinary test tube will do—a black deposit will settle at the bottom. This will contain metal dust, carbonaceous matter and carbon. The metal dust as mentioned results from the wear of bearings, and other moving surfaces in contact. It permeates the entire body of the oil while the engine is in motion, and its presence in large quantities causes rapid wear and loss of power. In used oils there is always some metal dust present, but the amount varies according to the use of a suitable oil, and the speed of an engine largely governs what oil shall be used, apart from the actual chemical quality of the oil, which also is an important matter.

Carbonaceous matter does not exert a noticeably destructive effect upon the mechanism except when in-

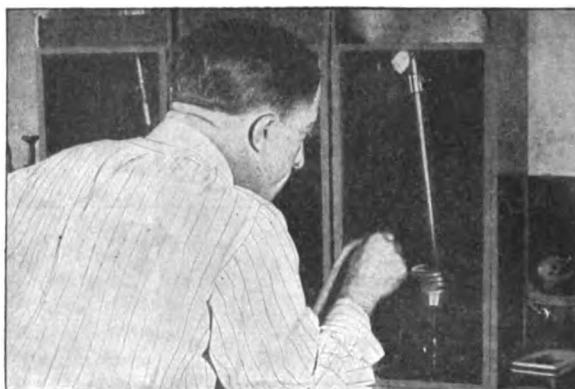
ferior oils are used. The opposite is the case with carbon, which is a black solid in powder form. Its accumulation is due to the deterioration of oil exposed to high temperatures. The action of this carbon on the bearing surfaces is much like emery dust, and the results can well be left to the imagination.

The novice is often at a loss when experts discuss the gravity, flash-test, viscosity, etc., of the various oils, and we give a simple illustrated explanation of these various terms.

GRAVITY

The Baumé Hydrometer is in general use throughout the United States. This instrument, carrying an arbitrary scale, when allowed to float freely in an oil or other liquid, sinks to a depth corresponding to the density of the liquid. The Baumé "gravity" value is then read at the point where the surface of the liquid intersects the scale. The liquid is maintained at a constant temperature of 60° Fahrenheit.

Specific gravity is the ratio of the weight of a solid or liquid substance to that of an equal volume of water.



The Flash Test, Which Is One Important Indicative of an Oil's Suitability

Gravity is of secondary importance in judging the qualities of lubricating oils.

FLASH POINT

The flash point of an oil is the lowest temperature at which the vapors arising therefrom ignite, without setting fire to the oil itself, when a small test flame is quickly approached near its surface in a test cup and quickly removed. When an oil is used for the lubrication of internal-combustion engines and thus exposed to severe heat, it becomes imperative not to allow the flash point to drop much below 400° Fahrenheit. This as a guarantee of efficiency and durability. Flash is indicative of an oil's suitability for such use.

FIRE POINT

The fire point of an oil is the lowest temperature at which the oil itself ignites from its vapors when a small test flame is quickly approached near its surface and quickly removed. Since the fire is always above the flash, the fire value becomes of minor importance when judging lubricating oils for use in explosion motors.



Discovering the Viscosity

VISCOSITY

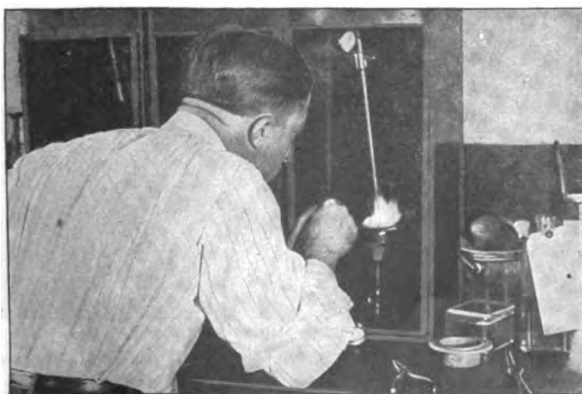
The viscosity of an oil is usually given in terms of time—the number of seconds required for a definite volume of oil to flow through a standardized aperture at constant temperatures. Viscosity is an empirical expression of the molecular cohesion (internal friction) of fluids. Viscosity values are commonly given at 70°, 100° and 212° Fahrenheit. Example: Gasolene is highly non-viscous, whereas molasses is highly viscous. In all lubrication the matter of correct viscosity is one of prime importance. Viscosity, however, must not be judged at atmospheric temperature, because when the oil passes through the bearings it has a much higher temperature than the surrounding air, as the engine is hot. Therefore avoid an oil that is too thin or light.

CARBON RESIDUE

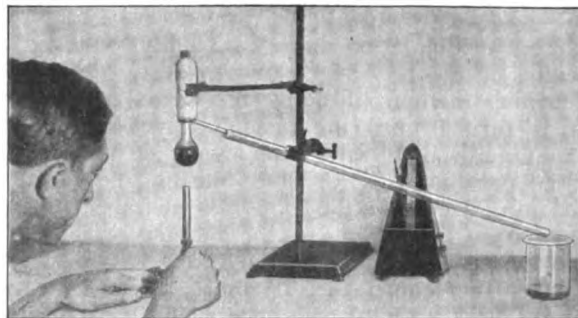
Carbon residue determination consists of distilling a definite quantity of oil, in a standard flask, to the end, when a carbon deposit, or residue, is left upon the walls of the flask. This is weighed, and the percentage of carbon residue obtained. The percentage of carbon residue, relatively high or low, which an oil contains does not necessarily indicate the amount of carbon deposit which will occur in the combustion chambers of a motor. Carbonization is also materially influenced by the quality of the oil, by its viscosity and flash, and by the mechanical defects in the motor.

COLOR

Color values of oils are determined by comparing their colors, by transmitted light, with the colors of standardized chromate solutions, or with the colors of glass slides corresponding to these solutions. Color values are given for oil containers of different lengths, fitted with clear glass ends, depending upon the light or



The Fire Test



Carbon Residue Test

dark character of the oil. Thus "100-6-inch" means that the oil sample has a value of 100 when viewed through a six-inch container or cell. Color in no way indicates the quality or the durability of an oil, neither does it show its suitability for any certain use.

COLD TEST

The chill or cold test of an oil is the lowest temperature at which the oil will pour. This characteristic need only be taken into consideration because of its effect upon the free circulation of oil through exterior feed pipes, etc., where pressure is not applied. The cold test is in no way indicative of the lubricating or heat-resisting qualities of an oil. In places where very cold temperatures are met with this feature should always be studied.

CARBON

No lubricating oil exists from which carbon will not be produced when it is exposed to high temperatures, but the amount formed largely depends upon the grade of crude petroleum from which the oil is made. We refer, of course, to mineral oils. Some aeroplane and other high-speed engines use castor oil, which is a vegetable product, and is claimed to be more suitable for the purpose, but its use also means rather a peculiar odor from the exhaust, and in the average motor boat would not be suitable, apart from being unpleasant.

Rapid carbonization in a motor invariably results from the use of a poorly refined oil of inferior quality. Hot carbon and the sulphur compounds freed by the combustion of poor oil passing between valves and valve seats, erode and pit both, necessitating frequent regrinding. The carbonization of the explosion chamber, valves and top of piston is also caused by the use of an oil of incorrect body, too light or too heavy, too high an oil level in crank case, or by the presence of mechanical defects in the motor.



The Cold Test

REMOVAL OF CARBON

Carbon accumulation may be readily removed mechanically, or by the oxygen or oxy-acetylene methods. The burning method of doing this is as follows: The motor is turned until the piston arrives at top dead center. One or both valve plugs are then removed and a lighted paraffin wick, or other means of igniting the gas, is introduced into the explosion chamber. The jet of oxygen is turned on to the flaming wick and its combustion at once becomes vigorous. This starting heat raises the temperature of the carbon to the point where it burns readily, and once it starts to burn, no further aid is needed, other than a supply of oxygen. When all the carbon is removed the flame will automatically extinguish itself.



Examining the Color

In removing carbon, care should be taken not to overheat the piston head or walls, by the application of too intense a flame, if the oxy-acetylene process is used; with oxygen this danger is not so pronounced. The spark plugs should always first be removed, as a protection to the porcelain.

ENGINE TEMPERATURES

Some interesting facts about car engine temperatures are contained in the following table:

Heat of explosion.....	2000° to 3000°	Fahr.
Piston heads	300° " 1000°	"
Piston walls and wrist pins.....	200° " 400°	"
Cylinder walls	180° " 350°	"
Oil thrown from bearings.....	140° " 250°	"
Oil in sump.....	90° " 200°	"

Even the heaviest oil is rendered very fluid when exposed to such terrific heat. It is apparent from a consideration of these facts that the feature of low cold test plays a minor rôle in the lubrication of internal-combustion engines. But with a marine motor, these temperatures will be slightly lowered, because of the fact that the engine is constantly receiving cold cooling water, also the abundance of cold water at hand enables an arrangement to be made for water-cooling the oil each time it circulates round the motor. Many manufacturers fit a device of this sort, with the result that considerable economy of lubrication oil is made—an important point nearly always overlooked by purchasers of a marine power outfit.

TESTING QUALITY OF OILS

Before purchasing lubricating oil it is an excellent plan to obtain samples and test the quality before ordering a supply, in addition to making sure that the viscosity, etc., is suitable. The heat test indicates decisively and quickly the purity, as well as durability of an oil. All that is necessary to do is to heat up a sample to between 300° and 500° Fahrenheit, according to the flash point, and hold it at this temperature for ten to fifteen minutes. Then watch the results.

A good durable oil shows a slight darkening from its original color, the change in color being only to a darker shade, the oil still remaining clear, and without sediment, while a poorly refined and impure oil shows an immediate alteration in color, quickly changing to a dense black. As the heat is maintained a black precipitate settles out. Naturally the quantity of this precipitation depends upon the impurity of the oil.

There is another simple test, but which takes a little longer time, and this is known as the "emulsion test." However, it is not reliable for vegetable or animal oils, so should only be adopted for trying out mineral oils. All that need be done is to take about two ounces of oil, two ounces of *aqua-pura* (clean water) and place in a small bottle. Then give it a vigorous shaking and allow to stand for twenty-four hours. A good durable oil will show a very slight white line of demarcation where the oil meets the water below it (oil, being lighter, floats). The water may be nearly clear, or slightly cloudy, thus showing the absence of acid compounds.

A poorly refined oil will become emulsified, that is to say, permanently mixed with the water, and to have formed a semi-fluid, reddish white or brownish white, mass containing a slight layer or globules. This curded mass will extend nearly to the bottom of the bottle, floating upon the remainder of the water, which will be milky white. This condition of the fluids shows the presence of acid products. For much of the foregoing information and illustrations on oils we are indebted to the Platt & Washburn Refining Company, manufacturers of the well-known Veedol lubricating oil, who have some well-equipped laboratories for making thorough tests.

(To be Continued)

[In the May RUDDER the second part of this article will deal with methods of lubricating a marine engine.—EDITOR.]



One of Four Torpedo Chasers Built by the Greenport Basin Co. for Use on the Test Grounds of a Torpedo Factory. Length 37½ Ft., Beam 7½ Ft. Engine 35-H.P. Sterling. Speed 12½ Miles per Hour

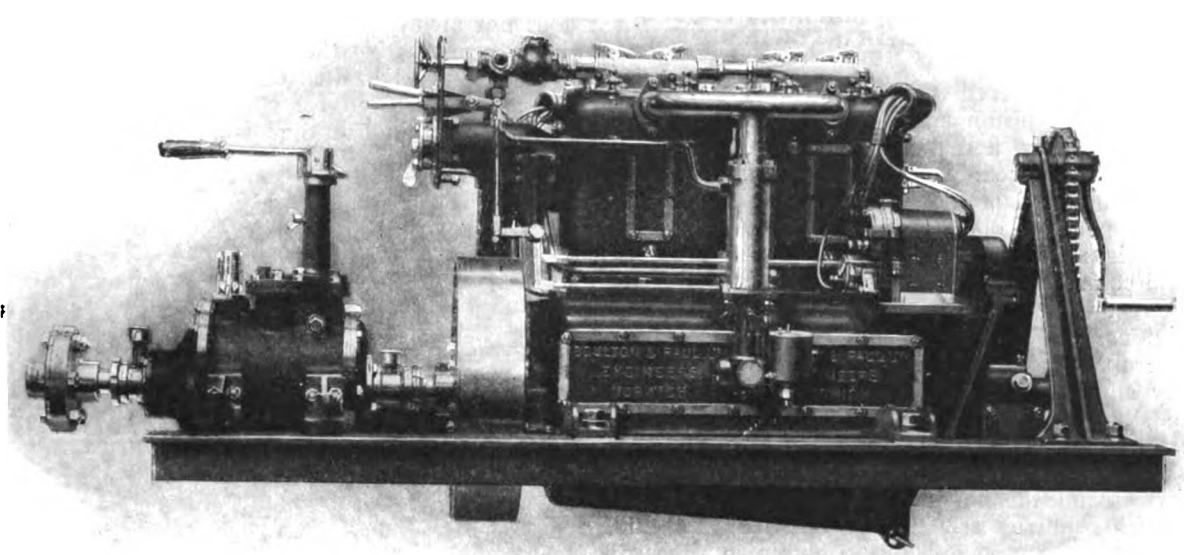
THE 28-H.P. BOULTON & PAUL

A TYPICAL EXAMPLE OF BRITISH MARINE ENGINE PRODUCTION

IT is always greatly interesting to compare home productions with those of foreign makes, and in no industry are comparisons of such importance as the difference between American and British marine motors, for both countries are strong competitors so far as export business is concerned, particularly in Australia, Canada and New Zealand. Therefore, the design and constructional practices of one country are always eagerly watched

these equally good plants that it is only fair to draw comparisons, for a cheap motor cannot be expected to embody all the refinements of detail contained in a high-grade power-boat installation outfit.

The Boulton & Paul model illustrated is made in four sizes, all capable of using either gasolene or kerosene, although they are obtainable without kerosene arrangements. The sizes are as follows:

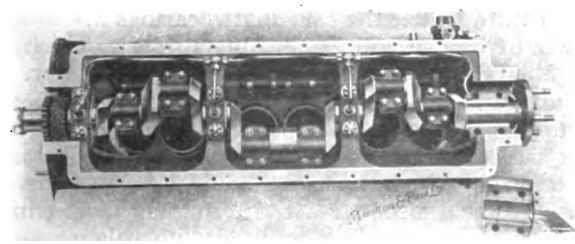


The 28-H.P. Boulton & Paul Complete Marine Motor

by the other, and numerous are the improvements thus gained by all concerned. It is with this in mind that I have selected a Boulton & Paul engine of moderate power as a typical example of British marine internal-combustion engine construction. There are many poor engines built over there, so that it does not mean that all British motors contain just as good features, for I know of not a few that are well below the average engine of American make, but the Boulton & Paul can be re-

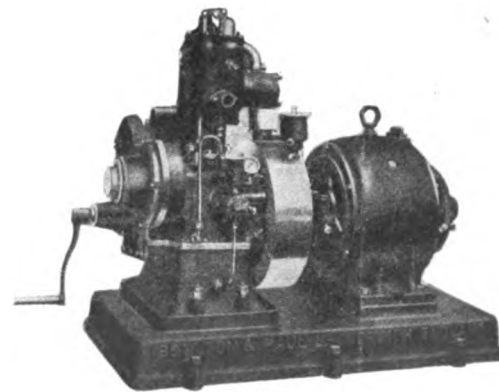
No. of Cyls.	Type	B.H.P. on Gasolene	B.H.P. on Kerosene	R.P.M.
1	4-stroke	6	4½	900
2	4-stroke	14	11	900
4	4-stroke	28	22	900
6	4-stroke	42	33	900

It will be noticed that the revolutions are much higher than those of American engines, although the present



Depicting the Suspension of the Main Bearings from the Upper Half of the Crank Case, the Lubricating-Oil Feed Pipes, and the Method of Constructing the Bearings in Halves with Removable Caps and White Metal Liners

garded as a little better machine than the average that is turned out across the "herring-pond," and so becomes worthy of a place in our columns. We have, of course, many equally good engines in this country and it is with



A Boulton & Paul Yacht's Lighting Set

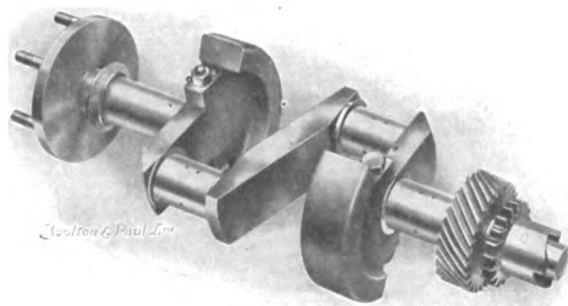
tendency is towards higher speeds, particularly where express cruisers are concerned. The high-speed has the advantages of flexibility, saving of weight and good results with kerosene devices, but against the



A Cam Shaft. Its Bearings are Built in Halves, and Oil Channels are Cut in the Shaft

speed may be registered the extra wear and tear caused by the high piston and bearing speeds, the loss of propeller efficiency, and the inability to drive a boat so well against a head sea. But then one does not usually get his bread buttered both sides, so the whole crux of the matter is personal opinion and taste. On the other hand there is no doubt that high-speed engines for cruiser and commercial craft have been great factors in allowing Great Britain to lose thousands of orders from the Dominions, which orders have been acquired by our more alive manufacturers; for the Colonials demand heavy-duty engines. There is one little point not to be overlooked, however, and that is—a high-speed engine will reveal its weaknesses, should there be any, far quicker than a slow-running plant when it is put to steady, but hard, service, and this is one of the chief objections raised in such countries as Australia and New Zealand, where spare parts are so difficult to obtain in times of emergency.

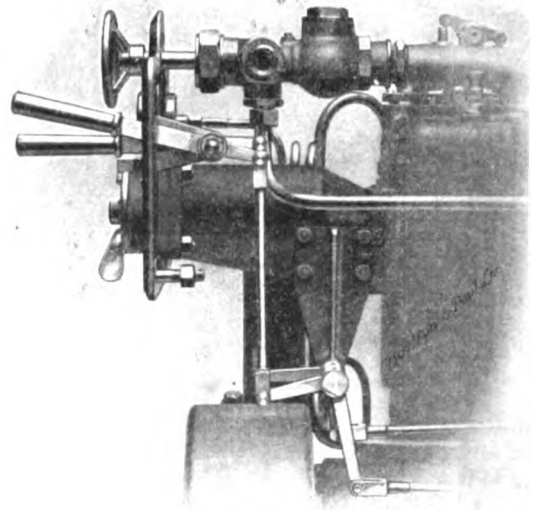
The cylinders are cast in pairs with the valve chambers on the port side, the exhaust valves being operated by tappets and plungers in the ordinary manner, but the inlet valve is arranged in the cylinder head and is actuated by means of a rocker and a long push-rod from the same cam shaft, the drive for the latter being enclosed gearing off the crank shaft at the forward end of the motor. Strictly speaking, the inlet valve is not in the cylinder head proper, but in the valve chamber directly over the exhaust valve. On the starboard side is arranged the carbureter and magneto, and as the induction pipe is secured here, it will be noticed that a hot-water-



Method of Balancing the Crank Shaft of a Two-Cylinder Boulton & Paul

jacketed passage for the explosive mixture has been made in the cylinder head, which has the effect of warming the gas before it passes through the inlet valve. The latter is set in a cage so is easily removable for grinding in or other purposes.

At the forward end of the engine a hand-starter is carried in an A-bracket, but as the controls are mounted at the other end, this position is not quite convenient, and although not important it, perhaps, needs adjusting, so that one can move the control levers immediately upon turning over the crank shaft. The main bearings are all removable and are swung from the upper half of the crank case—an arrangement that modern high-speed engineers consider the best for taking up strains; but which does not always tend for accessibility, because it sometimes means lifting the engine off the engine-bed before a bearing can be taken out, so occasionally accessibility has to be sacrificed for efficiency. On the other hand, even with bearings on the lower halves of the crank cases,



The Neat Control Device

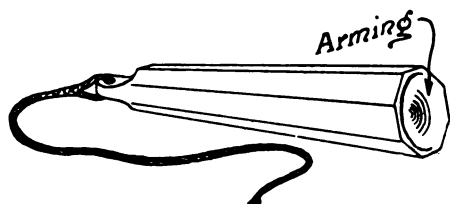
the engine must be well designed to allow of the bearings being removed without disturbing the other parts. A good feature is that the cam shaft bearings are in halves, and are of bronze with babbitt metal liners, which is not often the case with motors of this medium power.

Lubrication is by forcing the oil to all main bearings and to the connecting-rod big-ends through the hollow crank shaft by means of a pump, and the feed pipes can be seen in the illustration of the upper half of the crank case. To help produce steady running and eliminate vibration, the crank shaft is fitted with balance weights. Although only one water-pump is usually fitted, provision has been made for a second pump to be easily fitted should this be desirable, for bilge pumping or stand-by circulation purposes. Lastly I may point to the neat control arrangements at the after end of the motor, where everything is carried conveniently, close to the reverse gear lever and to the useful starting device.

SIMPLE NAVIGATION

FOURTH LESSON

YOU have been navigating with your eyes, but now I am going to take away your eyesight and make you sail the seas blindfolded, and yet you are going to navigate with greater sureness and safety than if you still had the use of your eyes.



A Sounding Lead

All instruments used by navigators are at times liars, except one—the lead. The lead and its line never lie; they can always be trusted in any weather at any time of day or night.

Suppose you have all seen a sounding lead and line. If not, let me say it is a piece of lead shaped something

Let us look at diagram 2, which represents a cut made across a small sea or large channel. Here we have the soundings or depths of water running from 10 fathoms close inshore to 95 fathoms 100 miles offshore; then it shoals up again in an irregular manner until there is 10 fathoms again.

The navigator of the steamer shown in the diagram has just stopped his vessel and taken a cast of the lead. That is, he has let the lead descend to the bottom. When the lead is at the bottom he looks at his line and sees that 97 fathoms of the line are out. It takes 2 fathoms of line to reach from the rail of the vessel to the water, so he subtracts 2 from 97 and it give him 95 fathoms. With this information, he goes to his chart of that piece of water and looks for a place on it marked with the figure 95. Now if there is only one 95 he is at once certain of his vessel's position, but perhaps there are several 95's. Then he has to prove which is his 95.

Looking at the chart, he sees that if he sails the same course for 10 miles, he will, if the 95 is the 95 he thinks it is, come to an 81 spot. So he proceeds for 10 miles and

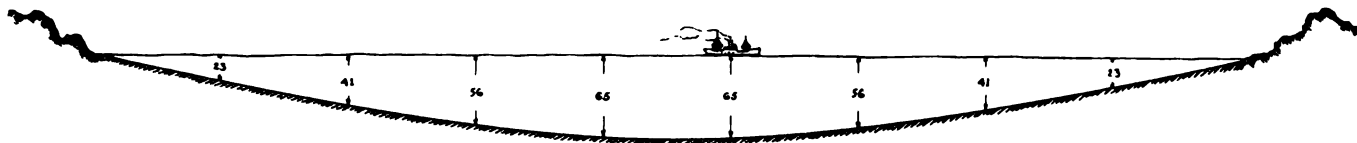


Diagram No. 1

like a window-cord weight, except that it is usually larger at the lower end than at the top. There is an eye at the top to receive the line, and a hollow or cup at the bottom to hold what is called the arming, a lump of soap or tallow to pick up a sample of the bottom.

The line is marked to show the different distances from the lead. These are called marks and deeps, but at present we will not go into the marking of the line, as that belongs to seamanship and not to navigation.

Now, if we had made the rivers, bays, lakes, sounds and oceans to order, we should have made them like is shown in diagram 1. That is, the bottom would gradually have shelved off until it was deepest at the middle, so that the skipper, by finding out how much water was under his vessel, at any time could tell exactly how far he was from shore. But unfortunately Mother Earth in her throes of cooling, twisted, heaved, squirmed and cracked, until her body, instead of being a nice regular surface, is full of chasms, lumps, bumps, holes and ruts. It is not quite so bad under the sea as it is on land, but it is bad enough, as the charts will show.

then stops and takes another sounding. Getting 81 fathoms, he is now pretty sure of his position, but being a very careful navigator, 8 miles further along, he takes another cast of the lead and gets 79 fathoms. Three casts make certain.

Here is our chart showing a piece of the ocean off Point Loma, California. You and your vessel are off North Coronado Island, a heavy fog has shut down, and you can't see a foot ahead or astern. You take a compass bearing of the end of the island, and from this departure lay off your course for the Light on the point. But the wind will not let you lay up on the course, so you have to make the best track you can, which turns out to be the one shown on the chart. Every so many minutes you take a sounding. First you get 33 fathoms, then 24, then another 24, then 22, then 16, then 13 and then 10. When you get this 10 you know you are on what is called the 10-fathom curve, and that if you go inside the line defining this curve you will get close to the beach. So you tack ship and stand off to the Westward and soon sound again and get 6¼ fathoms. But there are two 6¼

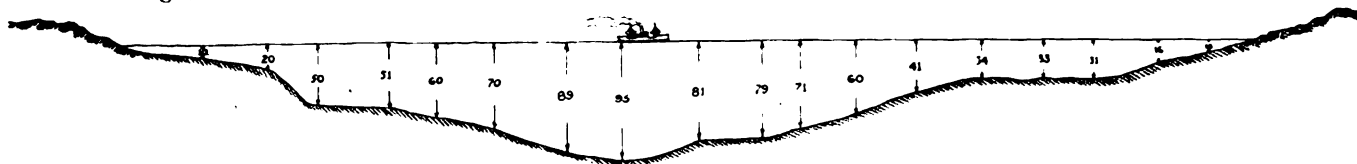


Diagram No. 2

fathoms shown—which one is yours? Standing on from either you will make the bell buoy or the light buoy at the entrance to the jetties, so you are safe to go ahead.

With a bottom like shown in this chart, if a sufficient number of soundings are taken, it is impossible for a navigator to lose himself, or to run ashore. But all bottoms are not so good. The poorest bottoms are those where there are numerous similar soundings. For instance, if there were a lot of 24's scattered all over the chart. When such is the case, you often have to get the evidence brought up by the arming to help you decide. For instance, one 24 spot might be white sand, another grey mud with shells, another small pebbles. The fine lettering on the chart chronicles the nature of the bottom. Dk. M. fine. Sh. means dark mud mixed with fine shells.

Suppose we embark now on an imaginary voyage, say across Long Island Sound, from New Haven to Huntington, L. I. First we draw a line from Southwest Ledge Light to the Light on Eatons Neck. Then we find the compass direction of this line, which is S.W. by W. $\frac{1}{2}$ W. Having this, we measure off the distance, 28 miles. Our boat, we will say, is a motor craft, making 8 miles an hour, so she will travel every 30 minutes, 4 miles. Taking the dividers, we mark off on the course line a space each 4 miles, and opposite to each mark the time we will be at the spot. There will be six of these spots and we will call them spots one to six.

At 12 noon, in a thick fog, we take our departure from Southwest Ledge Light, the Light bearing directly astern, N.E. by E. $\frac{1}{2}$ E. and steer S.W. by W. $\frac{1}{2}$ W. for 30 minutes. Then we stop the boat and take a sounding.

We compare this with the mark on the chart at spot No. 1. So we go on, stopping and sounding with the lead at each spot. Our last cast will be taken at 3 p.m., when we are supposedly 24 miles from our departure. If the depth found corresponds with the mark on the chart, we can run the course for 10 minutes longer, then slow down, and begin to follow the bottom by casting the hand lead every minute or two.

In this way you can safely navigate, no matter how thick the fog and find any channel or harbor entrance.

But never trust to one cast of the lead, two is better; three is best. One day a steamer bound to New York in thick weather was steering West somewhere in the Gulf of Sandy Hook. The Captain believed he was on Long Island shore and stopped the vessel to take cast of the lead. The depth obtained at the cast exactly confirmed his position by reckoning, so he hauled in the lead and went full speed ahead. Sixty minutes after his vessel was high and dry on the beach at Asbury Park.

The one sounding he took was off the Jersey Coast and not off the Long Island shore as he thought. Had he taken a second cast, say 15 minutes later, he would have found the water shoaling and have known he was running towards a shore and not parallel to one.

Remember this, in navigating in thick weather, your compass shows you in which direction you are steering; it does not show you where you are going. Your lead shows where you are going. It either confirms or confutes the compass. In plain words, it checks, corrects and confirms the dead reckoning. Next month I will explain what dead reckoning is.

(To be Continued)



MORE NEW BOATS FOR 1915

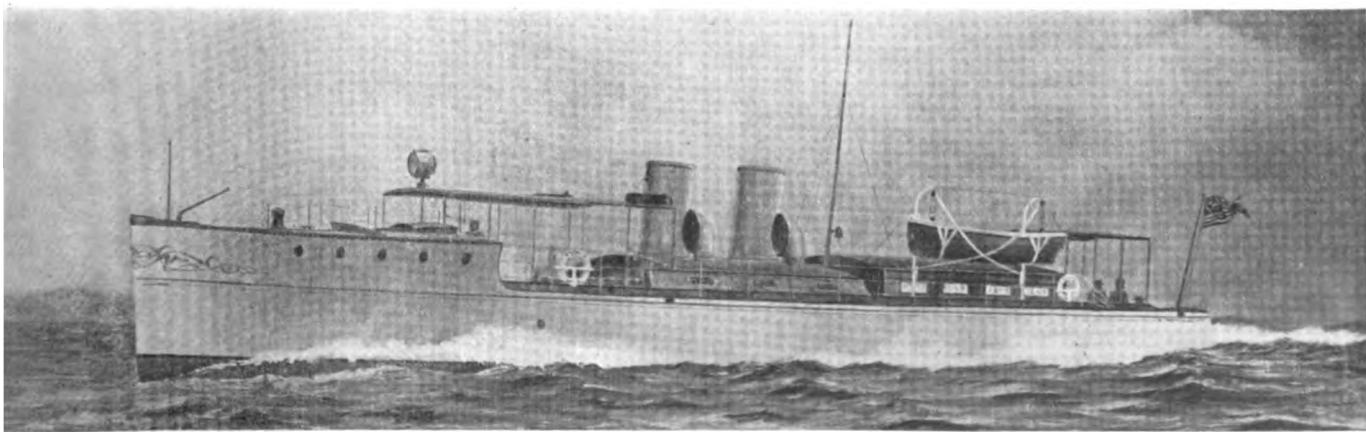
FURTHER PROOF THAT THE COMING SEASON WILL SEE
ITS SHARE OF NEW BOATS

C. G. Davis

IN the March issue we published a list of sixty-two new yachts being built for this season. This created some little surprise among yachtsmen, who not having looked carefully into the situation, thought just as we did before making inquiries, that it was to be an off year in yachting.

I concluded that article with the remark that there "were double this number of boats building of which we have no record."

Some men do not like to have it known that they are building a new boat, as one prominent yacht designer explained—if Mr. So-and-So's name appears in print he



Akbar. Seventy-Four-Foot Express Cruiser. Designed by Bowes & Mower for Geo. W. Childs Drexel

will be besieged day after day by all too energetic salesmen who will try to sell him everything under the sun from washing machines or fireless cookers to real estate in the Everglades of Florida. If it were not for this there would be no blanks in the list of owners' names and there would be more men who would let it be made known that they are building boats.

The regular exodus of tourists to Europe having been shut off by the war is one reason why we may expect a greater number to find pleasure about our own shores this season in yachts and motor boats. Mr. P. W. Rouss has ordered a new Winchester, 20 feet longer than the old one, which her designers, Messrs. Cox & Stevens,

assure me she will very much resemble in appearance. She will be 225 feet long, 22 feet breadth and driven by steam turbine engines. She will be built by the Bath Iron Works, of Bath, Me.

Some of our designers have a great deal of commercial work as well as yacht work in hand, as Mr. J. Murray Watts writes us, and the following list shows. The Rippley Manufacturing & Steel Boat Company, of Grafton, Ill., show about the condition of trade in that section of the country by a list of many yachts and other boats not by any means a complete list of all they have, but still enough to show that it is anything but a bad year in yachting.

NEW BOATS FOR 1915—(Continued)

Name	Ft.	Owner	Designer	Builder	Motor
63	225	P. W. Rouss	Cox & Stevens	Bath Iron Works	Steam
64	45	E. C. Johnson	J. M. Watts	L. D. Steel, Delanco, N.J.	60-h.p. Van Blerck
65	62	Anton Ahlers	J. M. Watts		60-h.p. Niagara
66	42	G. E. Ketcham	J. M. Watts		30-h.p. Ralaco
67	54	G. W. Pittenger	J. M. Watts	Burgher Bros.	16-h.p. Lathrop
68	52	E. F. Mitchell	J. M. Watts		250-h.p. Smalley
69	75	Davis	S. W. & Page	Camden Anchor-R.M.Co.	
70	62	A. Kimball		Rippley Mfg. & Stl. B. Co.	
71	55	H. P. Finegan		Rippley Mfg. & Stl. B. Co.	
72	53	C. Guber		Rippley Mfg. & Stl. B. Co.	
73	50	C. J. Stein	Luders	Luders Marine Cons. Co.	Sterling
74	40	W. P. Frost	Luders	Luders Marine Cons. Co.	
75	55	Sea. Y. C. Member	J. M. Watts	W. Wallin Co.	24-h.p. Holmes
76	50	Pres. W. Wilson		Portsmouth Navy Yd.	Van Blerck
77	52	C. N. Burnell		Camden Anchor-R.M.Co.	30-h.p. Knox
78	76	W. J. Graham	J. M. Watts		
79	65	J. O. Graham	J. M. Watts		Two Sterlings
80	45	C. H. Stuart	Richardson B. Co.	Richardson Boat Co.	
81	48	R. H. Stackhouse	J. M. Watts		37-h.p. Standard
82	45	Mrs. F. W. Earl	J. M. Watts	L. D. Steel	70-h.p. Frisbie
83	45	H. R. Hammond	J. M. Watts		
84	35	E. W. Reed	E. B. Burwell		Scripps
85	30	W. N. Eaton	W. J. Deed		Scripps
86		R. M. Churchill	W. H. Hand		Scripps
87	30	M. S. Cornell, Jr.	W. H. Hand	Portland Yacht Yd.	65-h.p. Van Blerck
88	24	Peerless M. Motor Co.	W. H. Hand	Richardson Boat Co.	Peerless
89	28	E. B. Jackson	J. M. Watts	L. D. Steel	6-cyl. Packard
90	28	C. H. Oelrich	J. M. Watts		60-h.p. Peerless
91		E. C. McGraw	C. C. Smith	C. C. Smith Boat Co.	250-h.p. Sterling
92	25	U. S. Dep. Agriculture		Camden Anchor-R.M.Co.	11-h.p. Knox
93	52	Campeche-Laguna Corp.	J. M. Watts	Essington S. B. Co.	40-h.p. Sterling
94	55	Phila. Yachtsman	J. M. Watts		
95	40	Ecuador		Camden Anchor-R.M.Co.	
96	40	Mexico		Camden Anchor-R.M.Co.	
97	30	J. J. Creely		Rippley Mfg. & Stl. B. Co.	
98	20	H. W. Peabody & Co.		Rippley Mfg. & Stl. B. Co.	
99	20	Philip Eichelers		Rippley Mfg. & Stl. B. Co.	
100	20	J. H. McCune		Rippley Mfg. & Stl. B. Co.	
101	125	U. S.		Rippley Mfg. & Stl. B. Co.	
102	125	U. S.		Rippley Mfg. & Stl. B. Co.	
103	125	U. S.		Rippley Mfg. & Stl. B. Co.	
104	125	U. S.		Rippley Mfg. & Stl. B. Co.	
105	64	Lewis Shafer		Rippley Mfg. & Stl. B. Co.	
106	40	G. L. Watson		Rippley Mfg. & Stl. B. Co.	
107	120		J. M. Watts	Valk-Murdoch Co.	
108	150	Macon-Atlantic Nav. Co.	J. M. Watts	J. S. Schofield & Sons Co.	Two 50-h.p. Bolinders
109	117	N. C. Hansen	J. M. Watts		Two 70-h.p. Fulton Diesels
110	135	W. J. Dunn	J. M. Watts		
111	104	Transit Supply Co.	J. M. Watts	Transit Supply	
112	95	F. H. Scharberg	J. M. Watts		
113	85	Nickerson-MacFarlane Mach. Co.	J. M. Watts		Two 75-h.p. Sterling
114	64	Frank Martineck		Burger Boat Co.	75-h.p. Kahlenberg
115	65	Fred D. Doty	J. M. Watts		



TWENTY-ONE-FOOT HIGH-SPEED WAVE COLLECTING RUNABOUT

OWING to the unusual interest in the wave-collecting-type of high-speed power boats and the scarcity of plans available for publication, we show herewith what we believe to be the first complete plans of this type of boat ever printed.

These plans, from the board of Fred W. Goeller, Jr., of THE RUDDER staff, are for a boat 21 feet over all, 5 feet 1½ inches breadth at the deck and 8 inches draught of hull. The chief characteristics of this type of hull are more or less alike, the differences usually being the angle of the chime forward and the line it carries out on to the stern. The sections on the ones which we have seen to date show the same general form—round amidship, the outer ends rising suddenly and finishing with a reverse curve to where they join the sides. See plan of 21-footer on page 107 of the March issue. The foregoing refers to the midship section, for of course they work out sharper forward and flat aft.

The midship section on the one shown differs considerably in the proportion of this reverse curve to the amount of round to the central portion. The chief advantages arising from it are these: the central part of the section, instead of being very nearly an arc of a circle, shows a decided knuckle at the keel, which of course, works out sharp forward and perfectly flat at the stern. This gives it all the seaworthy qualities of the regulation V-bottom form with a really sufficient reverse at the outer edge to smother and cushion the water thrown out from the middle and not allow it to be thrown clear away, as happens in the straight V-type of hull.

In short, the hull is really a combination of the good qualities of both the V-bottom and Hickman's "sea sled," differing from the latter in that instead of collecting and running the water under the middle of the hull, it is split in the middle and is collected and runs along under both sides of the hull.

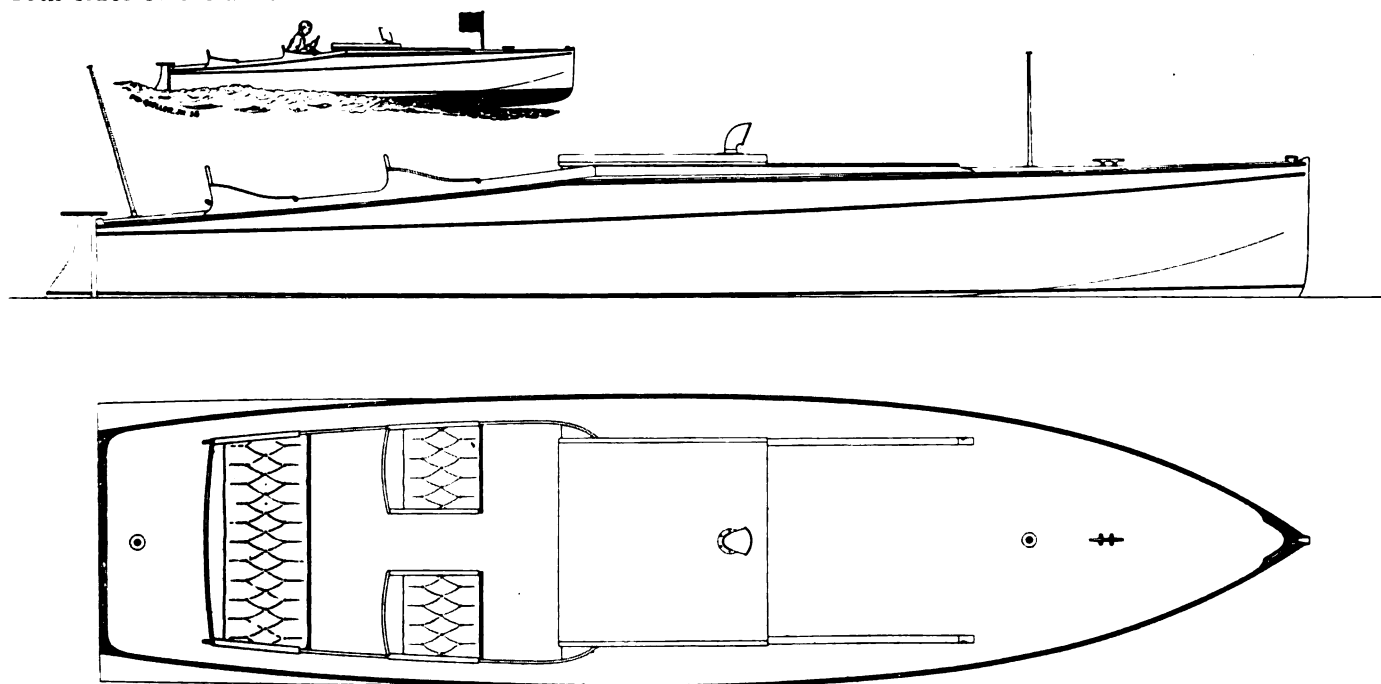
This extra smothering quality necessitated widening the hull and as the displacement remains the same as a narrower boat, the midship section is shallower. The girth of this wide, flatter section is exactly the same as a narrow, deeper one would be, so that the wetted surface, amount of lumber to build the hull, etc., remain the same and the former does not suffer in the comparison of weights.

The wider hull has, besides the additional amount of room obtained and the resultant steadiness, the proven fact that in a boat of this type, whose object is to go over rather than through the water, it is easier to accomplish this with a wider, flatter hull than a narrower and also deeper one, in its favor.

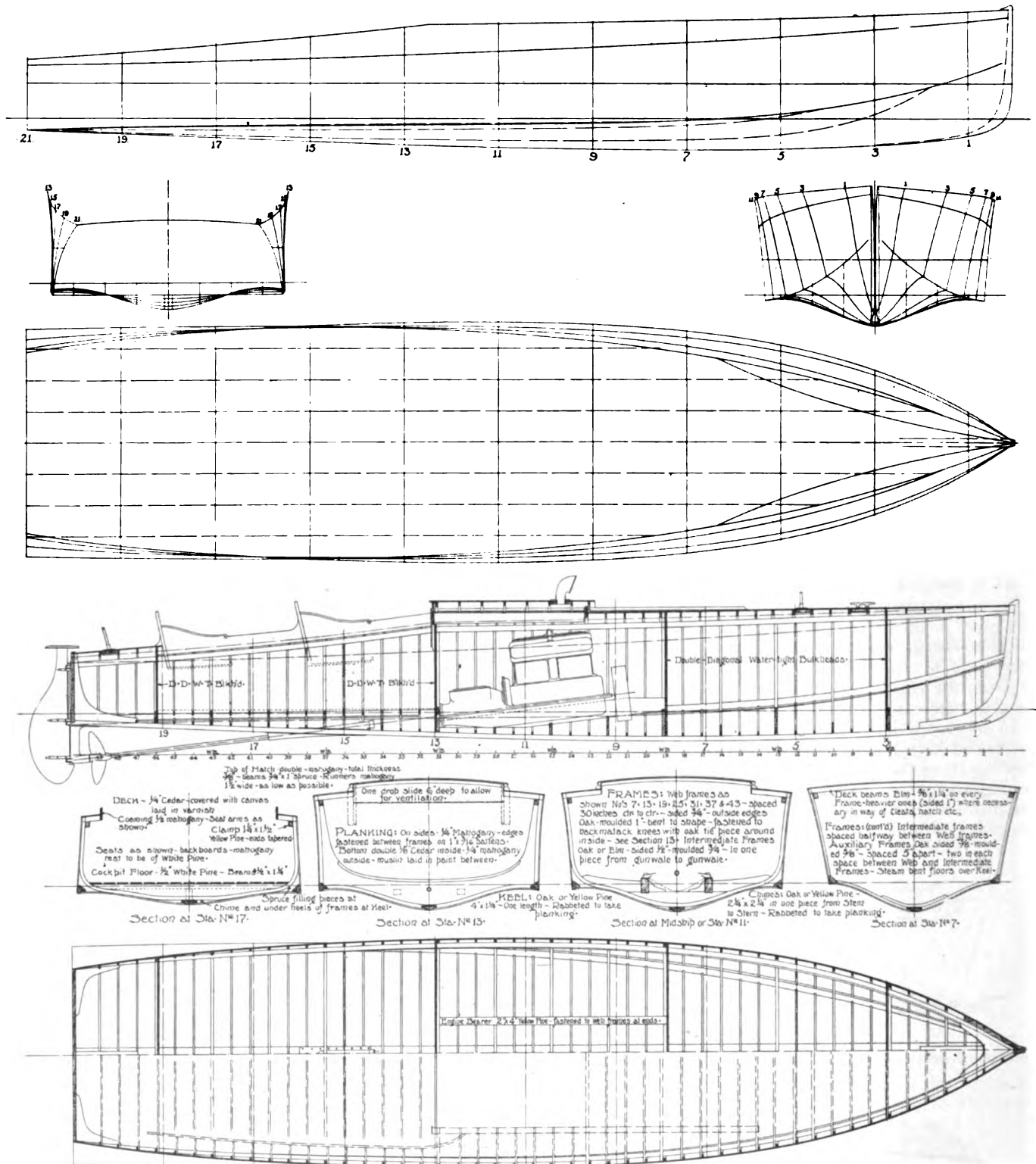
The seaworthy qualities, as well as speed, of this type of hull make it eligible for a large variety of purposes. As a small four-passenger, high-speed runabout it is unsurpassed; it makes an ideal tender to be carried on the davits of a large yacht; it would give the keenest kind of racing as a one-design class and is also suitable to fit into the 21-foot racing class now being promoted throughout the country.

For the latter, the engine would, of course, have to come within the class restrictions as to piston displacement, while for an open class or runabout, almost any up to 80 or 90-h.p. may be installed. However, one fact in regard to this is absolutely imperative—the revolutions must be high if real speed is to be obtained, and in no engine installed in this type of hull should they be less than from 1,200 to 1,500 r.p.m.

With unlimited power, that is to say, up to 80 or 90-h.p., with the engine turning in the neighborhood of from 2,000 to 2,500 r.p.m., a speed of over 40 miles could be obtained.



Outboard Profile and Deck Plan of High-Speed Runabout. Designed by Fred. W. Goeller, Jr.



Lines and Construction Plan of Twenty-One-Foot Wave-Collecting Runabout. Designed by Fred. W. Goeller, Jr.

THE WIANNO Y. C. ONE-DESIGN

THE renewed interest in yacht racing at Wianno, Mass., dates from, and is the fruit of, the one-design class started there this last season.

Wianno is tucked almost out of sight in the twisted trees and yellow sands of Cape Cod, being on the South side, directly opposite Nantucket. The waters in front of it are never quite sure whether they should be charted

as Nantucket Sound or Vineyard Sound—Marthas Vineyard being some 16 miles to the Southwest; but they are at least well protected from ocean rollers by long arms of land—Point Gammon on the one side and Succonessett Point on the other. Moreover these waters are almost everywhere astonishingly shallow, and particularly at the entrances to the two harbors, one on either side of Wianno, where the depth at low water in

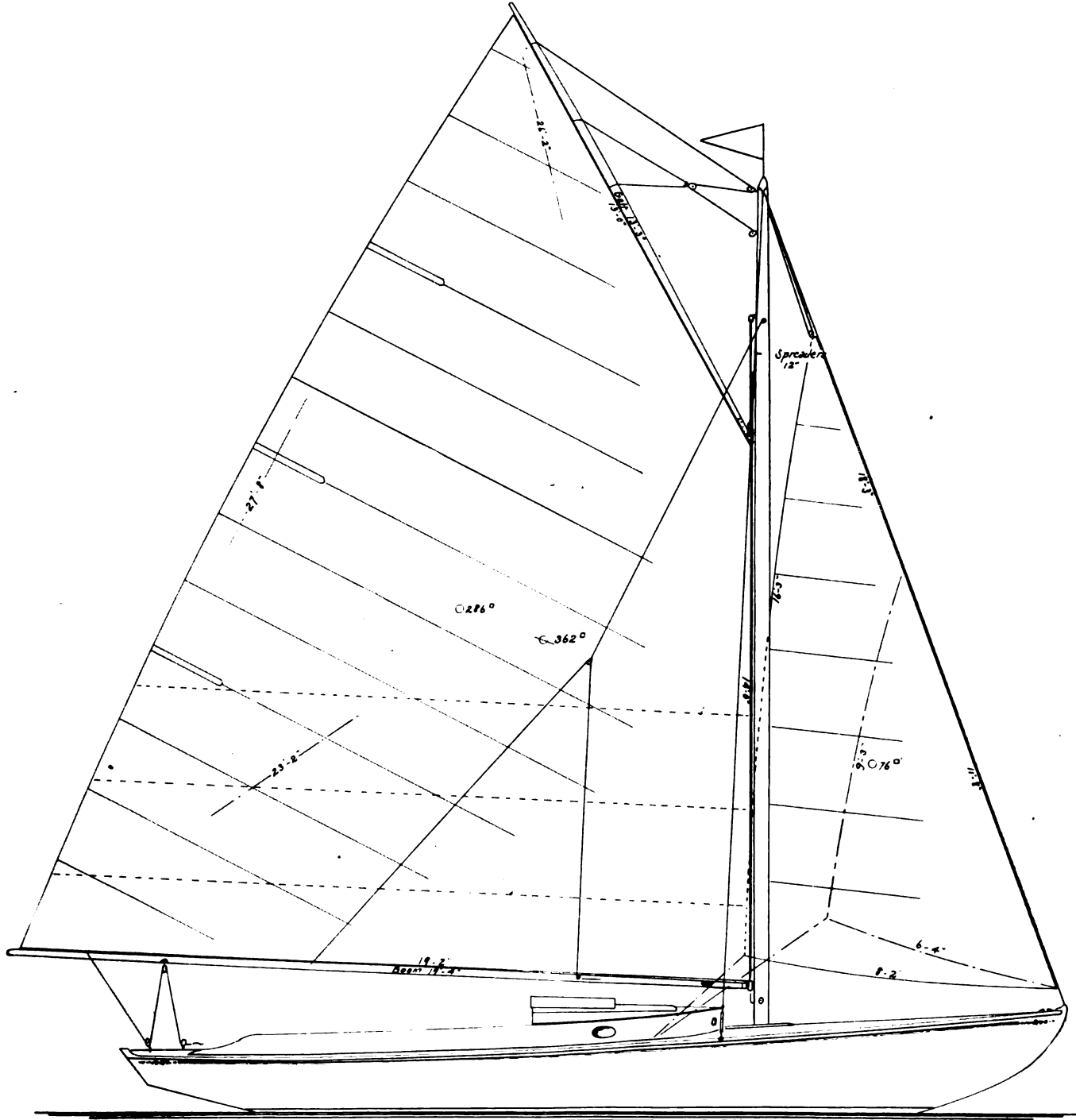
certain portions of the channel is something less than 3 feet.

Such were the waters for which these craft were designed; and when the class was still in embryo, the two or three prospective owners called for approximately the following modest requirements: a fast, able, good-looking, unsinkable, seaworthy, light-draught knockabout, to have cruising room for two, of stout material and good workmanship, to cost \$600.

From the plans it will be easily seen how well Crosby has succeeded in his task.

The boats are built in the best manner with stout white oak frames, cypress planking and mahogany trimmings. With a water-line length of 17 feet 6 inches, the over-all length 25 feet, giving easy, but not extreme overhangs in order to take the short but sometimes rather choppy seas that are prevalent in Wianno waters.

The freeboard is higher than the average, which is



Mainsail, Jib and Storm Jib
Spruce Spars

Steel Wire Rope
Bronze Turnbuckles

Running Rigging Manilla
Brass Blocks

Patent Sail Hoist
Cover for Mainsail.

Drawn by VAUGHAN D. BACON - BARNSTABLE MASS

Sail Plan of Wianno Y. C.'s One-Design Class Boats

THE RUDDER



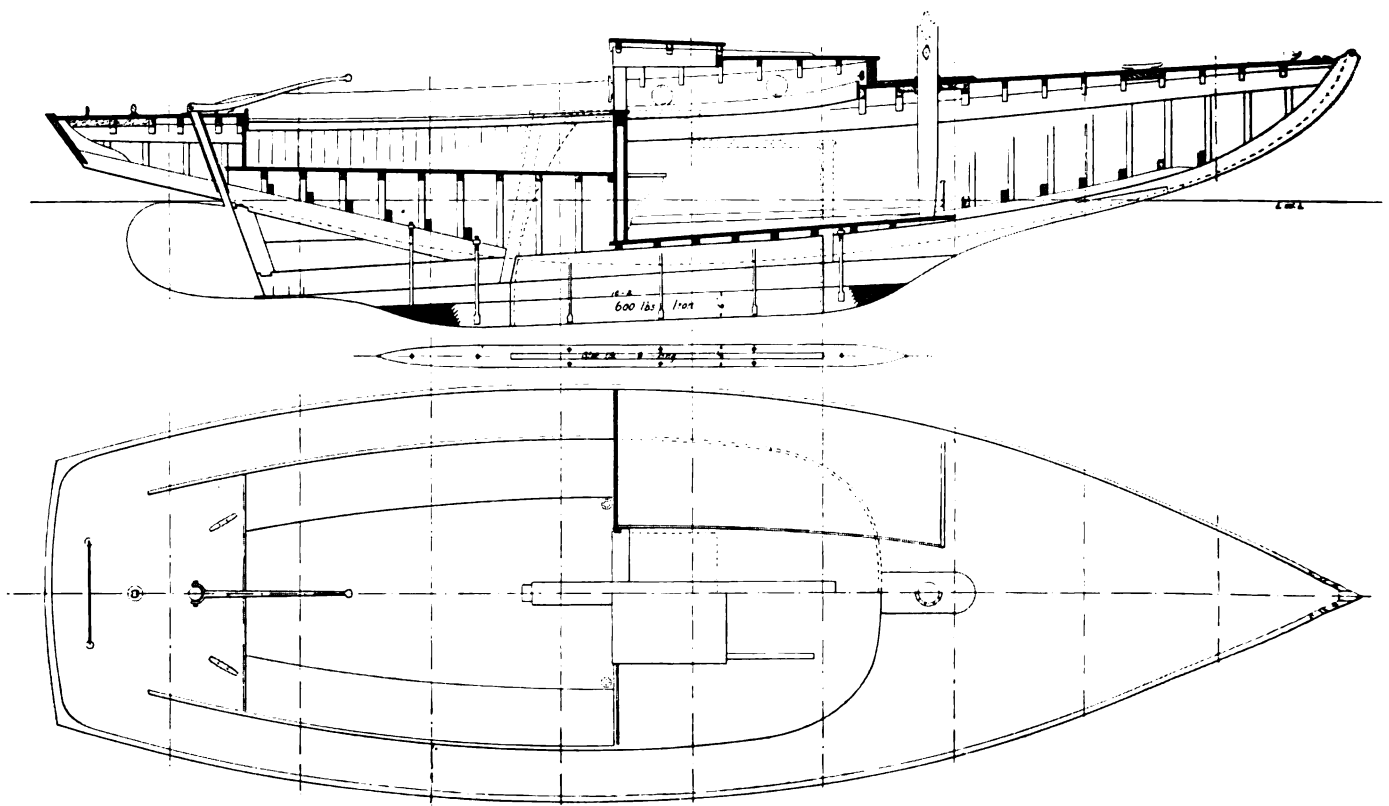
One of the Wianno Y. C.'s One-Design Boats

another aid toward making them good sea-boats, and which also makes possible the cabin with two fair-sized transoms and a moderate amount of headroom for boats of such a size. There is a shallow iron keel in addition to the inside ballast, the division making the boats more manageable in a seaway. The keel is not a fin, but extends for a considerable way under the boat, which enables her to go to windward in shallow water, without letting down the centerboard. It is cut away somewhat, however, near the rudder, to make easier work for the helmsman when coming into stays. The large cockpit is self-bailing, and together with seats and deck it is covered with canvas, thus making assurance doubly sure that no water gets into the cabin from the top. The cabin, by the way, is arranged to shut up completely, thus forming an air bulkhead.

One of the joys of the class has been its size. At first only two or three men were actively interested, but the interest grew and grew, until finally a total of fourteen such craft were built by Crosby last Spring, and more are building this Winter. The average attendance per race was about ten of the new class; and as they all started together, Wianno had thrills in the way of close starts and finishes such as were never known before.

In performance the new boats have fully come up to their requirements. They have shown themselves able, stiff and seaworthy; they mind their helms like obedient children and take sound waves without plunging or "slapping."

In speed they have been an agreeable surprise, for in a series of Interclass races pitted against boats of Herreshoff and Lawley designs, they were usually able to hold their own, except in the very lightest of winds.



Arrangement Plan of Wianno Y. C.'s One-Design Boats

THE CHICAGO MOTOR BOAT SHOW

ALL shows are much alike, and for this reason their constant repetition grows monotonous. If the public interest in them is to keep up, something must be done out of the ordinary to attract the attention of the crowd. Unless this is done, the attendance not only of those who are genuinely interested in the product exposed, but of the mere sightseer falls off, the exhibitor becomes soured and the whole thing goes to the bottom. Shows of any kind in New York are a success, not because they are a necessity, but because in the metropolis there is a vast body of people, who without any other reason than curiosity, attend these exhibitions, no matter what product is placed on show. With them, it is a habit; dogs, bowers, cement, boats, electricity or anything that can be displayed will draw this crowd. The majority of them never buy anything, and never intend to, but they help along the show by paying at the gate. The really valuable visitors to New York shows are the out-of-town people who are interested in the product exhibited for the reason that they are using or intending to use it. To many men the motor-boat show is an excuse to visit the metropolis, and it is also an excuse for their wives to accompany them, and to get in a little shopping. These visitors are the ones who are of value to the exhibitor, for they have money and the intention of spending it. But the regular show patron, while of value to the gate, is a nuisance to the exhibitor.

The exhibitors themselves are divided as to their ideas of why a show is. The governing powers of the Association look on the show as primarily an educational display; something to teach the public that the best of recreation is to be found on the water, and to enable them to see in close housing the product needful to carry on the pastime with safety and comfort. But this view is not shared in or indorsed by many who exhibit. These men look on the show as a salesroom, and consider the educational feature as secondary to the commercial, and they gauge the success of the show by the actual business they do. Others simply join in the work out of loyalty to the Association, without expecting any gainful result either intellectually or financially.

Again, many have peculiar ideas as to the comparative importance of their product. The maker of carbureters, starters and other accessories thinks his exhibit the most necessary, the engine man disputes this and claims that his product is the chief feature; but to the public, the only thing that strongly appeals is the complete article—the boat. What the show visitor, with few exceptions, wants to see is the boat, and that is what he comes to see and what he is willing to pay to see.

For this reason, while neither of the shows this year was up to former years in the number of exhibits, they were far and away better displays, for they interested and satisfied the public. There were less exhibits and far less trash. The cheap manufactured boats and motors so lavishly displayed in former shows were all absent. While some of the boats exhibited in New York were unsuited to the Eastern market, the workmanship was

good, and the designs, while not up-to-date, were far from being of the crude hayseed type of former days. The Western builders have shown tremendous improvement in the last few years, due largely to the placing of their product side by side with the best of our coast work. If these shows do not educate and enlighten the public they certainly do the exhibitors.

The Chicago Show was smaller than the New York Show, but it was more select; the exhibits were all good and all interesting. The attendance was made up of the usual crowd, the majority of the visitors being mere curiosity attendants, but there was a large gathering of men from neighboring localities who are genuine boatmen, who came to study and to buy. The West has no such body of yachtsmen to draw from as has New York. They are too much scattered, whereas in the East the mass of our yachtsmen are held within a circle whose diameter is not over 300 miles. Seventy per cent. of all our Eastern yachtsmen are in New York, Boston and Philadelphia.

The city of Chicago, despite the drawback of its open Lake front, is making praiseworthy efforts to increase the sport and the men of the clubs are extremely enthusiastic and constant workers for the pastime. The clubs certainly deserve great credit for what they have accomplished. Many of the other lake towns with excellent harbors and far better sailing waters, have done much less.

The success of the boat show, or in fact, any show, depends largely on the attitude of the daily press. Unless the newspapers take up and exploit the exhibition, the public will not visit it. To enable the papers to do this there must be something on exhibition that is wholly outside the commercial, something independent and spectacular that the newspapers can handle as news. All newspapers are controlled by the business end, that is, they are run as a money-making institution, and money-making to them is spelt—Advertising. This limits the activities of the newsgatherer to what is recognized as legitimate news and prevents his introducing commercial matter as news unless the business office is first fixed by covering the item with sufficient advertising.

If these shows are to be continued and the papers kept interested so that they will aid the Association to bring people, they must have less of a commercial aspect and become more spectacular and educational. And this can only be done by exhibiting the complete article—the boat; not only craft fresh and clean from the shop, but boats that have seen service and accomplished some notable work.

The arrangement of the exhibits at Chicago was excellent. They were given plenty of room and the aisles were wide, enabling the crowd to circulate freely. The building was warm, free from draught, yet well aired. The dust and the smell of last year's circus so familiar at Madison Square was happily absent much to the joy of the exhibitors. The whole thing was well managed, the music particularly good, including some singing, and

Mr. Hand, the manager, deserves praise for the way in which he handled the exhibition.

The majority of the exhibitors were the same as in the New York Show, and included the following firms:

Anderson Engine Co.	Lamb Engine Company
Blakely Engine Co.	Geo. Lawley & Son Corp.
Buffalo Gasolene Motor Co.	Lewis Elec. Welding & Mfg. Co.
Byrne, Kingston & Co.	Loew-Victor Engine Co.
Caille Perfection Motor Co.	Lyons Mach. & Mfg. Co.
Carlyle Johnson Machine Co.	Milwaukee Yacht & Boat Co.
Geo. B. Carpenter & Co.	Missouri Engine Company
Champion Spark Plug Co.	Motsinger Device Mfg. Co.
The H. C. Doman Company	New London Ship & Eng. Co.
The Dayton Electrical Mfg. Co.	Peerless Marine Motor Co.
The Elco Company	Frank Porter Lumber Co.
Erd Motor Company	Pyrene Manufacturing Co.
Evans Stamping & Plating Co.	Ramaley Boat Co.
Evinrude Motor Co.	Red Wing Motor Co.
Federal Motor & Mfg. Co.	The Standard Company
Ferro Mach. & Fdy. Co.	S. & S. Safety Crank Co.
Gas Engine & Power Co. &	Sterling Engine Co.
Chas. L. Seabury & Co., Cons.	Sumter Electrical Company
Gray-Hawley Mfg. Co.	Valentine & Company
Gray Motor Co.	Van Blerck Motor Co.
Heinze Electric Company	Wheeler & Schebler
Everett Hunter Boat Co.	Wilmarth & Morman Co.
The S. M. Jones Co.	Winton Gas Eng. & Mfg. Co.
Koban Mfg. Co.	Wisconsin Motor Mfg. Co.
Kokomo Electric Co.	

The exhibitors who did not appear at the New York Show were:

THE ANDERSON ENGINE COMPANY

This company is one of the oldest in the motor business and has done an extensive trade abroad, especially in Australia, where their engines are great favorites. They had on exhibition a 24-h.p. and several small motors, including the outboard motor which the company has lately put on the market. Mr. Anderson, the president of the company, is an experienced yachtsman, and has a wide knowledge of what is needful for use in cruising and working craft, so that the accessories used on the Anderson engines are of the best makes.

THE BLAKELY ENGINE COMPANY

The exhibits of this company were a number of small light-weight engines, suitable for use in canoes and small craft. One of these motors was shown fitted in a canoe. There is especially abroad a demand for a small inboard motor of this type, and owing to the craze for outboard motors, few are at present being turned out.

CAILLE PERFECTION MOTOR COMPANY

This company had a comprehensive exhibit, including their outboard motor. This motor is known as the five-speed, and is a powerful little machine with several interesting features. The propeller is reversible and can be regulated by raising and lowering the steering bar. They also had the new four-cycle, a very handsome and compact machine, which is fitted with a complete controlling outfit.

THE MISSOURI ENGINE COMPANY

The principal attraction in this exhibit was the new kerosene-using motor of the hot-bulb type. By an ingenious arrangement a mixture of oil and water is injected into the cylinder which prevents the carbon deposit which in the past has been so bothersome in motors using this form of fuel. The company also had on exhibition several of its regular line of four-cycle motors.

RAMALEY BOAT COMPANY

Among the boat exhibits that attracted attention were those made by this company of two runabouts, suitable for use in fresh-water rivers and lakes. The workmanship on the boats is very good and the material all through of the very best. But this type of boat has a limited market, and is not suitable for use in salt water or abroad, except on lakes or rivers. The company turn out a very good rowing boat, built especially to carry an outboard motor. This is the best model for that purpose I have seen at any of the shows. This boat is well worth looking into as it is cheap and well built.

WILMARTH & MORMAN

This firm made a fine showing of their different devices. Among them being a reversible propeller for outboard motors. This can be so regulated as to effectually control the speed. Another exhibit was the No-Ro outboard motor and a small two-cycle motor, and a complete line of their reversing propellers.

EVERETT HUNTER BOAT COMPANY

This was the largest exhibit at the show, the company having a full line of stock boats. These boats are designed for local use and are mostly of the Western type. Among them was a small 16-footer that would be a good craft anywhere; this boat was well built and very reasonable in price. There were several runabouts and small day cruisers. The material and workmanship in these boats is excellent, and they are well finished and equipped throughout. The company carries a large stock and can deliver promptly any of the craft exhibited.

GEO. B. CARPENTER & CO.

By far the handsomest arranged exhibit was made by this firm. The exhibit of nautical accessories was shown in a stand enclosed by a handsome brass railing, the standards for which represented fouled anchors. Besides the usual array of deck equipments in brass and galvanized iron there were shown clocks, compasses, capstans, and steering gears of all shapes and sizes; a full line of boat toilets and other cabin fittings. This company, besides being the largest handlers of boat and yacht hardware in the West, are makers of some of the best sails ever hoisted on racing or cruising boats. The firm's warehouses and offices are on an enormous scale and their business activities extend all over the world.

After the show the question was brought forward among the exhibitors as to whether or not it was worth while holding another exhibition in Chicago. The general opinion of the Eastern exhibitors was that the one show in New York is sufficient, and that Chicago is not a good show town. But in reply to this, the Western exhibitors brought forward the fact that attendance this year was larger than last and that the visitors seemed to be people many of whom were really interested, and that considerable business was done. It takes time to establish anything of this kind as a fixture and it must be remembered that the New York Show began on a much smaller scale than the one at Chicago. What is needed in the West is some thorough preliminary missionary work, not only among the builders but among the clubs and unattached boatmen. Get these people to warm up and back the show and it will be a success. What is wanted is boat exhibits. Such exhibits were the features of this show that brought the people. Crowds swarmed around and over the boats, and the slogan for the next show should be boats, boats, boats.



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



A REPLY TO THE CATBOAT MAN

THE encomiums heaped upon the Cape cat as a small cruiser, in the November RUDDER, leads the writer to take up the cudgels for the Maine sloop, the boat used for lobstering and fishing along this rocky coast.

Able, roomy and easily handled, when fitted with a large cabin instead of the fisherman's cuddy, they are admirable for cruising alongshore. Formerly built with a centerboard, they are now keel boats, yet are quite as quick in stays as were the centerboard boats. Although the writer's Kestrel, 31½ by 26 by 9½ by 5½ feet, has somewhat less breadth than the typical Maine sloop, she is a fair representative of the class.

As the picture shows, she carries two jibs, but no topsail or spinnaker, since a small engine is relied upon for calm weather. The outer jib is used only for long runs off the wind, so that ordinarily she is a jib-and-mainsail boat, and in tacking is as handy as a cat, for there is no trimming of sheets. When running before the wind in smooth water, with the main-sheet slacked to the limit, she will come about without touching a sheet. Although not perfectly balanced without the jib, I have tacked up a narrow harbor against a stiff Northwest wind under the full mainsail, while the mate was furling the jib and clearing the anchor. Surely, a cat can handle no better! Although Kestrel has always had a

crew of two on her cruises so far, I expect some day to demonstrate that one man can cruise in her comfortably, and without excessive labor in fair weather. In bad weather I believe that she would prove safer and more comfortable to handle than a cat of the same size. Her great superiority to the cat or ordinary sloop yacht of her inches consists in her spacious living accommodations. With 5 feet 10 inches headroom, a cabin trunk 13 feet and a cockpit 7 feet long, she is a houseboat when at anchor, yet when under sail will do all that can reasonably be asked of a boat of her size.

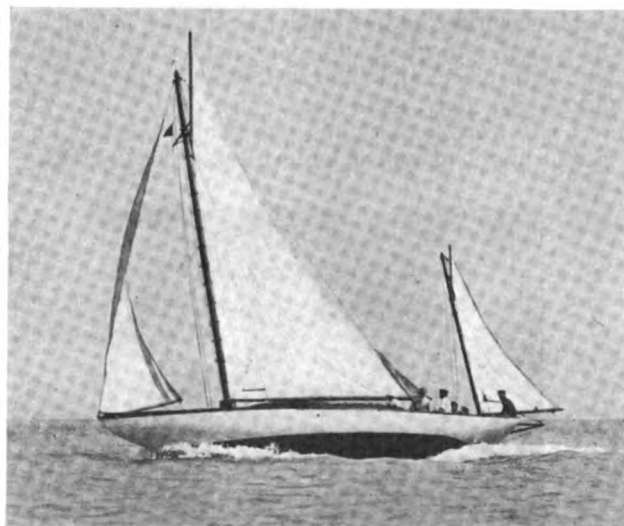
Not only has the sloop nothing to fear in comparison with the cat, but with the present almost universal use of the gasolene engine as an auxiliary, even the yawl is in danger of losing to the sloop its pre-eminent position as the ideal rig for the small cruiser.

Madison, Wis.

O. P. WATTS.



Kestrel, Owned by Mr. O. P. Watts



Yawl Owl. 36 Ft. O. A., 24 Ft. W. L., 9 Ft. Breadth, 6 Ft. Draught, 6,000 Lbs. of Iron on Keel. Sailed by Wm. J. Keough. Owned by Edw. Helmcke, Lincoln Park Y. C.

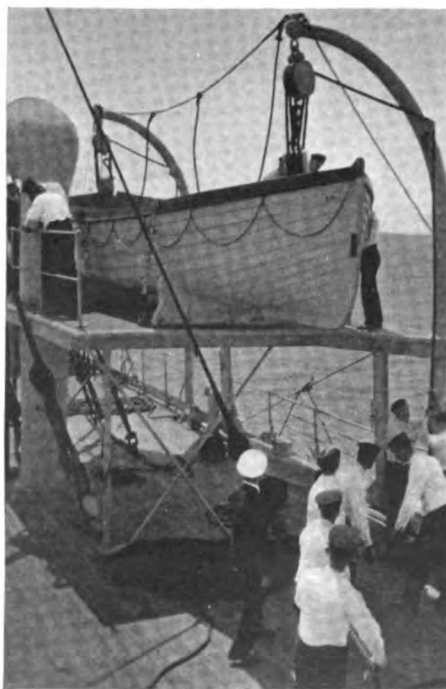
BOAT DRILL AT SEA

THE first thing I do when shipping for the night on board a strange hotel is to make a traverse fore-and-aft through the gangways and locate the fire escapes. Whenever signing on aboard a ship for a long voyage I walk around the decks and have a good look at the boats. Am sorry to say that in most steamships the boats are in a disgraceful condition and if anything happened it would take hours to get them overside, and away from the ship. The men who are supposed to man them half



Commander Claret, of the Minnehaha

the time don't know their stations, are ignorant of handling the tackles and the oars. Last Summer, on boarding Minnehaha, of the Atlantic Transport Line, I was agreeably surprised to find all her boats in splendid shape, the gear new and good, the oars, sails, boat hooks and bailers all in place, and the craft showing by their clean condition that they were often inspected. Two emergency boats were kept swung out ready to lower and in these each night a lighted lantern was placed.



The Stewards Standing by Their Boat



Lowering Away

One day in midsea Commander Claret stopped the ship and had a boat drill. Two boats, manned by stewards and firemen, were to be lowered, rowed around the ship and then rehoisted. The two crews cleared the boats, lowered, rowed around the vessel and hoisted in again in less than 16 minutes. A fine performance, when you count that these men were not seamen. The stewards won.

The passengers were much interested in this drill as most of them, being old voyagers, had seen the burlesque performances given on other transatlantic liners. But this was the real thing.



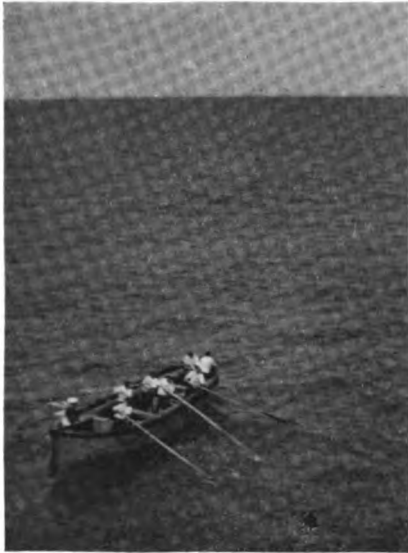
FROM FUSS TO FUSS RACES

YOUR attack on the 'Frisco Race is unjust and unkind. That stop-here-and-there idea is certainly grand, and I, for one, hope the American Power Boat Association will encourage other contests like it. I would suggest that they be called "From Fuss to Fuss Races." Why not have one on the Hudson River this coming Summer? Start from New York at daylight, compulsory stop of one hour at Yonkers for breakfast, then one-hour stop at Haverstraw for shave and shampoo, stop for lunch at Peekskill, another hour at West Point for tea and muffins, and to view the parade, a long stop for bed and bath at Newburgh. This kind of a race would do much to encourage seamanship and the hotel bars. To make it the real thing the committee should be old ocean racers who have no knowledge of the Hudson River, and are therefore unable to find the bearings of any hotels, barber-shops or other places of entertainment. Don't you think such a race would take? I certainly do.

SAFETY FIRST.



I AM anxious to enter in the San Francisco Race, but am keeping back my entry because the committee are not stopping at Atlantic City and Beaufort, N. C. My aunt lives at the first port and I would like very much to



The Winners Rowing Around the Ship

have her see my racer when actually racing in the Grand Contest. I also want to stop at Beaufort for at least twenty-four hours; one of my best girls lives there. She has a number of lady friends who would be just crazy to entertain the crews of the other boats. Can't you use your influence with the committee to make these stops?

Yours respectfully,

TRUE BLUE.

P. S. Would also like to stop at Jacksonville, a man there owes me three dollars.

FROM OUR READERS

DEAR OLDMAN OF THE SEA:

You are that to us old readers, even if a blatant modern poet says you claim to own the ocean.

Have you any older reader of THE RUDDER than I? Twenty-five years ago you came to my office to see my partner, Teddy Prentiss. He introduced us and you took from under your arm the first copy of THE RUDDER and presented it to me, and I don't believe I ever missed a single copy from that day to this.

I wrote stories and drew pictures occasionally for you from that time up to 1896, but by that time you had got so strong you had "hired help."

I was a great fool not to bind the first few years, maybe I was scant of faith that the magazine would continue; but as I sit here at my desk, I have twenty years of bound copies facing me. Nowadays my grown-up family like land motors better than water motors, but as long as I live and have the wherewithal, I shall own some kind of a boat and read THE RUDDER.

Salutations on the Silver Anniversary! If you and I may not see the Golden one, let us hope that it will be properly observed by the boys round about us, who have had love of the water instilled in their hearts by the good old RUDDER.

Yours in long friendship,
DUNHAM WHEELER.

DEAR OLDMAN:

Here I am again, after a long silence, and as usual I am a long way from the last stop. I think I'll stay at anchor here for a long time, though. The blizzards up North are a little too much for me. There's no romance

North of Forty, you say. Right you are, and nothing much else except chills, ills, pills, and doctors' bills. So far as weather goes, Auburndale has every other place on the map strung up to the yard arm. Its only disadvantage is that I am limited to a little bathtub of a lake for my sailing. However, the water in it is just as wet as that of the Atlantic, and three-reef breezes are frequent, so I'll make the best of it. Time and the treasury permitting, I hope to build a Junco next Summer and show the natives some sailing what is.

I am enclosing a separate sheet for you to pass to the cabin-boy to take to the purser. My time is about up, and I want to sign on again, of course. Couldn't think of life without THE RUDDER, anywhere on the map. I see the old packet has been running into some bad weather of late, but her friends don't give two hoots for that, Oldman. We know she'll come through anything with you at the wheel. And really, in some ways I think it is better than ever. You've got good hands in Mr. Lisle and Mr. Goeller.

Well, Oldman, I won't take up more of your time now. This is just a word of greeting and good wishes. May this year bring you and THE RUDDER fair winds and open going. And if you are ever down this way, remember my companion hatch is always open. I'm a single-hander—no females around to worry you except the ship's cat, and she's dead and stuffed now.

JOHN G. HANNA.

THIS morning I received my copy of THE RUDDER and it's such a fine number with so many practical things in it that I want to sit down and tell you how I enjoy it. I realize that there are some who knock and I must confess that I was getting to a point where I felt you were going to make the good old RUDDER a power-boat magazine. I am glad to see you coming back stronger on the "rag-on-a-stick" boat. Of course, I realize the great trend toward "kickers" and I have one in my sloop, but I am a greater lover of the sail and I believe there are lots more like me, who hate to see such a good magazine as *ours* get lopsided on engines. Here's that I may live to enjoy many more years of THE RUDDER and many more numbers as fine as the March issue, and here's that our good Editor may be spared many more years to keep the good ship on her course.

JOHN H. SCOTT.



The "Oldman" of The Rudder Playing with the Kids

ROUND THE CLUBHOUSE FIRE

IT'S about time we call the watch, douse this fire and get outside. I'm tired of poking about indoors and want to be where there is room to throw up your cap without hitting the rafters. If people lived more outdoors and thought more of getting fresh air than they do of getting stale money, how much more of a place to dwell in this world would be. Take your indoor man, the fellow that sticks to his office chair by the day and to his easy chair by night; he is a miserable, cantankerous wretch, who drinks ice-water, and eats pie for lunch, and grape nuts for breakfast. Your outdoor man is a jovial, brisk cuss, who tackles beefsteak and whiskey three times a day, if you'll let him. The world wet and dry is his playground, and he lives—lives every minute of the hours he is on his feet—like a king in a fairy tale. What has the indoor man ever done for his country compared with the noble work of the outdoor man? Who pays the internal revenue tax? You have only to spend a few hours in a yacht club, or go on a cruise, to answer that query. Get outdoors, get outdoors early and stay out as long as you can. Don't grow old, don't be a foggy, don't drink ice-water, don't eat grape nuts, don't hang around the clubhouse; have a boat, go in the races, cruise, get wet, tired, and hungry, have the best time you can, and charge it up to life, for that is what life is for.

* * *

We have frequently called attention to the danger of lining the East Coast of this country in the Fall and Winter season. The loss of the schooner yacht *Idler* has again brought it to notice. The unfortunate skipper of this vessel, which was voyaging from New York to Havana, was instructed to keep offshore, but evidently fearing to do so, he ran in and struck on the Diamond Shoal off Cape Hatteras in a heavy Northeast blow, and the vessel and all hands were lost. In trying to avoid an imaginary danger, the deep Gulf Stream, he ran into an actual danger, the shallow inshore water. In going South in the Fall or Winter, after passing Chesapeake Capes, steer due South, right across the Gulf, and into good water on the other side. Never attempt to hang to the beach. Keep away from the land and you will be safe. You will also find warm water and better weather East of the Stream than you will between the Stream and the coast. There is no advantage in passing close to Hatteras going South, unless you are bound to Charleston or Savannah. For ports in Florida always cross the Stream and go down outside of it.

* * *

The old hands have turned to and revived the Bermuda Race. The start will be made May 22d, from off the Crescent Athletic Club at Bay Ridge, and the race will end as usual at St. Davids Head. Two boats, so far, have entered, *Cero* and *Cruisette*, one 40 feet over all, and the other 32 feet over all. It is hoped one or two more will come in to make things interesting. We are also going to revive the Marblehead Race, if some club will take hold of the job of bossing the start and finish. My idea is that it would be better to shift the finish of this race to South Boston, as the participants in former days

did not receive what may be described as a very cordial welcome from one of the clubs at Marblehead. One year, after being invited by the Regatta Committee to make themselves at home in the clubhouse, the participants in the race were ordered out of the house and off the lawn by the House Committee. I wish to record that this was not the Boston Y. C., which organization has always given a cordial welcome to the racers, and done everything in its power to help the game along. A call is being sent out for all the old ocean-racing hands to meet and form an organization to handle these long contests. This body, to be known as the Deep-Water Racing Association, will take charge of all events where the course is laid outside on salt water. It will promote and manage the Marblehead, Bermuda, Cape May, Block Island and similar events. Only men who have experience in these races will be allowed to shape its fortunes and manage its proceedings. Having this body to supervise ocean racing, the sport will in the future, we hope, be spared the humiliation of having to stand for such a burlesque performance as this Panama-'Frisco farce.

* * *

The circular covering the so-called race to 'Frisco is out, and is a rare specimen of what can be done by people without experience or knowledge of a subject when they have the courage to tackle it. Many of the conditions are purloined from the circulars covering the Bermuda and Havana races, with several light and felicitous additions by an unknown authority. The preamble starts off by informing the world, "that the gentlemen of the different committees are thoroughly competent to do this work by reason of personal experience in long-distance racing." No doubt, but what long-distance racing? Not ocean racing. With exception of one member, Mr. Bowes, I never saw or heard of any of the committee being in an ocean race. Perhaps this is a mistake; if so, I apologize. They may have been below, or in disguise, but anyhow they are on deck now. With the help of the A. P. B. A., they have fished up an ancient measurement formula, which was tried several years ago and discarded because it would not work. It has been tinkered up a bit, and redecorated and the following line of first-class joke stuff added: "The revolutions to be declared by the owner." Can't you see the owner crossing his heart and giving, offhand, the revolutions? But the real comic of the whole thing is the course. This is from New York to San Francisco, punctuated by six compulsory stops, with stated hours for rest and recreation in the several harbors. In fact, it is a regular picturesque tour labeled with that following grandiloquent title, "Long-Distance Cruiser Championship Race."

* * *

A race is a race, and it is generally believed that in a race a contestant should make the passage from start to finish in as quick time as possible, and should therefore take the shortest route. But the circular says not. The distance over the steamship track from New York to

Colon is 1,974 miles; by the new and improved route it is 2,285 miles, a difference of 311 miles. Another advantage of the new route is that from Cape Canaveral to Old Providence, a distance of about 800 miles, you have the current against you. This current sets at an average rate of 2 and at maximum 5 knots, so that it will prolong the voyage several days. To add an additional feature of pleasure to the cruise, after passing Cape San Antonio, the wind and sea will be ahead. This will not only delay the boat, but will add to the expense by using up a tank or two of gasoline—another cause for song and general rejoicing. Again, in the circular, the author very properly remarks: "In this race the personal equation will figure largely, skill in the use of the compass, dead reckoning and chart work are bound to balance mere speed in a contest of this length and character." No doubt of it, my friend, no doubt; but do you know what is meant by the expression dead reckoning? You don't, because if you did, you would never have penned those words. The pilot directions for the West Indian waters will tell you that dead reckoning is absolutely unreliable in the Gulf Stream and Yucatan Passage, especially in the Autumn, when the currents are rapid and irregular. If under such conditions large, powerful steamers cannot trust to the reckoning, how about small craft where the reckoning is still more untrustworthy? The reefs of the Caribbean are lined with the bones of craft whose navigators trusted to dead reckoning. My experience is that except in fine weather and slack water, small craft cannot be correctly navigated by dead reckoning. Why not come out in the circular and say that the course is selected because it is difficult and dangerous and therefore will be a firm test of the navigators' skill?

* * *

Now as I happen to have the honor of intending to participate in this Championship Race and of jeopardizing my life, and lives of my crew, as well as the owner's property, the Committee will, I am sure, pardon a few remarks from an old seaman and navigator whose sole claim to attention and consideration is that he was once in a long-distance ocean race. We have been told for centuries by experienced seamen that the safest place for a ship is in deep water, and the most dangerous close to the shore, or where waters are shoal. But it seems that these mariners of experience were wrong, and that we, who have promoted and advocated deep-water racing, are also wrong. According to the circular, the safest place for a boat to navigate is alongshore over shoals and reefs. Having spent a large part of my life trying to hammer the fact into men's heads, that it is the bottom of the sea, and not the surface, that is dangerous, it certainly hurts to find that my teachings are erroneous and that I have sailed and suffered for naught. Also the circular informs us that the U. S. Hydrographic Office is responsible for recommending this head-current-over-the-reefs-route. Yet the West Indian Pilot, compiled and issued by the same office, distinctly declares that it is not the course to follow in voyaging from New York to the Isthmus, and the Pilot Chart of Central American Waters, issued by the same office, shows the proper track by way of San Salvador and the Windward Passage. Far be it for a humble hand like myself to dispute the authority of the Hydrographic Office, but which is the true faith, the circular or the Pilot Chart?

* * *

A course alongshore like the one selected, is a terrible ordeal for the man navigating a small racing craft. Unless

you have been in charge of a vessel in such a race you cannot comprehend what it means to the person in command. It means that he can never take his clothes off, that from sunset to sunrise he cannot leave the deck, that the safety of the vessel depends upon his constant vigilance and the constant vigilance of his helmsmen and lookouts. If simply voyaging, it is another matter. If the reckoning is lost or it is too dark to see the reefs, he can go out into the Stream and plod slowly along or lay-to until daylight comes, but in racing, he must push on and trust to his eyesight and good luck to pull through in safety. Thirty-six hours at a stretch without sleep is what this course means if the boat is to be driven to win. Well may the circular remark that the personal equation will figure largely.

* * *

Recently I looked over the new boats building for the one-design class of the Maumee River Y. C. These boats are small skips 14 feet over all, and carrying about 125 square feet of canvas. They are costing complete \$65. This is the kind of craft that will do something to get the sport back on its two feet. The more of these small boat classes we have the better, for they bring in and keep the youngsters in the sport. Another thing that has helped the sport to live out the bad season is the handicap class. This class on Long Island Sound is growing more popular every year and I hope the yachtsmen in other localities will take the idea up and push it along. It gives the old boats and the less skilful skippers a chance to win, and encourages them to stay in the game.

* * *

Some time ago I suggested a navigation race to a regatta committee and they thought well of it, but unfortunately the flag officers of the club insisted that the entries be limited to large craft. This was done, and the large craft would not enter, their professional skippers throwing cold water all over the thing and persuading the owners to remain at moorings. The idea was to have a vessel anchor off on the edge of soundings in a determined latitude and longitude and then to send the boats out to find and sail around her. The participants were to receive the position in sealed envelopes, not to be opened until after passing the bar. Such a race, if confined to small craft, would no doubt be a success, as the little fellows are not afraid to enter and show their skill at navigation. It would do much to prove their knowledge and establish confidence, which is more than 50% of success in this work. Why not try such a contest?

* * *

Some time ago Mr. Boyson, who built and sails a Sea Bird in California, wrote a letter which we published in Hurrah's Nest. In it Mr. Boyson calls attention to the boat's weak point, that of not sailing well on a wind in heavy weather. This is due to the presence of the propeller. As soon as you put a propeller on a sailing boat you kill her for windward work. But what we want to remark is that Mr. T. F. Allen, another Californian, in a later letter accuses Mr. Boyson of saying Sea Bird was "literally unseaworthy." If Mr. Allen will kindly read Mr. Boyson's letter over he will see that he is mistaken in thus interpreting his remarks. There are a number of these craft building, both small and large, and we have many letters regarding the ballast. It is impossible to state any maximum amount of ballast without knowing the conditions under which the boat is to be

used. Put on the outside weight as directed in the book, and then add what you find necessary inside after sailing the boat under different weights of wind.

* * *

My thanks are due to the Trenton Y. C. and the South Shore Power Boat Club, of Chicago, for making me an honorary member of their organizations. The first club presented me with a permanent card of membership, a handsomely engraved sheet of aluminum—which the Commodore hoped would, like the club's welcome, never wear out. The South Shore Club added to their membership a present of a pennant and ensign to be carried by Cruisette in the race to Bermuda. I am getting near the century mark with these honors, having now some seventy to my credit.

We are still anxiously waiting to hear from the oldest subscriber and to have him send in his picture and history. There must be some one who has been a subscriber for at least twenty years. Unfortunately the old subscription books were destroyed and the modern system of keeping the subscribers' names on cards is destructive of all continuous record, as the cards are not retained, so we cannot trace back more than four years. Mr. Dunham Wheeler, whose letter you will find in this number, dates from 1896 to my knowledge, and perhaps he is the true claimant. In regard to the complaint about THE RUDDER not being on sale on the newsstands, we would suggest that you place a standing order with your newsman and we will then see that he is supplied; but why not subscribe?



THE RUDDER

Engineering Library
GENERAL L. ... MAY, 1915
Vol. XXXI MAY 10 1915

No. 5

TWENTY-FIFTH ANNIVERSARY NUMBER



VOL. 1.

WATERTOWN, N. Y., MAY, 1890.

NO. 1.

(Reproduction of the heading on the cover of the first issue of THE RUDDER)

"While I hold my place at this fireside, but one spirit shall animate its discourses—a desire to keep honest, just and clean our sport. To keep it what it has always been—a manly pastime—to inspire in those who engage in it a love of fair play, and an ambition to be sportsmen without stain or reproach."

(Round the Clubhouse Fire)

PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

CONGRATULATIONS
 TO CAPTAIN DAY AND HIS ASSOCIATES
 On This 25th Anniversary Of
 THE RUDDER
 FROM
 GAS ENGINE & POWER CO. & CHARLES L. SEABURY & CO., Cons.
 MORRIS HEIGHTS, NEW YORK CITY

MAKERS OF

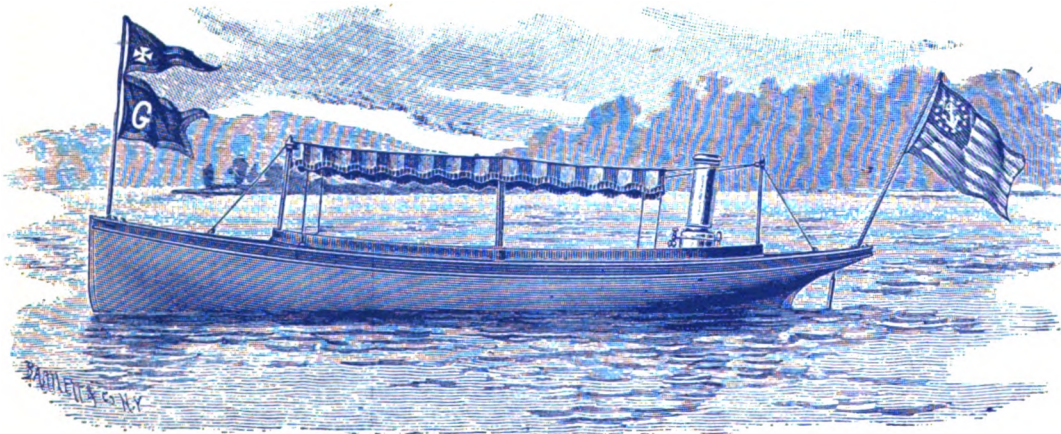
Speedway

PRODUCTS



This advertisement appeared in The Rudder of July, 1890, and the Company have been constant advertisers ever since.

THE ONLY NAPHTHA LAUNCH.
Over 500 now in Successful Operation.



Easy and Safe to Manage.

CLEANLY and ECONOMICAL.

The only real Pleasure Boat built. No engineer. No Government inspection. Can be run by any one. A large number of finished Launches carried in stock. Boats can be seen in operation by visiting our works. Naphtha Launches 18ft. to 50ft. High speed Steam Launches 50ft. and upward. Send 5-cent stamp for illustrated catalogue, containing many testimonials.

GAS ENGINE and POWER Co., Morris Dock Station, New York City.

The Rudder

Vol. XXXI

MAY, 1915

No. 5

FROM ATLANTIC TO PACIFIC ON ATHENE



HO for Adventure and Romance! A brave New England girl and two Yale graduates have captured the honor of taking the first sailing yacht through Uncle Sam's big canal, and have completed a cruise that should make every true yachtsman envious. The romance lies in the fact that it was the honeymoon trip of the owner, Mr. Carleton Earl Miller, and his blue-eyed bride. Mrs. Miller was formerly Miss Delphina Hammer, and is the daughter of State Senator

Alfred Hammer, of Branford, Conn., who is the head of the Branford Malleable Iron Works. Mr. Malcolm MacGregor, of Newark, N. J., who was Mr. Miller's chum at Yale and best man at his marriage, formed the third member of the party. The little racer Athene was navigated by Captain S. M. Marsters, of New London, Conn., Mate Wm. Hall, and eight men before the mast. Captain Marsters was for years the skipper of the schooner yacht Hildegarde, a famous cup racer that was owned by E. R. Coleman, of Lebanon, Pa. The cook and messboy brought the total number of souls on board up to fifteen.

And there was a mascot, too, in the shape of a wee bit of kittenhood that was not supposed to make the trip. She was standing forlornly on the wharf after the farewells had been said and the lines cast off. The yacht slowly glided away from the dock until twenty feet of open water separated her from shore. Just then one of the sailors called, "Here, kitty, kitty, kitty!" and Miss Kitten leaped into the icy water and swam those twenty long feet to the yacht's side, where willing hands pulled her aboard. From that moment her berth was secure as "Genevieve," the ship's mascot. And she was certainly intelligent. In no time at all she learned to scamper to the galley for "chow" when seven bells was struck.

This is a true narrative of how the adventurous trio sailed the little sloop down the Atlantic to the West Indies, thence through the Panama Canal and up the Pacific to the Silver Gate of California.

On the night of October 21, 1914, Mr. Miller gave a farewell dinner to his Yale friends on board the yacht at New Haven. Next morning, with the cabin banked high with flowers, Athene sailed down to New London, where several days were spent in taking on stores and a "movie" outfit, and putting the last touches to the rigging. The real cruise began on October 27, 1914, when Athene spread her big white wings at New London and sailed to the South. One cold and stormy night off Cape Hatteras the sloop was plunging through the immense black seas under trysail and forestaysail. Suddenly the running lights of a great steamer blazed out dead astern and were as quickly eclipsed by a huge sea which rose up between. Next moment the approaching vessel seemed to loom mast high above the tiny yacht. Then the glare of the steamer's searchlight was turned upon Athene, outlining her vividly against the inky background of night. As the stranger rushed past, giant seas could be seen sweeping across her decks and breaking against her lofty bridge. It was just a momentary glimpse of another little world and then each had passed on into the lonely darkness of a vast ocean.

Charleston, S. C., was reached in fourteen days, the distance run being 2,400 miles. After taking on water and provisions at this port, a course was laid for the West Indies. The best run of the voyage was 325 miles in twenty-four hours, made while crossing the Gulf Stream under a reefed mainsail with a N.E. wind and beam sea.

The topmast was lost in Crooked Island Pass, off the coast of Cuba. At the time of the accident all hands were enjoying the brilliant sunshine on deck and the yacht was lazily rolling along, with balloon set to catch what vagrant airs it could. Without warning, a single strong puff of wind struck the sails and drove the bow deep into the sea. Simultaneously the sound of splintering wood was heard up aloft and the next instant the topmast hung suspended in the rigging. The squall passed immediately and was followed by rain. The wreckage was

Copyright 1915, by THE RUDDER PUBLISHING Co., New York. NOTICE—The contents of this magazine, including all articles, illustrations, plans and designs, are covered by copyright, and their reproduction is absolutely forbidden without the consent and permission of THE RUDDER PUBLISHING COMPANY.



Athene with All Sails Set

quickly cleared away, but Athene did not set a topsail for many days thereafter.

The run from Charleston to Kingston, Jamaica, was made in a little less than seven days. In the latter port it was impossible to get a stick long enough to replace the broken topmast. Several days were spent ashore sightseeing and kodaking the "niggers" and their palm-thatched huts, after which the voyagers were ready once more for life on the open sea, and Athene was headed for the Canal. At Colon a good piece of timber for the new topmast was secured, but it was not sent aloft until Balboa was reached. Athene entered the Panama Canal on the 29th of November and, after numerous delays, left it when she sailed from Balboa on December 2d.

The passage through the locks of the canal demonstrated the fact that the Government's towing appliances are designed to handle large vessels only, with the result that the cleats were ripped out of Athene's deck when the electric locomotives put a sudden strain on their 1¼-inch steel towing hawsers. Four of these powerful engines are used to tow a vessel through the locks, a line being made fast to each bow and quarter. These "electric mules" bring up short with a jerk on the non-elastic steel cable that will carry away any ordinary yacht cleat or bitt. Masters of sailing yachts should insist on having one of the large Government launches do the towing, or else have the crew do it by hand lines. Open chocks are practically useless, for the lines will lift out of them as the vessel descends in the lock.

Athene was accompanied across the Isthmus by the three-masted schooner Zeta, the latter being the first merchant sailing vessel to pass through the big waterway. Howard Gould's steam yacht Niagara was passed, bound for the Atlantic.

After leaving Balboa, Athene raced up the coast to Acapulco in four days. In the Mexican port the price of gasolene was \$1.20 a gallon and kerosene was 90 cents a gallon, while on the other hand, the finest kind of turkeys could be purchased for only 10 cents a pound.

Continuing Northward, head winds and squalls were encountered, with occasional calms, so that it took three weeks for the sloop to make the run from Acapulco to San Diego. The bobstay carried away in a heavy sea off Cedros Island, Mexico, but aside from this minor accident and the loss of the topmast in the West Indies, not even a sail was ripped during the entire trip.

Christmas found the little sloop slowly beating her way up the coast of Lower California.

On the evening of January 8, 1915, Athene came to anchor in the quiet waters of San Diego Bay. The cruise was ended, and the tired yachtsmen (and yachtswoman) could view the myriad lights of the great exposition from a deck that no longer heaved to the swell of the mighty Pacific. The sloop had covered 4,200 miles since leaving Panama in thirty-three days of actual sailing, and was seventy-two days out from New London, with a total of something like 5,500 miles to her credit.

Athene was designed and built by the Herreshoff Manufacturing Company, at Bristol, R. I. Her measurements are: Length, water-line, 73 feet; over all, 102 feet; breadth, 19 feet 6 inches; draught, with centerboard up, 11 feet 6 inches, with board down, 21 feet 6 inches. Tonnage: gross, 75; net, 65 tons. The mainboom is 75 feet long, the gaff 45 feet, and the topmast 45 feet. She carries no inside ballast, but there are 42 tons of lead on the outside of the hull. The centerboard is loaded with 1,000 lb of lead, attached in three different places. Wire gear is used throughout and all the spars are hollow. The sails were made by Ratsey & Laphorn.

Music, provided by a pianola and a victrola, and the taking of moving pictures of sea life helped somewhat to break the monotony of the last thirty-three days at sea. A practical wireless outfit is installed just forward of the cabin, the "juice" for operating the same being obtained from a dynamo located under the floor. A 1½-h.p. Edison motor, connected direct to a dynamo, supplied current for all lights on board.

Athene has a steel frame, and the planking from rails to bilge is three-ply, while her underbody is of 2⅞-inch yellow pine. Two Swampscott dories and a dinkey were stowed on deck, the yacht's cutter and launch having been left in New London. The large owner's stateroom, under the quarterdeck, was daintily finished in white and pink for the "honeymoon cruise." The cabin and other ac-



The Lady Wears Sensible Clothes at Sea



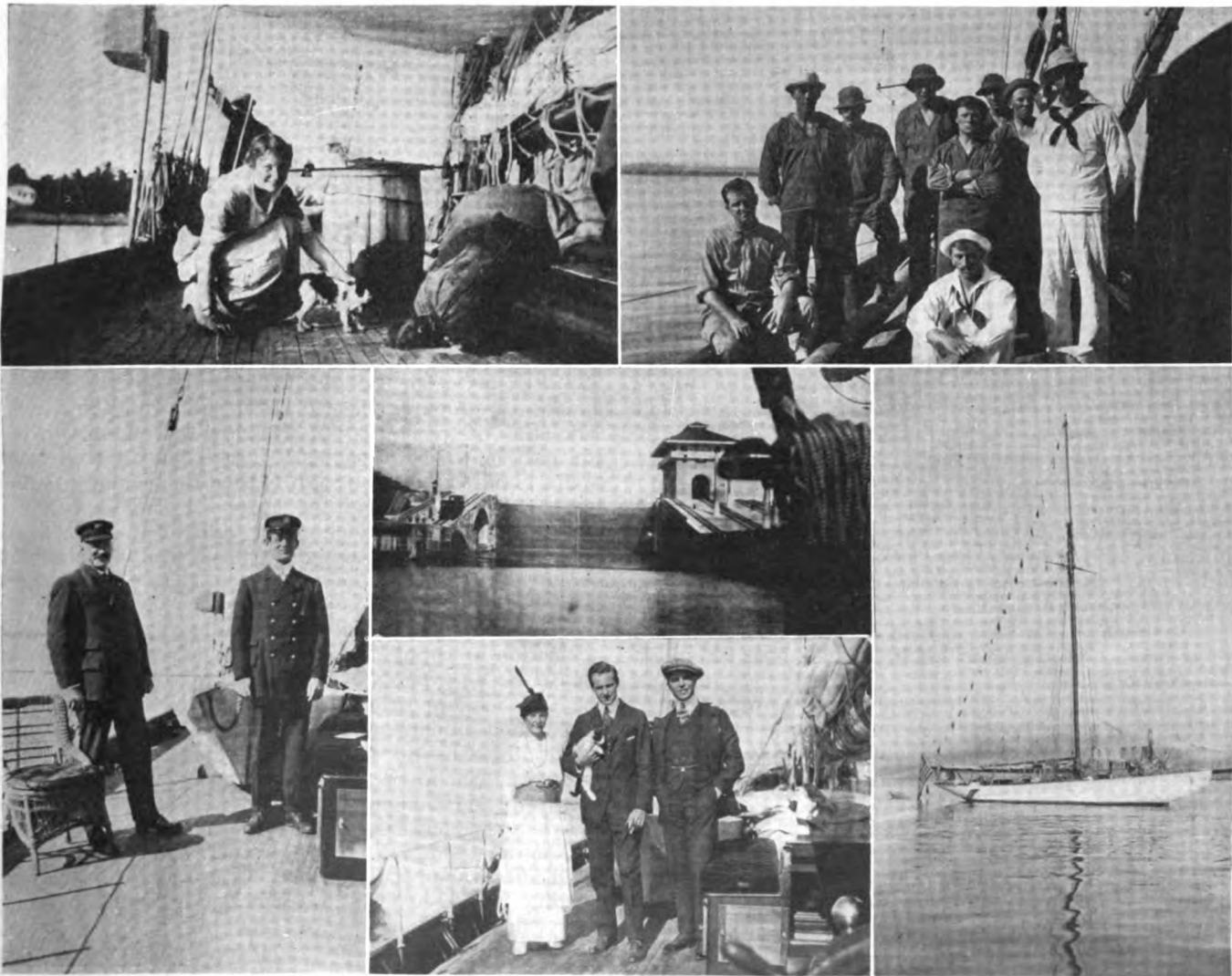
Views Taken from Aloft and of "Mac" with the Dolphin He Caught

commodations are all very commodious and well arranged. The cook managed to keep ice in the refrigerator at all times, except the last two days before Point Loma was sighted. As the capacity of Athene's tanks is but 1,000 gallons, the greatest problem of the voyage was how to obtain and conserve the fresh water. At the end of the trip both food and water were short.

Once before a bride and groom sailed over the seas in the good sloop Athene. That was when her first

owner, Mr. William Gay, of Boston, cruised along the coast of Maine with the girl of his choice. At that time the yacht was considered one of the finest and fastest boats of her class on the Atlantic Coast. Today she is just as good as ever, and Mr. Miller stands ready to enter her against any of the windjammers on the Pacific, not only in short contests, but in the long ocean race to Honolulu.

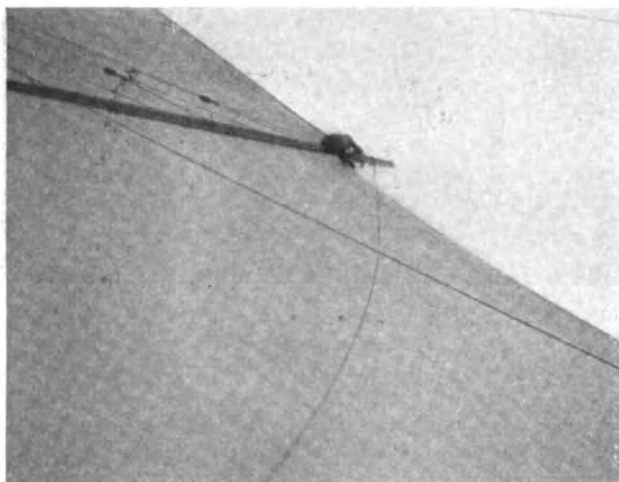
Mr. Gay sold Athene to Burgess, who kept her a



The Mascot Has a Bath
Capt. Marsters and Mate Hall

Leaving the Gatun Locks with the
Mighty Pacific Ahead
Bride, Groom, Best Man and Mascot
Taken in San Diego Bay

The Crew Were a Seagoing
Bunch
The End of the Cruise. Athene
Anchored off the San
Diego Y. C



Mr. Hall Performing What Is Probably the Most Perilous Task at Sea. Working on the Gaff While the Mainsail is Set

couple of years, and then bought a large three-master, and laid up Athene for a year and a half in New London. Mr. Miller bought Athene in March, 1914, while attend-



Hawaii-American Steamer Alaskan Being Towed Through the Panama Canal

ing Yale University. Upon graduating last June, he immediately fitted her up for the memorable voyage which has brought him the honor of taking the first sailing yacht through the Panama Canal.

Mr. and Mrs. Miller will make their future home in San Francisco, and Athene will sail under the colors of the Santa Barbara and other Pacific Coast yacht clubs.

FORREST CLARK.



SAILS

Charles G. Davis

PART VIII

IF you will work as hard to preserve that bird's-wing-shaped curve in the sail as the sailmaker did to produce it, your boat will fly faster through the water for such care and attention.

Not properly peaking up the gaff allows the whole sail to hang loose, and while it is not particularly harmful going before the wind, on the wind it makes a slow boat, and harms the sail.

The strain is allowed to hang from the nock or throat of the sail to the end of the boom, stretching the canvas tight there and allowing the slack cloths along the after leech to bag out where it should be flat to let the wind escape off the after leech.

The draft of the sail, instead of being along the luff by the mast, is in the after leech, and the boat cannot go well to windward.

If, however, the peak halyard be set up taut enough to strain the cloths down to the tack, all the after cloths along the leech are stretched out flat and smooth and the draft, or bagginess, is where it belongs—up near the mast.

Not properly hoisting up the throat is harmful to a sail, as soon becomes apparent when it breezes up a bit. The sail bellies out into two distinct bags when peak and throat are both slack, as shown by the way the shadows fall across the sail in Fig. 27. Setting the peak up properly makes a far better sail out of it, and takes away that hard dividing ridge from throat to clew, and gives a sail with considerable draft to it, as in Fig. 28.

As the breeze hardens, the slack cloth in the sail bulges out more than it should if the boat is to do her best close-hauled going to windward. Then jiggling up

tight on all the halyards will let her look up maybe half a point higher, and in looking at her sails end on, instead of bulging out as in Fig. 29, they will now stand like Fig. 30. The sail not swigged up good and hard cannot be properly sheeted down for windward work. The cloth of the sail is not stretched flat enough to hold the gaff in where it belongs—it will lay off to leeward and a good part of your sail is then not pushing to help her to windward with all the power it is capable of.

Remember this: swigging up tight on the sails is for hard winds. As the strength of the breeze moderates, so should the strain on the cloth be moderated by surging or slacking the halyards a trifle.

There is a great deal more headwork and good concentration in sailing a boat properly than most people are aware of.

The bending of the spars is in itself a study that some men understanding it have used to advantage, while others have lost races through not studying it. It is easiest seen in the boom. If you will go up near the mast and sight along that spar, foreshortening it, you will be surprised to see how bent it really is; yet when looking at it sideways it appears perfectly straight. That bend affects your sail and perhaps the mast and gaff are bending just as badly. Only sailors don't call it bending; they call it "buckling."

Take a catboat as an example. I will have to exaggerate the points in view in order to make them plain. In light airs her spars all stand in straight lines, and her sail, cut to fit straight lines, sets nicely, as in Fig. 31. Now, in a hard breeze, what happens? Her mast bends some, the peak halyards pull the masthead aft, the push

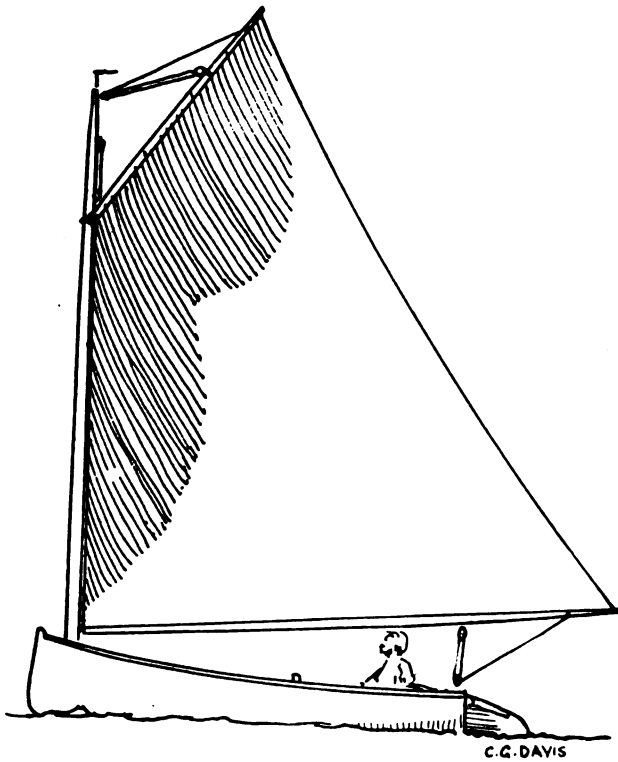


Fig. 27

on the jaws of the gaff bend the mast forward, or try to, and the mainsheet pulled down hard tends to bend the whole mast from the deck up, as in Fig. 32. If the masthead comes back a foot, the peak must come back also; the gaff also bends, arched like a bow, and the end of the mainboom, held at the sheet strop, bends up on the end. Can't you imagine what happens to a sail under such conditions? The sail was never cut to such a shape and as a consequence the cloths shown dotted in Fig. 32 are stretched tight and the after cloths are all

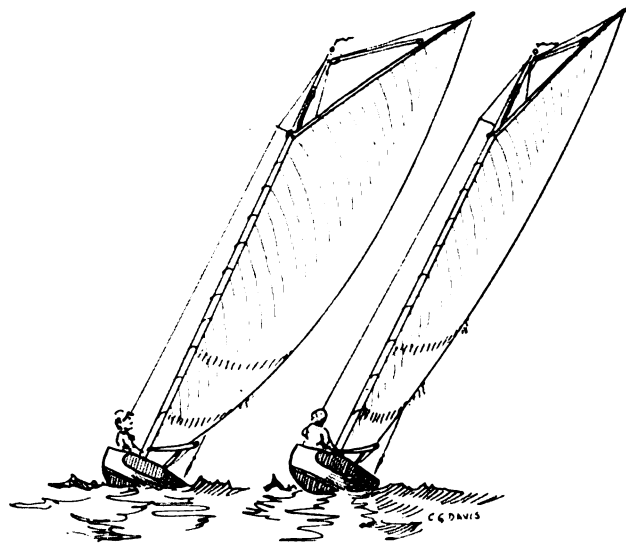


Fig. 29

Fig. 30

slack; so a section drawn across it showing its surface, or draft, becomes as shown in Fig. 32.

Many sails are spoiled by this defect, but experience has come to the rescue, and knowing about how much the local builders allow their boat's spars to bend, the sail-makers have so cut their sails that they will just come out nice and flat when the spars are bent, and in consequence, in a light air of wind the sails have excessive bagginess, or draft. They cut the sweep or "roaches" on the edges of the sails so the sails will not pull tight in one spot but flatten all over as it breezes up.

In the sliding gunter rig, or the standing lugsail, used extensively on small yachts in English waters, the bend of the gaff or yard is made to serve a good purpose. The sail is cut with considerable fullness along the luff or yard, as shown in Fig. 33, by the shaded wrinkles.

This, in light winds, before the yard is bent any,

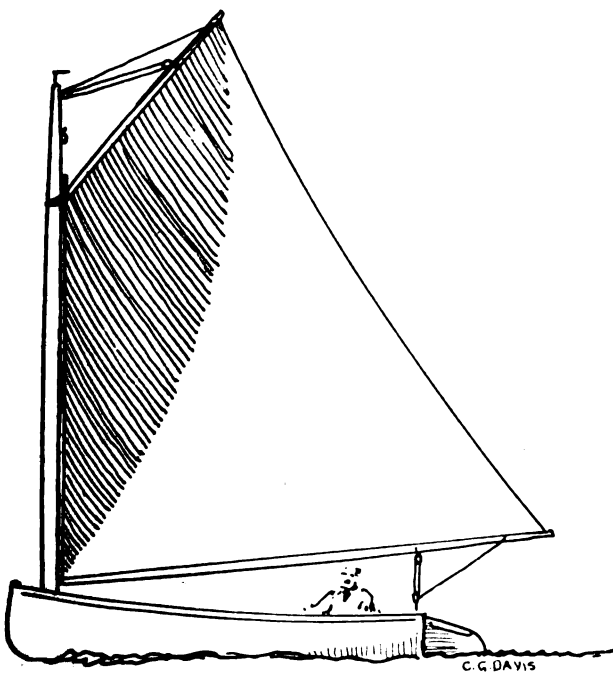


Fig. 28

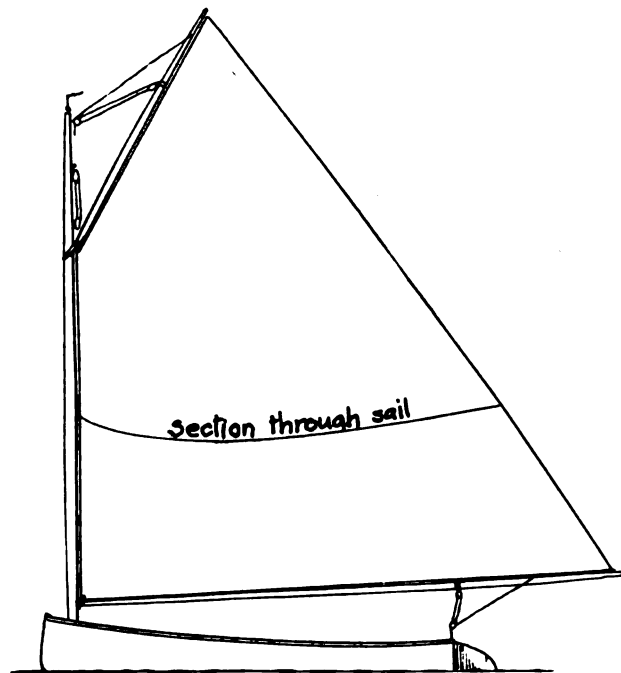


Fig. 31

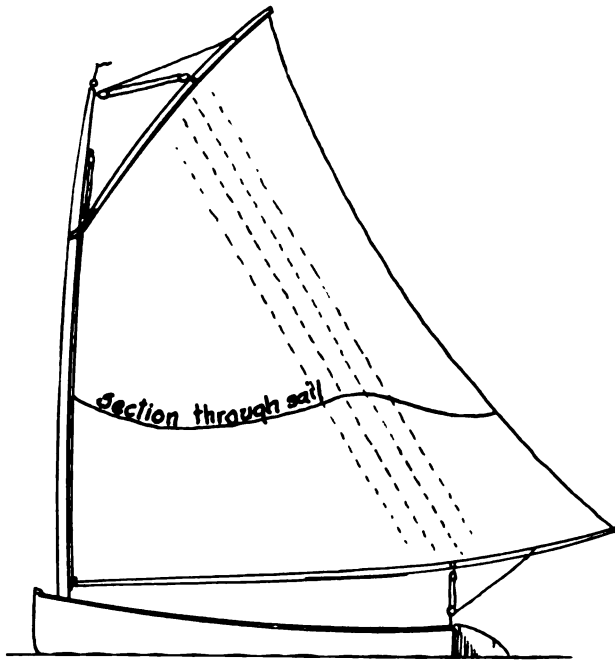


Fig. 32

throws a bag or draft in the luff of the sail. As soon as the breeze hardens, the strain bends the yard so it pulls this slack cloth in the luff tighter, and by careful study in cutting the proper curve and in getting a yard to bend true, the sail becomes flatter and flatter the harder it blows—just what is desirable for the speed of the boat. As the after leech is moved aft by the tip of the yard bending aft, the whole sail is pulled out flatter, as in Fig. 34. Experience in the setting of sails, as in any other game, comes to those who study and analyze cause and effect. If his yacht's spars bend, a seasoned yachtsman would either shift the pulleys or, by wire bridles, bring the strain on a different point of the spar.

One of the Cup defenders had a mainboom trussed

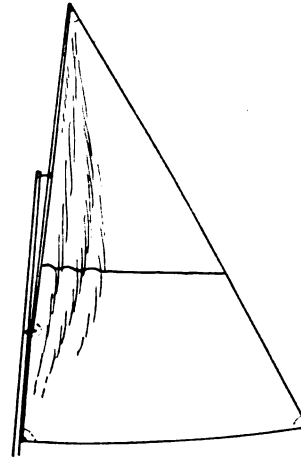


Fig. 33

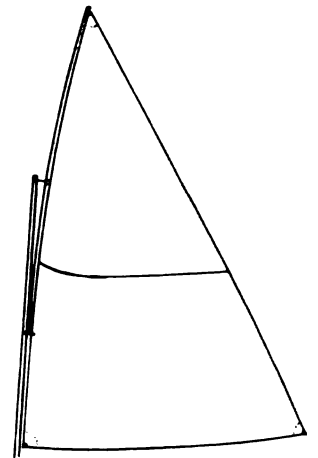
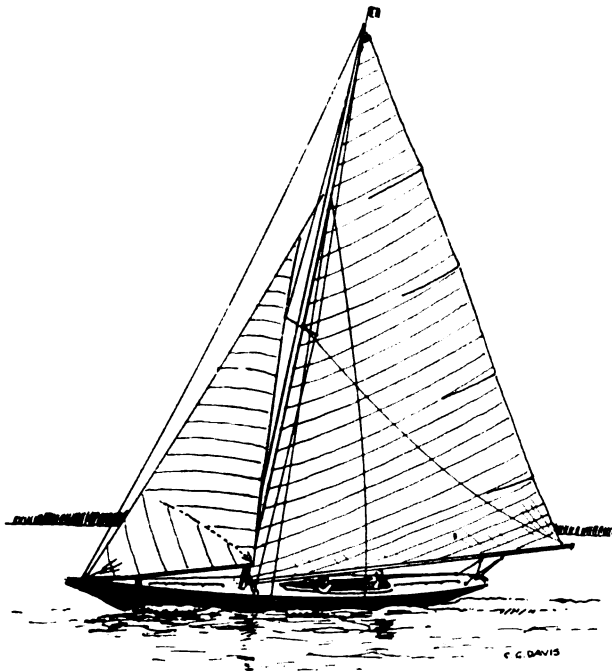


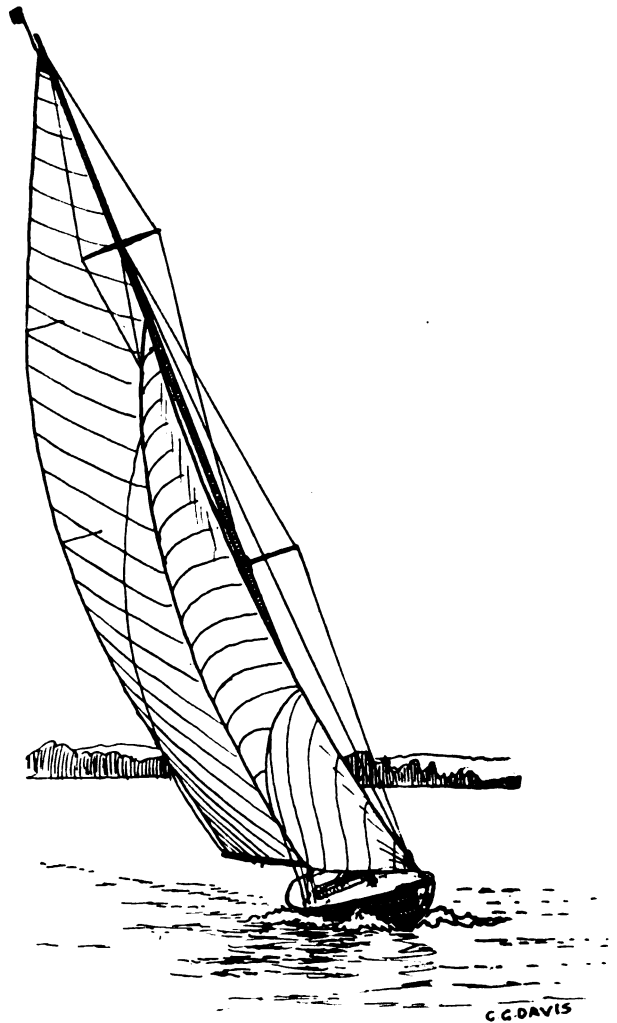
Fig. 34

with struts and wire guys to prevent its bending. The strut and strut-stay down the front of a racing sloop's mast to counteract the thrust of the jaws of the gaff are a common sight in yachts of today, while in Europe, the Marconi, or wireless mast, as it is nicknamed, is fast coming into favor.

The success of the tall leg-o'-mutton sail carried on



The Bend of the Mast is Controlled by the Headstay



The Wireless Mast

this mast, strangely enough, depends as much on the headstay as it does on the shrouds or side stays. By slacking or tightening this headstay, the long fishpole-

like mast is under absolute control and the efficiency of the sail in light or heavy weather regulated largely by its manipulation.

(To be Continued)



SIMPLE NAVIGATION

FIFTH LESSON

I FIND most yachtsmen do not clearly understand what Dead Reckoning is. They confuse it with Coasting. What you have been doing in the last lessons, voyaging by eye, taking bearings and ranges, is coasting. There are three methods of navigating, which we may designate as: by eye-sight, by brain-sight, and by sun-sight. Dead Reckoning is navigating by brain-sight.

Suppose you get up out of bed in your dark room and want to get a match, which you know is in a certain place on the mantelpiece. You take two steps to the right to avoid a chair, always kept in the same place, then two steps to the left, then you put out your hand and your fingers touch the matchesafe. You have navigated from bedside to matchesafe by dead reckoning.

Let us take a field, say 400 feet square, and in the middle of the South fence place a gate, and in the middle of the North fence, another gate. At the South gate you are placed, blindfolded; you cannot see anything except the face of a compass, and the problem given is for you to start off and find and pass through the North gate. Keeping your eye on the compass needle, you take twenty-four steps in a North direction and then stop.

Now you have to decide where you are; what is your position in regard to the North Gate? Have you paced directly North, or have you gone to the right or left of the direct line between the two gates? You decide that you have gone slightly to the left, or as the navigator would say, have made Westing. In the next twenty-four paces you must correct this, so you direct your steps to East of North one point. Taking another twenty-four steps, you again pause. You now decide that having gone to the East in the last twenty-four paces, you are again on the direct North-and-South line between the two gates. So you go on until you either pass through the gate or bump into the fence on either side of it.

At no time do you know where you are. You believe that you are in this or that position, but you have no positive proof that you are where your reckoning puts you. That is the defect of this method of navigating, and to remedy this defect, we combine it with sun-sight, or observation method.

We allow you at the end of every twenty-four steps to raise the bandage and look at a mark or signpost to prove your exact position. In ocean navigating, this signpost is either the sun or one of the stars.

The two necessary factors in dead reckoning are direction and distance—the compass course and the number of miles made in a certain time. If the vessel made the course, that is, if steered an exact line, and we knew the exact number of miles made, our calculations would be exact, and the position we figured absolutely correct.

But unfortunately, boats, especially small ones, do not keep to the course. They wobble off to one side or

the other. This is due to bad steering, current, wind or scend of the sea. Again, it is impossible, even with the best of devices, to ascertain to the mile a boat's speed for a period of hours, so that both your prime factors being liable to error, your conclusion is apt to be wrong. Here is where horse-sense comes in, which may be reckoned as the principal ingredient of the finished reckoning. Horse-sense is composed of equal parts of instinct and experience.

Many men, excellent mathematical navigators, are failures at dead reckoning. High mathematical powers are destructive of instinct, and skeptical of experience. A mind trained to believe in figures has little or no faith in guesses. Some of the best dead reckoners are men with no book learning.

Contrary to the belief of landmen, all vessels are navigated by dead reckoning when voyaging long distances out of sight of land. The great steamers crossing the Western Ocean are navigated by dead reckoning, observation being used to check the positions. It is very easy to navigate such high-powered craft, as they can be steered to degrees, and their speed very closely gauged. The slower and clumsier a vessel, the more difficult she is to navigate.

In the early days of transocean voyaging vessels were navigated wholly by dead reckoning. They had no chronometers, sextants, or other instruments for taking observations of the heavenly bodies. The navigation was extremely crude, but no doubt much of the error was due to the bad compasses. The old Spanish pilots allowed an error of 300 miles in the longitude in making a passage between the Florida Straits and Cape St. Vincent. This was allowed ahead of the ship, so that usually the reckoning made port long before the ship did, a measure of precaution working the crew up to keeping a good lookout.

It is a rule among seamen always to trust dead reckoning, yet never to trust it. In other words, to believe it right until it is proven wrong. It is a curious thing that when you have the most implicit faith that it is right, it will betray you; when least trusted, it will be exact.

The first thing necessary to become a good dead reckoner, is constant study of your vessel. Watch her! Watch her closely under all conditions of wind and sea. Learn her speed under the most favorable conditions, and from constant experimenting, learn how much to allow for different adverse conditions.

The diagram depicts the brain action employed in fixing a position by dead reckoning. This is shown in the simplest form, but no matter how various or complicated the brain action is the same.

First, is the knowledge of the course, i. e., the direc-

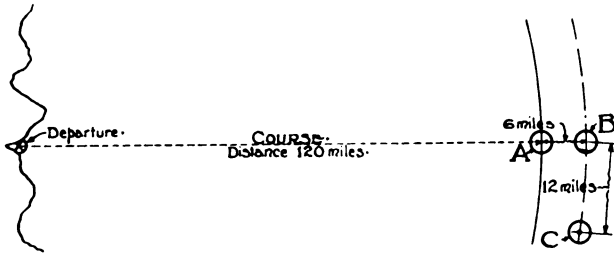


Diagram Showing Method of Figuring Dead Reckoning

tion; second, the knowledge of the length of the course, the number of miles traveled through the water; third, the knowledge of the drift (movement over the bottom by current or scend of sea); and fourth, the leeway, or side drift. These are the necessary factors:

First.—Course, direction.

Second.—Distance traveled through the water.

Third.—Distance traveled over bottom.

Fourth.—Leeway, distance traveled sideways.

Our vessel has sailed due West for 24 hours, the log

(To be Continued)

shows a speed of 5 knots or 120 miles for the 24 hours. Therefore, our first thought puts her at spot *A*, but we have reason to believe that we are voyaging in water affected by a current, the speed or drift of this current being $\frac{1}{4}$ -knot an hour, or 6 miles for the 24 hours. Our second thought is therefore that she is at spot *B*, 126 miles from the departure. Now the question arises, has she sailed a straight line; i. e., held or kept the course? If she has not, to which side of the course has she been deflected?

Let us suppose the wind was blowing on the port side, a North wind, consequently the vessel would drift to the South. This drift or leeway we estimate at one mile in every 10 or 12 miles for the 24 hours. Admitting this, our position would be at spot *C*. Mathematically, that is the position, but here is where instinct or horse-sense comes in. After having gone through the above you will have an impression either accepting implicitly or modifying the above finding. Always accept this impression. Once decided, never dissect or attempt to adjust your dead reckoning; if you do, you will get into a quagmire and go from bad to worse. Nine times out of ten the first impression is right.



One of the Good Old N. Y. Y. C. Thirty-Footers. Built by Herreshoff in 1905 and Raced Together as a Class Ever Since

MODERN MARINE MOTORS

AND

BOATS

by
T. ORCHARD LISLE, A.M.I.MAR.E

TWENTY-FIVE YEARS OF PROGRESS

A DECADE'S DEVELOPMENT OF HULL DESIGN AND OF THE MARINE
INTERNAL-COMBUSTION ENGINE

SINCE May, 1890, when the first number of THE RUDDER was published—exactly twenty-five years ago—a tremendous development has taken place with motor craft,—a development that has caused motor-boating to be equally important with yachting the world over. At that period there were not more than three boats afloat fitted with internal-combustion engines, while hydroplanes, which the modern motor has made possible, were non-existent. In fact, very little was done in developing the marine motor until THE RUDDER was about five years old; but before then the only pleasure “motor boats” were a limited number of naphtha and steam launches, with the exception of one or two inventors’ early experiments, such as the attempt of the Englishman, Samuel Brown, in 1826. Probably the development in this country arose from the naphtha launches, the first of which was made by the Gas Engine & Power Company, of New York, who are now one of the leading concerns in the power-boat industry.

The first practical marine gasolene engine ever built—for the others were but experiments that would only run for a few hours—was an engine built in 1884 by the Union Gas Engine Company, of San Francisco, and this was successfully installed in a boat. According to the makers, this motor was running until quite recently, giving good service.

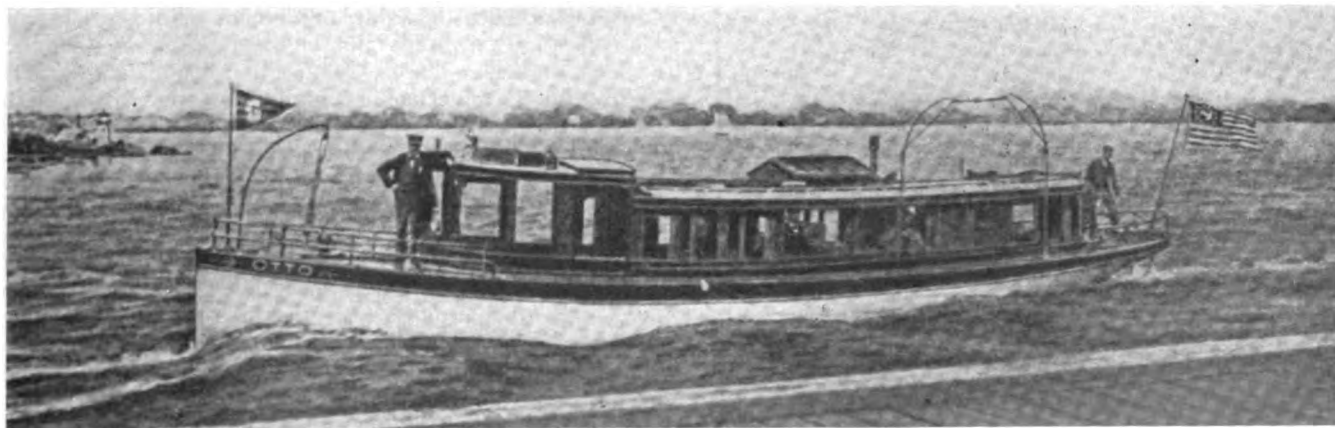
This fact is most interesting, as Daimler was believed to have completed the first motor boat. However, his

first public demonstration was in 1886, two years later. His boat was about 25 feet long, and was fitted with a two-cylinder, V-type engine of 2-h.p. Daimler demonstrated this craft in America in 1890, but his advertisement did not appear in this magazine until May, 1891. This we believe to be the first motor launch advertisement ever published.

How remarkable and wonderful has been the developments may best be realized by comparing this little craft with the 1,200-h.p. racing hydroplane Disturber IV, the 750-h.p. Maple Leaf IV, or even with one of the latest 4,000-h.p. Diesel-driven motor liners. Not only is the difference in engine construction most noteworthy, but the hull forms such a contrast with modern productions. In 1894 a motor made by White & Middleton, the concern that built the engines of our earlier submarines, was installed in a produce-carrying boat, owned by a farmer named Wickert, who used her on the Patapsco River, that runs into the Chesapeake Bay, Maryland. We raise our hats to that farmer as a worthy pioneer.

In 1896, several other concerns took up the gasolene engine, including Murray & Tregurtha, of Boston, whose advertisements have regularly appeared in this magazine since that date, the Truscott Boat Company, and L. J. Wing & Co.

The greatest engine development has taken place with the four-cycle type, due to several reasons, one being that the two-cycle engine is comparatively rarely manufac-



One of the First Substantial Motor Boats—a 53-Footer Fitted with a 25-H.P. Otto Gasolene Engine in 1897. She Made a 75-Mile Run on Long Island Sound

Reproduced from *The Rudder*

DAIMLER MOTOR COMPANY,

MANUFACTURERS OF

==== GAS ENGINES ====

ADAPTED TO

STATIONARY, LOCOMOTIVE AND BOAT PURPOSES.



DAIMLER MOTOR LAUNCHES.
18 to 35 Feet. 1 to 10 Horse Power.
Safest, Most Speedy, Cleanest,
Most Reliable and Convenient Boats.
No Steam, No Coal, No Ashes.

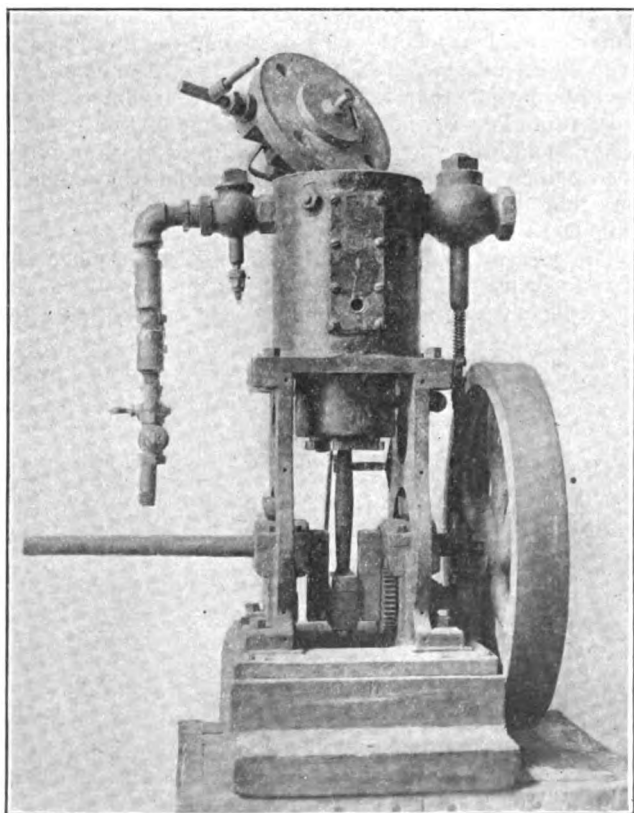
OFFICE 111 EAST 14th Street. NEW YORK. Next Door to Steinway Hall.

Now on Exhibition at American Institute Fair.

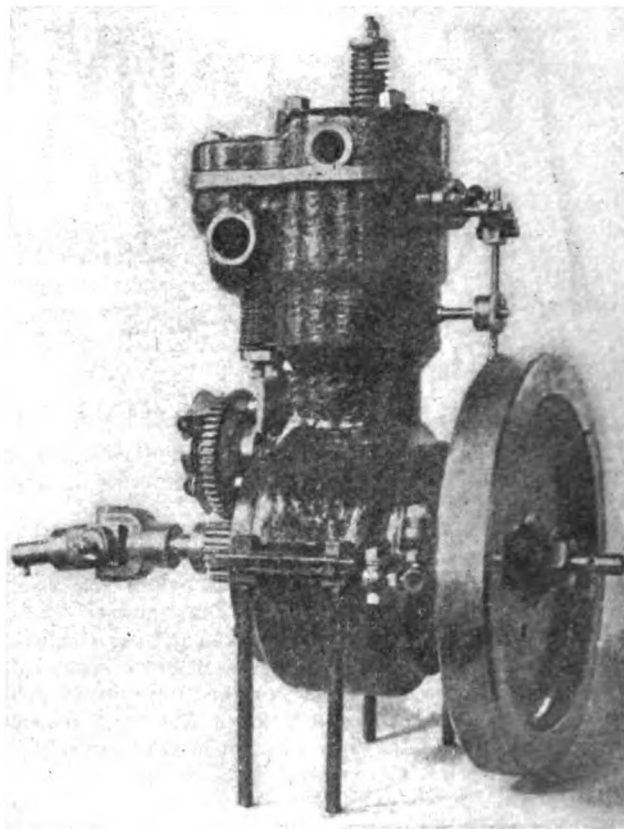
Reduced Reproduction of the First Motor-Boat Advertisement Ever Published. From The Rudder of May, 1891 (or 24 Years Ago). We Republish It as an Item of Historic Interest

tured in sizes over 15-h.p.; secondly, that they are usually installed in cheap hulls, so that their low-production costs do not allow of refinements; thirdly, the money and attention of modern engineers has not to anything like the same extent been centered on the two-cycle as on the four-cycle. In many ways the progress and development of the automobile had much to do with this. Finally, the higher the power of the engine required greater refinements and study of details can be allowed for by the price, and this was to the benefit of the four-cycle motor.

How the four-cycle engine has developed may be ascertained by comparing the picture of the Manhattan 2-h.p. engine as exhibited at the N. Y. Sportsmen's Show in the early part of 1897, with the illustration of a modern boat outfit. This motor was quite crude, with its automatic inlet, exposed cams, cam shaft and gears, and make-and-break ignition. It will be noticed that there were no forced lubricating system, crank case inspection doors, magneto, enclosed valve gear, or electric self-



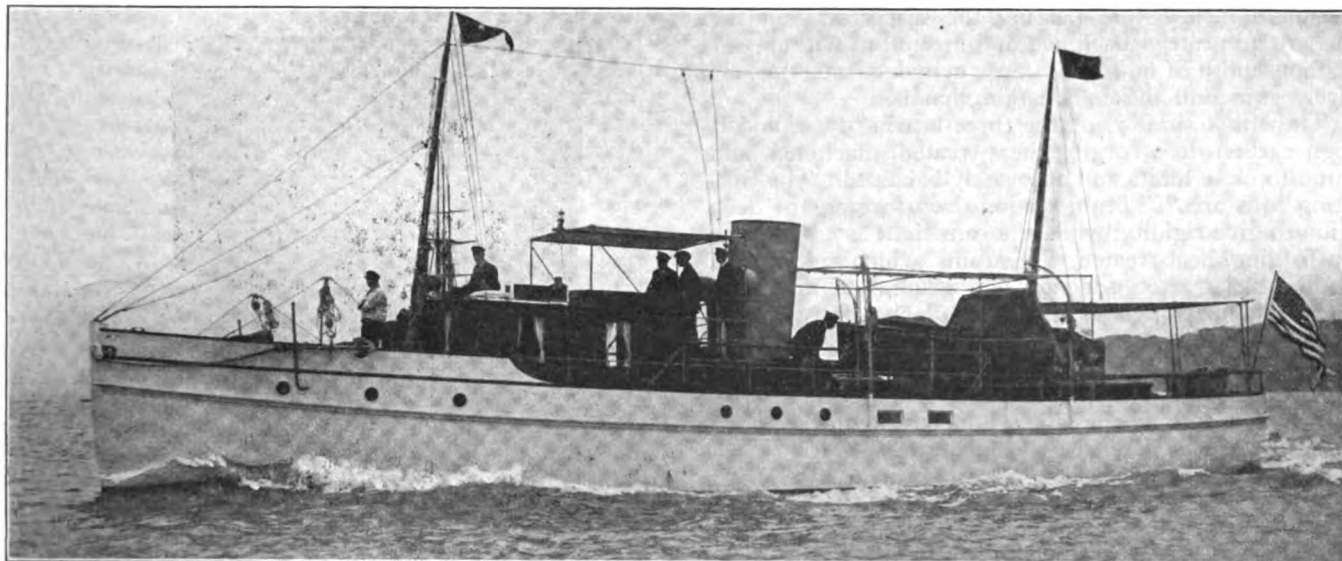
The First Motor Boat Gasolene Engine. Built by the Union Engine Works in 1884



A Four-Cycle Engine of 18 Years Ago. The Manhattan Motor, Described in The Rudder for April, 1897

starter, such as we are now accustomed to. Reversing was by a reversible propeller. The marine engine, as we know it today, is quite a beautiful piece of engineering work in comparison.

In 1897, the Otto Gas Engine Works, of Philadelphia, launched a 53-foot by 9-foot cabin cruiser, which they fitted with an Otto two-cylinder, 25-h.p. gasolene motor. She was quite a motor boat for those days, and her success caused quite a number of other engineers to soon come into the field. One trial trip she made was from Poughkeepsie Bridge to 152d Street Pier—a run of 75 miles, which she covered in 7 hours 5 minutes. This was quite a feat for that stage of the development, and as regards reliability, almost compares, under the circumstances, with the Oldman's recent ocean cruise from Detroit to Petrograd, in the 16-h.p. Scripps-engined cruiser Detroit. The following year, 1898, saw several of our oldest advertisers commence active work on the development of the marine gasolene engine, including the Wolverine Motor Works, the Mianus and Palmer concerns, not forgetting the Empire engine, made by Riotte & Co., now the Standard Motor Construction Company. From that period, the industry as it stands today, sprang up, and the history of recent years, including the introduction of the hydroplane and wave-collecting types of hulls, and the mammoth Diesel engine, needs no re-telling here, as it is still in the minds of all of us. One thing above all that is impressive is the reliability of the modern motor, and the long cruises that are now undertaken without fear and trembling. Possibly another 25 years will bring about even greater developments, particularly as with high-speed racing boats the greatest developments have been within the last ten years.



The 47-Ton Twin-Screw Motor Yacht California. Built for Mr. W. P. Burke, an American, but Sold to an English Lord. She has been Equipped with Guns Fore and Aft, and is Attached to the Royal Naval Volunteer Motor-Boat Squadron. Length 68 Ft.; Breadth 12 Ft.; Draught 4½ Ft. Speed 11 M.P.H. Her Engines Use Kerosene Fuel Only, No Gasoline Being Carried.

RED WING HIGH-SPEED PRODUCTION

A POWER UNIT OF 232-CUBIC-INCH CYLINDER CAPACITY THAT DEVELOPS 46-B.H.P.

UNFORTUNATELY, there is as yet no American motor that develops anything like the approach to a suitable power that is within the International 21-foot class limits of 151-cubic-inch maximum cylinder capacity, but the Red Wing Motor Company, of Red Wing, Minn., have secured the honor of having turned out the motor that nearest approaches the requirements. This is their new valve-in-the-head, four-cycle model, which has a bore of $3\frac{3}{4}$ inches by $5\frac{1}{4}$ inches stroke; that is to say, a total piston displacement of 232 cubic inches. As this little engine at top speed develops 46-b.h.p., it generates, so far as we can trace, more power than any other American motor of the same cylinder capacity, including a well-known Western two-cycle engine that is claimed to give greater power per bore and stroke than any other motor. The weight is 550 lb complete.

But, perhaps one of the most remarkable points about this power plant is its price, for complete with reverse gear, it is marketed at \$350. When it is realized that the famous Sunbeam 151-cubic-inch outfit costs considerably over \$1,000, it is difficult to see how the Red Wing Company can carry out the manufacture at a profit; but, doubtless, they are relying upon disposing of large numbers.

According to the power and weight, this engine, if installed in the semi-displacement 21-footer designed by Mr. Fred Goeller and published in our last issue, should give a speed of at least 28 miles an hour over the measured Admiralty course, provided the hull was not built too heavily, as weight is an important factor with that class of design. We mean a genuine speed and not a guesswork figure. As yet, we have not personally seen one of these new engines running, but the following figures were supplied to us by the makers as being the results of tests: At 1,460 r.p.m., 40-b.h.p.; 1,620 r.p.m., 42½-b.h.p.; 1,750 r.p.m., 44-b.h.p.; 1,850 r.p.m., 45-b.h.p.; 2,000 r.p.m., 46-b.h.p.

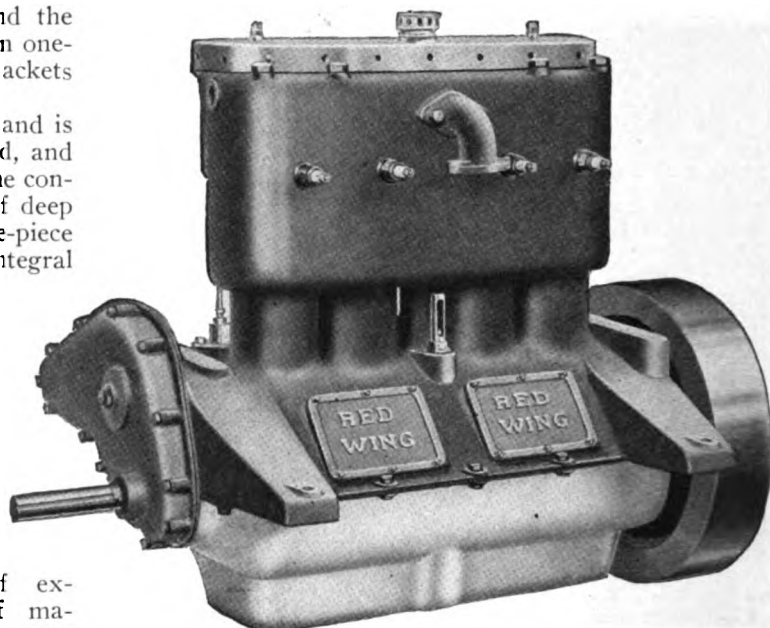
When we encourage the development of high-speed engines of this nature, we only imply certain types of craft, such as high-speed runabouts, hydroplanes, semi-displacement boats, light express cruisers, or fast yacht tenders, so the suitability of a hull should always be first considered. If a purchaser installs such a very high-speed plant in a heavy boat and is dissatisfied with the results, he must blame himself, and not the engine, and makers, in their own interest, should avoid such recommendations.

We will now turn to the general design. It will be noticed that the monobloc arrangement of cylinders has been adopted, with all valve operating mechanism on the one side, giving a very clean-cut appearance to the engine. Furthermore, the latter feature is facilitated by the casting of the intake and exhaust manifolds inside the cylinder-head jacket, thus eliminating piping. Again, this particular feature is important in producing economical operation, because the incoming mixture is heated, and transformed into perfect gas before combustion takes place. The value of this design will be realized when it is remembered that at top speed 1,000 explosions per minute per cylinder are occurring, or 4,000 explosions per minute all told.

Therefore, with such an engine, it is extremely necessary to incorporate the latest marine motor engineering practices, also some of the results of prolonged tests of high-speed racing automobile motors. The bearing areas, water jackets, crank shaft, connecting rods, etc., are said to be of liberal design. All moving parts are enclosed, eliminating noise and dirt, but retaining the feature of ready accessibility. The combined cylinder and upper half crank casting is of fine grain gray iron, and the cylinder head, being a removable piece, permits accurate machining of the combustion chamber and ready access to the valves for regrinding when this is necessary. Every casting is tested to a pressure of 250 lb

per square inch before passing the inspector, and the bores are accurately machined and ground to within one-half thousandth of an inch. Large cylinder water jackets entirely surround the combustion chamber.

The crank shaft is of the three-bearing type, and is a high carbon drop-forging, heat-treated, machined, and ground to close limits and accurately balanced. The connecting rods are "I" beam section drop-forgings of deep section to give rigidity, while the cam shaft is a one-piece drop-forging, heat-treated. The cams, which are integral with the shaft, are hardened and ground to a limit of one-quarter thousandth of an inch. This shaft rides upon three die-cast bearings. The bearings are all cast from S. A. E. formula metal on a bronze shell. The crank shaft main bearings are: front $2\frac{1}{4}$ inches by $4\frac{1}{8}$ inches; center, 2 inches by $2\frac{1}{2}$ inches; rear $1\frac{3}{4}$ inches by $3\frac{1}{16}$ inches. Connecting rod bearings are $1\frac{7}{8}$ inches by $2\frac{3}{8}$ inches; cam shaft bearings, front $1\frac{3}{16}$ inches by $2\frac{9}{16}$ inches; center, $1\frac{13}{16}$ inches by $2\frac{1}{4}$ inches; rear 2 inches by $2\frac{1}{2}$ inches. Excessive heat and the pitting tendency of exhaust gases demand the valves be made of materials capable of resisting both. Exhaustive tests prove cast-iron heads are best. This head is electrically-welded to carbon steel stem, and ground to give perfect fit in long guides. The lubricating system consists of a plunger-pump driven direct from eccentric on the cam shaft and pumps oil from the oil reservoir at the bottom of the pan through a sight-gauge, thence directly to the oil pockets of each cam shaft bearing. The oil there



The New Red Wing Thorobred

overflows through ducts to the main bearings, whence it is carried directly to the dipping troughs, where the connecting rods pick it up and distribute it to the cylinder walls, piston pins, etc. The lower half of the crank case is of aluminum, and simply serves as an oil pan and enclosure for the bottom of the motor.



REVIVAL OF NEW YORK TO BERMUDA RACE

WE take pleasure in announcing that a race will be held, starting May 22d, from New York to Bermuda. Already two entries have definitely been received, one of which will be commanded by the Oldman, and these two craft are certain starters. Further entries are looked forward to by the committee, and entries should be sent without delay, either to the secretary, Crescent Athletic Club, The Editor of THE RUDDER, or to the Editor of *Yachting*. The two entries already received are 40 feet and 32 feet long, respectively.

RACE CONDITIONS

The race will start from a line established off the Crescent Athletic Club, Bay Ridge, New York, at 3 p. m., on May 22d, 1915, and finish at a stake-boat anchored off St. Davids Head, Bermuda—a distance of 672 nautical miles.

Boats.—Open to seaworthy boats not over 60 feet water-line length, nor under 30 feet water-line length. A seaworthy boat is a substantially-built, full-decked vessel, having engines and living accommodations housed in, and being equipped with all the tackle and appliances necessary to enable her to perform a long passage in open water. The cockpit, if any, must be watertight and self-bailing.

Rating.—Will be calculated under the 1915 rules of the American Power-Boat Association.

Propelling Power.—Any form of internal-combustion engine may be employed for propulsion purposes.

Fuel.—Boats must carry enough fuel to cover the distance one and one-half times between New York and Bermuda, on a basis of one pint per horsepower per hour, at the rated horsepower. No ingredient shall be used to increase the power of fuel.

Time Allowance.—Shall be figured according to the American Power-Boat Association time allowance table, using 50% of the allowance given in the tables, the distance for computation for allowance to be on a basis of 672 nautical miles.

Sails.—Boats must be equipped with suitable spars and rigging to carry sufficient sail to give them steerageway in a moderate breeze. This sail can be spread in any shape, but must not exceed in square feet, the square of the over-all length divided by eight, as a constant. Sail may be carried at all times. Additional sails may be carried on board, but will be sealed by the Committee. Seals must be intact at the finish under penalty of disqualification.

Stores and Water.—Stores sufficient for twenty days, and water sufficient for thirty days, for all on board must be carried. The amount of water carried to be not less than three quarts per day for each person on board. *This will be strictly enforced.*

Crew.—No boat will be allowed to start with less than one man for each eight feet (or a fraction thereof) of over-all length. One of the crew must be a practical

navigator and one a practical engineer. At least one-half of each crew must be amateurs.

Equipment.—Boat or life-rafts must be carried, to meet with the approval of the Race Committee. Also a ring buoy or life-jacket for each member of the crew. A full set of navigating instruments, a spare compass, oil bags, not less than 15 fathoms of suitable chain cable, and at least one gallon of crude petroleum or other oil, and fire extinguishers to meet with the approval of the Race Committee must be carried. Suitable arrangements for fitting an emergency tiller must be made. An assortment of spare parts and gear to the satisfaction of the committee must be carried. *All boats must be equipped with the fittings and appliances prescribed by the Government.*

Tanks.—Fuel must be carried in at least two distinct tanks. Fuel for lighting or cooking purposes may be carried in separate receptacles. Water must be carried in at least two separate tanks, all tanks to be securely fitted and fastened to the hull of the vessel to the satisfaction of the Race Committee.

Protests.—Protests covering violations of sailing rules must be made in writing within twenty-four hours after the finish of the last boat. Protests regarding ratings must be filed in writing with the Regatta Committee at least two hours previous to the start of the race.

The Committee reserves the right to reject any entry when, in its judgment, the boat is unseaworthy or unsuitable for long-distance racing, or is deficient in any particular.

Entries.—Entries will be received up to May 15th before the start of the race. *There will be no entrance fee.*

Measurement and Inspection.—All contestants must report to the official measurer not later than May 20, 1915, at a place to be announced hereafter. Hull marks will be placed on the hull at time of measurement. A final inspection will be made before noon, May 20, 1915, when the hull measurements will be corrected for any weight added or taken out. No weight can be taken out of boat after final inspection. A fee of \$10 will be charged for measuring.

THE GOLD CUP

AN attempt is to be made by a Detroit syndicate of motor-boatists to wrest the Gold Cup from the M. B. C. of America this year, and according to reports, the new challenging boat will be built by Chris. Smith, who has guaranteed to construct a craft faster than any of his previous productions. The name of the hydroplane will be Miss Detroit.

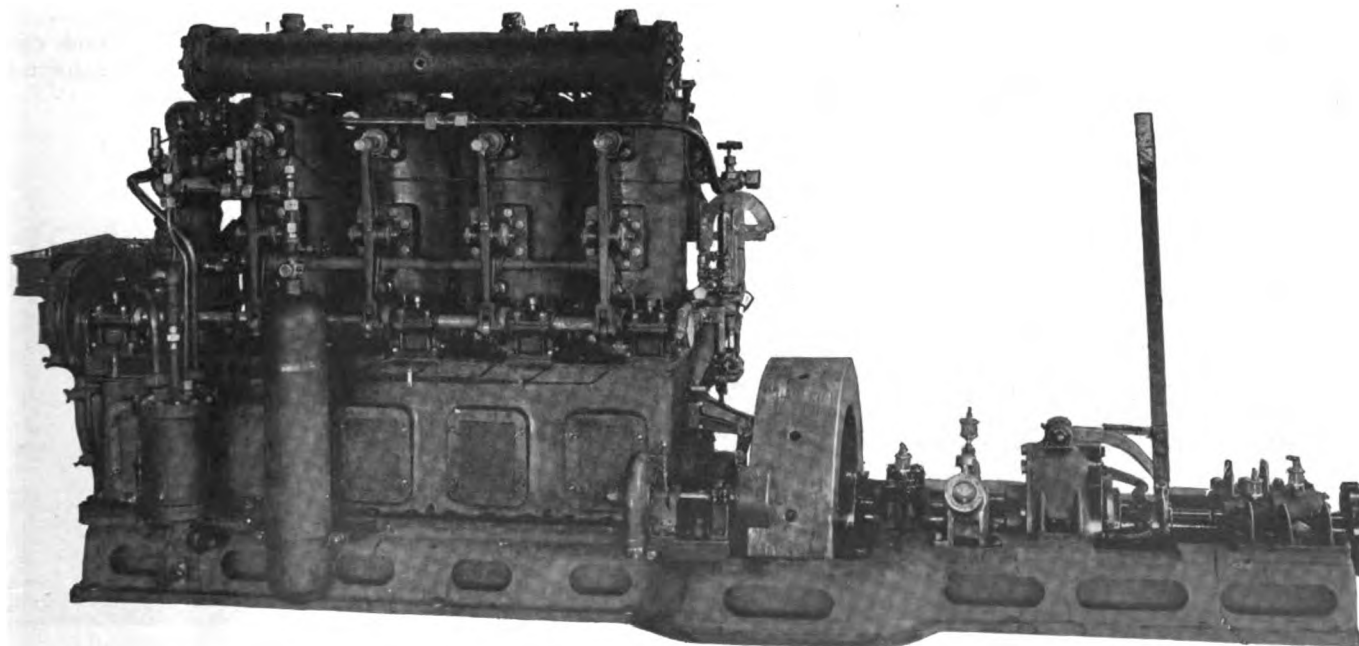
YACHT DIESEL ENGINES

THE NISECO FOUR-CYCLE TYPE MARINE POWER PLANTS

AS is well known, the New London Ship & Engine Company are the sole American manufacturers of the Diesel engine as developed by the Maschinenfabrik-Augsburg-Nürnberg, of Germany, under whose license they have been working for a number of years; but it is not common knowledge that the M. A. N. has two main works, one at Augsburg and one at Nürnberg, and that while the former exclusively construct Diesels of the four-stroke-cycle, the latter have developed the two-cycle.

It was at Augsburg, by the way, that the late Dr. Diesel conducted his early experiments in conjunction with Lauster, their chief engineer.

But the New London concern have enterprisingly taken up both two and four-cycle types. As yet, they have developed the four-stroke motor only in small and moderate-powered sizes, the two-stroke type having been constructed in higher powers for naval purposes. We are positive, however, that they will do well to also



The Niseco Four-Stroke Type 120-B.H.P Diesel Engine

develop their four-cycle engines in higher powers, particularly of the slow-speed type, for commercial work and yachts of the largest size. In naval work, particularly submarines, the question of light weight and space is most important, and this necessity is apt to overrule certain engineering problems that recent seagoing experience has proved to be present, so by adopting the two-cycle, the maximum power for the bore, stroke and revolutions is obtained, for unlike the case of racing gasoline engines, it is the reverse to being advisable to run up the revolutions to an abnormal speed for the purpose of obtaining the maximum possible power from the Diesel principle. Hence it is that the New London Company already have completed a two-stroke marine engine, developing about 1,000-b.h.p., this motor being in the submarine tender *Fulton*, while now under construction at the Brooklyn Navy Yard from Nürnberg drawings, are two 2,500-h.p. sets for the Navy tanker *Maumee*. The *Fulton* and her engine were fully described and illustrated in *THE RUDDER* of January last.

To meet an ever-increasing demand for an efficient, medium-speed, moderate-priced motor suitable for tugs, yachts, fishing vessels and work boats, this company has developed their line of vertical four-cycle engines in two, three, four and six cylinders, from 50-b.h.p. to 360-b.h.p., inclusive. The present engine of the yacht *Idealia* has been most successful and last season ran thousands of miles without any trouble whatever. It is a four-cycle model, delivering about 120-b.h.p., and this engine we propose to discuss, and the general details of this set apply to those of 50-b.h.p. to 240-b.h.p.; but those of larger powers have separately cast heads which contain all the valves, whereas the smaller motors have their heads cast integral with the cylinders. These engines are simple, compact and rugged in construction and are designed for continuous operation with the lowest possible maintenance charge with a minimum of attention.

Engines of this type were gotten out at New London, and may be regarded as a modified M. A. N. design. The 120-h.p. model as fitted in the *Idealia*, and in the cannery tender, *Warrior*, is of the enclosed type, and in several ways is a departure from Diesel practice as carried out by most European manufacturers, inasmuch as the exhaust and air inlet valves are arranged horizontally, although this principle originally made its inception with stationary engines, and also is to be found in the Junkers

marine oil engine, so must not be thought an untested or experimental idea. They are operated by long vertical rocking levers from an exposed cam shaft on either side of the engine, these shafts being carried in white-metal-lined bearings mounted on top of the crank case housing, while the drive is by spur gearing at the forward end.

Each cylinder has a bore of 9 inches by $12\frac{1}{2}$ inches stroke, and the engine turns at 350 r.p.m. There is only one fuel pump for supplying the injection valves and this is driven off the starboard shaft by an eccentric; but this pump is of the quadruple type, with separate plungers for each cylinder. The injection valves are mounted on the cylinder head and are operated by a rocker and bell crank levers on the starboard side. The engine speed is controlled by the amount of fuel supplied to the cylinders, which, in turn, is controlled by the timing of the suction valves of the individual pumps. To the latter is connected a governor for preventing racing in a seaway.

Two of the cylinders are fitted with air starting valves, operated from the starboard cam shaft. The operating gear of these valves is so arranged that when they are in operation, the injection valves on these cylinders are cut-out, and when the injection valves are operating, the starting valves are cut-out. Bolted to the housing, and driven by the crank shaft, is a two-stage, tandem-type air-compressor, which is used for supplying air for the injection of the fuel, and for starting purposes. The first and second stage air-compressor cylinders are in one piece, of water-jacketed cast-iron, and have a separate water-jacketed cast-iron head. An air cooler is placed on the back of the engine opposite the compressor, and has separate passages for first and second-stage air, and has sufficient surface to thoroughly cool the air for each stage of compression. A spray air-flask is secured on the port side of the engine, and is connected into the line of the compressor and the spray valves.

One of the most notable features in this engine is the system of lubrication. This is accomplished by positive force-feed mechanical oilers, and is so arranged that the lubrication of the engine is automatic, requiring little or no attention from the operator while running. We have not yet mentioned that this particular engine, and the smaller sizes, are not direct-reversible, so the crank case is extended at the after end and carries a combined clutch and reverse gear, also the thrust-block.



Picket Boat of Italian Dreadnought, *Gio lio Cesare* Her Power Plant is a 100-B.H.P Kind-Diesel Engine



The Toppan 21-Footer in Florida Waters

TOPPAN 21-FOOT RUNABOUT

A LOW-PRICED V-BOTTOM BOAT WITH KERMATH MOTOR

IN our New York show report in the February *RUDDER* were published plans of the little V-bottom runabout built by the Toppan Boat Company, of Boston, and we now give a very interesting illustration, showing one of these excellent craft in operation. This launch is 21 feet long by 5 feet breadth, and is owned by Mr. Ernest Rogers, of Brookline, Mass., a prominent man in yachting circles, and owner of many fast boats in Florida waters. Mr. Rogers states that on the first trip from Jacksonville to Miami, the craft showed remarkable speed for her power, also under very rough conditions of sea.

His boat is powered with a four-cylinder, four-cycle type Kermath 12-h.p. engine, and the hull is planked with cedar, bronze-screw fastened, with the motor under a hood, canvas covered.

The cockpit was covered with one of the McClellan "Flip-Flop" automobile tops, complete with side curtains,

making a good-fitting waterproof top. The boat had many distinguishing extras in the way of the latest design auto steerers, bulkhead control, and other up-to-date fittings. Her owner has already had two other Toppan boats, and knew well before hand the class of boat he would get from the builders. This V-bottom runabout is made by the Toppan Company in stock sizes, 21, 24, 27 and 30 feet long, and several have been run around Cape Cod, with great satisfaction, which shows their seagoing qualities. Another 21-foot V-bottom runabout was also constructed for the noted actor, Mr. Jules Marceau, now touring the Western cities, and he will use her at his Summer home at Casco Bay, Me. This also is equipped with a Kermath motor, but it is one of the new 20-h.p. Kermath four-cylinder motors, with Bosch magneto and enclosed clutch.

THE GRAND DUCHESS

A 63-TON YAWL WITH A POWER TENDER OF UNUSUAL INTEREST

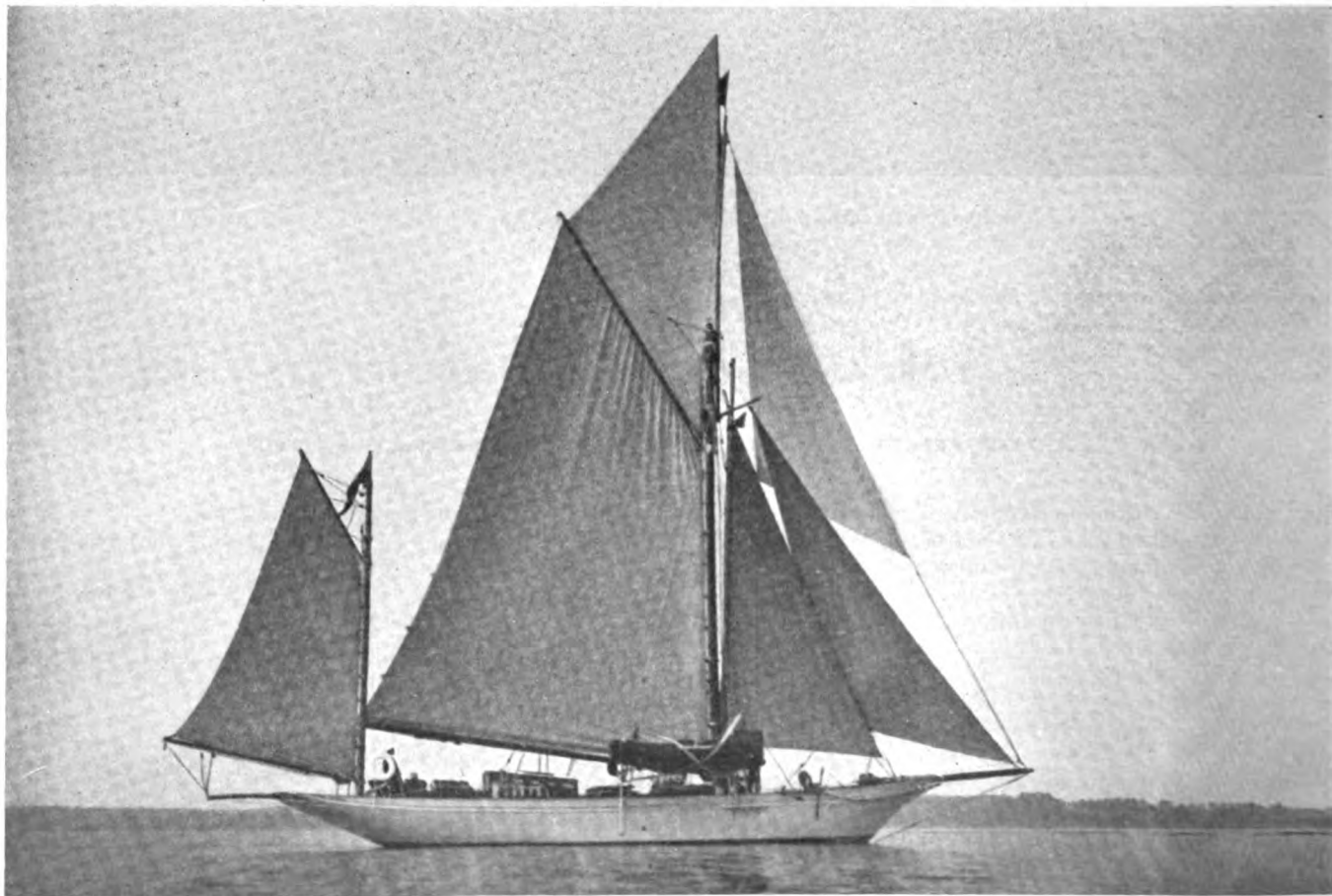
IT'S hard work driving home the advantages of auxiliary power to the man who loves yachting, purely for the pleasure that sailing provides. But extortionate harbor towing charges, or a succession of periods wasted in calms, and the consequent "gratification" that is provided in seeing other craft gaily proceed along under bare poles, propelled either by a hidden motor, or towed by the power dinghy, eventually causes, by natural ratiocination, even the most prejudiced sailor to adopt auxiliary power in some form or other. Sailing, when underway, is delightful, but there's little fun in lying becalmed with the canvas idly flapping overhead when you are desirous of making port by a predetermined time.

An out-and-out sail yachtsman of the good old type is Mr. Chas. H. Lawson, of London, who owned a dozen yachts without recouring to motor power, despite the persuasions of the writer. In the end, however, the above reasons made him, much against his will, have a motor dinghy built. Having once decided to do this "awful thing," he went into the matter most thoroughly, and had the best tender that money could buy for his 63-ton yawl, the Grand Duchess, with the result that the little boat, although only a 16-footer, cost over \$1,200, so for her size and power, is probably among the most expensive yachts' tender built—and the money was truly well spent, for the result was ideal.

The Grand Duchess is 64 feet 3 inches long over all, by 15½ feet breadth, with 9 feet 3 inches moulded depth, and has a sail area of 3,200 square feet, of Laphorn & Ratsey canvas. She was designed by Messrs. A. R. Luke & L. G. Moore, and built by W. G. Luke in 1898. Despite her seventeen years, she is as good today as ever she was, and is what might be termed a real boat.

Regarding her tender, this was a high-class job throughout; the lines were designed for Mr. Lawson by Mr. Linton Hope, M. I. N. A., while the general arrangement details were designed by the writer to the special requirements of the owner. Her length is 16 feet over all, by 5 feet breadth, and from the lines it will be realized that she is quite a good type of craft, although, perhaps, the midship section is a shade too round.

The hull was built by S. E. Saunders, of Cowes, under his wonderful sewn system, and boat-builders the world over give Sam the credit of being the best there is at the job. His prices are made to suit. He built the famous Ursula, Maple Leaf IV, Pioneer, Dyack, and many other record-breakers. Ursula, to this day, is acknowledged to be the finest displacement motor boat ever built, the hull, by the way, having been made from a single mahogany log that had lain at the London Dock for over twenty years; but this is straying from our subject.



The Grand Duchess with Her Power Tender in Davits



The Owner on Deck

For the hull of Mr. Lawson's tender there were three thicknesses of selected thin red cedar planking, with a layer of oiled silk between, the whole being sewn together with copper wire, no rivets being used. This makes a very strong, light and resilient job, but has to be carried out with extreme care, each wire hole being measured off before drilling, and grooves cut between alternate holes to make the wire flush with the planking. What this means will be realized when we mention that

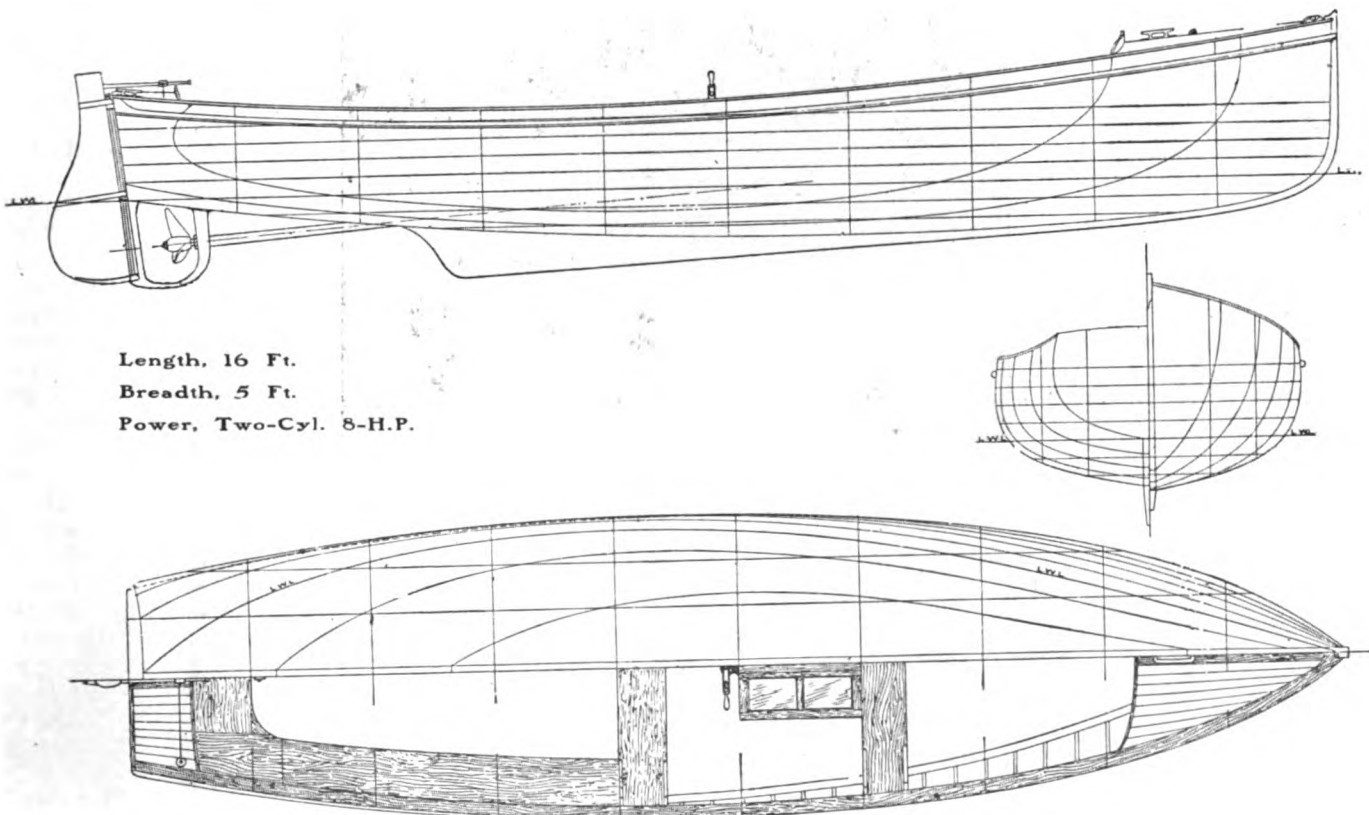
the builder's figure for constructing the hull and the work of installing the motor was \$700, the engine, gear, propeller and silencer having been purchased separately.

Her engine was a two-cylinder, 8-h.p. Brooke, of the four-cycle type, with a reverse gear of the same make, and to the exhaust was connected a Langdon water-cooled silencer, the exit being under water at the stern. For the purpose of quiet running—a feature particularly desired by the owner—the engine was completely housed in, the casing being lined with felt and asbestos, while even the air inlet to the housing was made on silencer lines, consequently the boat was exceedingly quiet when running.

Thornycroft, the torpedo-boat-destroyer builders, who are Britain's leading propeller experts, specially designed and made the screw, which was 16 inches in diameter, and was a fine job. The seating accommodation of the boat was different to that shown on the deck-plan drawing, inasmuch as the seats are thwartships and upholstered in leather. The center of the forward seat is on hinges to form a passageway to the after seat.

RESTRICTIONS ON BRITISH MOTOR-BOATING

WHILE it is not to be anticipated that motor-boating can be carried on during the coming Summer absolutely without restrictions of any kind, it does not seem likely that these will be such as to interfere to any extent with the use of motor craft for pleasure purposes. In certain districts, where naval activities are greatest, the restrictions will naturally be more strongly felt. On this account, the West Coast will be in an excellent position, and most of the rivers will be available for navigation just as if there were no war in progress.—*Motor Ship and Motor Boat.*



Length, 16 Ft.
Breadth, 5 Ft.
Power, Two-Cyl. 8-H.P.

Lines and Deck Plan of the Tender to Grand Duchess

OPEN LETTERS TO PROMINENT NAVAL ARCHITECTS

MR. MORRIS WHITAKER—ALIAS "WHIT"

SIR: *Secundum Naturam!*—Whether you are happier designing power boats or when among your cows and chickens at your little Nyack farm is an ambiguous point; but there is no doubt that what is bred in the bone always will exude, so despite your protestations, we are firmly convinced you will be busy *ad finem* with your drawing-board and instruments. Why, when we asked you the weight of the porker you were fattening for THE RUDDER'S 25th birthday celebration you instinctively pulled out your slide-rule to figure it out. You just can't help it: it's in the blood, for was not your father a chief engineer in the U. S. Navy? Yet there is a contrast, for you have no use for steam-engined craft, but only motor boats.

Born on February 24, 1873, at Charleston, Mass., you are just in the prime of manhood—and a good, healthy specimen, too! Over the escapades of your school days we will discreetly draw the curtain, and it is sufficient to say that you attained the degree of Bachelor of Arts at Yale University in 1896. It is your boat experience that we will dwell upon.

For the year after you left college, you were with the Newport News Ship Building Company, as a ship-fitter and iron-worker, getting the practical experience which every naval architect should have, for an architect solely office-trained is but a man of paper. The following year you went through a special course of naval architecture at the Cornell University, after which you were with Mr. C. D. Mosher, the designer of Arrow, Ellide and other speedy craft. Previous to this, in 1883, to be exact, you designed and built your first boat, and as we stated, "it is in the blood," for while you were a college student, you had done quite a little amateur sailboat designing.

In 1899 you returned to the Newport News Company as ship's draughtsman, and later you were in charge of the building of the yacht Arrow, for her owner, Mr. C. R. Flint. When that job was satisfactorily completed, you decided to study practices in the Old World, and so spent six months at the London Patent Office and University College. Upon returning to your native land you got out the plans and constructed your first motor boat—a

30-footer, which made 12 m.p.h., with 15-h.p. Quite a boat for those days!

Again you wandered, this time across the Northern Border, and for about five years you were the manager and designer for the old Canada Launch Works, at Toronto, during which period you turned out 298 motor boats. Some job! eh? You then were in a position to claim that you knew what was a motor boat, and evidently considered yourself qualified to become a writer on the subject, for in 1905 you took the position as technical-editor of *Motor Boat*, that paper having then just started. Needless to say, you made good.

Two years of scissors, paste and readers' grumbles, however, were sufficient, and the lure of the old drawing-board proved so strong that you joined the firm of Whittelsey & Whitaker, as partner, but in 1909, you launched out on your own hook as a fully-fledged naval architect, since when you have designed over three hundred motor craft, both pleasure and commercial types. However, you thought that being on the 42d floor of the Metropolitan Life Building was not near enough to nature to your liking—or was it the distant view of the water?—so you packed up your traps and carried them to a little farm at Nyack-on-Hudson, where you could peacefully work to the chirping of the birds, with the idea of ultimately blossoming forth as a real farmer, and thus supply your late clients with garden and dairy produce, instead of hull plans. But, Whit, cows or no cows, your drawing-board always stares you in the face and

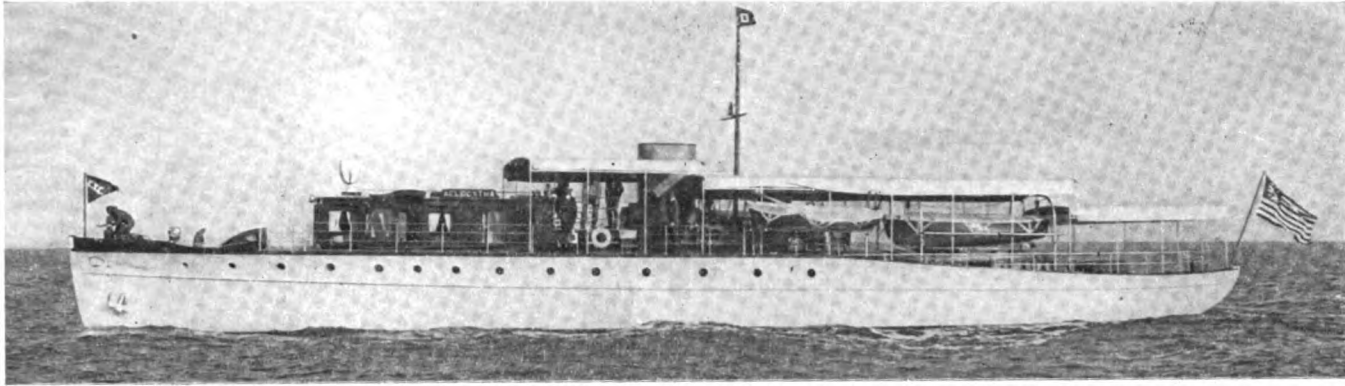


"Whit"

particularly when there is some boat which calls for unusual conditions of design offered to you to produce.

Your latest accomplishment was in being the first man in America to develop the reverse-curve, bow-wave-collecting type of semi-displacement hull. In this you were doing the right thing, for this type of boat is the present and future design for runabouts and express cruisers, by reason of the additional speed and seaworthy qualities available.

Enterprise meets with its reward, and your design was accepted by the Motor Boat Club of America, for



Morris Whitaker's Master Creation—the 110-Ft. Twin-Screw Craig-Diesel-Driven Yacht Aeldgytha

its new One-Design Class. But in doing so you heaped fiery coals upon your fire-shaped head, for you were at once openly attacked for making use of the club as a business medium. But this attack was hardly justified, for you had resigned the secretaryship some weeks before your design was adopted by the officers, we ourselves having seen your letter of resignation.

You have turned out some very successful craft, although you were never much of an extreme speed-boat bug; in fact, 60-miles-an-hour hydroplanes don't interest you, for your motto is comfort and safety first. Let us take a few of your most noteworthy vessels: There was the Caroline, a 65-foot cruiser that won the Halifax Race, and Kittrois, Kitcinque, and Kitsix. The latter, we remember, was unbeaten, while Bunk III, an open launch, was undefeated for three years. Again, in her second season, the Eastern Star was unbeaten. Regard-

ing examples of commercial craft, there was a 120-foot by 35-foot car ferry, which goes down on record as being the first gasoline vessel of her type in the U. S. and is still in service, and we mustn't overlook that 90-foot fire float that you turned out a year or two ago. But, perhaps your finest job was completed last year, namely, the 110-foot Diesel-engined yacht Aeldgytha, that you designed for Mr. Francis Hardy, of Chicago. We shall never lose our first impression of the beautiful craft, silhouetted, as she was, against the moonlight on the water of Lake Michigan, as she swung at anchor when we rowed towards her the night previous to her record non-stop maiden run. We look to you and others to turn out many more like her. Well! Here's to your farm, Whit!

Yours ever,
THE BO'SUN'S MATE.



DETACHABLE MOTORS

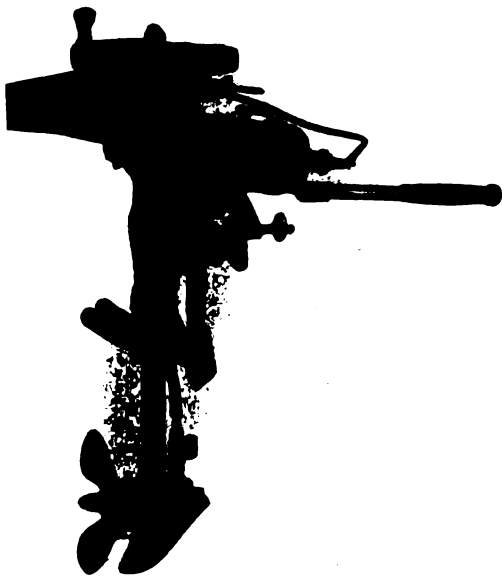
DEVELOPMENT OF A USEFUL TYPE OF AUXILIARY POWER PLANT

DURING the last few years the detachable, or out-board, motor has attained remarkable popularity among rowboat men and among yachtsmen, with the result that a large number of concerns have recently taken up its manufacture in America. We have searched far and wide with a view to placing before our readers a complete list of all power plants of this type built, and we believe that we have been successful. Altogether it will be seen that there are forty-five different makes, which doubtless will come as a surprise to many. The

costs of the various engines given vary from \$25 to \$100 complete, so the intended user has quite a variety to select from; in fact, the prices suit all pockets. Many of these we have had personal experience with, so we are in a position to advise gratis, within limits, intending purchasers, which we believe to be the most reliable makes upon application. At the same time we can only give free advice to subscribers to THE RUDDER, so an application from a non-subscriber must be accompanied by a year's subscription order.



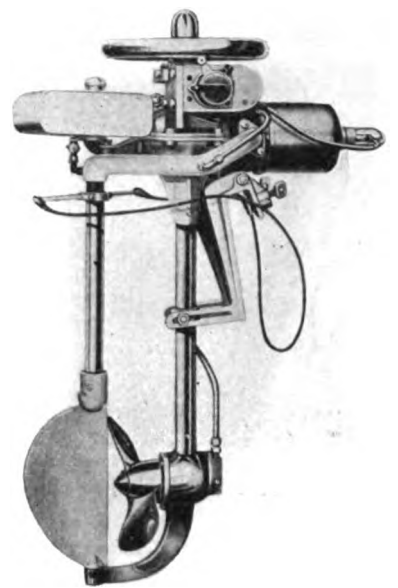
A Waterman-Engined Canoe



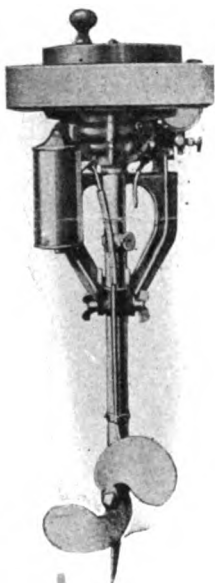
The Evinrude



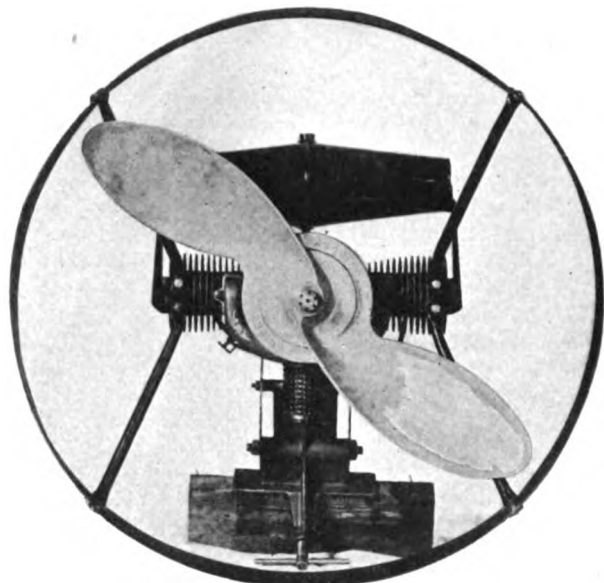
The Federal



The Waterman



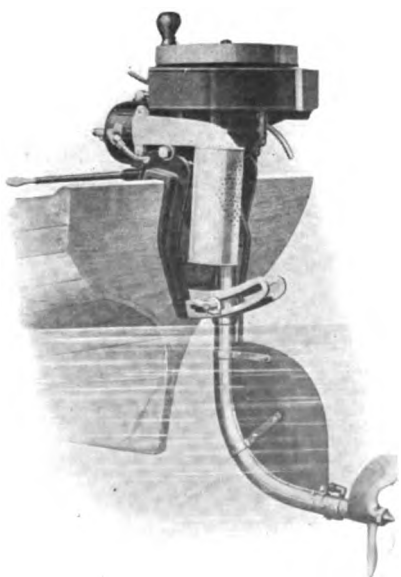
The Hi-Speed



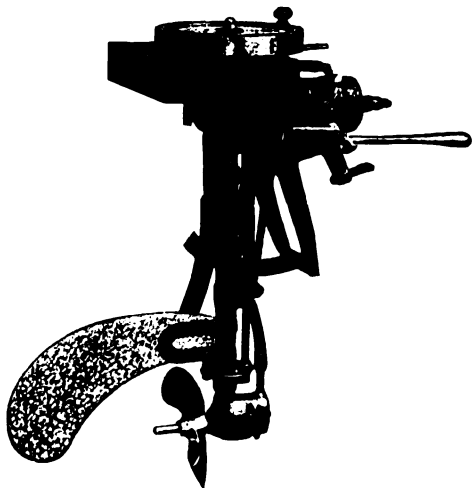
The Aerothrust



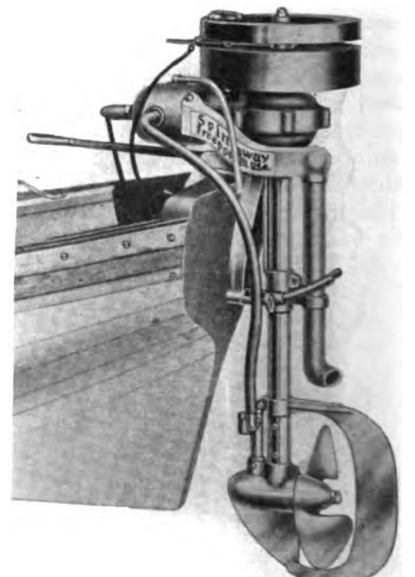
The Caille



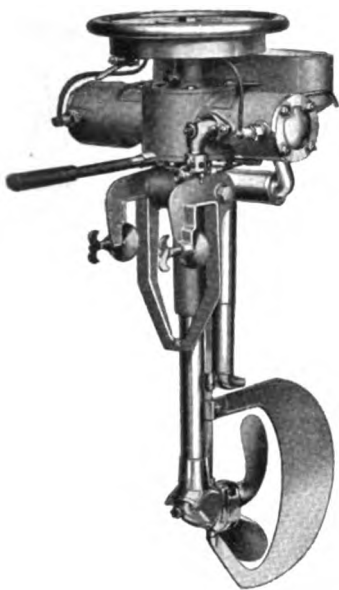
The Gray



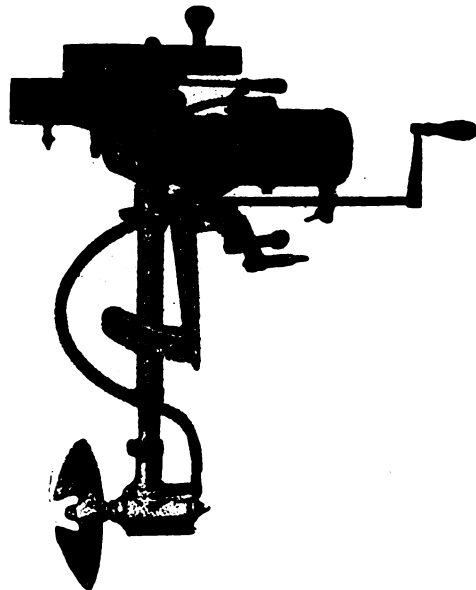
The Racine



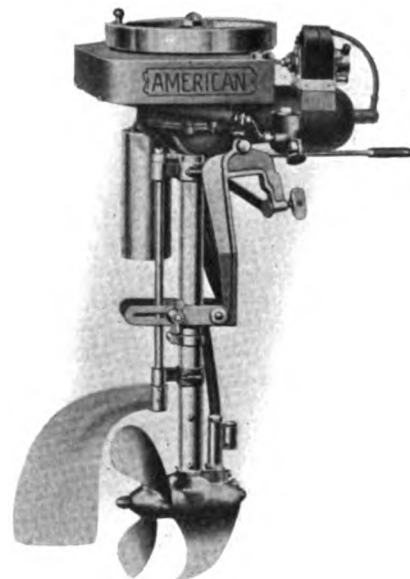
The Spinaway



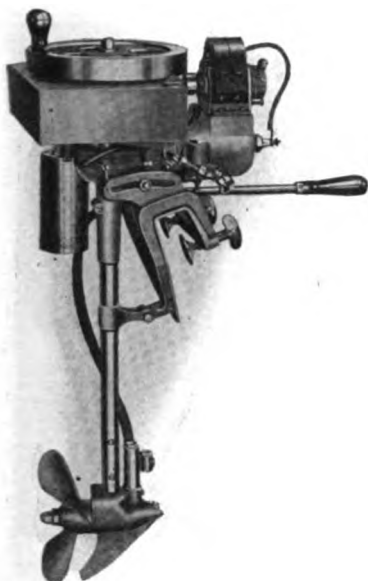
The Koban



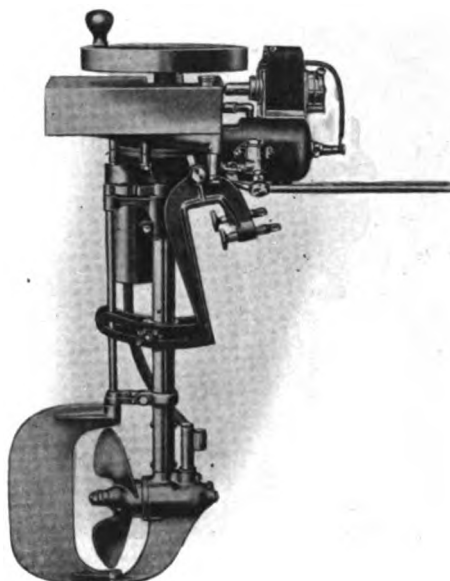
The Wright



The American



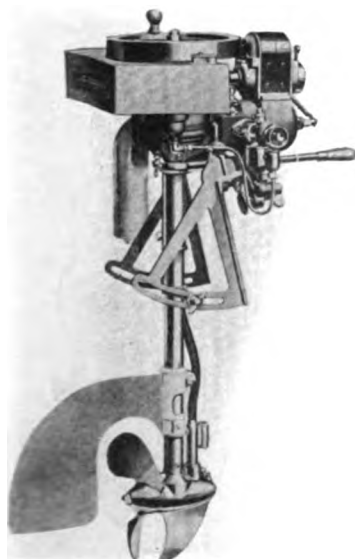
The Wisconsin



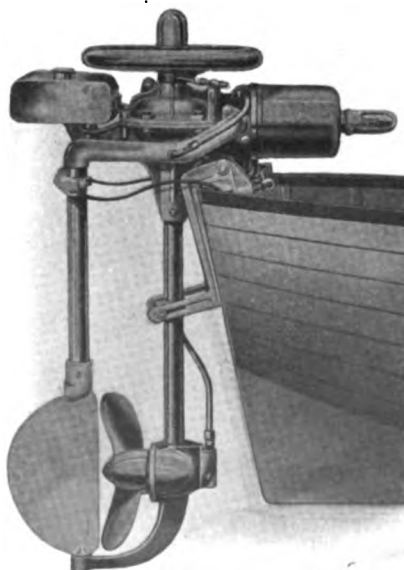
The Lockwood-Ash



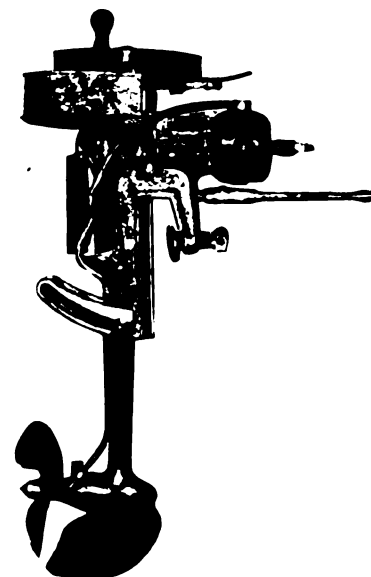
The Anderson



The Ferro



The Sweet



The Blakely

The production of these little motors is to be encouraged, as for certain work they have proved to be most useful, especially for small yachts' dinghys and for other types of motor boats. The maximum power in which they are made is about $3\frac{1}{2}$ -h.p., and for craft of this power or under, these little engines are very efficient, but if much over this power, they would be liable to lose many of their advantages.

One of the chief features of the detachable motor is that it converts a rowing boat into a power craft in a few minutes, without the expense of structural alteration to the hull and the resultant loss of time. The motor can be clamped on to the transom in quite a short time, without any boat-building experience or previous preparation whatever. Weighing in the neighborhood of 50 lb, it can be packed in a trunk when going off for a vacation. At the seaside, lake, or mountain stream, a rowboat can be hired for a small sum, the outboard engine clamped in position and lo, the owner is in the immediate possession of a motor boat, capable of doing considerable day cruising, or exploration. Every sailing yacht will

ever they were, which only shows that there is room for all, provided they are well advertised in the proper mediums. The various makes are as follows:

Make	Manufacturer or Principal Distributer
Admiral	Affiliated Manufacturers Company, Milwaukee, Wis.
Aerothrust	Aerothrust Engine Company, 217 West Schiller Street, Chicago, Ill.
Ailsa-Craig	Ailsa-Craig Motor Company, Strand-on-the-Green, London, W., England.
Alligator	Alligator Motoren-Vertrieb, Kurfurotendamm 233, Berlin W. 50, Germany.
American	American Engine Company, 418 Boston Street, Detroit, Mich.
Anderson	Anderson Engine Company, 4036 No. Rockwell Street, Chicago, Ill.
Archimedes	Hanson & Co., Fernsprecher No. 574, Lubeck, Ger.
Blakely	Blakely Engine Company, Muskegon, Mich.
Caille	Caille Perfection Motor Company, 1422 Caille Street, Detroit, Mich.
Cudell	Cudell-Vergaser, Berlin N. 65, Germany.
Danette	Motorn Dan, 10 Rue de Laborde, Paris, France.
Detroit	Detroit Engine Works, 1250 Jefferson Avenue, Detroit, Mich.
Echard	M. Echard & Co., 5, Rue du Lieutenant-Boncort, Neuilly-en-Seine, Paris, France.



With a Gray Outboard Motor on the Sylvan Lake, South Michigan

find one aboard invaluable for tender work when in harbor, or for pushing and towing in calms. Motors are even being attached to the sterns of yachts and many a racing boat proceeds to port in this manner.

The history of the development is perhaps interesting. The first detachable motor seems to have been the Moto-Godille—a French production, which while successful from a mechanical point of view, was not generally adopted. Then came the Waterman, which for several years had quite a monopoly, as the French motor was but little known. But it was not until the début of the Evinrude, several years ago, that this class of auxiliary power "made a hit." It is true that competition makes business, and this case was no exception, particularly as the Evinrude was well advertised and widely demonstrated; also as the Waterman concern wisely showed greater activity in pushing their excellent motor. Rapidly the Evinrude and Waterman sales increased, backed, as the motors were, by substantial construction, with the result that it was not long before there were over a dozen other makes on the market, and these are regularly being added to, with the eventual results seen in the following list. Despite strong competition, it is noteworthy that the Evinrude and Waterman sales are larger today than

Effezet	Fritz Ziegenspeck, Kürassierstrasse, 33, Berlin, Germany.
Emmons	Emmons Specialty Company, 242 Jefferson Avenue, Detroit, Mich.
Evinrude	Evinrude Motor Company, Milwaukee, Wis.
Federal	Federal Motor & Manufacturing Company, 620 F Street, Washington, D. C.
Ferro	Ferro Machine & Foundry Company, 515 Hubbard Avenue, Cleveland, Ohio.
Gray	Gray Motor Company, 5104 Gray Motor Bldg., Detroit, Mich.
Hasse	Emil Hasse, Schleischester, 33, 34, Berlin.
Hi-Speed	Hi-Speed Motor Company, 20 West Jackson Blvd., Chicago, Ill.
Jewell	Jewell Electric Co., Chicago, Ill.
Joy Motor	Joy Engineering Company, 227 Tribune Bldg., Chicago, Ill.
Koban	Koban Manufacturing Company, 248 South Water Street, Milwaukee, Mich.
Lockwood-Ash	Lockwood-Ash Motor Company, Jackson, Mich.
Mac	Hollander & Co., Malmö, Sweden.
Miller	Miller Gas & Vacuum Engine Company, 2329 No. Talman Avenue, Chicago, Ill.
Moto-Godille	G. Couche & Co., Engineers, Paris, France.
Motorgo	Sears, Roebuck & Co., Chicago, Ill.
Motorow	Motorow Engine Company, 1475 Foster Avenue, Chicago, Ill.
No-Ro	No-Ro Motor Works, West Roxbury, Mass.
Northwestern	Northwestern Motor Company, Eau Claire, Wis.
Nymph	Nymph Motor Company (Mr. C. F. Fried), Cleveland, Ohio.

Make	Manufacturer or Principal Distributer
Racine	Racine Motor Oars Company, Racine, Wis.
Spartan	Goodrich, Hamlyn & Arnand, Clock House, Arundel Street, Strand, W. C., London, England.
Spencer	H. W. Spencer & Co., Montreal, Canada.
Spinaway	Spinaway Boat Motor Company, 259 Chicago Street, Freeport, Ill.
Strelinger	Strelinger Marine Company, St. Aubin, Detroit, Mich.
Sweet	Sweet Manufacturing Company, 81 Griswold Street, Detroit, Mich.
Tip-Top	Motorenwerk Frankfurt, G. M. B. H., Frankfurt a. Oder, Germany.
Uhticke	Bootsmotoren-Com. Gas., G. Uhticke, Berlin O.27, Holzmarkestrabe 9, Germany.
Waterman	Waterman Marine Motor Company, 405 Mt. Elliott Avenue, Detroit, Mich.
Wilcox	Wilcox-McKim Company, Saginaw, Mich.
Wisconsin	Wisconsin Machinery & Manufacturing Company, 1602 Canal Street, Milwaukee, Wis.
Wright	C. T. Wright Engine Company, Greenville, Mich.

We will now proceed to give details of some of the leading American outfits:

THE AMERICAN

Some interesting reasons why detachable motors should be adopted are given by the American Engine Company: "Whenever you have a holiday you can take your motor to some nearby lake or river, rent a boat, attach the motor to it in two minutes and take the whole family up the river or across the lake to some secluded nook for a picnic lunch, always feeling sure that you will be able to return safely in the evening, because your little power plant is ready to start at any time."

The motor develops 2-h.p., at 800 r.p.m.; $2\frac{5}{8}$ inches bore; $2\frac{1}{2}$ inches stroke; speed ranges from 300 to 1,000 r.p.m.; is specially designed to give the greatest power with the least amount of fuel; while it is made as light as possible, the strength or wearing qualities have not been sacrificed to save the weight. It is a combination of the two and three-port system, with double ports in the by-pass. Its peculiar design makes it possible to throttle it down without any possibility of its back-firing. The double system of ports in the by-pass prevents waste of fuel as no new charge can enter until old charge has passed out to the exhaust chamber.

There are two types made, one with a separate rudder, and one with the propeller acting as rudder.

THE ANDERSON

The motor is reversible, whether equipped with battery or magneto ignition, and has a 3-inch bore cylinder, high crank case compression and ports so designed that back-fire is eliminated. The power developed is $2\frac{1}{2}$ -h.p., and the propeller is of the weedless type, 9 inches diameter. Incorporated with the propeller is a rudder, and both are moved by the tiller to steer the boat. The Anderson motor is despatched entirely complete and ready to run and no tools, piping, etc., are required to fit it in position. Furthermore, an underwater exhaust is furnished if desired, without extra charge.

THE EVINRUDE

It is now about six years since the first Evinrude detachable rowboat motor was placed upon the market, and along the path of successful achievement that has marked the advent of this motor, stand six years' monumental epochs in this particular type of gasolene motor construction, for each year they have added to their motor in such a manner as to seemingly anticipate future improvements. From a small shop with a yearly output of 60 sets, this firm has increased its capacity to about 60,000 per year, and now thousands are enjoying the pleasures of motor-boating without being obliged to meet the expense of a motor boat.

The engine is of the single-cylinder, water-cooled type, and is made in two sizes, the larger developing $3\frac{1}{2}$ -h.p. The smaller model develops 2-h.p., at 900 r.p.m., with a speed range from 300 to 1,000 r.p.m. It is designed to give the greatest power with a limited weight, without sacrificing strength and wearing service. It differs from many two-stroke engines in this respect—it can be throttled down like a four-cycle motor without trouble of back-firing. It absolutely will not explode in the crank case, regardless of mixture or speed. It has all the good points of both four and two-cycle engines, without any objectionable features. The by-pass has a double system of ports, preventing the new fuel charge from being wasted through the exhaust, and the ports are so arranged that there can be no crank case explosion, even when somewhat worn. The bore of the 2-h.p. engine is $2\frac{5}{8}$ inches by $2\frac{1}{2}$ inches, and $3\frac{1}{4}$ inches by 3



Operating a Detachable Motor from the Bow Seat

inches respectively for the 3½-h.p. set. Ignition is by a reversible magneto built in the flywheel.

THE FEDERAL

With the Federal equipment, there are three distinctive features, namely, it is a two-cylinder opposed motor; secondly, it can be adjusted to almost any angle of stern and for any depth of water, it being so constructed that the propeller and shaft can be raised clear of the water when crossing a shallow; thirdly, there is a special charge agitator, which assists starting up by agitating the mixture in the crank case. This saves repeated turning of the starting handle. Another feature is that Bosch magneto ignition is employed with these motors, unless battery and coil ignition is preferred; but of course, when the magneto is fitted, the cost is a little higher. For the cylinders and pistons, a mixture of titanium, vanadium and steel is used, while the crank case is of aluminum for weight-saving purposes; in fact, the weight is about 60 lb. The carbureter is automatic in operation, and of the mixing valve type. Unlike float-feed carbureters, it holds, or retains, no gasoline to flow all over the place when motor is removed from boat or tilted out of normal position. Steering is by turning the propeller and guide blade in the direction that the boat is to take, which is accomplished by giving a reverse movement to the tiller.

THE GRAY

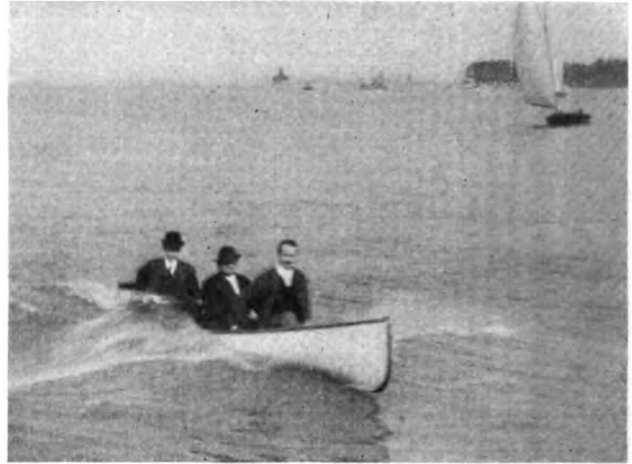
Here is a detachable motor that is different, and its most noteworthy feature is that it is of the gearless type, the drive to the propeller being by a flexible shaft running in enclosed curved tube. The engine is of the single-cylinder type, 3 inches bore by 5 inches stroke, developing 2½-h.p., with a range of speed from 200 to 1,000 r.p.m. The gearless transmission shaft is made of chrome vanadium, heat treated, and having a maximum strength of 250,000 lb per square inch. In addition to dispensing with the bevel gears, the big propeller hubs are also done away with, thus reducing the resistance to the water. On the curve of the transmission casing is a substantial rudder. Again, the water-cooling pump is of the gearless type, without any check valves. The pump is of the eccentric type with only half the parts found in the ordinary plunger pump. The propeller shaft, which passes through the pump chamber, carries the pump eccentric.

Oiling is accomplished by mixing lubricating oil with the gasoline. One-third pint of oil, to one gallon of gasoline. This furnishes lubrication to all parts of the motor and oils the engine automatically, furnishing the right amount for all speeds—no oilers or grease cups are necessary. The oil should always be added to the gasoline and shaken vigorously before it is put in the tank. Once thoroughly mixed, the oil and gasoline will not separate.

THE KOBAN

A built-in magneto is one of the new features of the 1915 two-cylinder Koban rowboat motor. While many standard types were available, it required special construction to build a magneto that would answer the requirements of a two-cylinder motor, and remove the objection of having a magneto attached to, instead of an integral part of, the motor. One of the special features of this magneto is that it is reversible. It is not necessary to stop the engine or reverse the propelling mechanism to change the direction of the boat. A single pressure of a button reverses the engine. The accompanying illustration shows the 1915 two-cylinder engine with built-in magneto.

The engine is of the two-cycle reversible type with two cylinders directly opposed, which fire simultaneously. This construction removes vibration and gives a balance of all working parts. The engine is designed to run at 800 r.p.m., and develops in excess of 3-h.p. The bore and stroke of each cylinder is 2⅝ inches by 2⅝ inches respectively. All parts have been designed to give maximum service. All the wearing surfaces are liberal. All parts are interchangeable.



Canoe with a Sweet Detachable Motor

THE WATERMAN

It was nine years ago that the first Waterman detachable motor was first placed upon the market, since when remarkable improvements have been made to the design and construction. The engine has a single-cylinder, 2¾ inches bore by 3 inches stroke. This gives a cylinder volume which, taken with the special design of ports, gives 2½-h.p. at 750 revolutions, and 3-h.p. at 1,000. On light boats this motor may be speeded up to 1,200 revolutions or over. The number of pounds weight for each actual horsepower developed is claimed to be less than in any other complete self-contained marine power plant of its type. It is of the three-port, two-cycle type—now admitted to be the popular type for marine detachable engines.

The cylinder is horizontal and is fitted with a highly polished water jacket of spun copper. This jacket is attached by a system which was first employed on their Model K motors in 1908, and it has proved so successful and satisfactory that it is now employed by a number of other engine builders. The jacket is held at the top by a flanged spark plug bushing which clamps the jacket tightly against the spark plug boss. This boss is cast integral with the cylinder and machined to a true surface. The lower end of the jacket is pressed over a flange cast on the cylinder and turned smooth and true when the cylinder is machined and it is clamped to this flange by a steel ring, which is pressed into place. This makes a joint that will never leak, but allows the jacket to be removed for replacement if required. The only other break in the jacket is where the priming cup is inserted. This is provided with a flange and is screwed tightly into the boss on the cylinder until the jacket is clamped tightly against the end of this boss in the same manner as the spark plug bushing. There is a rudder yoke or cross tiller, to which are attached tiller lines, so that the boat can be steered from the stern or from the bow, if desired.



TWELVE-FOOT OUTBOARD MOTOR DINGHY

WITH the advent of the outboard motor, there is an increasing demand for a good all-around small boat suitable for this means of propulsion. The trouble found with the average rowboat is that there is not sufficient buoyancy aft to prevent the stern from settling excessively and the bow points skywards, with the engine hung on the sternboard, and with only the operator aboard, and he sitting aft to run it.

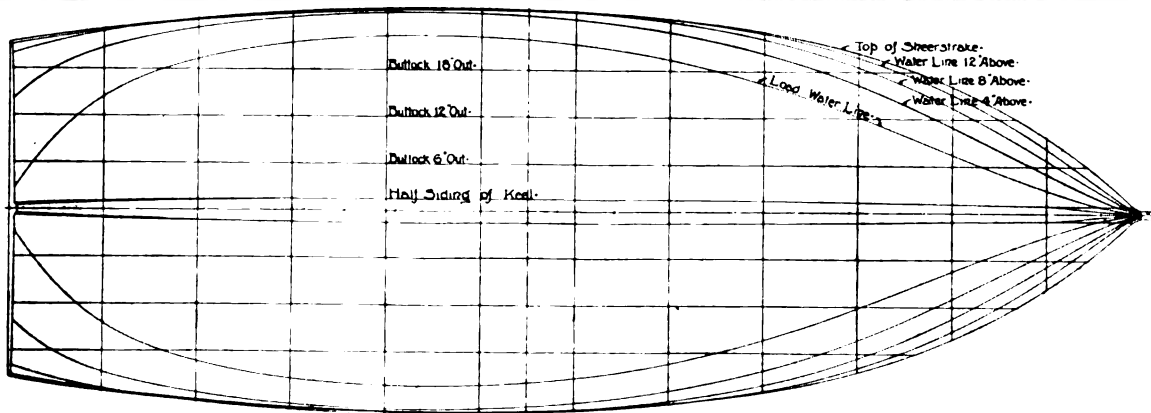
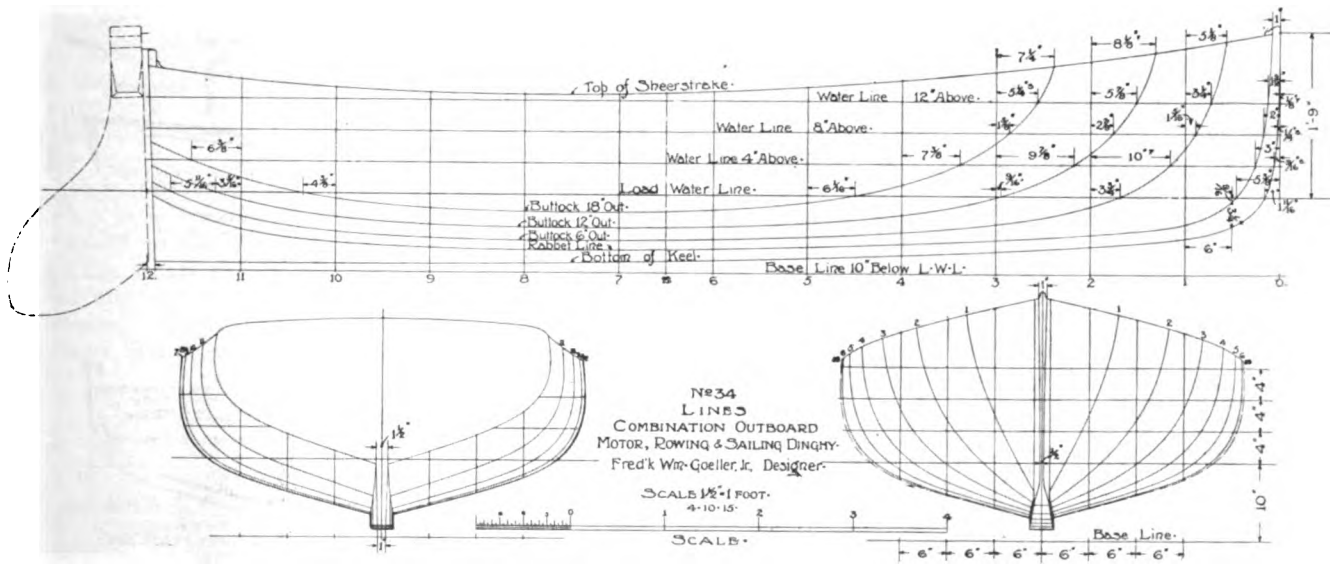
To overcome this, some of the engine manufacturers have had built and are selling to their customers, boats especially designed to carry outboard motors.

In the accompanying plans we have gone a step further in producing an all-around power, rowing or sailing dinghy.

It is particularly adaptable as a tender, for it can be easily rowed, carrying a number of persons, for short trips; the engine put in place for long ones and much running about and for general knocking around without any definite object in view other than to enjoy a short sail, the mast can be stepped and the sail hoisted in a few minutes.

As a small one-design class, this is a particularly attractive proposition, as the younger members may be instructed in the three branches of the sport.

An analysis of the design shows it to be a compound of certain features of the standard rowboat and of a catboat. The principal points being that the center of buoyancy is well aft, and the width of the stern. In re-



Lines

THE RUDDER

N^o34.

TABLE OF OFFSETS.

COMBINATION OUTBOARD MOTOR, ROWING & SAILING DINGHY.

NOTE: Dimensions given in feet, inches and eighths to outside of Planking-- Planking to finish $\frac{3}{16}$ thick.

--STATIONS--		0	1	2	3	4	5	6	7	8	9	10	11	12
Heights.	Top of Sheerstrake.	2-7-0	2-4-7	2-3-1	2-1-6	2-0-5	1-11-6	1-11-1	1-10-7 ^s	1-10-6	1-11-0	1-11-4	2-0-4 ^s	2-2-0
	Buttock 18" Out.				1-4-6 ^s	0-11-2 ^r	0-9-0 ^r	0-8-0 ^r	0-7-6 ^s	0-7-6	0-8-1 ^r	0-9-2 ^r	0-11-6 ^r	1-4-2
	Buttock 12" Out.			1-3-4 ^s	0-9-6	0-7-4 ^s	0-6-3 ^r	0-5-7 ^r	0-5-6 ^s	0-5-6	0-6-0 ^r	0-7-0 ^s	0-9-0 ^r	1-1-2 ^s
	Buttock 6" Out.		1-4-1	0-8-5	0-6-3 ^s	0-5-2	0-4-5	0-4-2	0-4-1 ^r	0-4-1	0-4-3	0-5-1 ^r	0-6-7 ^r	0-11-1 ^s
	Rabbit Line.		0-6-3 ^r	0-5-0	0-4-3 ^s	0-3-6 ^r	0-3-3	0-3-0 ^r	0-2-7	0-2-7	0-3-1	0-3-5 ^r	0-5-2 ^r	0-9-3 ^r
Half-Breadths.	Bottom of Keel.		0-4-5	0-3-4 ^r	0-2-7	0-2-3 ^s	0-1-7 ^r	0-1-5 ^r	0-1-3 ^s	0-1-1 ^r	0-1-1 ^s	0-1-0 ^r	0-1-0	
	Top of Sheerstrake.		0-9-5	1-4-1 ^s	1-8-3 ^s	1-11-0 ^s	2-0-4 ^s	2-1-2	2-1-4 ^r	2-1-4	2-1-0 ^r	2-0-2 ^s	1-10-7 ^s	1-9-0
	Water Line 12" Above.		0-8-1 ^r	1-3-0 ^r	1-7-6 ^r	1-10-6	2-0-4	2-1-3	2-1-5 ^r	2-1-4 ^r	2-1-1	2-0-2 ^r	1-11-1 ^s	1-9-3
	" " 8" "		0-6-6	1-1-3	1-6-4 ^r	1-10-0	2-0-1	2-1-2 ^r	2-1-6 ^r	2-1-6 ^r	2-1-3	2-0-3	1-10-6 ^s	1-7-7
	" " 4" "		0-5-0	0-10-7 ^r	1-4-2 ^r	1-8-1 ^r	1-10-6	2-0-3	2-1-1	2-1-2 ^r	2-0-5	1-11-2	1-8-5 ^r	1-2-1
Load Water Line.		0-2-7 ^r	0-7-3 ^r	1-0-2 ^s	1-4-2 ^r	1-7-3 ^s	1-9-2	1-10-1	1-10-2	1-9-3	1-7-2	1-2-3 ^r	0-2-6	
Half-siding of Rabbit (Keel)		0-1-0	0-1-1	0-1-2 ^r	0-1-3 ^r	0-1-4	0-1-4	0-1-4	0-1-4	0-1-4	0-1-4 ^s	0-1-2 ^r	0-1-1 ^s	0-0-6

NOTES: Stations are spaced 12" Apart ... Stations to be used for Moulds are N^{os} 1, 3, 5, 7, 9 & 11 ...
 Stem sided 2" ... Face of Stem sided 1" at top, $\frac{1}{2}$ " at Water Line and faired out to width of Keel
 at Sta. N^o 1 - see Plan of Lines.

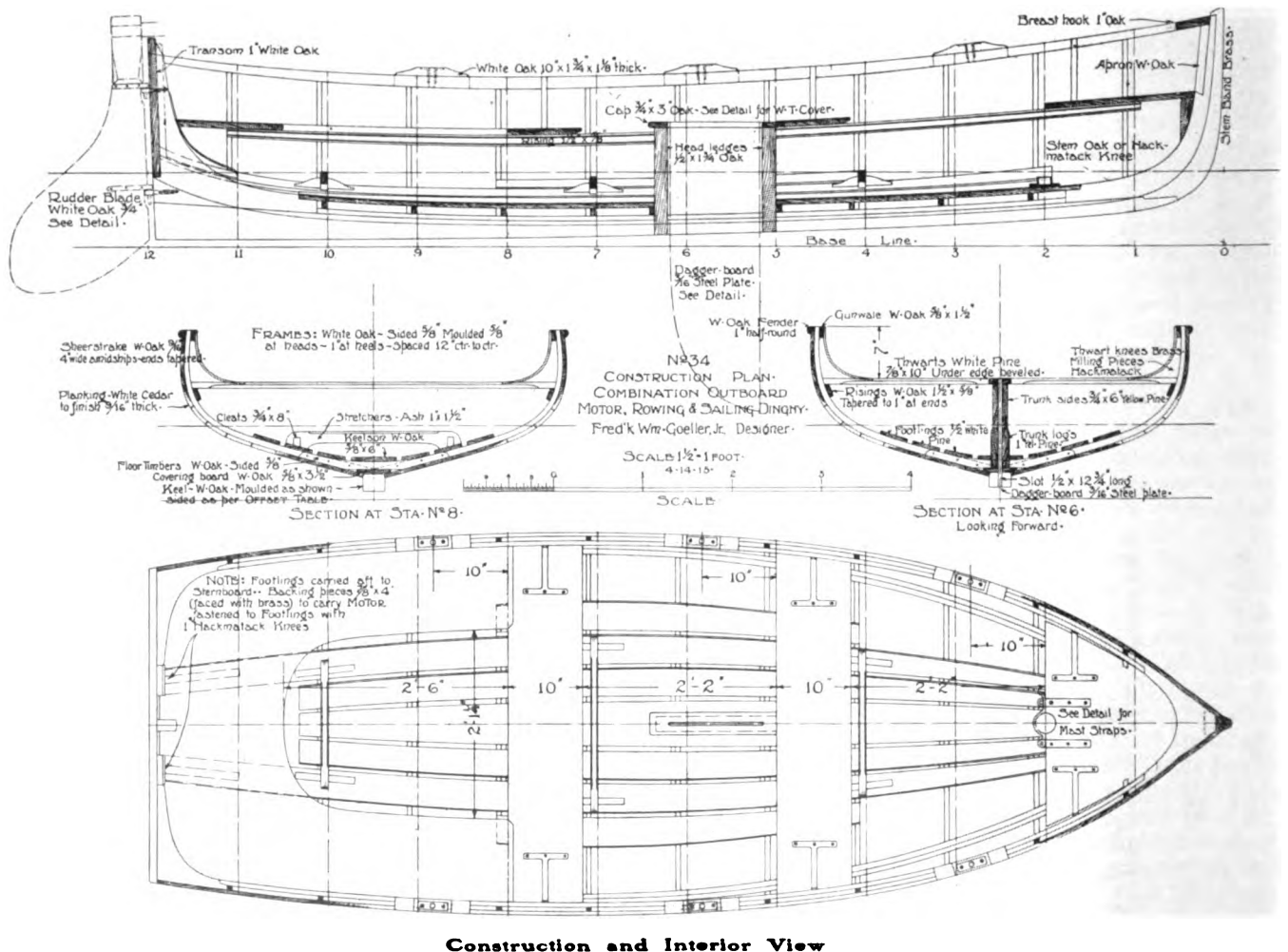
Fred'k Wm. Goeller, Jr., Designer.

- 4-12-15 -

gard to the latter, the deadrise is considerable. It was not the intention to give it sufficient buoyancy in itself to prevent squatting, but to bring the center of buoyancy so far aft as to prevent the weight of the engine plus the

weight of a man from gaining enough leverage to raise the bow to any great extent.

While there is no question but what the stern will settle somewhat and the bow raise accordingly, it will



not happen to such an extent as to throw the boat but very slightly out from her designed lines.

Although as before mentioned, the deadrise to the stern is considerable, yet on account of its width and the character of the sections just forward of it, as the boat settles slightly, the buoyancy increases very rapidly.

And, if it were not cut up pretty well, when the engine was removed, it would be so heavy and cause such a drag as to make rowing an exceedingly arduous task.

As a good burdensome rowboat—taken by itself—it would be hard to improve on, and on account of the shape of the underbody, it is admirably suited as a sailing dinghy.

It was our first intention to make this an out-and-out "How to," but after finishing the plans and realizing what a man who has never built a boat before would be up against, we feel constrained to advise such to either have it built or get a more simple proposition to start on.

To the man who has built one or more boats before, this boat does not present any features which would cause him the least difficulty.

A good boat of the proper design is not as easy to build as a box, notwithstanding the assertions of some people to the contrary.

The various features which constitute a good design mean that wood has to be shaped and bent to certain curves, and care, time and patience have to be expended to make a good job; yet it is certainly worth it to possess a boat a little better than the ordinary and know that you accomplished the job by the use of your own brains and hands.

A word more about one feature of this boat. The plans show and call for it to be smooth planked. For the purpose to which it is to be used, it is our opinion that this is best.

The engine, being on the sternboard, all of the vibration originates from this one point, and unless the boat is built a little heavier than ordinary and kneed together and braced properly, it soon racks the sternboard and causes the seams to work and leak.

For any one who so desires, he may build this boat lap-straked. There is not the slightest doubt but what this boat could be built lighter and stronger by this

method, but it is a question how long it would stay tight. Once the leaks start, it is impossible to be sure that the boat will ever be tight again.

By either method, however, the moulds will be located in the same position, the only difference being that for the smooth-planked boat the thickness marked off inside of the lines, as given in the offset table, will be 9/16 inch, whereas for the lap-straked method 3/8-inch planking would be used—3/8 inch is marked off.

In our next issue the balance of the plans, including the sail plan and all necessary details, will be published, and we sincerely hope that those of our readers who build a boat from these plans will send in some photos taken during the construction, and of the finished boat, for insertion in our columns.



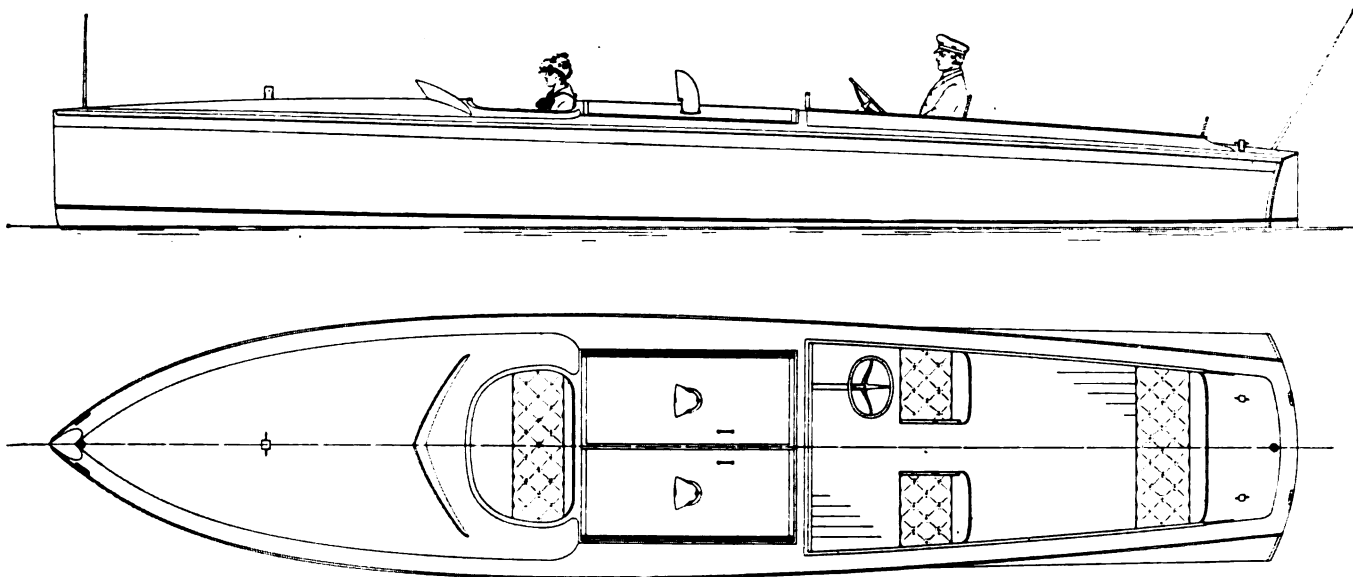
A HAND V-BOTTOMED RUN-ABOUT

At Lawley's there is now under construction an interesting and highly attractive V-bottom runabout from plans by Wm. H. Hand, Jr., of New Bedford, Mass., for Mr. Dustin Farnum.

Mr. Farnum's new boat is of the well-known Hand V-bottom type of lines, and is a handsomely finished craft of very graceful and clean appearance. The motor, a six-cylinder, 135-h.p., high-speed Van Blerck, is installed amidships under hinged hatches, with full automobile control, including electric starting and lighting. Forward of the motor compartment is a low cockpit, arranged to comfortably seat two, while aft there is the usual runabout cockpit with motor controls placed forward on the starboard side. The general trim is mahogany, which, with polished bronze hardware and fittings, will produce a very pleasing appearance.

Mr. Farnum will use his new boat on the coast of Maine, and expects to enter in all of the available races. A speed of over 35 miles per hour is expected and in addition to this high speed, the boat, like others of the V-bottom type, will be wonderfully dry and seaworthy.

The dimensions are: length over all, 30 feet 2 inches; breadth, extreme, 6 feet 4 inches.



V-Bottom Runabout for Mr. Dustin Farnum. Designed by Wm. H. Hand, Jr



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



EARLY MOTOR BOATS

I AM not certain that I had the first motor boat in this country, but I had one of the first. My boat was designed and built in 1894 by Mr. Thomas J. Guider, of Rowenton, Conn. The hull was built in Port Washington, N. Y., was 45 feet long and was equipped with a 12-h.p. Daimler motor, made in Germany, from a patent dated 1890. I then had her lengthened and installed a 20-h.p. Daimler motor, made in Germany, which motor was one of the first two explosive engines of that size sent to this country, and were on exhibition at the American Institute Fair. That motor had the platinum tube ignition, but have since changed it to a jump-spark.

Port Washington, N. Y. LORENZO B. SMULL.

FIJI ISLAND PASSENGER BOAT

AN old subscriber, Mr. S. A. Griffen, of Nabukulou Creek, Sura, Fiji Islands, sends the Oldman the interesting illustration that we publish on this page, of a passenger launch that he has built, and adds "long live THE RUDDER." His boat is the Lady Kelvin, and is 65 feet long, with 13 feet breadth by 4 feet depth, and is carved built of kauri pine planking on steam-bent frames, 3 inches by 1½ inches, spaced 2 feet apart, all copper fastened. The keel is one piece of timber 7 inches by 7 inches by the length of the vessel. Her cabins are lined in selected Fiji woods. The engine is a four-cylinder, 50-h.p. Kelvin, which drives her at 9¾ m.p.h. Every day she runs 28 miles in passenger service, on one of the largest rivers in Fiji. Mr. Griffen has quite a nice craft and we wish him every success with her.



Lady Kelvin

FROM BELGIUM

I AM happy to wish yourself the thankfulness of the Belgian people for the inexhaustible American generosity. I beg you to relate to your friends all the gratitude of our unhappy but glorious Belgium as to the United States. Will you kindly reserve for me THE RUDDER issues year 1915. I will send you the amount as speedily as can be.

Brussels, Belgium. HUBERT STOEPS.

THE BOTTLE HYMN OF THE SEA BIRD

(Sung at Dinner of Huguenot Y. C.)

O'er the stormy Western Ocean has our dear old flag been flown,
For the bravest of sea voyagers has claimed it for his own,
On the waters of the Tiber it has fluttered up to Rome,
As the Bird went sailing on.

There was Thurber, Day and Goodwin, and a jolly lot they are,
For they live on chips and oakum, and their beverage is tar,
Since they crossed the wide Atlantic, they are famous near and far
'Cause the Bird kept sailing on.

They started out from Providence, and put their trust in that,
For they did not have a mascot, not a single pussy cat,
But the pictures show quite plainly that each wore a yachting hat,
As the Bird went sailing on.

The crew were very happy and their tongues did gaily wag
For the only cross thing on the boat was the one upon the flag,
Though the Kicker ran by gasolene, and seldom did it lag,
As the Bird went puffing on.

While over eighty miles away, the Azores they could see,
For the mountains rose up boldly just as plainly as could be,
But the readers had to wait a month before they reached the quay,
As the Bird went sailing on.

When the salt got in the water tank, all shed a bitter tear,
But the soul-destroying beanlet on the board did not appear,
And we learned that Fayal bread would keep for nearly half a year,
As the Bird went sailing on.

If you find the wind is heading you, don't hammer at it blind,
But romp her gaily on a course some nine points off the wind,
Then put her on the other tack, and the lee shores far behind,
As the Bird goes sailing on.

We thought the English Channel, or our good old New York Bay,
Would see the most ships sailing through upon a single day,
But where they turn the corner is the really Great White Way,
As the Bird goes sailing on.

They got to grim Gibraltar, and their troubles then were past,
For they took the poor old Sea Bird and they lashed her to the mast,
And though she was tied up tightly, she had never been so fast,
As they went sailing on.

We had to add this verse because THE RUDDER came last night,
And we found to make the engine go they had an awful fight,
The stuffings were all hunky, but the trimmings were a fright,
As the Bird went chugging on.

SEA BIRD AND HER BALLAST

I READ with much interest and amusement a letter appearing in your December number from Mr. T. F. Allen, criticising a previous letter you published from a Mr. S. C. Boysen.

Well, sir, I have never been in San Francisco, and I do not know what they call a hard blow there, but I thought that perhaps a few remarks of my own experiences with the Sea Bird I built would possibly interest you. Sea Bird was built exactly to the plans in every respect, the sail plan was the same, and the only variation was that the draught was increased 6 inches, and the outside ballast was increased to 15 cwt. In spite of this, we found that in the puffs and squalls of a hard blow in beating to windward, the boat would climb up on her side and decline to luff or pay off. If we reduced the sail, we were unable to drive her against the short, steep seas.

Anything off the wind to about six points abaft the beam she proved herself to be without doubt the fastest boat of her size in Wellington. We increased the outside ballast to 20 cwt., and subsequently, added 5 cwt. inside ballast, and we now find that she can hold her own with any boat of her own size here. Her racing record for the present season—two firsts and four seconds out of nine starts—is a sufficient indication of this.

To give you some idea of the conditions we have to contend with here, I enclose a specimen wind-chart which, by the courtesy of the Government Meteorologist, the Rev. D. C. Bates, I was permitted to copy. Between the hours of 10:30 a. m. and 12:30 p. m. on this day, Sea Bird sailed from her moorings to the yacht harbor, thence across the harbor to Lowry Bay (about nine or ten miles), starting out with four-reefed mainsail, double-reefed mizzen and storm-jib; just before noon we took the mizzen off. Under this rig, she staggered along down to her deckhouse all the time. From 12:30 until 4 p. m. we lay in Lowry Bay with two anchors down, then we got underway for our moorings under jib and mizzen. This was all she could manage to get along with on a lead, with sheets well free and the sails half empty. This particular day was not anything very exceptional, and we

have had her out more than half a dozen times this season in the same sort of weather.

On one occasion, when we were not out, the wind-gauge recorded 122 miles per hour, and then ran the pen off the paper, so we are still wondering to this day exactly how hard it did blow. Like Mr. Boysen, I could not get Sea Bird to sail on a wind in a fresh breeze with the ballast called for in the original design, and as I did not depart from the design of hull in any single particular, and there was no bad workmanship in the boat, I can only put it down to "just plain sailing ignorance," as Mr. Allen succinctly terms it, but if Mr. Allen, Mr. Boysen, or Thomas Fleming Day will come to Wellington, and sail my Sea Bird five miles to windward in a forty-mile blow with the ballast called for in the design I will give him the boat and quit the game for keeps.

Te Ruru Yacht Club,
Wellington, N. Z.

W. W. WADDILOVE,
Commodore.

THE FIRST GASOLENE MOTOR

WE enclose a photograph and a short description of our first gasolene engine, which we trust will be of interest to you. We appreciate the fact that our claim to this being the first gasolene marine engine ever built is rather broad, but after an exhaustive study of the subject, we have every reason to believe that this engine is positively the first of its type. (For photo, see p. 228.)

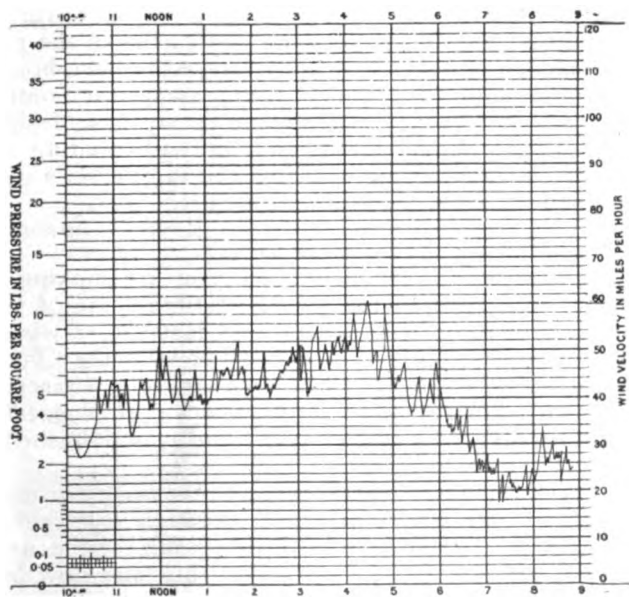
We are continually receiving letters from our old customers, who state that they have been using Union engines continuously for twenty-five years, and that these engines are still giving satisfactory service. There is certainly no other manufacturer in the United States who can make and substantiate claims to have manufactured four-cycle gasolene marine engines prior to 1885.

After a thorough survey of the gas engine, you will, no doubt, agree with us that the commercial history of the gas engine dates back to 1876, when Otto patented his well-known engine now in use. In 1886, Daimler produced a light, high-speed, gasolene engine, which was applied to a launch that was operated at the Paris Exposition in 1889. This engine, however, was not an electric ignition engine, such as is used nowadays, for the charge was ignited by means of the old hot-tube method. In the course of a conversation which the writer had with the brother of the man who built the first Union engine in 1884-85, he stated that he witnessed the demonstration of Daimler's launch at the Paris Exposition in 1889. He states positively, that his brother's first engine was built five years previous to this.

We would call your attention to the fact that our first patent is dated June 14, 1885, covering the make-and-break type of ignition. During the past ten years, fifteen vessels have been equipped with power averaging approximately 300-h.p. per vessel. These installations were all made with Union engines, as this company has been the only concern which has made a success of the larger size engines.

We have just completed a unit of 600-h.p., which, without question, is the largest internal-combustion engine of the electric-ignition type ever built. This engine measures 43 feet in length, and weighs approximately, 120,000 lb.

UNION GAS ENGINE COMPANY.



Wind Chart from Wellington, N. Z.

WITH THE AUSTRALIANS IN EGYPT

I SUPPOSE you would like a line from one of the crew of the old ship, RUDDER. My father sent me a copy of the old rag, and I can say I did enjoy it. It fair made me homesick to be back again on my old hooker. We had a bit of a mix-up with the Turks on the Canal some time back, but the poor beggars never had a show from the jump. Our engineers had surveyed off all the ground nine miles into the desert along the canal, and when the Turks got into a certain section the observer would give the number of section, the naval guns would train on that part, and simply blow them clear out. It was too much like sparrow shooting for this kid, but when we get into the real stuff, the odds will be more equal. Well, Skipper, have very little time to write letters, so I'll leave off with best respects to you and THE RUDDER.

6th Battalion, NORMAN E. TOMKINS.
First Expeditionary Force.

LETTERS TO THE OLDMAN

As the twenty-fifth anniversary of THE RUDDER is approaching, we feel that we owe you an expression of gratitude for the unselfishness interest you have taken in yachting in the past years, and wish to extend the felicitation of The Matthews Boat Company.

We have always felt a very cordial regard for you and especially since we have learned to know you personally. We hope that your life may be crowned with years of happiness, and we want you to always feel that we are all interested in your welfare. With best wishes, we remain,

THE MATTHEWS BOAT COMPANY.

I WISH to congratulate you on your twenty-fifth anniversary of THE RUDDER. I have been a constant reader of your magazine since 1899, and my opinion of THE RUDDER is such that I have practically every number on file since the above date, and I sincerely hope you will live to stay at the helm for many years to come.

I can assure you it gave me great pleasure to introduce my young son to you at the recent Chicago Boat Show. He thinks, like his dad, that there is only one "Day," and he also joins with me in wishing you a good many years of unbounded happiness and prosperity.

EVERETT HUNTER.

I AM mailing to you clipping from local paper, giving schedule of dinghy races. The sailing interest centers at the Dinghy Club headquarters at our lake front. The boys steal a march on the old boatbuilder occasionally. I don't care to say how old; but not too old to sail a dinghy. About that oldest subscriber, I can't put in claim, but remember the start of *Rudder, Sail and Paddle* and think I have read about every number since. Have some hundred of copies within reach at my desk, and my stationer has been able to get it for me since that war order was published. Have quite a bunch of new sailing dinghys ready for the water and more coming.

E. W. DELANO.

I HAVE just heard your call for all hands to muster aft, and give the dates when they signed on for THE RUDDER. I find that the oldest copy of THE RUDDER in

my possession is September, 1895, and my unbroken subscription is from (and including) 1897. As this is only six years after the launching of the good ship, I hope I may be numbered among the old hands.

At that time (1897) I lived many hundreds of miles from the sea and never in my wildest dreams, imagined that I would one day be sailing on it in my own snug yacht. With many congratulations on this twenty-fifth birthday and wishing you many more successful years,

ALFRED J. PAZOLT.

JUST a word of appreciation of your great magazine. I have been one of your crew for a number of years and have had great pleasure and instruction from your paper. The two articles you are running now, "Sails" and "Navigation Simplified," are just the thing to get one interested in boats and also keep one interested.

Last season I raced a one-design sloop of 21 feet water-line length and won the season prize. I attribute my success in part to my reading of your paper. This year I am getting a new suit of sails and hope, with the assistance of Mr. Davis's article, to have the best new set in the class.

If you wish to do the racing men on Long Island Sound and elsewhere a great favor, you might do this: publish a request that they pass all racing boats during a race to leeward and far enough away to keep their wake from shaking all the wind out of a fellow's sail. I have had boats, especially fast hydroplanes, pass within ten feet of me when I was only a few seconds in the lead and give my opponent a chance to catch me.

Such a request from a man of your standing in all matters pertaining to yachting would go a long way to stop this thoughtlessness of the motor-boat owners.

Wishing you continued success, I am

JOSEPH BISTER.

I noticed in the last issue of RUDDER more or less fireworks concerning oldest subscribers, continuous ones and undying loyalty to my friend Day and the cause of sail. The latter touching me in a very tender spot, I wish to echo the sentiments expressed and lay claim to even more hoary record by reason of continuous subscription since June, 1895, accompanied also by many contributions even if not noteworthy, but surely there must be some still earlier in the ring. My last few numbers, sad to relate, have been bought at a news-stand in Miami. While away last Summer on a cruise "Down East" in one of my new designs, my subscription expired and notwithstanding the record aforesaid, some new hand in the purser's office dropped me from the roll and it hurt.

R. M. MUNROE.

In the March RUDDER I see you are making inquiries in regard to the length of time some of your subscribers have been taking THE RUDDER. I wish to say that I first ran across THE RUDDER at the Chicago World's Fair in 1893, and became a regular subscriber with the January issue of 1894, when it was called "The Rudder, Sail and Paddle," and was published at Watertown, N. Y.

I well remember the first copy that came out under Captain Day's editorship, and although I have been dilatory in renewing my subscription, I have never missed an issue from that day to this, and now have every volume complete to date.

T. R. KILBOURNE.

April 12, 1915

Dear Friend—

In the April number of THE RUDDER, I see Mr. Dunham Wheeler—replying to your inquiry for the oldest subscriber in the March issue—says he has THE RUDDER from 1896 to the present number.

I have not written before for the reason that I have been waiting for the 1914 volume to come back from the binders, so I could take a photograph of my complete set, which I believe is the only complete set of THE RUDDER in existence.

It includes every number with advertisements and covers from the Vol. I, No. 1 issue of May, 1890, to the present April, 1915, issue, bound in red Russia leather. Twenty-five volumes of one year each, as I did not have them subdivided into two volumes per year.

I was studying yacht designing under Wm. Gardner at No. 1 Broadway, New York City, when THE RUDDER started, and being a member of what was then called the Corinthian Navy, I first met you at one of its meetings, in your home, and saw and subscribed for THE RUDDER.

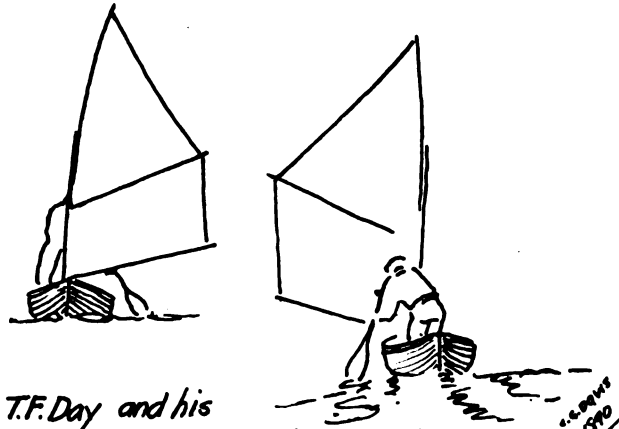
Though the first number only contained six and one-half pages of news, I believed the statement that occupied the lower half of page seven, which read:

SUBSCRIBE FOR
THE RUDDER

We are here to stay, and every lover of aquatic sports should become a Subscriber.

Only One Dollar per Year
To any part of the U. S. or Canada.

and I saved each issue as it appeared.



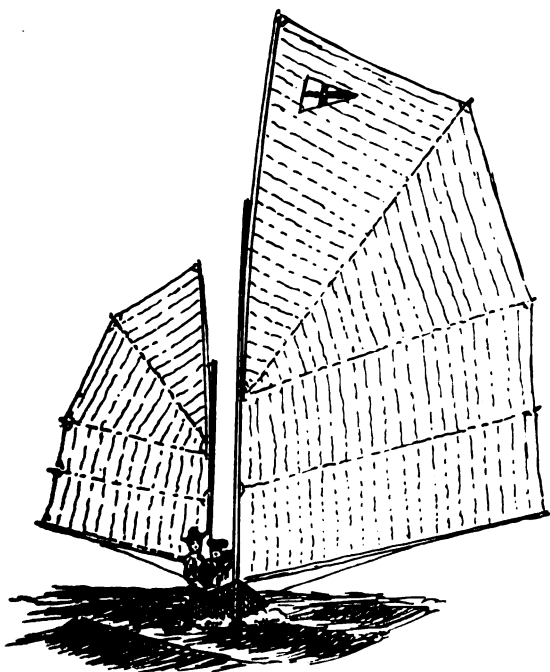
T.F. Day and his St. Lawrence River skiff "Adalanta" - my first glimpse of the skipper - 1824 St. Hudson River

Along with "Bill" Lieber, "Admiral" Connolly and Tom Slane, whom I afterwards learned was yourself, I contributed such news and sketches as I thought interesting.

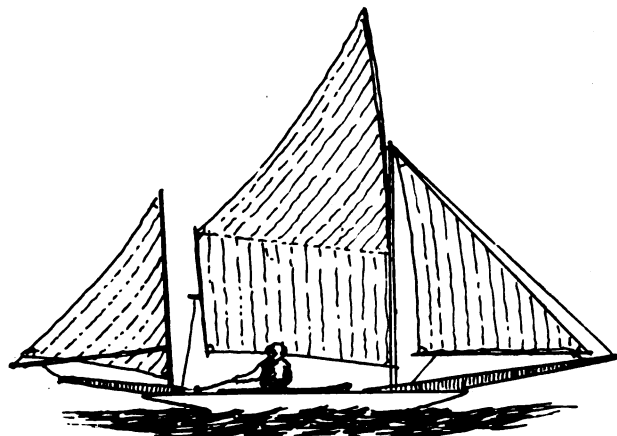
The first plans printed in THE RUDDER, those of the cat-yawl Solitude, by Lieber in the second number, and the sketches of the sailing canoe Germania, the catboat Kittie, and Tom Clapham's famous Bouncer, by J. E. Whittelsey, illustrating the first cruise of the Corinthian Navy in the third issue of THE RUDDER—July, 1890—were the first sketches and they fired me with an ambition to help along the good work.

I participated in that famous cruise in the catboat Uno, and again met you and a bunch of good fellows on Joe Golding's sloop, the Charles Welde.

The antics of that bunch, how they anchored the Admiral's 8-foot dink in Echo Bay, and gave him a skimmington when he started to row ashore and the dink



GERMANIA



BOUNCER

Two of the First Sketches Printed in The Rudder

bucked when she reached the end of her rope; how they carried on in the Thimbles—and how Bouncer distanced the fleet and the grand final over in Cold Spring Harbor, I well remember.

There was need of such papers at that time. Jabberwock, in a canoeist paper called *Sail and Paddle*, published by Brentano, was about all we yachtsmen had outside of the good work C. P. Kunhardt was doing on *Forest and Stream*.

THE RUDDER's first cover, a thin paper one, was brown; the second number had a sort of bluish green, which continued until the end of the year. January, 1891, it blossomed out in a white cover with an elaborate scroll design, entwined about yacht club burgees, all printed in a navy blue, signed by Willing.

Mr. Wheeler's artistic decorative designs appeared in March, 1891, Vol. I, No. 11, and in that same number were some of my sketches of the 25-rater Smuggler.

From a total of 12 pages, exclusive of its cover, in the first number, THE RUDDER grew to a magazine of 56 pages in the first number of Vol. II. Its growth, year by year, is best shown by the photograph of myself standing beside the RUDDERS piled up.

In 1892, my eyesight giving out from overwork, I shipped before the mast on the bark James A. Wright, and was gone about a year on a voyage to Chili.



All of The Rudders from the First Issue



Chas. G. Davis in His Library

Our first yacht was the Porgie, of 1888, a flat-bottomed 15-foot sloop; our second an 18-foot sandbag-catboat, named the Rambler, in 1891; and our third, the 5-ton sloop yacht Freyja. Then I built the little 14-foot cutter Pup, and followed her with several small racing skiffs.

Freyja seemed to have shrunk when I came home from sea. We raced her and never lost a race until we met our Waterloo in the Herreshoff fin-keeler El Chico.

In 1894, longing for the sea again, I and a chum shipped on the three-masted schooner J. Percy Bartram, and made a voyage to the West Indies, coming back North in the blizzard of '94.

In 1895, I married and settled down, and accepted a job on THE RUDDER as designing editor. THE RUDDER had just at this time moved from its original headquarters at 55 Dey Street to 155 Broadway, where the one-legged statue of Peter Stuyvesant decorated the front of the building.

By that time Vaughn D. Bacon was about the place (I succeeding W. L. Dudley), and our friend H. Percy Ashley was writing ice-boat stuff and C. E. Bolles taking photographs. It was that year, 1895, you and I made a careful search to complete our files of back numbers, as some that came while I was at sea had been lost.

C. D. Mosher, designer of the fast steam yachts Buzz and Norwood, under whom I had also worked for a while, had kept the only number I needed to make a complete set and he gave it to me.

From that day to this I have never missed a year, and last year's volume makes the 25th. They are of invaluable assistance to me for reference in connection with my writing, and a never-ending source of delight to read over after the yachting season closes.

That THE RUDDER may survive long after you and I have been tucked away in Davy Jones' Locker, to amuse and instruct coming generations of yachtsmen, and serve as a history, unwarped as most of them are, by prejudice, of that most glorious sport—yachting—is the wish of

Yours truly,

C. G. DAVIS.



A converted metal life-boat.

"OLD FRIENDS ARE BEST"

--1890--

GAS ENGINE & POWER Co.,
T.S. & J. D. NEGUS.
A. B. SANDS & SON.
HOWARD PLACE.
EDWARD SMITH Co.,
L. W. FERDINAND & Co.,

F. W. DEVOE and C. T. REYNOLDS Co.

--1891--

MURRAY & TREGURTHA.

--1894--

ALMY WATER-TUBE BOILER Co.
WILSON & SILSBY.
MERRIMAN BROS.
C. D. DURKEE & Co.

--1896--

New Jersey Paint Works.
M. W. Fogg.
H. B. Roelker.
Wm. H. Griffin.
Tarr & Worsor.

--1899--

H. B. F. Kuhls.
Matthews Boat Co.
Boston Varnish Co.
Frank Bowne Jones.
Wilcox, Crittenden & Co.
The Carlisle & Finch Co.

--1902--

James Craig Engine & Machine Wks.
Chas. Desmond.
Arrin & Co.
Chelsea Clock Co.
Standard Motor Construction Co.

--1905--

Briggs & Beckman.
Cox & Stevens.
The J. H. Curtiss Co., Inc.
Michigan Wheel Co.

--1908--

G. De Coninck & Co.

--1897--

C. A. Woolsey Paint & Color Co.
Arthur Binney.
Stearns & McKay.

--1900--

Electric Launch Co.
Mianus Motor Works.
Edson Mfg. Co.

--1903--

Tobban Boat Manufg. Co.
J. W. Ketcham & Co.
Nector MacRae.
J. W. Edmonds & Son.
The Standard Co.
Regal Gasolene Engine Co.
The Gray & Prior Machine Co.
Brooks Boat Manufacturing Co.
Hollis Burgess.
Camden Anchor-Rockland Machine Co.
J. W. Lathrop Co.
Grand Rapids Gas Engine & Yacht Co.
C. L. Barker.
William Gardner.
Frederic S. Nock.
Palmer Bros.

--1906--

The Caille Perfection Motor Co.
S. M. Jones Co.
Gray Motor Co.
Wm. H. Goblet.

--1909--

Wilmarth & Morman Co.
Automatic Bilge Bailer.
Victor J. Emery.
Evans Stamping & Plating Co.
Snow & Petrelli Manufacturing Co.
Luders Marine Construction Co.

--1893--

H. PLANTEN & SON.
J. C. GOSS Co.
GEO. B. CARPENTER Co.
SKANEATELES BOAT & CANOE Co.

--1895--

THE PHOSPHOR BRONZE SMELTING Co., LTD.

--1898--

B. B. Crowninshield.
Wolverine Motor Works.
Chas. P. McClellan.

--1901--

Buffalo Motor Co.
Clifton Motor Works.
Stanley M. Seaman.
The Bridgeport Motor Co.
Fairhaven Iron Foundry Co.

--1904--

The Stanley Company.
The Stamford Foundry Co.
Monarch Valve Co.
Lamb Engine Co.
The Jager Engine Co.
Gielow & Orr.

--1907--

Devin Bros. Manufacturing Co.
Valentine & Co.

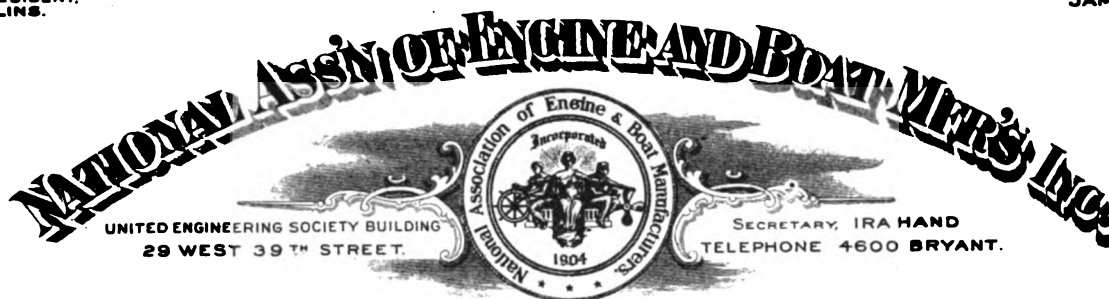
--1910--

Theodore D. Wells.
Bosch Magneto Co.
Bowes & Mower.
Pyrene Manufacturing Co.

1ST VICE-PRESIDENT,
H. R. SUTPHEN.
2ND VICE-PRESIDENT,
W. H. MULLINS.

PRESIDENT,
JOHN J. AMORY.

3RD VICE-PRESIDENT,
C. A. CRIGUI.
TREASURER,
JAMES CRAIG.



NEW YORK CITY

April 9th, 1915.

My dear Sir:-

The Officers and members of the Executive Committee of the National Association of Engine & Boat Manufacturers, Inc., are pleased to extend to you, herewith, their heartiest congratulations upon the completion of your twenty-fifth year of active service in the marine field in connection with your paper "The Rudder".

You have our assurance that every member of this Association is most appreciative of your splendid efforts in the furtherance of yachting and motor boating. We cannot express too highly the esteem in which you are held for your devoted interest in the promotion of the sport.

You have our very best wishes for your future success, and we sincerely trust that your "hail" may be as hearty when another twenty-five years may have passed.

Very truly yours,


Secretary.

NATIONAL ASSOCIATION OF ENGINE & BOAT MANUFACTURERS, INC.


President.

To -
Captain Thomas Fleming Day, Editor,
"The Rudder",
254 West 34th St.,
New York City.

OUR TWENTY-FIFTH ANNIVERSARY

AS Festus says, we live in deeds, not years. Looking back over the past twenty-five years I can realize this. The years are a flat, indistinguishable background, but what we have accomplished, the things we have done to make our glorious sport thrust up like mountains out of a plain. When somebody in the far future goes carefully over that heap of rubbish called history, they will no doubt haul out and lay one side as an active history-maker, THE RUDDER. Truthfully it can be said, that this magazine has done more to create and develop our sport than all other factors combined. The great growth of yachting and boating is coeval with the existence of this publication.

When twenty-five years ago we launched the packet the sport was doing business in a small way. There were about eighty clubs with an enrolled membership of less than 10,000. These clubs were along the coast and Great Lakes shore, most of them being close to New York, Boston, Philadelphia and San Francisco. Canoeing, which for ten years previous to 1890 had been going strong, was beginning to lose its hold, but it still claimed a large force of men until about 1895, when it faded out almost to a shadow.

The bicycle dealt canoe-sailing its mortal blow, just as the motorcar is today damaging yachting and power boating. Like all sports in this country its novelty for a time attracted thousands of men, who followed the pastime until something fresh came on the board. Then they flew to this and the sailing canoes were left to rot in the houses.

Before THE RUDDER came into existence a number of publications had been launched, sailed more or less short voyages, now aground, bilged and gone to wreck. One or two of these managed to last for a year, but I don't think any one weathered two years out. The only yachting done was on a page or two of "Forest and Stream," edited first by Kunhardt and afterwards by Stephens. But neither of these men, able writers and enthusiastic sailors, could get the proper support from the proprietors of this weekly, who being shooters and fishers, looked on yachting as a mere side issue. There is no doubt but what had the "Forest and Stream" owners backed up Kunhardt and Stephens in their effort to provide the sport with a yachting journal these men would have been able to accomplish what THE RUDDER has since done. At this time all hands admitted there was a field for such a publication, but nobody would admit that it could be kept afloat and consequently few could be rallied to support it.

But what experience and maturity often fear to attempt, youth and enthusiasm will accomplish. So two young men, absolutely green to the publishing business, started THE RUDDER, and they and their successors have managed to keep it afloat and forging ahead for twenty-five years.

In the year 1890 I was selling boats at 49 Dey Street, New York. The proprietor of the shop was Mr. John J. Bockée, who was agent for A. Bain & Co., afterwards the St. Lawrence River Skiff, Canoe and

Steam Launch Company, with works at Clayton, N. Y. In three years we sold more boats than had ever been sold before in the same time by all the concerns in the city. Frequently we got rid of five to ten in a day; in fact we sold them faster than the Clayton people could build them. Besides selling boats we gave away thousands of catalogs, and it was this free distribution of catalogs that was the embryonic cell whence sprang THE RUDDER.

Mr. Bockée, who was a perfect genius for devising plans whereby other people had the felicity of paying for things from which he reaped certain benefits free of cost, suggested that it would be a good idea to get out a little paper instead of the expensive catalog and support the publication by obtaining advertising, we getting our publicity gratis for the trouble of running the thing. This I welcomed joyfully as for some time it had been my dream to launch and sail a yachting paper. I had done some writing, descriptive catalogs, introductions, stories and small articles, and having learned to write by years of constant practice knew that part I was fit to tackle, but the business of publishing I knew as much about as a duck does about the motions of the moon.

Anyhow, I prepared the copy and we went to a printer, Thomson & Co., next door and had one page and a cover set up. With these an attempt was made to obtain advertising. Bang! Our scheme struck a stone wall; except from two people we couldn't even get a promise. So the idea was dropped and the proof of the page and cover laid away. They are still in my possession.

Among the firms to whom we appealed for an ad was one at Watertown, making canoe and boat-fittings, and they had promised an advertisement. One day not long after the venture had been shelved, Mr. Pitt Baker, the son of the owner of the Watertown concern and the salesman for the company, blew into the store and in the course of conversation asked what had become of the paper we were going to start. I told him.

Baker, who was one of the most active and optimistic creatures that ever landed on earth, at once proposed that he and I should start the thing going. So we did; Pitt walking off with the copy and declaring he would get it out in Watertown. On April 16, 1890, the first RUDDER came off the press and the next day a copy reached me by mail.

We were very proud of it. When I took that first RUDDER in my hands my feelings were akin to those of the mother when she clasps her first-born to her breast. We have issued many a beautiful copy since, but not one that was so beautiful to me as that poor little grey-coated thing that came one April day long ago. There are lots of sweethearts, boys, but only, only one first girl.

The first three years were a bitter, disheartening struggle with a few happy interludes. Nobody, not even our closest and dearest friends, believed the ship would survive. People whom we persuaded to sub-

scribe kissed the dollar bill good-bye, or else donated it like an almoner to a persistent beggar. Advertisements we got a few. A firm here and there giving us a bit of a lift out of friendship and never expecting it would bring any returns. You can see on the shield who some of these good fellows were. Others who helped have gone, dead themselves, or their firms gone out of business, but no less our thanks goes to them, sent arrow straight from the heart. Our proudest boast is that seven of the firms that advertised with us the first year are still with us. God bless them, the good and true, who have stood by these many years through storm and calm. Long life, health and prosperity to you, old shipmates. In spirit I clasp your hands and thank you for your help and constant good will and long support.

In the Spring of 1903, while working in the office at Watertown I had a slight stroke which affected my throat and right side, so that I was obliged to give up and go abroad. While in England I worked on "The Yachtsman," a weekly, started the same year as THE RUDDER. This paper at the time was very successful, having a circulation of over 7,000 copies an issue.

During the remainder of this year and the next, RUDDER had stiff sailing. Sometimes she made port and sometimes not, and the whole thing ended a mess, the paper getting into the hands of a bank at Watertown that held a mortgage on it for several thousand dollars. The bank was as badly off as the sheriff who attached the circus elephant, so came to me to take the burden off their hands. This I very foolishly did; that is, foolishly for my material fortunes. But it is too late now and nothing to be gained by bewailing spilled porridge. Rather let me join with the ancient sage in saying: *Qui suis rebus contentus est, nuic maximae ac certissimae divitiae.*

THE RUDDER company was incorporated in January, 1895, the incorporators being W. L. Dudley and self. Mr. Dudley was secretary and I was president. About June, Dudley left the ship and his place was taken by Mr. James R. Thomson. Afterwards Mr. John B. Taylor became an officer and director.

The success of THE RUDDER as a sport builder has been largely attributed to my knowledge and activity, but while the whole thing editorially has been under my command, considerable of the glory and fame is due to those who stood on the quarterdeck beside me in fine weather and took the lee wheel in rough.

These boys whom I trained helped to make the old packet and I take pride in acknowledging their unselfish and untiring efforts not only for RUDDER but for the sport. Among the first are Charles G. Davis, Percy Ashley, Charles D. Mower, Edson B. Schock, who have had charge of the designing department; Ernest Graef, who was first to handle the power end; Walter Beiling, who for some time looked after the same department, and Warren Sheppard. A number of others aided at different times.

The publications foredating this one that went to pieces all struck on the same rock. I had sense enough to recognize and avoid this danger and gave the reef a wide berth. The former ventures had all played to big or millionaire end of the game. They scorned to notice anything less than 100 feet and filled their pages with pictures of large vessels. From the first RUDDER played to the small man, the little fellow, the real boat-sailor, water-lover and enthusiast, and among these men we found friends and supporters.

The first issue of RUDDER under the new regime was in January, 1895, and consisted of 1,500 copies. This issue and that of February was completely sold out. Then it began to slowly climb up until it reached 4,000 by December of that year. There it stuck for some time. The first real lift after that was when Lark appeared. That boat made a tremendous hit, and the circulation jumped up to 6,000 and spread all over the world. This gave us the cue and we began the publishing of the now famous "How to" articles, the first of these useful and sensible stories that have done so much for yachting. The next hit was Skip, the forerunner of modern deadrise; then Swallow, the Sea Bird, and Dolphin, the progenitor of the hydroplane, and a dozen others. All our boats have been more or less successful, especially the Sea Bird, which is the widest known and most famous model on the sea.

The heyday of RUDDER was from 1906 to 1910. It ran up to a circulation of over 17,000 and of one issue 25,000 copies were printed. Some of the March numbers were beautiful specimens of magazine work, and envied, copied and praised everywhere they went. Then the voice of the auto was heard in the land, and the sport began to languish. Men deserted, clubs closed their doors and our circulation suffered. I never close my eyes and settle to sleep without cursing Ford and all his tribe.

THE RUDDER is the widest circulated of all publications of its type. There is not a port of any size in the world that the old packet has not sailed into. A man over in England told me that several years back he walked into a hut on the shores of Lake Victoria Nyanza one afternoon and lighted, to his great joy, on four copies of the magazine. He read 'em from cover to cover. The owner of the hut and a friend and he talked boat all that night, ending up in a row, owing to their disputing as to which was best to use, a gaff or a lug sail. The host was a Clydesman and insisted upon the lug being used in the prospective craft. He added that for the next six weeks they built hundreds of boats on paper. Another time a man came into the office with a much soiled copy which he had brought home to show me. "Where do you think I found this RUDDER?" he said. "In Jerusalem on a book stall." Not only is RUDDER everywhere, but there is not a respectable sheet of water from Greenland to South Georgia but what it floats a RUDDER boat. A lady visiting in Japan wrote home that "she had just seen some funny little Japanese boats called Larks, racing at Yokohama." Many clubs started from somebody building a RUDDER boat and getting the craze going on a small lake or river.

In 1904 RUDDER, finding the sport needed a bit of nursing, started the long-distance racing. Many opposed this new form of contest, but it succeeded and roused up the sport as it had never been roused before. The Bermuda race opened the eyes of the small boat-owner as to what his craft was capable of. The race of Ailsa Craig and the Idaho took the internal-combustion engine out of toy class and made it a commercial implement. This started the great motor boom and put the American product first in the world's market. These races developed the present type of boat, a boat seaworthy, good-looking, and reasonably fast.

My chief pride in the magazine is that under no stress or strain has it ever paltered its honor for gain. It has never sold itself or soiled its pages for money.

So far as possible, we have kept it free of the advertising of beats and crooks, so that the presence of a firm's advertisement on its pages is an endorsement of reliability. We have never allowed the advertising pages to control the editorial pages. Frequently new advertisers try to do this, but once they find that they cannot they accept the policy and settle down a contented member of the family. The old advertisers long ago recognized that our policy is best for all hands, and that which makes THE RUDDER's endorsement of their product valuable is the fact that it cannot be influenced or bought. The only thing that really riles me is to have people call THE RUDDER a trade paper. The most miserable sample of man's literary efforts is what is called a trade paper. A garbage barrel of rubbish and stale greens usually edited by people who don't know anything about the trade it exploits and care less.

To all our readers and advertisers who for twenty-five years have supported and aided the old packet we want to extend our thanks. Personally, I cannot find words to tell you how I feel toward you all. I write this with my eyes half blinded with tears. You are all friends, dear friends, and you will understand and know what I would say if you were standing beside me with your hand in mine. The old ship, her sails sear with the sea-wind, her decks and rail white with salted spray, her timbers creaking and groaning with effort, is yet afloat. Her flag floats at the gaff, the compass is true as ever, a steady hand is at the wheel. Gather aft all hands and let's give her a cheer. She deserves it. Then to sea again for another voyage across the changeful, fateful years to the port, God willing, I pray ye all may reach.

THE OLDMAN.



THE OLD GUARD

GAS ENGINE & POWER COMPANY AND CHARLES L. SEABURY & CO., CONSOLIDATED,
MORRIS HEIGHTS, NEW YORK CITY.

Thirty years ago there was started in this city the building of power boats on a more extended scale than had heretofore been attempted either in this country or abroad. The Gas Engine & Power Company incorporated in 1885, located their first plant on the Harlem River Kills, near Port Morris. The company offered a new invention for boat propulsion in the form of a three-cylinder engine operated by the expansion force of gasolene, and generating its power by means of a coil boiler, thus using the fluid both for fuel and power. The safety of the system was speedily demonstrated and its extreme simplicity, cleanliness and compactness commended its use for all pleasure boat buyers.

These launches were in demand from all parts of the world, and the business increased to such an extent that the builders after the second year were obliged to increase their facilities and secured a ten-acre plot of

land on the Harlem River at Morris Dock as it was then called.

After some twenty years, in which thousands of these boats were built, ranging in size from sixteen to sixty feet, the manufacture of this style of engine had to be abandoned because of the largely increased cost of gasolene and the difficulty of obtaining the proper grade.

The automobile industry had demonstrated that a gasolene engine of the internal-combustion type was a practical success, and the Gas Engine & Power Company took up in 1900 the development of a marine gasolene engine which would prove as satisfactory as engines of their old type, well designed, carefully constructed and made safe and simple to the highest degree. This effort resulted in placing on the market the now well-known Speedway gasolene marine engine. In 1897 the Seabury plant at Nyack was purchased and following this the name of the company was changed and the business of building steam vessels and steam machinery was added to the line of manufactures.



Where the Naphtha Launches Grew



View of the Present Shops

NEGUS

Of all boat equipment, the instruments of navigation are the most important, and the greatest care must be given in their production. The U. S. Government experts have adopted many instruments made by Negus, and where they have unusual merit, it is an easy matter to prove it to a navigator. The average yachtsman, however, not being able to judge, will select a compass that may have been made over a huge pile of anchors or iron and go away satisfied. This state of affairs makes a real instrument maker lose all patience with yachtsmen, and if the average yachtsman could only see the care required, the pains taken to make perfect instruments, etc., junk offered at half the price could not be given him at any price. All nautical instruments may be had of T. S. & J. D. Negus, and as Mr. Negus is a yachtsman himself, he has created many appliances for small boat work that are useful and reliable in every way.

Since 1890, T. S. & J. D. Negus have told their story through THE RUDDER columns, and all who have listened have been well repaid.

F. W. DEVOE & C. T. RAYNOLDS

When in 1890, THE RUDDER started, one of the first advertisers was C. T. Raynolds, the following year F. W. Devoe, and then with the consolidation, came the annual visits of F. W. Devoe & C. T. Raynolds, but long before THE RUDDER started this firm made history.

In the year 1754, when King George II reigned in England and ruled over the American Colonies, when the American Indian roamed the continent and when New York City was but little more than a village, the business of F. W. Devoe & C. T. Raynolds Company was founded.

The original store stood at Water & Fletcher Streets, where the business was carried on for 101 years. In 1855, a new building was taken, on Fulton Street, near William, and nine years later the growth of the business necessitated removal to more commodious quarters at 101 and 103 Fulton Street, where the main office is still located.

A more varied line of painting materials is manufactured by Devoe than by any other paint concern in the world, and special attention is given to the manufacture of paints and varnishes for all classes of marine work. Whether the painting to be done is aboard the palatial ocean greyhound, or the modest craft of the motor enthusiast, there will be found in the Devoe line the particular piece of goods required for that particular purpose. In catering to the motor boat and yachting trade, Devoe goes further than merely supplying the goods, and they advise in the most minute detail how to apply their goods to obtain the best possible results. Devoe is advertising in this issue of THE RUDDER a booklet entitled "How to Paint a Boat." This has been prepared by specialists who have had years of experience in marine painting and in the manufacture of marine paints and varnishes, and anyone who contemplates work of this description, or who is in any way interested in marine paints and varnishes, would do well to send for this book.

Devoe is pleased to place its marine department at the disposal of any of the readers of THE RUDDER in a consulting capacity, and will be pleased to answer any questions regarding painting or paint materials that they may care to ask.

HOWARD PLACE

One of the old guard of THE RUDDER columns is Howard Place, who is, and always has been, a yacht uniform specialist.

For years this firm has supplied uniforms for crew and dress uniforms for officers and yachtsmen of the New York Y. C., and other well-known club members in the East. While most of his business has been in the East, the firm has supplied uniforms for yachtsmen in all parts of the world.

L. W. FERDINAND

L. W. Ferdinand went into the ship chandlery hardware business December 1, 1873, at the age of nineteen years, buying out the then well-known and established firm of Fred S. Wright & Co., at 267 Federal Street,



L. W. Ferdinand

Boston. As yachting was then in its infancy, the stock of boat fittings was so small that the greater part of it was displayed in the show windows, but by 1887, the business had increased to such proportions that he issued an illustrated catalog of nearly one hundred pages, with prices. This catalog, we believe, was the first issued for general distribution, free to the yachting fraternity.

During the thirty-two years that the business was continued, we put on the market numerous articles now in general use. About 1885,

Mr. Ferdinand first heard of Jeffery's marine glue, and that Geo. Lawley was using it and for a time he bought what was required from him. Later on, however, he began importing the material direct and soon obtained the sole agency. At that time the Geo. Lawley & Son Corp., and the Herreshoff Manufacturing Company were practically the only builders using marine glue, and the average yachtsman had never heard of it.

As far back as 1890, the firm of L. W. Ferdinand Company used space in THE RUDDER, being one of our earliest advertisers, and it gives us great pleasure to announce they are with us on our 25th anniversary.

On January 1, 1915, the firm closed out the hardware business and have since devoted practically their entire time to exploiting Jeffery's marine glue, with the result that it is now stocked and cataloged by nearly every boat supply house from coast to coast, and Jeffery's marine glue is a household word with every boat owner both large and small. On or about May 1st they will move to new quarters at 152 Kneeland Street, occupying two floors of more than double the area of their present store.

EDWARD SMITH & Co.

In 1890, the first announcement appeared in THE RUDDER and ever since the firm have been consistent advertisers. We reprint the history of the firm, which is of unusual interest. In addition to varnish the company began the manufacture of coach and carriage colors, rough stuff and surfacers, in 1879, but although they regard this as an important branch of the business, it has always been secondary to the varnish manufacturing end of it. The following notes of the origin of the

business, written in 1902, and based on a manuscript memorandum written by Mr. Elmendorf shortly before his death in 1900, are so interesting as a chapter in the early history of American varnish making that we reprint them in full:

"Pascal B. Smith began making varnish on Manhattan Island in 1827, and built a shed for a factory in an old apple orchard, near what is now the corner of Second Avenue and 6th Street, New York City (Manhattan). He would make a few gallons of what he called 'carriage varnish' and a like quantity of 'furniture varnish.' After it had been allowed to settle for a few days he would fill a large can—as large as he could conveniently carry—and with a small measure, go to different users and supply them with what they needed. This venture proved so successful and his business increased so rapidly that in 1829 he called to his assistance James L. Stratton, a practical house and ornamental painter, and his brother, Samuel P. Smith, who left his business of master mason in Albany to join with him and Mr. Stratton under the firm name of P. B. Smith & Co. This venture was reported to the national government. At the present time, candidates for the civil service are taught that varnish as an American product was first made and sold in 1828. The firm erected a factory at Astoria, on property belonging to Mr. Stratton, and established their business office at 127 Maiden Lane. In 1832, Samuel P. Smith withdrew from the firm and commenced a like business in Newark, N. J., and P. B. Smith's half-brother, Nathan Smith, was admitted to the firm instead of Samuel, and the prosperity of the business increased to such an extent that in 1844, P. B. Smith retired from the firm, having accumulated what at that time was considered an immense fortune. Previous to his retirement, Edward Smith, also his half-brother, had been in the employ of the firm, but when the elder retired, Edward Smith was admitted to an equal partnership, and the firm name became Edward Smith & Co. This name continued until 1850, when Nathan Smith died, and the name was changed to Smith & Stratton. At that time, they moved their office to 141 Maiden Lane, where it continued until the death of Mr. Stratton in 1859. After this the business was conducted by Edward Smith alone for a time. In 1856, J. A. Elmendorf was employed by the firm of Smith & Stratton and continued connected with it and its successors until 1900. In 1867, Mr. Elmendorf was made a partner by Mr. Smith, and the firm name was again changed to Edward Smith & Co. In November, 1878, Edward Smith died and Chester Huntington, his son-in-law, took his place, the partners being Mr. Huntington and Mr. Elmendorf. The firm name was not changed. In 1880, Alexander Maitland became a member of the firm and in 1889, the business was incorporated under the same name, with the following officers: Alexander Maitland, president; John A. Elmendorf, vice-president; Chester Huntington, treasurer, and Andrew M. Bates, secretary. In 1856, the factory was removed from Astoria, and the firm purchased from Union College six lots on Fourth and Fifth Streets, and built the first buildings at Hunters Point for manufacturing purposes. The deed of the property contained a protective clause against molestation on account of harmful odors, etc. Upon the completion of the factory in Hunters Point, two three-story houses were also erected for the employees. In one of these houses, Richard Armstrong, for a long time the chief varnish maker, was born. About the year 1842, Edward Smith was the traveling clerk of the house,

and made a yearly trip to the South and West, starting from New York via Philadelphia and from there by stage over the Allegheny Mountains, down the Ohio and Mississippi Rivers to New Orleans and back again as far as St. Louis, then by stage across the country to Chicago, Detroit, Cleveland, Buffalo and home through New York State. At that time all goods for Cincinnati, Louisville, St. Louis and Pittsburgh were shipped by sailing vessels to New Orleans, then by river to places of destination. Goods for Buffalo, Detroit, Cleveland, Chicago, etc., via Canal to Buffalo and thence by sail to the lake towns. Interior towns were reached by canal or team transit. The large sales were made in the Spring and Fall and their customers usually paid occasional visits to the office. Kauri gum was first used in varnish making by Smith & Stratton. The first lot came to this country, direct from New Zealand, about 1846. A ship had gone to New Zealand on a trading venture, and after the captain had disposed of his cargo, he found the vessel without ballast to sail back, and, on looking for something to load his ship with, he found a great quantity of this kauri gum piled up in one of the towns, and made up his mind that it could be used for some purpose and at once bargained for it. He loaded his ship with it and sailed for home. On his arrival, he could find no purchaser. He therefore hired a barn near New Bedford, Mass., and filled it with the gum. Some two or three years later an Irish-Englishman, by the name of John Boyd, took hold of the lot and came to our firm with samples. After testing the material, they purchased the first hundred thousand pounds for 2½ cents per pound. The gum became in immediate demand and the whole was disposed of at continually advancing prices. The firm purchased the last ten thousand pounds of the cargo at 35 cents per pound. In 1853 kauri gum became a regular article of importation into this country, and the price began to fall until it reached 5½ cents per pound in 1860."

In 1892, S. V. V. Huntington took the place of Chester Huntington as treasurer and manager. Mr. Maitland continued as president until his decease in 1907, and Mr. Elmendorf served as vice-president until his death in 1900. The present officers are: S. V. V. Huntington, president, treasurer and manager; Charles W. Hand, vice-president, and James H. Robertson, secretary.

MARINE PLUMBING FIXTURES—OLD AND NEW

Their Influence in the Development of the Modern Yacht

In the march of progress along the highways of civilization yachting has advanced to the front rank.

From the old-fashioned yachts of the past generation, with their small, uncomfortable, hot and poorly ventilated cabins, equipped with crude devices for heating, lighting and cooking, many of them without proper sanitary conveniences, we have developed the modern yacht, a floating palace, elegantly furnished and fitted with every comfort and convenience and safety appliance known to man.

The development of marine plumbing fixtures has been more pronounced and has contributed more to the health, comfort and convenience of yachtsmen and merchantmen the world over than any other marine apparatus.

Years ago, plumbing fixtures on a vessel were unheard of. We who have these conveniences today can well imagine the discomfort of people taking a voyage for business or pleasure in the old days. It is now pos-

sible, by means of modern marine plumbing fixtures, to install on board a yacht just as complete a bathroom as in any house, equipping same with a bathtub, shower bath, lavatory and water closet, all fixtures being supplied with hot and cold, salt and fresh water.

Sanitation on a vessel is just as important as in a house, and to that end, A. B. Sands & Son Company, of 22-24 Vesey Street, New York City, have devoted their efforts for more than 65 years. The marine sanitary fixtures of A. B. Sands & Son Company were among the first used in the country; in fact, in the whole world. They started in business in 1849, and since then have devoted themselves exclusively to this industry. Their first announcement appeared in THE RUDDER in 1890, and they have advertised constantly ever since.

Nearly all of the famous yachts and merchant vessels of the past, including the famous Yankee clippers, Flying Cloud, Black Hawk, and others of their class, were equipped with Sands' marine sanitary plumbing fixtures. These vessels sailed all over the world, and because of their high qualities and long efficient service, the popularity of these remarkable plumbing fixtures was soon established.

It therefore follows that most of the finest yachts and merchant ships in the world today are equipped with marine plumbing fixtures made by the A. B. Sands & Son Company.

For the purposes of comparison there are here shown some old-fashioned pump water closets and some modern fixtures.

Figure 71 pump water closet represents a type of fixture in use from twenty-five to forty years ago. As the illustration shows, the pump is mounted on a wooden block with the bowl on the side. The bowl, instead of being solid, vitro adamant ware as with the bowls today, consisted of a cone-shaped porcelain bowl covered with sheet lead. It was customary when installing this closet to box it in with wood work. This fixture was used in all classes of vessels above or below the water-line.

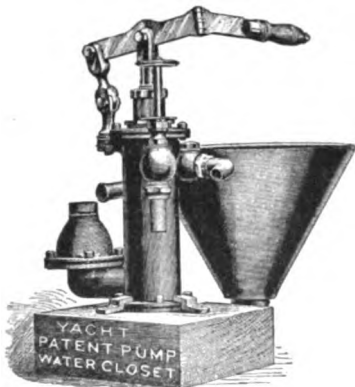


Fig. 71

Figure 63 is another old-fashioned type of pump water closet used from twenty-five to forty years ago. It is similar in operation to Figure 71, except that the supply is controlled by a foot valve instead of a hand valve.

These three pump water closets are representatives of the early type of fixtures and the following illustrations will serve to show their improvement and evolution since that time.



Fig. 63

With the demand for open-work plumbing in houses about twenty years ago, came a similar demand for plumbing fixtures on vessels and to meet this demand

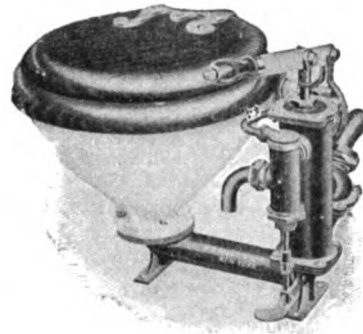


Fig. 77

the Knockabout Closet, Figure 77, was designed. This closet, however, was mostly used on small boats as its capacity and pumping power were limited.

It proved a very popular closet from the start and was a great improvement over the older type of fixture. An improved design of the Knockabout Closet is being made today by A. B. Sands & Son Com-

pany, and is still one of their most popular and reliable small fixtures.

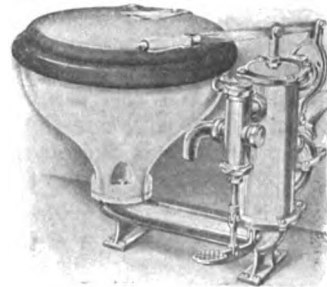
The "Improved Mohawk" pump water closet is another closet of this type, but of a smaller design. It consists of a medium weight vitro adamant oval hopper bowl attached to a 3-inch supply and waste pump.



Improved Mohawk

The price of this fixture with rough finished pump, oak seat and cover is \$70. It is largely used on small yachts and cruisers.

The "Improved Knockabout" pump water closet, Plate S-34, represents the most efficient type of small pump closet now made and shows the improvement and development over the old



Knockabout

Figure 77. It has a vitro adamant round hopper bowl attached to a 2½-inch supply and waste pump, the inlet of which is controlled by Sands' patent automatic safety water supply foot valve. The outlet of this and all Sands' pump water closets is controlled by Sands' patent back water check valve which prevents flooding. The Knockabout closet is used on all classes

of vessels, but is especially desirable for small cruisers and motor boats. The price of this closet with rough pump, oak seat and cover is \$49.

In addition to pump water closets, A. B. Sands & Son Company make a large variety of folding and stationary lavatories, pumps for water, oil and gasoline, sea cocks, strainers, ventilators, port lights, deck plates, together with many specialties, all of which are illustrated in their catalog "B," copy of which will be sent to any reader of THE RUDDER upon request.

One of the finest modern pump water closets ever made is the "Florida," Plate S-2015, here shown. It consists of an extra heavy solid vitro adamant ware ped-



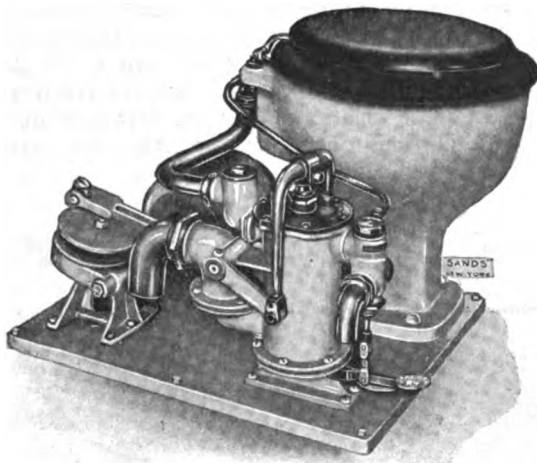
Florida

estal bowl, attached to a 4-inch supply and waste pump. The inlet is controlled by Sands' patent automatic safety supply foot valve, while the outlet is protected from flooding by Sands' patent back water check valve.

This closet is suitable for use on the most palatial yachts, above or below the water-line. It represents the highest type of pump water closet ever produced. The price of this fixture with pump finished rough, oak seat and cover, is \$100; with

pump white enameled with nickel-plated trimmings, mahogany seat and cover, the price is \$112.50.

This closet can also be fitted with an electric motor for pumping out the fixture and is known as the "Florida Electric" closet. When fitted in this way, the



Florida (Electric)

entire fixture is mounted on a heavy base plate, with the motor in the rear of the bowl and connected by a crank shaft to the pump on the side.

The price of this fixture with pump and motor, white enameled with nickel-plated trimmings, mahogany woodwork, is \$300. This is a very elegant fixture and has been installed on many of the finest yachts. It is absolutely reliable and is as near automatic as a pump water closet can be.

MURRAY & TREGURTHA

A year after THE RUDDER started, Murray & Tregurtha inserted an advertisement and never missed an issue since.

The firm had a very severe struggle in its early days, and on several occasions, when the help was paid off, the members had less than a dollar to divide between them on Saturday night. Grit and determination, however, helped them tide over the stormy days, and they succeeded in placing one of the most substantial gasoline engines ever built on the market.

A Murray & Tregurtha engine user never hesitates to

go anywhere, for they know from experience the engine will bring them home.

SKANEATELES BOAT & CANOE COMPANY

In May, 1894, we received an order to run the advertisement of the Skaneateles Boat & Canoe Company, until forbid, and we are pleased to say after twenty-one years of business relations, we are only beginning to appreciate how much we owe our good friend, of many years' standing, Mr. George Smith, not only in the support he has given us, but in what he has done to produce wholesome and honestly built boats. A short time ago, an old RUDDER reader informed us that a boat built by this firm had given him nineteen years of service, and was good for many more.

The Skaneateles Boat & Canoe Company, Skaneateles, N. Y., was established in December, 1893, by George Smith and James Ruth. These



George Smith

men, being practical boat-builders, their work and superintendence entering into the construction of each boat, has given the product of the firm a standard of highest quality. Careful designing, and selection of designs to meet requirements has earned for this firm the good will and friendship of their many customers. Hundreds of customers have contributed to the success of the firm by honest criticism as well as hearty approval. The receiving of duplicate orders, from old

customers and friends of customers, has been a very pleasing feature, urging this firm to greater and better service to boat buyer and user.

THE FOREMOST BLOCK MAKERS

Merriman Brothers, 185 Amory Street, Boston, Mass., started to make yacht blocks in 1899. The original equipment consisted of hardly more than a fondness for yachting and the conviction that it wasn't necessary to make blocks by the same "rule-of-thumb" methods and designs that had prevailed for many years, and that a crack yacht deserved a "tailor-made" suit of blocks. It took about five years to get the confidence of yachtsmen and designers, but in 1905, the Herreshoffs discovered that this firm was equal to all requirements, besides having some good ideas of their own, and from that time they and most of the other prominent designers have insisted on having the Merriman product. This is so much the case that it seems to have become practically a "universal rule" for yachts of importance to go to Merriman Brothers for blocks.

Merriman Brothers attribute their success very largely to the personal attention which they give each order. Frank W. Merriman is at the service of every yachtsman or designer who has a block problem, and endeavors to ascertain exactly what will best serve the requirements of each boat; while Edward B. Merriman sees that the requirements are properly executed and devises new ways of meeting the increasingly exacting needs of the modern yacht. His ingenuity is responsible for the well-known "self-locking" spans or bridle attachments for peak hal-

yard blocks which have no bothersome leather tongues, and for the "snap-shackles," that have replaced the slow and awkward Coleman hooks, that had more leather tongues to "cuss" over. Moreover, they are the only firm to issue a special catalog of yacht blocks, with good cuts of the many varieties of blocks and fittings, so that customers may see what is offered them and order by illustration.

Besides blocks, Merriman Brothers are prepared to furnish turnbuckles, cleats, gaff-saddles, boom fittings and many sundries for sail yachts and are furnishing tiller-rope blocks, stanchions, stanchion fittings and davits for power boats.

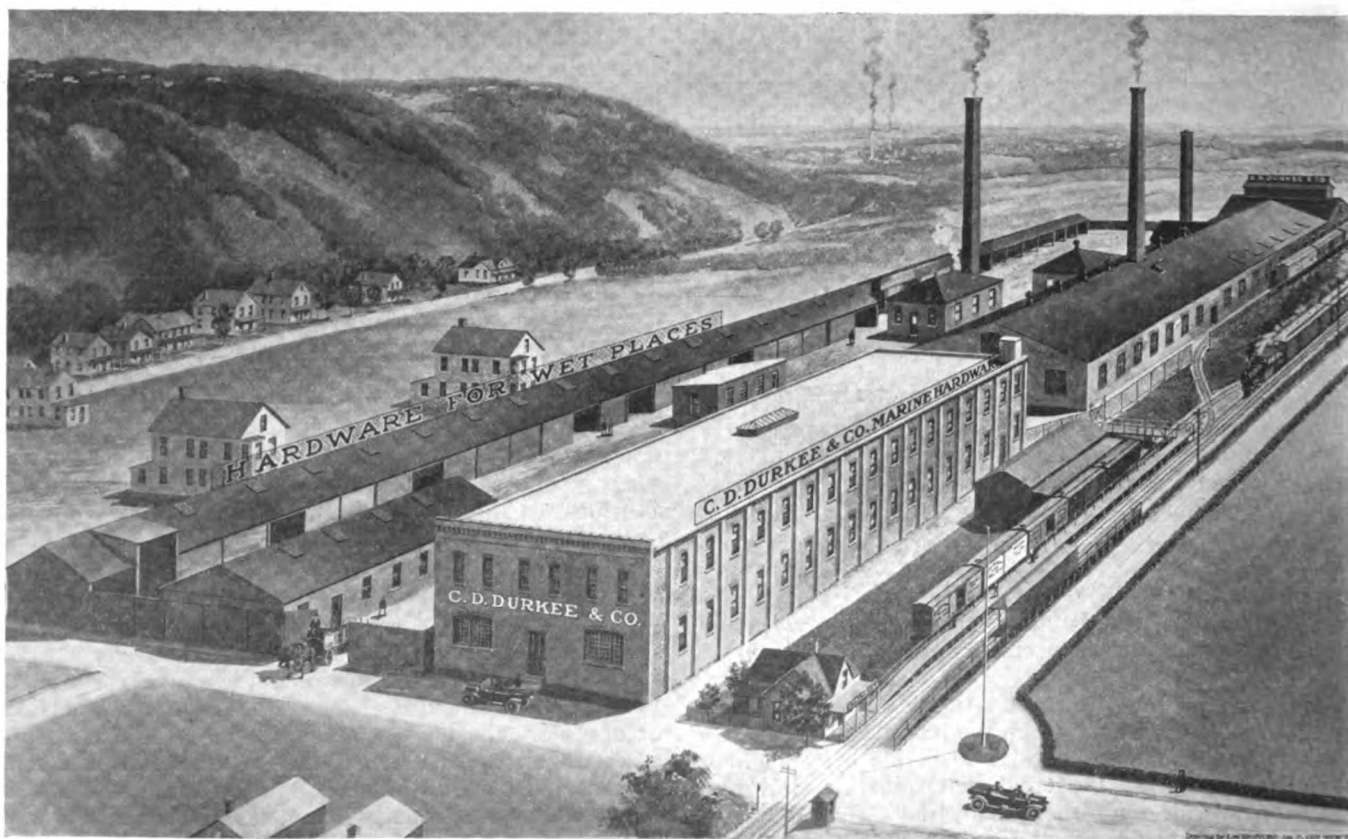
This firm's success in furnishing small racing boat equipment is evidenced by the fact that of over fifty Sonder Class boats built in this country, all but two carried their blocks and turnbuckles. All the well-known P, Q and R Class boats also carry their equipment, and among the larger prominent cruisers and racers they have furnished the outfits for the following: Shepherdess, Doris, Dervish, Effort, Queen, Irolita, Aurora, Winsome, Istalena, Avenger, Vanadis, Visitor II, Adventuress (sloop), Aloha, Westward, Shimna, Seafarer, Vagrant I, Vagrant II, Enchantress, Elena, Dorello II, Medora, Adventuress (schooner), the nine New York Y. C.'s 50-footers, Katoura, the three Cup boats, Resolute, Vanitie and Defiance, and Sea Call.

The first announcement of Merriman appeared in THE RUDDER in 1894, and ever since they have been loyal supporters of the publication, and today they are undoubtedly the foremost block makers in the world.

DURKEE

In 1894, C. D. Durkee & Co. started in business, and started to advertise in THE RUDDER, and have stuck to both ever since. The firm today is better known than any other in the marine line, due to untiring efforts and hard work. Like many before them, their early start was a severe struggle for existence, and unkind competitors gave Durkee about three months. It is now twenty-one years since the start, and the small concern has outgrown all competitors, and have an up-to-date model plant equipped with the latest tools for large production.

The foundation of Durkee's success was built on honesty and untiring efforts. In the early days the first floor at 26 South Street looked large in their eyes, but soon they rented the basement, then another floor, and finally the building. With the building it seemed as though they would have room for some time to come, and just as they settled down to take things easy a fire broke out and completely destroyed the building and stock. It was a shock that would have discouraged nine out of ten men, but with the Durkees, it only made them work harder, and very shortly afterward found them established in a new building at 2 South Street. Working constantly from 6 a. m. to midnight to keep up with the demands on their time, enabled them to grow and expand to the extent they never dreamed of before. At last, however, the strain was telling on both C. D. and his brother, Will, and after so many years of hard work they decided to take a vacation. For the first time in twenty years, C. D. Durkee took a pleasure trip, and started for



Durkee's Gramere Plant

home restored in health and feeling like a school boy. When he reached New York, he spoke pleasantly to the policeman on the street crossing, who informed him his plant had burned to the ground the previous night. Again the Durkees got busy, and after a severe struggle got matters straightened out and started off fresh. Today they are in better shape than ever before in their history, and are in position to manufacture everything worth while in marine hardware.

In New York City they carry a large stock on hand at 2 South Street, in connection with their office. The factory at Grasmere, on Staten Island, which we illustrate, is run with night and day forces, and a railroad siding leads to their warehouse door. A system of production has been carefully worked out, as well as the shipping, and the handling of all goods has been reduced to a minimum. In the old days on South Street, Durkee did the usual ship chandlers' business. The bowsprits of clipper ships stuck in the second story window, a group of sea-dogs sat around a red-hot stove, spitting tobacco juice and swapping sea yarns. Oakum, tar, crackers and other windjammer equipment was handled. Finally, yacht supplies began to be a large end of the business, the windjammers disappeared from the wharves, and with them went the old captains.

C. D. Durkee & Co. were the first to see the possibilities of equipment for small power boats, and were the first to list this class of goods in a catalog. As the motor boats grew in popularity, their business likewise increased, and always being on the lookout for special equipment, they manufacture and control more motor-boat specialties than any other firm in America. William Durkee got out the first automobile type of steering wheel for boat use, and it is now used throughout the world on all types of power-driven vessels. It is only one of a hundred specialties developed and now manufactured by the Durkees at their Grasmere plant, besides a complete line of marine hardware.

NEW JERSEY PAINT WORKS

The advertisement of the New Jersey Paint Works, Harry Louderbough, Inc., first appeared in THE RUDDER in 1896. The business was started by Mr. Harry Louderbough on June 1, 1889, after Mr. Louderbough had



The Old and New Factory



The Late Harry Louderbough, Founder of New Jersey Paint Works

Twenty years' practical experience and a wide acquaintance in the paint and marine trade. Their plant is well equipped for manufacturing the best of goods in a careful manner by experienced employees, many of whom have been in their employ over twenty years.

MARINE UPHOLSTERY

Many have tried to furnish yachts, and have gone like the snow under the warm rays of the sun. The house of M. W. Fogg, however, have specialized in this branch for over seventy years, and there is nothing in the marine upholstery line they cannot furnish. Ninety-five per cent. of their work is made for the marine trade, such as steamships, yachts, power boats and other commercial vessels.

Mr. M. W. Fogg has specialized all his life in this line, and is able to blend colors with very pleasing effect; in fact, there is a certain style and character about his work that no one has ever been able to imitate. Everything the house furnishes seems to blend with the surroundings, no matter what type, shape or size the yacht may be. In April, 1896, the first announcement of this firm appeared in THE RUDDER, and has run without missing an issue since then.

FLAG MAKERS

"A yacht is known by the flag she carries" is the slogan of Annin & Co., who, for over sixty-five years, have been at their present location (Old Glory Corner), Fulton & William Streets, New York City.



Louis Annin Ames

For years all the American Cup Defenders have carried flags made by Annin. Mr. Louis Annin Ames, president of the Company, is probably the best authority on flags for all purposes in America.

Their business is devoted to flag making in all its branches, and they can furnish proper flags for all occasions. Seventeen years ago they ran their first announcement, and have not missed an issue in all that time, being loyal and constant supporters of THE RUDDER.

C. A. WOOLSEY PAINT & COLOR COMPANY

The plant of the C. A. Woolsey Paint & Color Company, Jersey City, N. J., herewith depicted, should be of interest to users of marine paints, as showing the large buildings and amount of space required to house and



The Woolsey Factory

manufacture such products and to what extent this industry has grown and how popular must be the Woolsey brand copper paints, composition bottom paints and other marine paints that they manufacture.

The works cover more than half a city block in extent, every foot occupied by special buildings for each particular line of manufacture and work, such as mixed paints and colors, stock rooms, shipping and packing, color card manufacturing, filling and canning, printing department, dry color manufacturing, packing box making, white lead grinding; separate fireproof buildings for varnish making, varnish storage and auto trucks; separate buildings for copper paint manufacturing and stables; large fireproof tanks sunk in the ground and concreted for the storage of inflammable liquids; driveways and courtyard for trucks and storage of inflammable liquids and other material, etc.

The entrance of this concern into manufacturing paints differs somewhat from the majority of other concerns in their line, in that their large early demands for marine paints impelled them to enter into manufacturing to give the best for the least money and their first paint factory naturally was of small proportions.

C. A. Woolsey, whose death occurred in 1895, established himself in the ship chandlery business in Hudson Street, lower Jersey City, in 1853, then the chief center for supplies for the large coasting fleet, square-riggers and steamers, and with the assistance of his brother, Frank Woolsey (now president and general manager of the plant of today), and a faithful hard-working force of clerks, built up the largest ship chandlery business in this country, and the Woolsey store and accommodating methods made them favorably known far and wide; so that when they decided to manufacture their own paints, their products were favorably received and quickly introduced. Their entry into manufacturing occurred in 1875—starting with grinding white lead; next, grinding colors in oil, and so on, adding constantly as they became more proficient and increased their plant. Copper paint for the preservation of the bottoms of wooden ships was little known in 1875—although it had been discovered, and verdigris was chiefly used where the bottoms were not sheathed with copper metal, but verdigris was not satisfactory, requiring the vessel to haul out and be cleaned and painted perhaps every two months or so. The discovery and use of copper paint proved a great boon to the wooden vessel owners and captains, but the earlier brands of copper paint, of which there were about three, and only one brand of which was at all satisfactory, prompted C. A.

Woolsey and his assistants to experiment and develop a better copper paint, one that would keep a wooden vessel's bottom clean for almost twelve months, and they succeeded, and Woolsey's copper paint was put on the market and has enjoyed a world-wide sale and is the largest seller and best-known brand in the United States and abroad today.

The firm manufactures everything in marine paints and varnishes, and aims to keep its products up to the highest standard and cater to all up-to-date requirements and under the able management of Frank Woolsey, president and manager, who has directed and guided (for the past fifteen years) the fortunes of the C. A. Woolsey Paint & Color Company, and made it the large and well-known manufacturing plant of today, not only in marine paints, but all lines of house paints and varnishes, its patrons can be assured of continued high quality and efficiency of service.

Their first advertisement in *THE RUDDER* appeared in 1897, and has been in every issue since for the past eighteen years.

WOLVERINE ENGINES

C. L. Snyder, well known and liked by everyone in the boat and engine trade, founded the Wolverine Motor Works at Grand Rapids a number of years ago, and their first announcement appeared in *THE RUDDER* of 1898, from which time they have been consistent advertisers.



C. L. Snyder

Their first building was a one-story affair, 30 feet by 50 feet long. The front of the building being used for office purposes and the rest for boat building. The engines at this time were built outside on contract. They began building their own engines in Grand Rapids in 1900. In the year 1907, they moved their plant to Bridgeport, Conn. The illustration gives a fair idea of their factory, which is 210 feet by 120 feet, to which

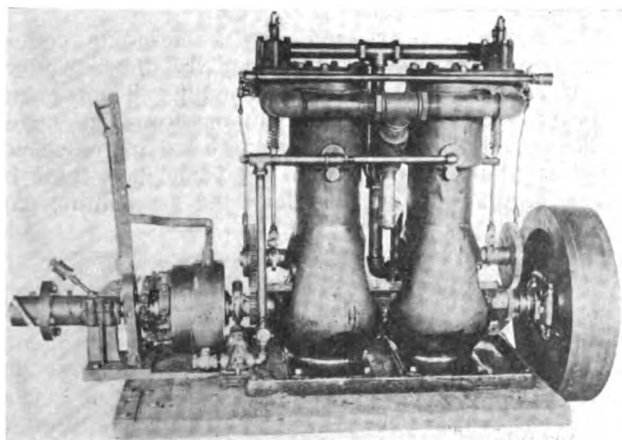
they have recently added a testing room 34 feet by 60 feet. This firm is one of the earliest builders of heavy-duty marine engines, and have paid particular attention to



The Wolverine Plant

the development of an engine for heavy service such as is required in the propulsion of seagoing cruisers and commercial vessels of all descriptions.

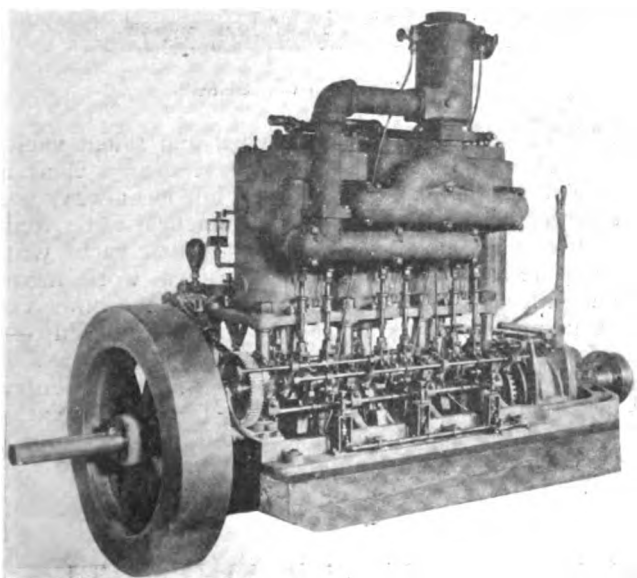
Careful attention has been paid to proper design—accessibility of parts, large bore and stroke, large bearing surfaces, and the ability to use various grades and kinds



Wolverine 2-Cylinder 4-Cycle (1900)

of fuel. The result is an engine low in cost of maintenance, reasonable in price for what is furnished, and as low in price as any engine of equal bore and stroke, and in advance of the majority in the ability to use successfully cheap fuels.

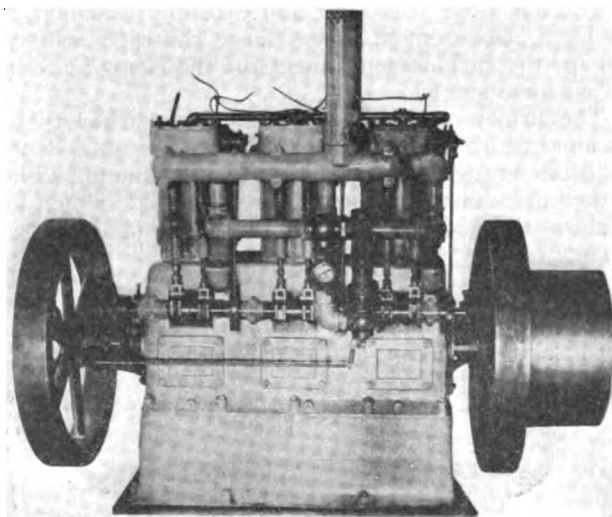
Among these cheaper fuels are the various grades and kinds of kerosene (paraffin), gasolene, including many of the distillates, and suction producer gas. Suc-



Wolverine 3-Cylinder 4-Cycle (1902)

tion producer gas is made from either American or Welsh anthracite coal. Alcohol has also been successfully used in a number of machines. The engines can be arranged to operate on kerosene, starting on gasolene or alcohol. This makes it possible to entirely eliminate gasolene on the boat.

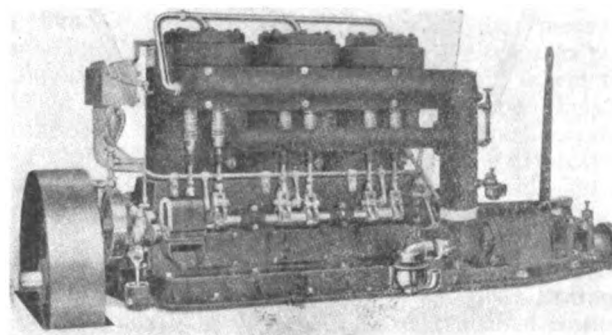
The Wolverine motor has always been developed along practical lines, taking into consideration the standpoint of the user, as well as the convenience of the manufacturers, and the result is an engine that has an enviable reputation throughout the world for economy, reliability



Wolverine 3-Cylinder 4-Cycle (1901)

and durability, which makes it compete successfully with steam engines of the same horsepower.

The Wolverine motor is exclusively of the four-cycle type, in single-cylinder, 5-h.p., double-cylinder, 12-



Wolverine Engine, 1915

h.p., Model B, medium-heavy-duty, and 14-h.p., and engines 22-h.p. to 110-h.p. are in three cylinders; 200-h.p. engine in six cylinders.

The speed control of all Wolverine motors is a feature that is unexcelled, it being possible to handle both the spark and carbureter with a single lever, or handle them independently.

TOPPAN

Walking across a Boston street one day, A. W. Toppan saw a case of goods fall from a truck, and this accident started him in the boat business.

In the case was a gasolene engine made in the West, and shortly after A. W. Toppan secured the agency for Boston. In connection with the engine he decided to build boats, and this resulted in the famous Toppan seagoing dory.

In the boat and engine business the Toppan Boat Manufacturing Company grew and prospered, and now have an extensive plant at Medford with offices in Boston. The firm have been very warm supporters of THE RUDDER for many years, and in all the time they have been with us we have never had a reader to complain of their boats or treatment, which is unusual in small boat work.

The boats are well built and carefully designed, and the U. S. Government places large contracts with this firm for the various departments of the Army and Navy and customs service.

The firm is so well known and established that an announcement of a new type with prices in THE RUDDER has often brought a check for the full amount without further discussion or request for a circular, which goes to show the confidence the firm has established with RUDDER readers.

YACHT SAILS

Twenty-two years ago, George B. Carpenter & Co., of Chicago, advertised yacht sails and rigging in THE

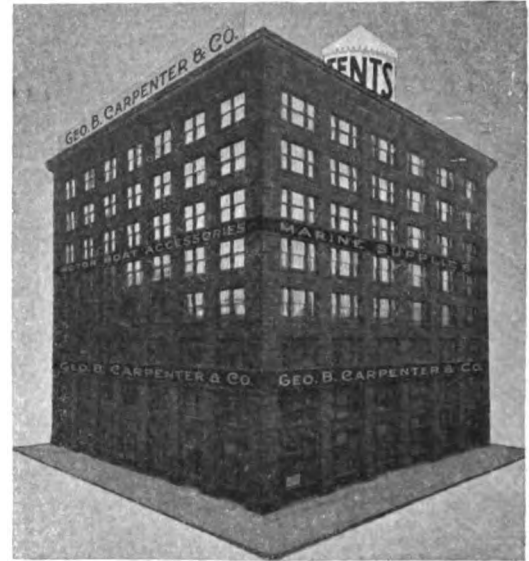


Trophy Presented by the Evinrude Motor Company to The Rudder on Its 25th Birthday

RUDDER, and have continued to advertise without intermission ever since.

The firm was established in 1840, and with the advent of THE RUDDER they proved to be one of the first and most substantial supporters.

The house of Carpenter was a big-going concern twenty-two years ago, and have had the unusual advantage of always being strong financially. Their growth has never been of the mushroom or skyrocket variety, but like an old oak, the firm's strength has increased with each year of its existence. In the early days their line was the regulation ship chandlery, but as yachting came



The "Carpenter Shop"

in, and the younger members owned and sailed yachts, the experience gained in this way gave them a clear insight to yachtsmen's needs, and their line has always been considered the most up-to-date and practical to be found anywhere in America. In addition to their yacht work, they also do a very large business in canvas work, having supplied the U. S. Government with tents and other canvas equipment during the Spanish-American War,—in fact, you can buy anything in canvas at Carpenter's.

With the development of power boats, Carpenter's business kept pace, and owing to their central location, they are able to supply power-boatmen in all sections of the country with latest equipment obtainable.



TO OUR OTHER SHIPMATES

To you who shipped in the old packet later and who have been of the crew for a lesser number of voyages, we send our warmest greetings and most earnest thanks. Had the old packet supplied sufficient stowage space we would have had you all in the hold, but though not on this manifest you are not forgotten, and we hope some day in the future to remember and know you the same way. But you can be assured of this: that all who have so generously supported THE RUDDER and aided in building up and keeping alive the glorious sport are safely stowed in the hearts of the old packet's crew, and that their names are strong on the pages of their memories' manifest.

ON THE END OF THE DOCK

THAT'S a good place to sit, swinging your legs over the water. Tide is coming in, creeping up the flats, lifting the grass and warming the scent out of the mud. The sedge grass is getting green, and the tops of the distant oaks red, and the dogwood a mass of white. Half a score of boats are afloat, chaffing at the moorings like impatient horses Winter weary for a gallop and a romp over the windy stretches of steel blue. We sit and look off at the skyline; there is the dull gray cloths of a deep-laden coaster working slowly up to a night berth in the roadstead. The whirr of a steamer's paddles are heard, and soon she pushes into sight for a minute or two, between the rocky islands. The light on the ledge flashes out, and we watch and count them. An old friend, that warning beacon. Why do we ever get tired of the water? It must have been a mistake laying up the boat so early last Fall! Will make up for it; every chance will see us afloat. There will be blisters on the old boat this Summer, we promise you. So we draw up our legs and go back along the dock to the house, and roll into the room just as the Chelsea on the mantle strikes six bells. The old fireplace is cold, a heap of gray ashes, and the memories of a half-dozen fires is all that remains; but hark! the wind and sough of the wave, and over all the cry of the whippoorwill! The Devil take Winter, fire and frost; give us the sun, water and the sea once more!

* * *

A number of men write to me, asking for a berth on one of the ocean racers. Their qualifications for the job are varied; one has paddled a canoe several hundred miles; another has spent the Summer cruising on a power boat, and a third is descended from a long line of seagoing ancestors. No doubt they have the pluck to tackle the venture, but have they the stomach? In every race of this kind I have been in, except one, half the crew were down and out the first day. Alas! the hero of the dock is never the hero of the deep blue sea. The cock who struts and crows most before the start is found in the morning watch laying in his bunk sucking a lemon. Very few men can stand the privations and hardships of these long races, unless they have been trained by experience to know how to take care of themselves. Julius Cæsar seasick is no more heroic than the lowest camp follower. In bad weather, it takes all a man's will to keep up, and buck it through. Want of food and rest will make all but the best knock under. The only men I found to be any good for crewing on these races are old racing sailboat men; they understand how to care for themselves, and are used to act in emergencies. They are the men we want.

* * *

About two years ago I made up my mind to lay off and let some brighter and more active man keep the wheels going around. Certainly, my watch below was earned, and among the crew there ought to be at least one hand that could take my berth, and keep things on the jump. But no sooner turned in, than everything aloft was let go, and the old ship sprung her luff and lost way. You people are a lot of kids; if somebody

don't continually keep hollering come on and play this, or play that, you will all go and lay down on the grass and chew buttercups. So let's start in and play again as we used to play long years ago. Let's start up the races, short and long, everywhere, and keep things red-hot this Summer.

* * *

Twenty-five years ago there was little or no inter-course between clubs. The races were family affairs and outsiders were not welcome; if allowed to race, they were considerably barred from winning the prize. Yachtsmen from the different clubs used to growl at each other like strange dogs when they happened to cross hawse. The great advance in yachting came when the clubs began to visit each other, to sink the silly local and factional feeling and to work in combination for the making of the sport. Not above four clubs today in the United States bars the visiting yachtsmen from the door; that class of snobbery is almost gone. The more we have of inter-club racing and visiting, the better. The clubs in Canada are trying to renew the racing on Lake Ontario between the two sides of that piece of water. The Hamilton and Toronto people want to race the dinghys, and it is said that Rochester will accept the challenge. A little more inter-club cruising would help to keep the wolf licking his chops. It is not opposition that kills a sport, but this beastly insentience, this dry-rotting of things, mildewing, paralyzing, stiffening, this letting the other man do the work.

* * *

We constantly have men writing in, asking what can be done to make power-boat racing a success. Nothing. You can't do anything, because you are up against Nature. I told you people years ago that you never could make a sport out of racing power craft. It lacks the two fundamentals of all sport—skill and uncertainty. A man of the West, who has given his time and money for the last eight years to the work of getting men to race power craft, said to me recently: "Years ago, I disagreed with you strongly about this power-boat racing game, but today, I want to say that you were right. My hands are up. You can't make a sport of it. You can't keep men interested in a game in which no natural aptitude or acquired skill is necessary to insure success. If a man was pointed out to you as a famous power-boat racing skipper you would laugh, knowing that in order to deserve the distinction, he had done nothing but what any intelligent ten-year-old boy could do. It is like pointing out a rabbit shooter as a famous hunter." Two seasons ago, a gentleman came to me and offered to put his boat in a race if I would go along. This was the first boat he had owned, and he had never been in a race before. After some talk, I persuaded him to take the helm and steer the boat in the race; he did, and won. His first exclamation after the result was: "Well, I thought you had to know something to win a race."

* * *

What every man can do, no man wants to do, because it carries with it no distinction, and that is one of the strongest incentives to human action, the desire to be

a distinct factor, one out of many. It is for this that men acquire skill in certain pastimes or sports, and it is why active men will only interest themselves in sports in which skill is necessary to success. The minute you make it possible for any one to win without acquired skill, the pastime ceases to interest. You cannot hold men to power craft racing for this reason. The so-called races for the Harmsworth Cup are not races, they are simply endurance tests, the boats run a course, the one with the strongest engine holding out and winning. A contest of durability between machines. The only events that have any of the real stuff in them are those over a long course. In these is introduced a certain amount of skill and uncertainty. The endurance of the crew becomes a factor and makes possible the winning of a slower craft. But at its best, racing with power-driven craft is a very tame amusement.

* * *

Talking about hurricanes and other kinds of bad weather in October, on our East Coast and in the West Indies, we find that in the 300 years, during which time tabs have been kept on such things, there have been sixty-nine real ones. These are not gales, but simon pure hurricanes. Admiral Luce, who from his connection with the Navy Department, must have had access to the official records, says in his well-known book: "Since 1884 there has been a yearly average of seven tropical cyclones in the North Atlantic. Most of them in August, September and October. But June, July and November cannot be disregarded as the following figures show, which gives the total number occurring in the thirteen years, from 1885 to 1897, inclusive: June, 6; July, 4; August, 16; September, 26; October, 26, November, 10. These figures show that in recent years, at least, October is one of the most fruitful hurricane months, and that November has more than double as many as July." October is well known along our East Coast to be the most dangerous month for small boating, as the winds are strong and various, and often blow strongly on shore.

* * *

Have been asked a number of questions about the Fuss to Fuss Race. Not knowing the size of boat, engine or pocketbook, it is impossible to answer except in a general way. The time to make the race over route laid out by Committee will be thirty-six to forty days; over direct route, twenty-four to twenty-eight days. Expense of taking a boat from start to finish, \$4,000 to \$5,000.

Each stop will increase expense from \$100 to \$200. Amount of gasoline necessary depends altogether on the speed. You cannot go by what the engine makers tell you, as their knowledge is shop knowledge, and no good at sea in making long runs. Roughly, the following is the best guide: 8 knots, 3 miles; 9 knots, 2 miles; and 10 knots, 1 mile to gallon. This will allow a sufficient margin of safety. The consumption is least with fair winds and following sea, and largest with head winds and head sea. Rolling increases the consumption. Lowest consumption is in fine weather and smooth sea.

* * *

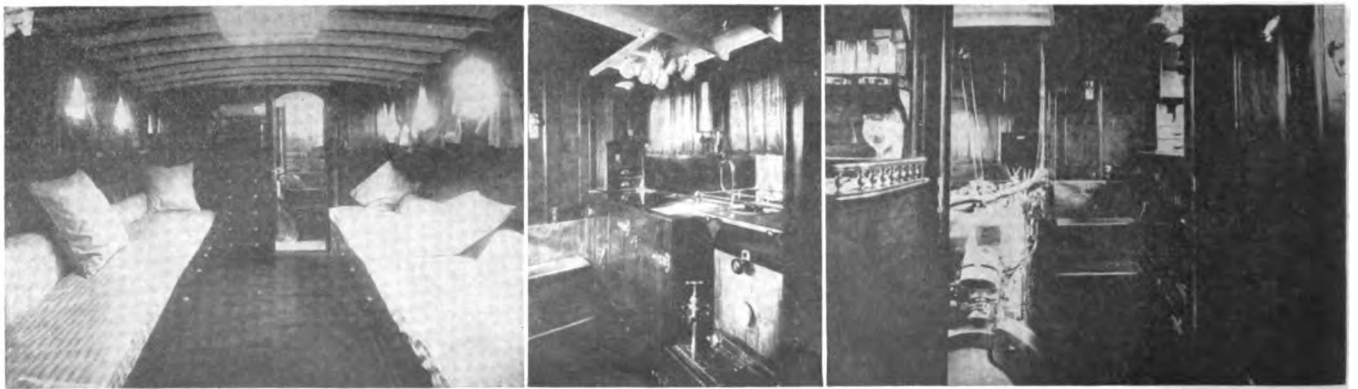
Our latest prospect dose of novelty is a reliability contest for outboard motors, to take part in which we have invited all the makers of these devices. They all claim to have a perfect machine, that once started will run for hours, days, years, or as long as you feed it the gas. This will be a chance for them to back up their statements with the real goods. These motors are being made and sold by the thousands, and not only used to drive rowboats and canoes, but are being used on some racing sailboats to help in getting out and home again when the wind flops.

* * *

There has been repeated calls for a small boat to be driven with an outboard motor. The usual run of small craft made to be rowed are no use for this purpose, being cut away too much aft and not strong enough to bear the stress and strain. Several attempts have been made to provide a boat by flattening the stern, but the result has been getting an afterbody that when driven, dragged the whole sea along. We have put all possible present knowledge into THE RUDDER craft, and I think she will do the trick. If you build one of these craft, be sure and let us have a picture.

* * *

The Ottawa Motor Boat Association presented me last month with an honorary membership and shortly after the Detroit Y. C. sent another into port. I want to thank the officers and members of these organizations for so remembering and honoring me, more especially as in both of these clubs are men who have been readers of this magazine for years, and many whom I have had the pleasure of meeting in person. I had a very enjoyable visit at Ottawa, and found there a crew of real old-fashioned yachtsmen, who are working hard to keep the sport alive in that locality.



The Very Fine Arrangement and Equipment on a Modern 42-Foot Cruiser

THE RUDDER

JUNE, 1915

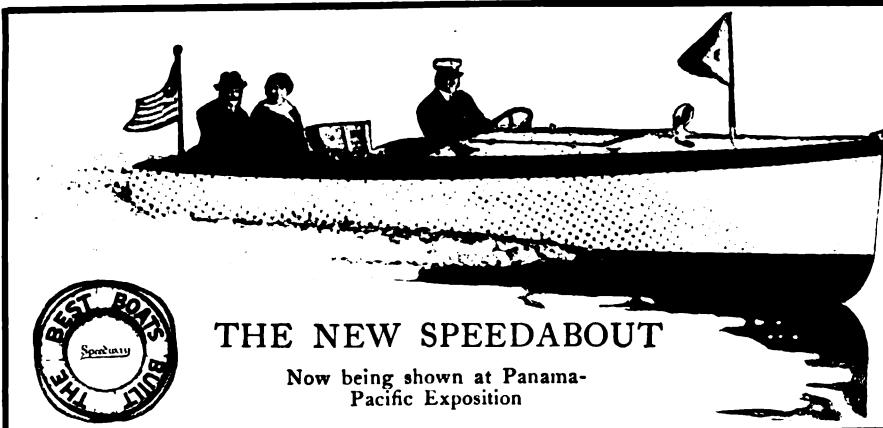
Vol. XXXI

No. 6



PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents



Speedway

SPEEDABOUT

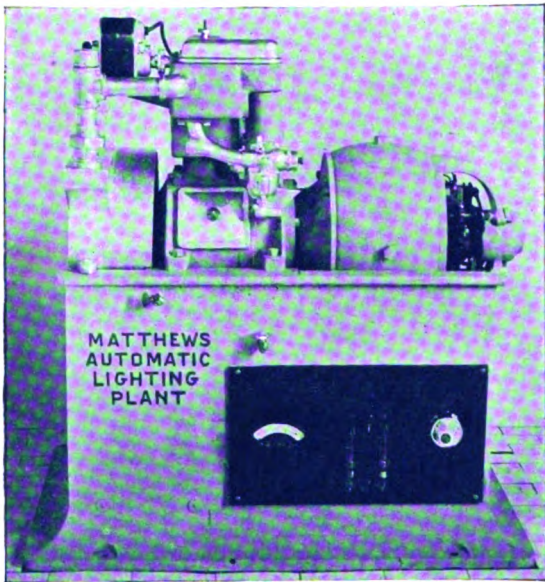
The Most Attractive Offering of the Season.
The ideal craft for recreation and utility—25 ft. long—18 miles per hour—room for 6 to 8 people—easy to handle—reasonable in price and economical in cost of operation. Deliveries after May 1.

Gas Engine & Power Co.
AND
Chas. L. Seabury Co., Cons.
Launch Dept. E
Morris Heights, N. Y. City



THE NEW SPEEDABOUT

Now being shown at Panama-Pacific Exposition



1 and 2 K.W. Automatic Lighting Plants for yacht and home use. The plant that is remarkable for compactness, dependableness, and efficiency, sold on a guarantee of absolute satisfaction.

Deliveries on late summer and Florida cruisers can be made on orders now placed. Photographs and plans of the boats furnished to those interested. Write
THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio

JAMES CRAIG

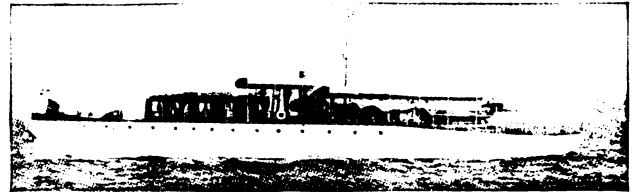
Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

Designers and Builders of Craig Marine

Oil Engines (Diesel Type)
Gasolene Engines



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9 1/2 x 11

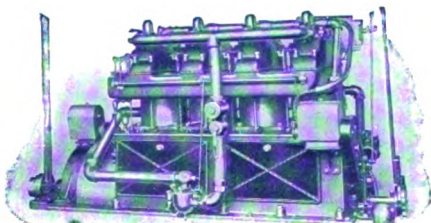
GASOLENE YACHTS AND ENGINES

Noted for Reliability

Tregurtha Water-Tube Boilers

Steam Engines

Electric Light Outfits



30-40-H.P. Special Engine Built for U. S. Govt.

MURRAY & TREGURTHA CO.

340 West First Street

South Boston, Mass.

The Rudder

Vol. XXXI

JUNE, 1915

No. 6

A CRUISE AROUND CAPE COD IN 1912

EARLY in the year 1912, the author and family were offered a trip to the National Capitol, but, having a hereditary desire for boating which predominates all others, we traded this offer for the promise of a two-weeks' cruise later in the Summer, with the use of boat and outfit.

The boat was an auxiliary sloop 27 feet 5 inches by 11 feet 6 inches by 3 feet 8 inches. Originally built for a centerboard cat, she had been altered to a sloop rig, with a 6-h.p. motor, toilet and shipmate stove put in and a long keel put on to replace the centerboard. These changes made her a comfortable cruiser.

We got underway and left New Bedford on a Monday morning, having on board my wife, 3-year-old son, myself and a relative, who was a good sport, but who had had no experience in sailing. We also carried as passenger for the day, a party of four young ladies. There was a fairly good breeze from the Southward, so we motored down river until we could get a slant and then hoisted sail. We ran into a fog before clearing the harbor, but feeling confidence in the ability of the boat to nose her way along, we kept on, and, after leaving the West Island can buoy, we ran out of it.

The going was fine then, and we swung off for Woods Hole and Oak Bluffs under sail with our sheets well started. Our "Portuguese piano" was brought on deck, and with this to accompany the singing of the ladies, our 23-mile sail was too soon ended and we were entering the harbor of Oak Bluffs, where we were quickly tied up to one of the Government moorings, with sails furled and the awning up. We then had lunch and the time passed very pleasantly, watching the sights ashore and afloat, until it was time for the young ladies to embark on the steamer for the return voyage to New Bedford.

Just before sundown we were surprised and much pleased to see the Detroit, Captain Day, entering the harbor for what proved to be her last stop before crossing the Atlantic. We took advantage of the chance and rowed out to look her over.

While on these trips, I have found from experience that one will have easier and better going and more pleasure if, instead of laying out a definite itinerary for a cruise and trying to follow it out, one simply goes along the coast either Eastward or Westward, according to which direction the wind and tide will help most. So we were on deck early Tuesday morning to take advantage of the Eastern tide, together with the fairly strong breeze which was blowing from the S.W.

We left Oak Bluffs, bound Eastward, at 5 a. m., soon past Cape Poge and, leaving the Vineyard fast behind,

we ran down to Cross Rip Light Ship, where we threw some fruit and paper to the watch on deck. The run from there to Handkerchief, a distance of $10\frac{3}{8}$ nautical miles, was made in 65 minutes, with the help of the tide. This part of the run was some treat, as we sailed for a while, just to the leeward of a Gloucesterman, who was carrying all sail and hustling in the strong breeze which we had.

After passing Handkerchief Light Ship, we stood well in towards Monomony Point to get to the leeward of a tug, who was working a long string of barges around the end of Stove Horse Shoal. We sailed close under this fellow's bow. He hailed us and asked if we were fishing and when we told him we were cruising for fun, he said, "Go it," and we parted.

As the tide was nearly high, I decided to cut across the Pollock Rips and pick up the Light Vessel, instead of following the main channel. The wind, by this time, was dying out, so I ducked below to oil up the motor. Coming again on deck in a few moments, I was surprised to find a bank of fog settling down upon us. We took bearings of the buoy on the N.E. corner of Pollock Rip, and soon picked it up. At the time the fog closed in, there were eight schooners and a buoy setter in our vicinity, and as the tide was near slack, we proceeded under sail towards the Light Vessel.

Now the fog was very thick, but it wasn't thick enough to stop our progress, as I read of it doing in a yarn in *THE RUDDER*, so in due time we picked up the Light Ship all right, but was greatly surprised by the apparent confusion of spars, etc., which we saw as we approached it. This we found was owing to the buoy setter having run in alongside of the Light Ship to land stores, etc. We hailed the ship and ascertained the direction and velocity of the tide and then made our departure.

As we did not anticipate with much joy the sail around the cape in a thick fog, we decided to try Chatham Harbor, as we had a new chart of the place, and lay over until it lightened up. We started the motor here, and headed on our course for the buoy on the bars. After running our time out, we stopped the motor, lowered the peak of the mainsail and then headed directly for the beach, sounding carefully until we were in 4 fathoms, when we hauled up and followed along in 4 fathoms, noting the course this led us, which proved that we were a little West of our mark. We kept on going, soon locating the buoy, when we anchored nearby.

After furling up the sail, lashing the boom, studying out our course, etc., we got underway once more. The

water commenced to shoal fast, and soon found we were heading plump into the breakers, so we hauled up and followed alongside of this bar and soon made the breakers of another bar to windward. It was a blind choice whether to keep on going or turn around, as the bottom was too close to the top either way, when we settled in the hollows of the sea, so we kept on going. We soon made out the top of a high bluff close to and directly ahead, and, as we drew in near the land, the fog lifted, just in time for us to swing off and run into the deeper water of the harbor, between the mainland and the inshore end of the bar we had followed in. Fools' luck! And we were duly thankful for being afloat.

We put up the awning, had dinner and was boarded by a young gent who swam off from shore to inform us that he saw our mast over the fog bank and that we came through some bad country. We told him we thought so, too, and we marveled still more at our luck, when the tide went down and we saw birds walking across our channel. During the afternoon, we experienced a thunder squall, which still stands out in my memory as the worst yet. It struck four places in the town, and also quite near us, as we could smell sulphur strong after one clap. It rained so hard we couldn't see any objects, and so I lowered our lead over the bow and led the slack of the line into the cabin so we could tell if she was dragging, and then we crawled in out of the wet.

After a broken night's rest, caused by the strong tide, I engaged a lobsterman at daybreak to pilot us out. We were surprised to find plenty of water, but the channel was a long distance from the buoys. The tide runs so strong by the anchorage and also in the outer channel over the bars that in an average time a fellow is better off outside. At 5 a. m. on this (Wednesday) morning, being well clear of Chatham bars, we set about getting a second breakfast as No. 1 had been rolled off the stove while we were in the rips.

We ran down along the shore of the cape under sail and motor with light airs and good going. Came abreast of Peaked Hill bars at 11 a. m., when we laid our course for Gloucester, which place we reached at 4:30 p. m., after a smooth but rather hot sail of 70 nautical miles, as there was very little wind. The run was very interesting, as there was always some vessel in sight, or a bearing of some distant object to lay out. Would say here that if anyone is buying a chart for parts where he is a stranger, it is well to get one with the elevations of the land shown. My chart did not have this and I put an undue strain on my eyes looking for the harbor. I was not absolutely sure whether we had successfully run our course out until I picked up the twin lighthouses on Thatchers Island.

Tuesday was a wet, rainy day, with a strong S.E. breeze. We boarded the electrics and rode to Essex, Mass., where we went visiting and dock-walloping around the shipyards where the Gloucestermen are built. Friday was a fine day; strong breeze, N.W., and a fine day for a run to the Eastward. We were itching to go, but figured that we might not be able to get back as per orders. We spent all this day cruising around in the tender among the docks and fisheries. It was a fine sight to see the vessels get underway from the wharf and sail out of the harbor. Full thirty vessels took advantage of this N.W. breeze to help them along to the grounds. While watching a crew unload a fare of salt cod, I asked one of them if their skippers were good

navigators, as working up observations, etc. "Navigators?" said he. "We don't want navigators; we want fishermen. Gammed with one fellow who had spent the whole season mackereling and had not earned a cent."

Saturday dawned another fine day with light airs. We took on board a party for the run to Marblehead. On mentioning the fact that we were low on gasolene, one of the party hailed a supply boat, who was glad to fill our tanks for 1½ cents less per gallon than we had paid at the docks in our home port. We got underway about 8 a. m., and as the wind was light and ahead, we motored along shore by Normans Woe and other points of interest, having a fine view of the North shore and islands until very soon, it seemed, we had covered the 10 miles to Marblehead.

We anchored amid a large fleet of yachts of all descriptions and one of the guests went ashore and brought back a basket full of dinner for the crowd, all prepared. After dinner, we had a fine chance to view the start and finish of a number of good snappy races, as the wind had increased considerable. This was our first visit to Marblehead and we were very much pleased with what we saw, and would have liked to have stayed longer. The wind continued to hold strong at sundown and, as it was a fine quarter for running under sail, we decided to get underway for the cape. So, after landing our party and cleaning up the supper dishes, priming the lights, tucked in a couple of reefs in the mainsail, figured out the course and got underway. We found quite a sea running outside, but it was long and very comfortable for our size boat. The night was dark, but clear and cool; I enjoyed this run better than the previous one; as we always had lights in sight, I could plot our position at any time. I got very sleepy just before daybreak, owing to the excitement of the previous day, I guess, and I had to stand up at the wheel to keep awake. We picked up Highland Light on Cape Cod very easily, and it made an excellent mark to steer for. We left Marblehead in company with a schooner yacht, whose course carried him well to the leeward of ours. In the morning, he was way down to the leeward, but he soon commenced to set sail and overhaul us.

We came abreast of Highland Light at 2:30, after passing a number of vessels on the way. It became daylight soon after and I left the ship in charge of the mate and turned in. I slept very near ten minutes, when he awoke me and passed the news that the tide had turned and the wind was dead ahead. He could steer fine when there was a point of land ahead, but as there were no points on the offshore tack, I had to turn out and take the wheel again, while he turned in (lucky dog!). We had a 25-mile dead beat ahead, clear to Handkerchief, but the wife soon came on deck, helped keep me awake, and this run passed very pleasantly, as it was fine sailing. The weather was clear, but cloudy overhead, and as we tacked up along shore, we hobnobbed with a schooner and a string of barges, until we were up to the place where we cut across Pollock Rip on our outward trip. I tried the same thing again here, but the tide was strong ahead and low, so that we bumped once in the hollow of a sea, but kept on going. In this country, experience seems to be a valuable asset.

When we started, we planned to stop at Nantucket, but as it was dead to the windward when we reached Handkerchief Light Ship and as we had just had a spell of windward work, we decided to slack off the sheets, stop the motor, which had been running steadily

for sixteen hours, and square away for the Vineyard. It was breezing all the time now from the South, and with the tide running against it, it was quite hubbly. But we were flying along before it. Before we got to Cape Poge it was blowing a moderate gale and raining, but we hung to our canvas and arrived at Oak Bluffs just in time to avoid a S.E. storm, which came on. Had made the run of 108 nautical miles as above stated in 20 hours. Had steered most of the way, and as this boat is not a duplicate of the Spray for steering, I was pleased to get a warm feed and turn in.

We stopped over in Oak Bluffs, enjoying the different attractions for which this place is noted, until Tuesday morning, when we set sail for Menemsha Bight. Sliding down along close in to the Vineyard shore, to avoid the tide, which was ahead, we had a delightful run of 15 nautical miles, as the scenery along this shore is varied and attractive. In entering this harbor, we always plan to have two anchors ready, and after passing in through the jetties we turn into the small harbor at the left. After picking out our berth, we drop a hook in the center of the basin and land the other on the beach; then, laying with either bow or stern close in to the beach, accordingly as the wind may be blowing.

We found this a fine place to lay in, there being plenty to do in line of claming, fishing, berrying and sailing in the tender. There is an excellent bakery here, and there is no need of anyone's stewing up old stockings to get a feed. If anyone desires a side trip, they can get into their tender and either sail or row up the creek and through the three ponds which open up, one after the other, finally reaching a point which is very near the beach. On walking up this beach to the Northward a short distance, a fine view is obtained of the Nashaquitsa Cliff on the back side of the Vineyard, which sight is well worth seeing.

We spent the time pleasantly here until Saturday morning, when we got underway, homeward bound, and arrived in New Bedford just before noon after another fine run of 23 miles. We cleaned out the ship and got our dunnage ashore, so that the skipper could take his week end trip back across the bay in the afternoon.

Thus ended an excellent and interesting cruise, which for me has auto trips and inland tours beat all hollow at a small fraction of the expense.

GEO. H. SISTARE.



SIMPLE NAVIGATION

SIXTH LESSON

IT being the season for doing things we will round-to and let go until next winter, when, if all goes well, we will get underway again and stand off on a different tack. But let me impress upon you the necessity of practice not once in awhile, but every time you make a voyage either long or short. Constantly use your compass, chart, dividers, and ruler, until they become as familiar to your hand as are plate, knife and fork. Above all make a companion of your compass, live with it, until as I told you before, you learn to think compass.

Learn to judge distance, this you can do by constant measurement and observation. The height of objects is a good standard to use. Trees, sand-banks and houses are useful objects for this purpose. Off the land sailing vessels. I use the size of coasters often to settle my mind as to distances.

I was badly fooled once! Saw ahead a large schooner yacht, but was surprised to find we were fast overhauling it, although from the apparent size when first seen it appeared to be at least five miles away. When alongside it turned out to be a rowboat about 12 feet long with a complete schooner rig, and a crew of one small boy. Another time two men adrift in a skiff, on close approach was found to be two summer gulls standing on a small piece of board. Under some atmospheric conditions a barren rock with one stunted bush on top will loom up a large island clothed with forest. But the trained eye will usually detect these impostures before getting too near to make trouble.

Another thing I want you to learn is to judge speed. This is easier than judging distance. Make a practice of timing your boat between marks. Time the passing of bits of drift, by counting the seconds. To count

seconds use this method. Say: one and, two and, three and, four and, etc. Suppose your boat is 25 feet long and it takes 5 seconds to pass a piece of drift from bow to stern, she is moving 5 feet each second, 300 feet each minute and 18,000 feet each hour, making a speed of 3 knots. If you make these measurements for some time, after awhile you will find that all you have to do is to look at the water going by, and by its condition be able to judge the speed. Every speed of a boat has a different writing on the water. I use the wake more than the lee or weather water. The wake after you learn to read it is very sure reading.

The tendency is to overrate high speeds and to underrate low speeds. A boat makes very little fuss until going over half her maximum speed, and that is why you are liable to underrate the movement. At two and three knots a sailing craft seems to be hardly moving. A power-driven vessel makes little fuss at low speeds and seems to be going slower than she really is.

Let us start on a little passage and while running along keep a sharp lookout, and here and there try and fix the boat's position by judging distances from different visible points. First we draw the True Course on the chart and place the boat on it. At the position a high bluff is seen to port, and to starboard the tree tops of a woodland. We look on the chart, and learn the bluff is 120 feet high. Now from the deck of our vessel standing up our eye is 8 feet from the water.

The top of an object 50 feet high would be visible at 10 miles. Is half the height of the bluff visible? Yes; about half. On the other side the tree tops show just above the water, these trees we may fairly estimate at 30 feet, the average height of a woodland of this class.

Two miles for each 10 feet gives us 6 miles, and 1 mile for 8 feet height of eye gives us 7 miles off that woodland. Taking the dividers we measure 10 miles from the bluff to the course line, and 7 miles from the wooded spot to the course line, and both fall directly on the line at Point A.

When we reach position B we see a tower off to starboard. Looking in the lighthouse book we find this tower is 52 feet high, and that the light on it is visible for 10 miles. As we can see more than half the height of the tower we must be about 5 miles away from it. This measured off puts us a bit to port of the true course, but not enough to be quite sure we are not on it. So we go on steering the same course until at position C.

Here by looking at the house we are sure from the fact that we can see the windows and chimney and the beach at the foot of the bluff, that it is not more than three miles away. Measuring this we make certain our course is too much to port, so alter it a point to starboard to get back on the true line. So we go on from position to position until we pass the High Island and make safely out to sea.

Running through such a piece of water as shown in the diagram the different visible points look like islands as the low land between is hidden below the water edge. Green navigators are frequently fooled by this. But you will soon learn to distinguish between open channels and closed bays by the appearance of the horizon, especially in bright weather. Where land is behind the horizon the edge is usually white and fretty, where it is an open channel it is blue and sharp.

In running along shore many men will steer from cape to cape by eye. You can do this and do it in safety, but in making a long run you will increase the distance traversed by miles. By steering a compass course you will save these added miles. Again in running along a stretch of beach the green or ignorant navigator will keep his vessel moving parallel to the beach, that is he thinks he is moving parallel to the beach, but will find his vessel constantly leaving the beach, and getting further off shore. To steer a straight course along a straight shore, keep your vessel's head constantly on the furthest point in sight ahead. You will understand why this is by taking your stand on a railroad track and looking along the rails to where they disappear in the distance. At the vanishing point the rails apparently come together.

Before starting out on a passage or a cruise take your chart or charts of the waters to be crossed and study them over. Look up the height of the towers, and range of visibility of the lights, and mark them on the chart. The more you study these charts the more interesting you will find them, and the more interesting will be your voyage.

There are a number of small books published, giving the courses and distances on our coastal waters. These are very useful to the young navigator, as after getting the course from the chart he can look it up in the course book, and make sure he is right. This will give him confidence. A list of the books can be had by writing to this office.

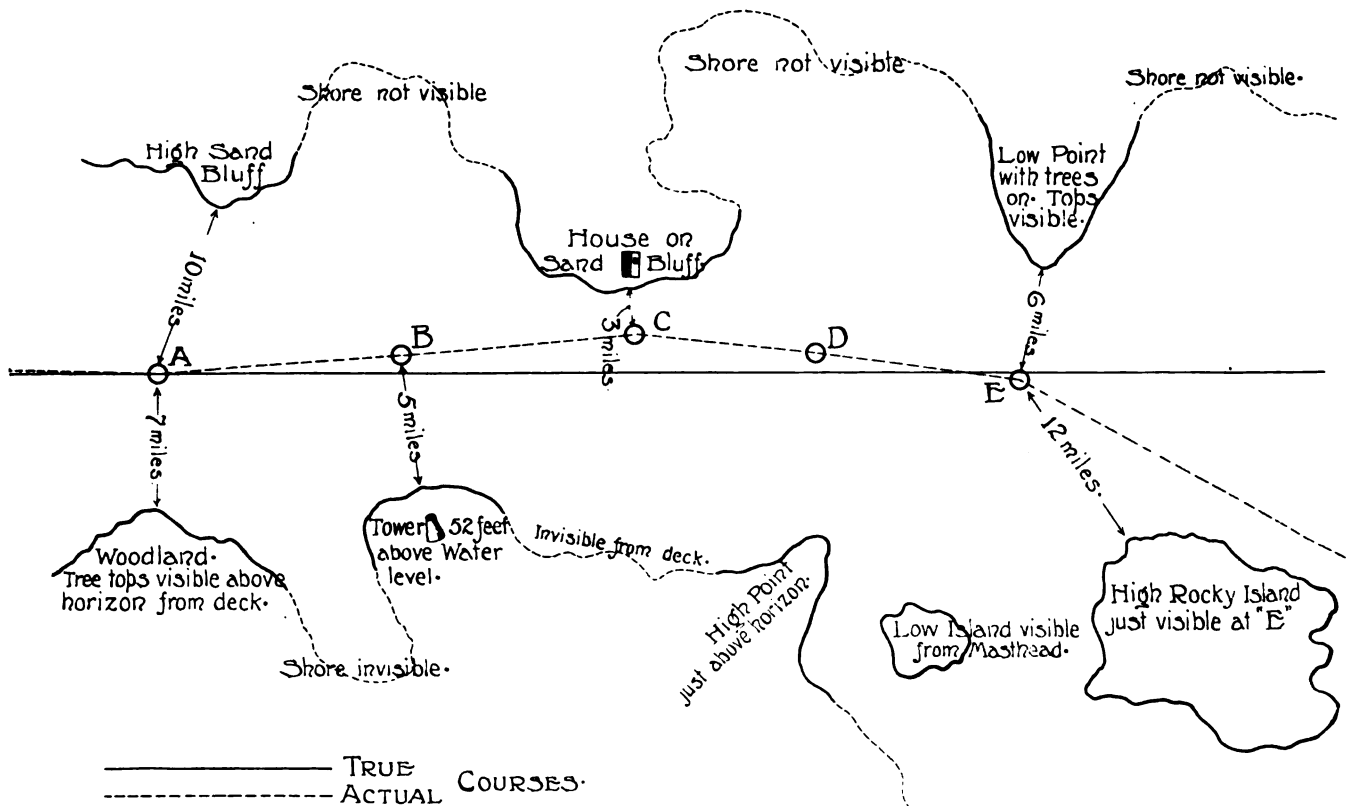


Chart Showing True Course and Course Actually Sailed

RACING KINKS

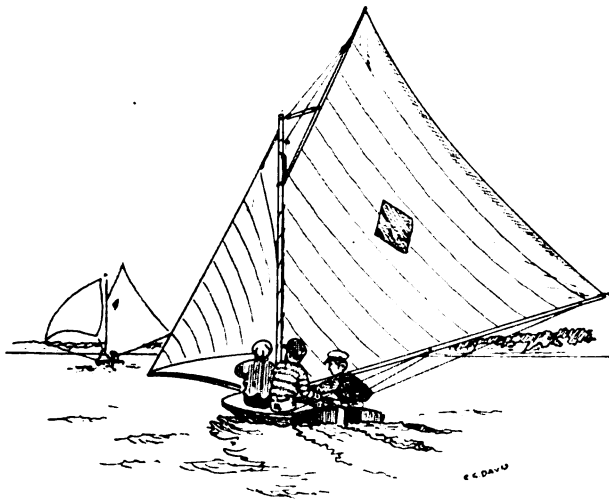
MAKING A YACHT DO HER BEST

Charles G. Davis

SOME people think sailing a boat is the same in all cases. You get aboard, hoist sail, let out the sails if the wind is fair or pull them in close if it be ahead and the boat glides along on the water.

Now this is just as true as driving a horse consists of sitting in a carriage holding the reins in your hands and pulling the rein on the side to which you want the horse to turn.

If it is a blind horse, or a steady-going old family skate that shy at nothing and could not run faster than a dog trot if it tried, such handling will answer, but suppose the horse is a little spirited and get up on his hind legs when an automobile whizzes by or takes a side jump, which rein are you going to pull? Neither. It's then a case of master mind, telegraphed by certain feelings on the reins to the horse, that a superior being sits in control of him, that guides the horse's actions. He feels it and while he might bolt with an unexperienced driver a good whip will hold him right down on his four feet.



A 6-Foot Australian Racer

Boats are the same way, that is racing boats, yachts of some ability and high strung like the spirited horse. They require just as much jockeying and feeling of positive control on their tillers. If anything the yacht game is more keen for it is the result of the helmsman's own skill in anticipating various moves that makes her jump ahead and take every advantage of the wind. Only a fractional difference in trim or point of sailing may exist, but it's that small fraction that makes the difference between losing or winning a race and it takes experience to acquire the judgment to decide that fractional difference.

Some things can be verbally explained, and by accompanying motions of hands or fingers, that looks ridiculous to one not hearing the conversation, express by a single move to your companion more than it would require a whole sentence to write out.

It is so in this case, but even with the handicap of cold type we'll go into the subject of boat-sailing.

The foundation of all knowledge is experience—so get all you can. I may often refer to the particular event when certain knowledge came to me. Don't think me egotistical if I refer to it, we will get at the gist of the subject all the quicker so, than if I try to hide my personality behind the book cover by referring to an unknown second or third person.

There are two views of the sport of racing sailing yachts. One is the view of the yachtsman whose aim is to accumulate the most number of prizes purely for the miserly spirit of getting all he can by sailing or by protesting, fair means or foul, that he may display them to substantiate his brag of his skill; the other is that view taken by the true sportsman who races for the pure love of sailing—who would just as soon race if there were no prizes—who races for the experience it gives him and the consequent skill attained in handling a sailboat in a greater variety of circumstances than ordinary day sailing could give.

Every race is a mimic battle as it were—each presenting different conditions of wind and water and a variety of manœuvres, due to the varying conditions bound to arise when several boats are all aiming to cross the line, as in a start, at the same place, at the same time; that give a yachtsman such a training as he can get in no other way.

The fact that it is a competition puts a keen interest into the sport that has appealed to the better spirits of sporting men and year by year the sport has gradually grown to its present popularity, one hundred and eight boats starting in one race at Larchmont, N. Y., this past (1913) Summer.

STUDY THE COURSE

Tide.—Familiarity with the course over which the yacht is to sail is a great advantage and often the cause of a boat's winning the race.

Realizing this the racing instructions now generally include a printed chart with the course ruled on it so strangers may see just where they are supposed to go.

But even with such a chart before one, with a compass on the boat which many small yachts do not have, the man so familiar with the course that he knows just where each mark is at a glance has an advantage. It isn't necessary for him to look at his compass, he knows the buoy they are to turn is just under a high tree that stands out conspicuously on the distant shore line, or just to the right of a clearing in the trees that shows up a bald, grassy lawn. If one has the time it would pay him to go out and sail around the course and get the bearings in mind for each mark he will have to turn.

Have you ever on a rainy day watched the rain-water as it flows along the gutters—how it forms eddies behind obstructions, how it flows as rapids over shallow places and all such antics the water goes through? If you haven't, do so, and think why the water does as you see it. If you have you will realize that it is the shape of the shore and the character of the bottom over which the water flows that causes tide rips and eddies and you will

be quicker to realize what the surface water indicates and make use of favorable eddies and avoid unfavorable ones.

We all know that water forms an eddy back of any obstruction placed in a stream of swift flowing water, but a man is not apt to consider an island six miles long as a pebble in the gutter, yet with a strong flood tide running we had a clear demonstration this Summer that there is just such an eddy formed behind such an island.

In this case we were anchored in the middle of the Race at the Eastern end of Long Island Sound with a strong flood tide just starting to run. We were trying to get to Sarahs Ledge in New London Harbor to the north of us.

All night long we had come down the Sound racing in Whileaway against three other schooners from Stamford. After a while a light breeze struck up from the south'ard, we got under way before it, setting our spinnaker, but the way that tide set us westward back up the Sound was discouraging. We could see land slipping along back of the Bartlett Reef lightship as if that ship were steaming to the eastward.

We were about three miles away from Fisher's Island when I suddenly noticed we had stopped drifting sideways and that the lightship was no longer slipping by the land. I realized in a moment we were in an eddy formed behind Fisher's Island so took in our spinnaker and with a four or five-mile tide running West just outside of us to the southward we went sailing east in a fair eddy until close up to the island when we squared away again and ran in before the wind to the finish line and won the race.

Now who would compare Fisher's Island to a pebble in the gutter, yet you see the water acts the same in both cases.

Another instance when I learned how water eddies behind a point of land was away back in 1896. We had rounded Mattinnicock Point buoy, the last boat in the fleet, and there was a string of boats stretched out a couple of miles ahead of us beating back to City Island all standing North on the port tack. From our position astern of the Ellsworth's Mary II, I noticed the line of boats sagged off, the leader, Sasqua, being carried off to leeward by the strong ebb tide sweeping around Sands Point and out the Sound. So we came about, stood close up under the Long Island shore where, as we found out afterwards, we had a fair eddy helping us along. The result was we were so far ahead of the rest of our rivals that, while our cat was in the twenty-five-foot class we finished right with the two big thirty-foot cats, Molly Bawn and Weasel, and at first were accused of not having gone over the course. It was certainly a startling example to me of what a help the current can be in a race.

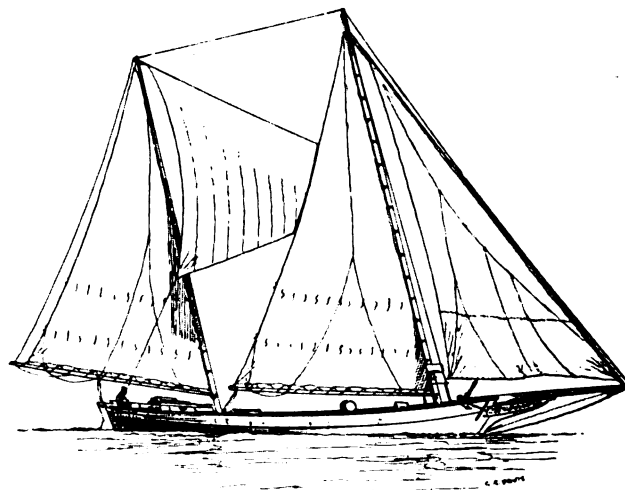
The most astonishing demonstration in this line I ever saw was in the race from New Rochelle to Block Island when the small sloop Okee sailed all night with a breeze that put her down to her deck edge and followed every indentation along the Long Island beach about a hundred yards off shore in slack water most of the time while a whole fleet of larger boats lay becalmed with a head tide a little farther out off this shore. Okee won the race.

In sailing a race it often happens that the tide turns and begins to flow back just the opposite to what it has been running. This is one thing you want to watch and know just what time the turn takes place. It turns first along the shores and will often be running a strong flood along the beach while there is still a strong ebb tide running out in the deeper channel.

Owing to the fact that both sides of the points of land are not always the same, one side we will say being bold and deep along shore, while the other side is a shelving shallow, sandy beach; the direction in which the water is deflected from these points varies considerably and should be studied. Watch lobster floats, oyster stakes or boats at anchor and you can often see how the tide flows. Very often this knowledge can be used to good advantage. Sometimes it pays to "pinch a boat," that is, to sail her very close to the wind in order to place the boat in such an angle in reference to the direction the tide is setting as to cause this tide to press against the lee bow and shove the boat up to windward.

Winds.—While the flow and change to tides can be calculated to almost the minute, though a strong wind will often hold back or hasten the turning time, with winds the case is entirely different, and as sailing yachts rely on wind for their motive power, you can see the importance of judging this fickle element.

In its action although the eye cannot see it, wind behaves very much the same as water. It banks up in front



A Chesapeake Bay Bugeye

of an obstruction, flows swiftly, like rapids around the corners and forms back eddies behind them just as water.

For this reason one must consider the land formation as that may deflect the wind somewhat and a knowledge of these local wind shifts is a decided advantage in sailing a race.

You probably have heard the saying "Every cloud has its puff of wind," and as the clouds scud by overhead the yacht does get a harder squall, but the wind does not come out of the cloud. Fig. 43.

Like a stone in the gutter obstructing the flow of water the cloud is an obstruction in the swiftly moving body of air, and the air sweeps under the cloud with increased velocity, just as the water in the gutter rushes through the constricted opening past the sides of the stone.

When the passing cloud is large enough to bank up a large part of the air above the water, leaving only a narrow space between it and the water, we have a squall. The rapid rush of air under this cloud is accentuated owing to the narrowness of the space through which the air has to pass. Fig. 44.

The exact intensity of a squall is a thing it is almost impossible to foretell. The barometer, a delicate instrument for weighing the density of the air, is the best guide we have, but that, while it shows any sudden changes in

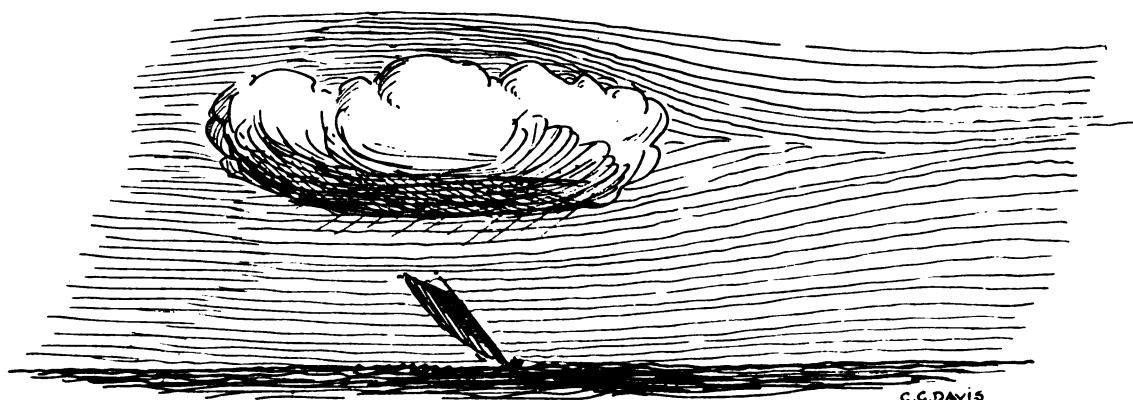


Fig. 43

C. G. DAVIS

the weight of the atmosphere due to heat or cold, wetness or dryness, is of no value in foretelling the speed with which the wind is going to travel during the squall—it does show that a change is coming and you have to judge the violence of the coming wind by the rapidity of the rise or fall as indicated by the mercury in the barometer.

Experience alone will teach you what to expect from a squall. Sometimes it gets so black before the squall you look for a fearful blast of wind and are agreeably disappointed, at other times it does not look so bad, but when the squall hits it is bad, far worse than you want it to be.

But outside of squalls, of which you may not get one all season, there are other tricks about the wind one should learn.

For instance, at the western end of Long Island Sound, where racing with the usual Summer southerly wind, we always look for the wind to haul around more to the westward as the sun gets around in the west, late in the afternoon. As we say, "The wind goes around with the sun," and we calculate accordingly when sailing a race.

Another peculiarity, which is easily explained, is the way in which a boat away off to leeward often seems to get the first air of wind after a dead calm has prevailed. We always explained it by saying the wind struck over our boat, but that is not strictly true.

A light air after a calm is caused by the air in some place becoming warm and consequently lighter than the surrounding air. As the warm air rises the cooler air flows in, is warmed also, and a current of uprising air started just as if a bonfire had been built—as at the point C in diagram 49.

It is the uprising of the air at C that draws the air toward this point; it is but natural therefore that the boat at A should be the first to feel this draught. It is some time later before the boat at B feels this slight draught,

for we are speaking now of when it is an absolute calm. In other words, the air is not pushed in towards C, but is sucked in towards that point.

Another point is that as you approach the land the wind generally veers a little square to the shore.

Along the north shore of Long Island, with a southerly breeze, the wind will come off the beach at right angles to the shore and a boat can lay her course a rap full along the shore, while half a mile or more out in the Sound other boats are headed off and can not point up within two points of where the boats in under the beach can.

I have already told you how the little Okee worked the land breeze, as we call it, and beat the whole fleet, big and little, in the Block Island race one year. This land breeze is caused by the difference in temperature between the water and the land, as the temperature of the land changes at sunset and sunrise. At sunset the land cools more quickly than the water and the cold, heavier air slides out and under the warmer air on the water, in the form of a night breeze. You see this everywhere along the seashore, when the sea breeze has blown all day; as night sets in this wind dies out and an offshore breeze blows for awhile. Fig. 50.

In the morning, when the sun's heat again comes upon the scene, the water, like glass, reflects the sun's heat and the air over the water is warmed up first, again causing an unbalanced condition of the air. The warmed air rises and the cool land air moves out to fill the space as the hot air rises.

This is just as true on the Great Lakes as it is on salt water as I once had occasion to observe. We, on Psammaid, had rounded Detroit Light, in an all night race around the western end of Lake Erie. Two big sloops were ahead of us. It was a flat calm, but as dawn approached a faint air gave us steerageway and we let our boat run well in towards the shore, caught the new land breeze first; it didn't extend more than a mile off-

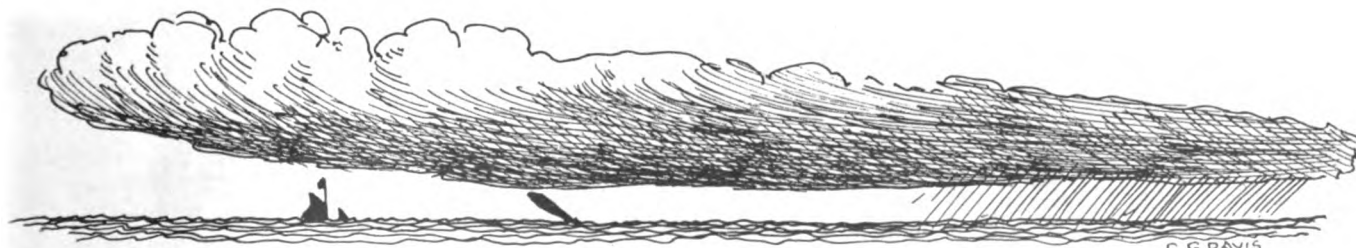


Fig. 44

C. G. DAVIS

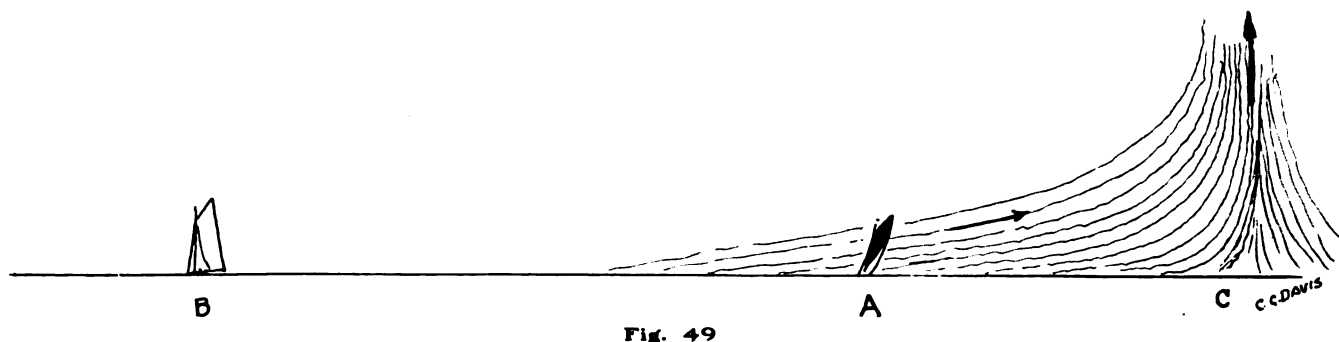


Fig. 49

shore, and in this fresh wind we ran up on the leaders and made up about two miles they had been ahead of us.

The clouds themselves often give an idea of where the wind is coming from; watch them and study their appearance.

Freak conditions will of course arise occasionally, and put your wits to the test. I remember one race when we all started from Larchmont on a broad reach with a very light westerly breeze; over near the Long Island shore the leading boat stopped becalmed. The next boat ranged up alongside of her and she stopped, one after another, about seven of us, all came to a dead stop, like a line of soldiers on parade. The only reason I could see for this was a low, straight cloud right up over the line of yachts. In some way that cloud produced an eddy and the westerly breeze stopped dead at that point. Seeing the others all stop, we hauled up and took our place in the southern end of the line. A southerly striking in soon afterwards gave us the weather gauge on our rivals.

Another day I was sailing up along the New York shore beyond Milton Point with a stiff puffy nor'west wind blowing, when all of a sudden the main boom jibed over. I rolled my wheel down; the Freyja luffed around a complete circle and then went on east with the same nor'west wind. A regular little whirlpool in the air had hit us. The funny part of this is I was telling a yachtsman friend of mine of this experience one day several years later when he told me he had had the same experience in the same place. Some formation in the land evidently produced this whirling eddy when the wind was in the right direction.

On September 8, 1906, in the Manhasset Bay Yacht Club Regatta sailed on Long Island Sound, another freak wind was experienced. A stiff nor'easter had been blowing all morning and was blowing when the New York Yacht Club one-design thirty-footers started. Hardly had they gone when the wind began to veer around to the westward, although where they were the wind stayed northeast. Off to the southward we could see big coasters coming out past City Island with a stiff southwester. The Class P boats started, then the Class

T and when the Q's started they had the wind dead aft from the west and set spinnakers, and five minutes later when we started this southwester had just hit us, and away we went on the starboard tack. At this time the boats under the New York shore were heeled decks to on the port tack. The Q's and other boats lay becalmed after running before the wind a couple of miles in the middle of the Sound and we in the handicap class to the southward within a couple of hundred yards of them were rushing east decks to on the starboard tack. These two distinct winds continued until the two divisions of boats almost came together on opposite tacks off Milton Point when the southerly wind prevailed and then all proceeded on the starboard tack. But such freak winds are the exception.

On July 2, 1907, there was a remarkable sight in the finish of the Larchmont race, when about thirty small sloops all lined up as if on parade, due to the southerly wind banking up and stopping about a quarter of a mile from the finish line. All the tail-enders came along before the wind and caught up to boats that had left them a mile astern. As we all lay here wetting our fingers to try and feel an air of wind the big schooner yachts Queen and Ingomar came along under balloon sails, went through our fleet, their upper sails in a fine breeze, while low on the water our small sails could not feel a breath of it.

Three days later, on July 25th, two boats, Naiad and Little Peter, were running neck and neck for the finish line in a light Southerly air, when within a boat's length of the finish there came a single, solitary puff of wind dead ahead. Naiad's skipper saw it, dropped his spinnaker, trimmed in his sheets, and close-hauled, shot across the line, winner. Little Peter was caught aback, with her spinnaker set, lost her headway and, as a dead calm succeeded this single puff, it was ten minutes before she, too, finished. These illustrations will show the amateur yachtsman some of the peculiar freaks the air will perform at times, and for that reason, he must always be on the watch to see and take advantage of every little shift that occurs.

(To be Continued)

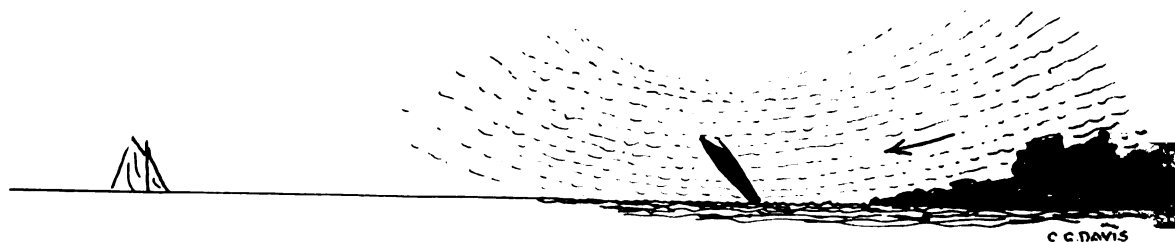


Fig. 50

MODERN MARINE MOTORS

by T. ORCHARD LISLE, A.M.I.MAR.E

BOATS

AMERICA'S HIGHEST POWERED MOTOR YACHT

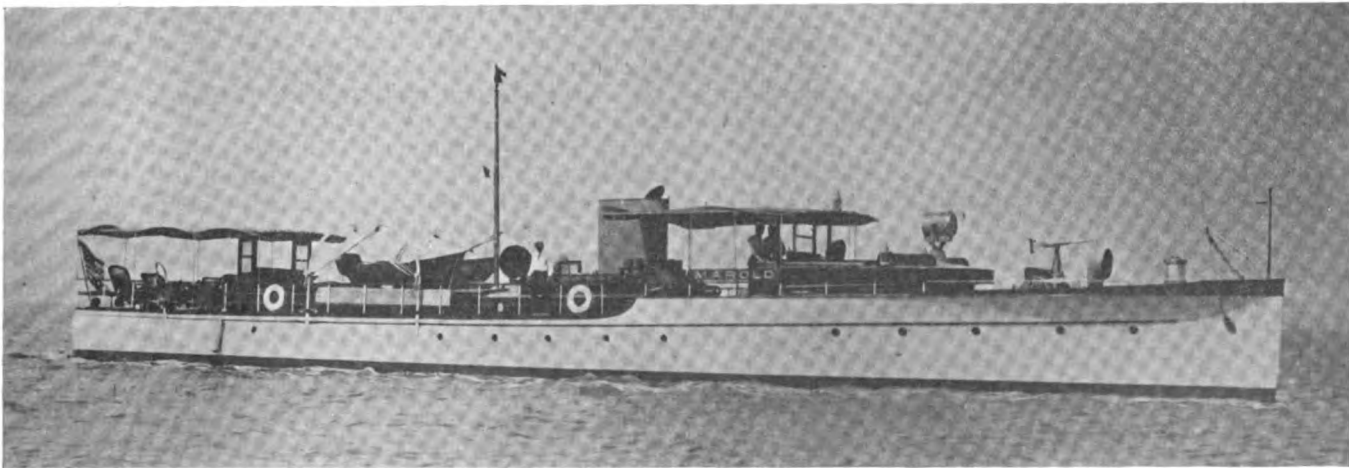
MAROLD, AN 100-FOOTER, WITH 900-H.P.

IN these days of heavy-oil motors, the advent of a new gasolene-engined yacht of nearly 1,000-h.p. is quite surprising, but when the main considerations are studied, it will be realized why any other class of internal-combustion engine would not have met with the requirements of the Marold, the new cruiser for M. C. Harold Wills, chief engineer of the Ford Motor Company.

In the first place, a speed of 30 knots ($34\frac{1}{2}$ m.p.h.) was required, and this meant light-weight, high-speed machinery. Now while very high-speed heavy-oil engines have been built, their reliability under such conditions is not yet assured, as they are still experimental. This, of course, does not apply to slow-speed Diesels and hot-bulb motors, which are quite reliable. So the only suitable engines were gasolene or steam, and of the two, the former is more desirable. At the same time, the fuel bill is so great with a ship of the Marold's power that only ultra-wealthy yachtsmen can afford to maintain such a proposition. At full speed, her engines will consume about 95 gallons of gasolene, and at 10 cents per gallon, means \$9.50 per hour, to which must be added our estimate of about \$1.00 per hour for lubricating oil, apart from the hundred and one other costs of running the yacht. Altogether, she carries 2,800 gallons of fuel, which is sufficient for about 30 hours' running at full speed.

Marold is a very handsome craft and undoubtedly is the most noteworthy power yacht of the year. She was designed by M. J. H. Wells and built by the Matthews Boat Company, of Port Clinton, Ohio, and powered by the Sterling Engine Company, of Buffalo. Her dimensions are: length over all, 100 feet; length water-line, 99 feet 3 inches; extreme breadth, 12 feet 6 inches; draught, 4 feet. In a general way, the design arranges for the crew's quarters forward, dining saloon, galley, having electric stove and refrigerating plant, large engine space with separate tank space, lounging room aft arranged so as to be converted into two single staterooms with folding partition in center, bathroom adjoining owner's stateroom, deck room on amidship and after decks for the guests.

Although roomy and commodious in its interior accommodations, the narrow breadth of but $12\frac{1}{2}$ feet in proportion to the length of 100 feet, shows at a glance that speed was a leading determining factor in the designing of Marold. The freeboard is raised forward with pronounced flare and the quarters are tumble-home, this with the absence of definite sheer, gives the yacht somewhat the appearance of a torpedo boat destroyer. But although speed is one of the chief considerations, the boat possesses real sea-going qualities and is intended by the owner for extensive offshore cruising, including



Marold

the frequent crossing of the stream between Florida and the Bahamas.

The speed factor has been provided for in the power plant. Marold is provided with triple screws, which are driven by three of the new model 300-h.p. Sterling engines. These engines are four-stroke-cycle, eight-cylinder machines of T-head construction with a bore and stroke of $6\frac{3}{4}$ inches by 9 inches. They are designed expressly for this type of boat, and for naval craft used in coast defense work and develop 300-h.p. at 1,000 r.p.m. The makers have been quick to see the rapidly growing popularity of the large express cruiser, the increased de-

mand for a high-speed, heavy-duty engine, and realizing the inadequacy of the ordinary heavy-duty motor speeded up far beyond the number of revolutions it was ever meant to turn at, have brought out a motor designed and built expressly for this service.

The central engine is installed farther forward than the other two, and the controls of all three engines are centralized in a position between the two outside sets. Two turn left-hand propellers, the third turning a right-hand screw. As we write, the trials have not been run, but a speed of over 30 knots is expected.



A Thirty-Five-Foot Ramaley Runabout as Owned by Senator D. F. Harding, Jr., of Chicago. She is Powered with Six-Cylinder 100-H.P. Van Blerck Equipped with a Liece-Neville Electric Starter. Speed 32 Miles per Hour

MODEL POWER BOATS

CONSIDERING the splendid lakes in parks of most of the American cities, it is a wonder that model yacht and model powerboat racing has not become more popular than it has. In England, particularly London and suburbs, model powerboat construction has become quite an important sport, and during the favorable months, hundreds of the little craft can be seen every week end on the ponds and small lakes in London, and races are conducted by clubs almost all the year round. There are the Victoria Model Steamer Club, Forest Gate Power Boat Club, Wimbledon Model Power Boat Club, Kensington Model Steamer Club, the North Middlesex Steam Navigation Club, Glasgow Model Steamer Club, Portsmouth Model Steamer Club and many sailing clubs.

It must not be thought that these clubs have a "boy" membership, but they are composed mostly of serious-minded men, who have taken up the hobby from a scientific aspect. Some of the model hydroplanes have attained a speed as high as 22.77 miles an hour, and are splendid examples of miniature boat and engine construction, and naval architects who go in for model racing

can obtain much valuable information and experience. In this connection it will be remembered that Sir John Thornycroft, the famous screw propeller and hydroplane expert, has a private pond on which he experiments with models, and it was from these model experiments that he developed his hydroplanes, including Miranda III and Miranda IV.

A very valuable work on the subject has just been published and we have a copy before us. It is written by Mr. E. W. Hobbs and certainly is the most complete book on the working model power boats that we have yet seen. Full details are given how to make and install the hulls, machinery and fittings of motor, steam and electric launches, speed boats, cabin cruisers, yachts, tugs, torpedo boat destroyers and battleships, altogether there being over 300 pages and 381 illustrations, including a trade directory of model-parts manufacturers. The publishers in New York City are Messrs. Spon & Chamberlain, and copies can be obtained, price \$2. from the Rudder Publishing Company, 254 West 34th Street, New York City.



The New Tech. Designed and Built for Col. T. Coleman du Pont by Adolph E. Apel, of Atlantic City. Length 21 Ft., Beam 6½ Ft. Power Eight-Cylinder 5½ In. by 6½ In. Sterling Motor Turning at 1500 R.P.M. A Speed of Over 50 Miles per Hour. Is Said to Have Been Attained

THE NEW BRENNAN

A MARINE MOTOR OF DISTINCTIVE DESIGN

BECAUSE of the benefits derived by the makers from previous experience a new motor always bears a certain amount of special interest, so far as its design and general arrangement are concerned; thus it is that the latest addition to the line of engines turned out by the Brennan Motor Manufacturing Company is no exception to this rule. How past experience has been incorporated in this model can be realized by comparing it with earlier productions of theirs. One feature, above all, which, while not essential, is a great convenience with a power plant that is not equipped with an electric, or air, self-starter. We refer to the fitting as standard practice an enclosed chain-driven starting gear at the after end of the engine. In Europe, practically every marine motor from 6-h.p. to 100-h.p. has this arrangement and it would be difficult to sell many engines without such a device. But in the United States, however, it has always been the custom to supply such a fitting only as an extra.

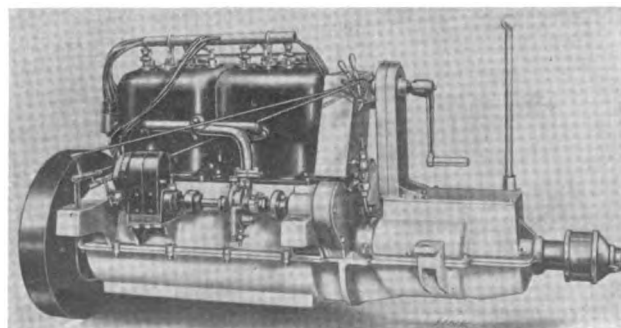
This, of course, is due to cut-rate manufacturers, to competition, and to constant cry from users for lower prices, and, if the latter are to be obtained, such refinements as enclosed chain starting handles must not be expected. On the other hand, the prospective purchaser of an automobile would turn away in disgust if a car was offered him in which he would have to pull-over the flywheel by hand in order to start the engine. This being the case, it is curious that motor-boatists will put up with bending down and straining to pull-over grease and bilge-covered flywheels. If the demand is clearly demonstrated when purchasing, manufacturers will quickly meet it, as naturally, they would prefer to sell their engine complete with proper appliances, but, of course, their price will be a little higher, as such equipments cannot be made for nothing.

The new Brennan is a four-cylinder gasolene engine of the four-stroke-cycle type, and is built in four sizes, with a specially altered Model M that is rated at 30-h.p. at 1,200 r.p.m. The four models are detailed as follows:

Model	No. of Cyls.	Bore	Stroke	R.P.M.	Horse Power	R.P.M.	Horse Power
M	4	4	5	600	18	700	21
B	4	4½	5	600	21	800	28
S.B.	4	4½	5	1,050	35	1,400	45
6.B.	6	4½	5	650	30	800	40

The weight of the medium-heavy-duty Model B is 700 lb complete with all accessories and clutch, or 500 lb without, while the weight of the speed Model S-B is 550 lb complete, or 380 lb without reverse gear, etc.

Regarding the general design, all the above are similar, with, of course, minor alterations, adjustments and valve settings for the high-speed sets. The cylinders are cast in pairs and mounted on an aluminum crank case, which is in two sections, the lower half being extended at aft and carries the reverse gear. Of the L-headed type, with the usual plunger and tappet-operated valves on the starboard side, the cylinders are bored in a special horizontal boring machine, the boring being carried out in three operations, which may be termed rough boring, second boring and final boring, the castings being allowed to season and re-assume their shape between each operation. Lastly, they are ground and lapped. The piston rings also are ground and fitted with a concentric lap joint of Brennan design.



The New Brennan Motor

Lubrication, like the water circulation pump, is by a gear pump, the force-feed system having been adopted for this engine. After oiling the main bearings and cam shaft bearings, the surplus oil returns to the oil reservoir under the crankcase, whence it is pumped to an auxiliary oil tank mounted over the half-time wheel gear case, and so a uniform supply is maintained.

The ignition is by two systems, timer, battery and high-tension coil, and Bosch high-tension magneto. Each motor is given a final test with the equipment that goes with the motor for insuring perfect control from the minimum to the maximum speed at the will of the operator, and to be positive that all wires or cables are correctly connected up for the two ignition systems, to see that the carbureter is properly adjusted, that the controlling levers for ignition and carbureter give perfect control and that the clutch and reverse gear gives easy operation. Hence, when the shipment is delivered to the purchaser, everything is in good running order, and all is necessary is to secure the motor to the bed of the boat and make connections for the water, gasolene and propeller shaft.



First of the M. B. C. of America's New 21-Foot One-Design Boats After a Trial Run before the Decks Were Built. We Were Aboard, and Despite a Choppy Sea and the Open Hull She Shipped no Water Aboard. See Page 282.



OILS AND LUBRICATING DEVICES

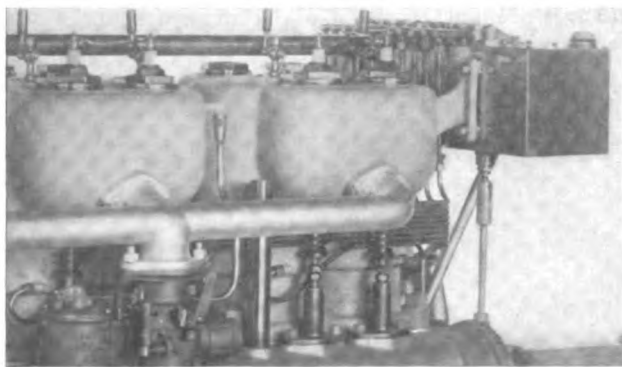
(Continued from the April Rudder)

METHODS OF LUBRICATION

HAVING already fully dealt with oils and their suitability for lubrication purposes, we now come to another question, which is just as important, namely, the methods of the lubrication of an engine. Altogether, there are nearly a dozen systems, and to an extent, the motor-boat man is in the hands of the engine manufacturer, but if a certain engine is not fitted with what an experienced motor-boatist considers a good or suitable system, it is easy to turn to a make of engine that is so equipped, for different manufacturers have different ideas on the subject and in some cases their ideas have to conform with cheap engine production. On the one hand we have seen lubricating systems carried to quite an unnecessary extreme, thus producing otherwise avoidable complications, while on the other hand we have seen systems on motors that are totally inadequate, and so have produced endless bearing troubles for their owners.

SPLASH LUBRICATION

The simplest of all methods is the splash system. In the bottom of the crank case, which is divided up into

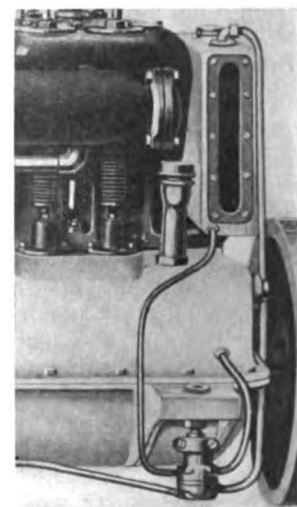


An Engine Fitted with a Multiple Pump Lubricator. Note the Feed-Pipes to the Various Working Parts

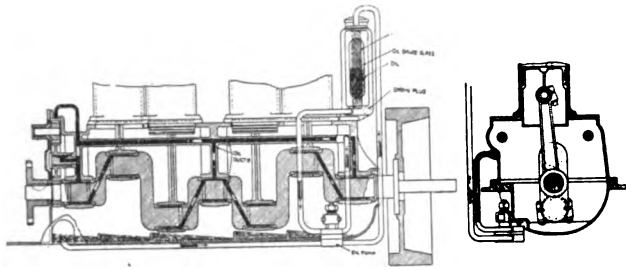
small compartments by webs, there is a pool of oil, the level of which is maintained sufficiently high for scoops fitted to the ends of the connecting-rods to dip into as they turn, and thus pick up the oil and splash it on to the cylinder walls, piston wrist-pin, big-end bearings, into oil holes in the main bearings and over the gear wheels. Nearly every engine partly depends upon a variation of this system. When no other device is fitted its fault lies in the fact that it offers no method of cooling the oil, consequently it gets very hot after the engine has been running for a protracted time, and so aids rapid carbonization. Generally very small engines, particularly low-priced marine motors, where the effects are not felt so much, are so fitted. Also with some small two-stroke motors the oil is mixed with the gasolene and so is drawn into the crank case and is ever present in the form of a mist film of oil.

PUMP-FED SPLASH SYSTEM

With a number of present-day engines the pump-fed splash system is adopted. This consists of a pump, usually of the rotary gear type, fitted in a sump under the crank case where the oil drains, and this pump forces the oil through a cooler and strainer to small troughs under each big-end. It is then splashed over the engine as before mentioned. This system keeps the oil clean and cool, but is not absolutely certain, especially if a careless mechanic forgets to maintain the proper level of oil.



Showing How the Rotary Pump Sucks the Oil from the Crankpit and Forces it to the Bearings. Via a Filter and Cooler



Oiling System of the Wisconsin Marine Motor

SIGHT-FEED UNDER PRESSURE

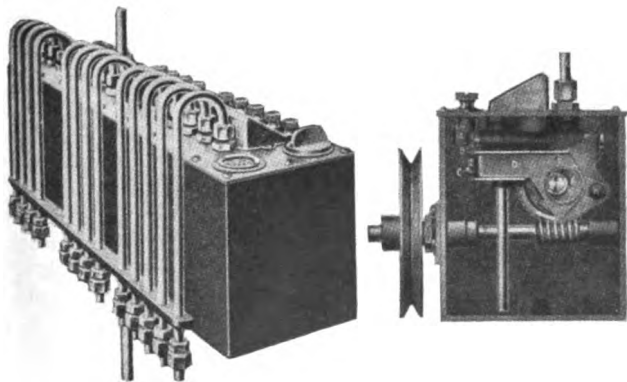
Another popular system is similarly arranged to the foregoing, only instead of the oil coming from the cooler and filter direct to the crank case, it passes to adjustable sight-feeds, of which there is one or more to each working part. Usually the main bearings are fed through holes drilled in the crank case. There are many variations of application with this system.

MULTIPLE PUMP METHODS

With many slow-running motors a very excellent method is adopted, namely, the multiple pump lubricator. In a small box there are a number of little plunger pumps, which are operated by a series of cams, or eccentrics, arranged on a small ratchet pulley or gear-driven lay-shaft. Each pump is adjustable and thus the exact amount of oil to each working part can be regulated. The pump box, or container, also forms the oil tank, and can be mounted on any convenient part of the engine. From the pumps feeds are carried to the working parts, whence they drain into the crank case sump, only to be sucked up again, via the cooler and strainer, by the pumps and re-fed to the motor.

THE DETROIT LUBRICATOR

A device somewhat of this type is shown by the Detroit lubricator, of which two illustrations are given. Regarding the interior view, the upper piston *B*, driven through the bell crank yoke *E* by the eccentric *G*, lifts the oil from the reservoir and discharges it from the nozzle *N*. The amount of oil discharged is regulated by the adjusting button on cover, this button having at its lower end the cam *A*, which controls the throw of piston *B*. The lower plunger *C*, takes the oil from the pocket in



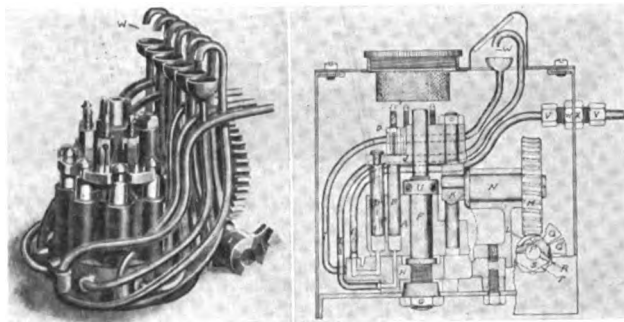
The Detroit Multi-Pump Lubricator

the sight-feed chamber under the nozzle *N* and forces it to the point to be lubricated through the tube *O*.

This forcing plunger, *C*, is driven by the eccentric *F* through the yoke *D*. The bell crank yoke, *E*, and the straight yoke, *D*, give to the pistons an alternate movement, each being substantially at rest while the other is passing through its 90 degrees of most rapid travel. A port in each piston controls the passages to the other so that each becomes, without additional mechanism, a mechanically-operated valve for the other. The eccentric *G* is driven by the eccentric *F*, and when the engine is working ahead is in the same position on the eccentric shaft. When the engine is reversed, however, eccentric *G* remains stationary until *F* has advanced 180 degrees in the opposite direction, where it is again picked up and driven in the new direction by *F*. By this simple method the passages, ports and plungers are made to automatically and instantly respond to a change in the direction of the drive without adjustment of or interruption to the flow of oil.

THE CLIMAX OILER

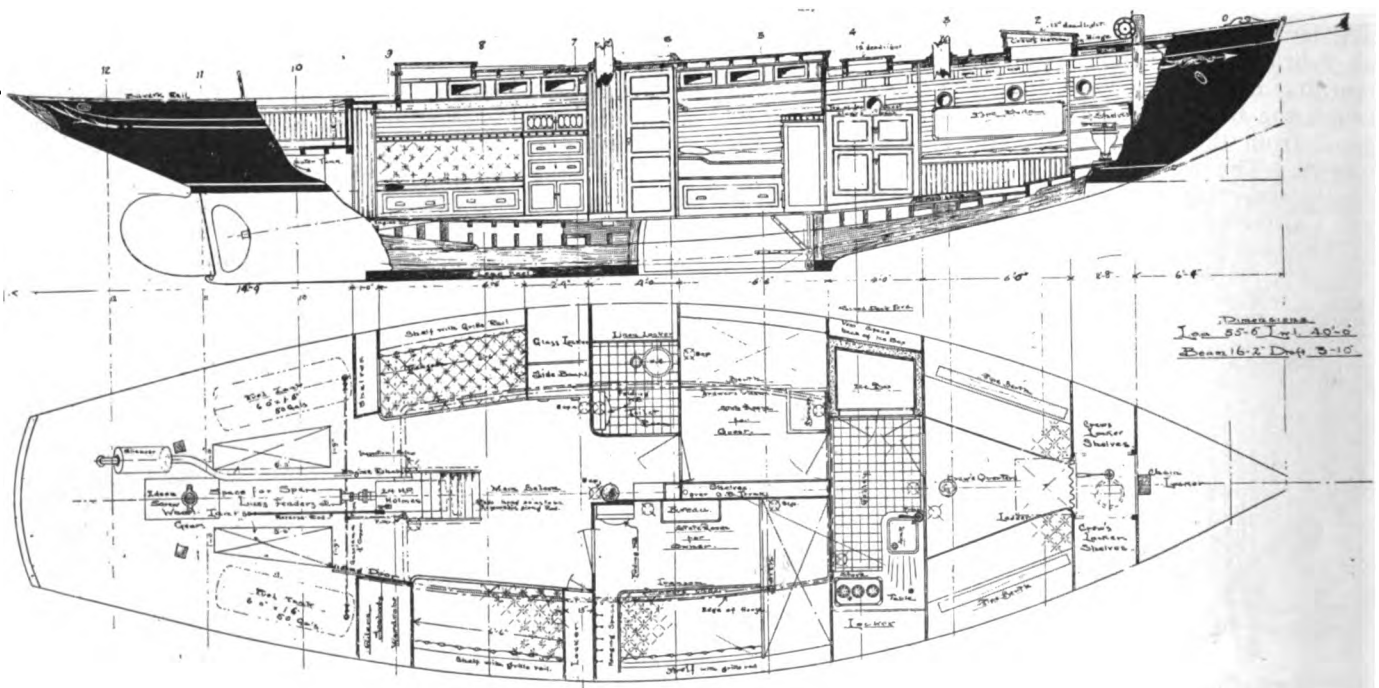
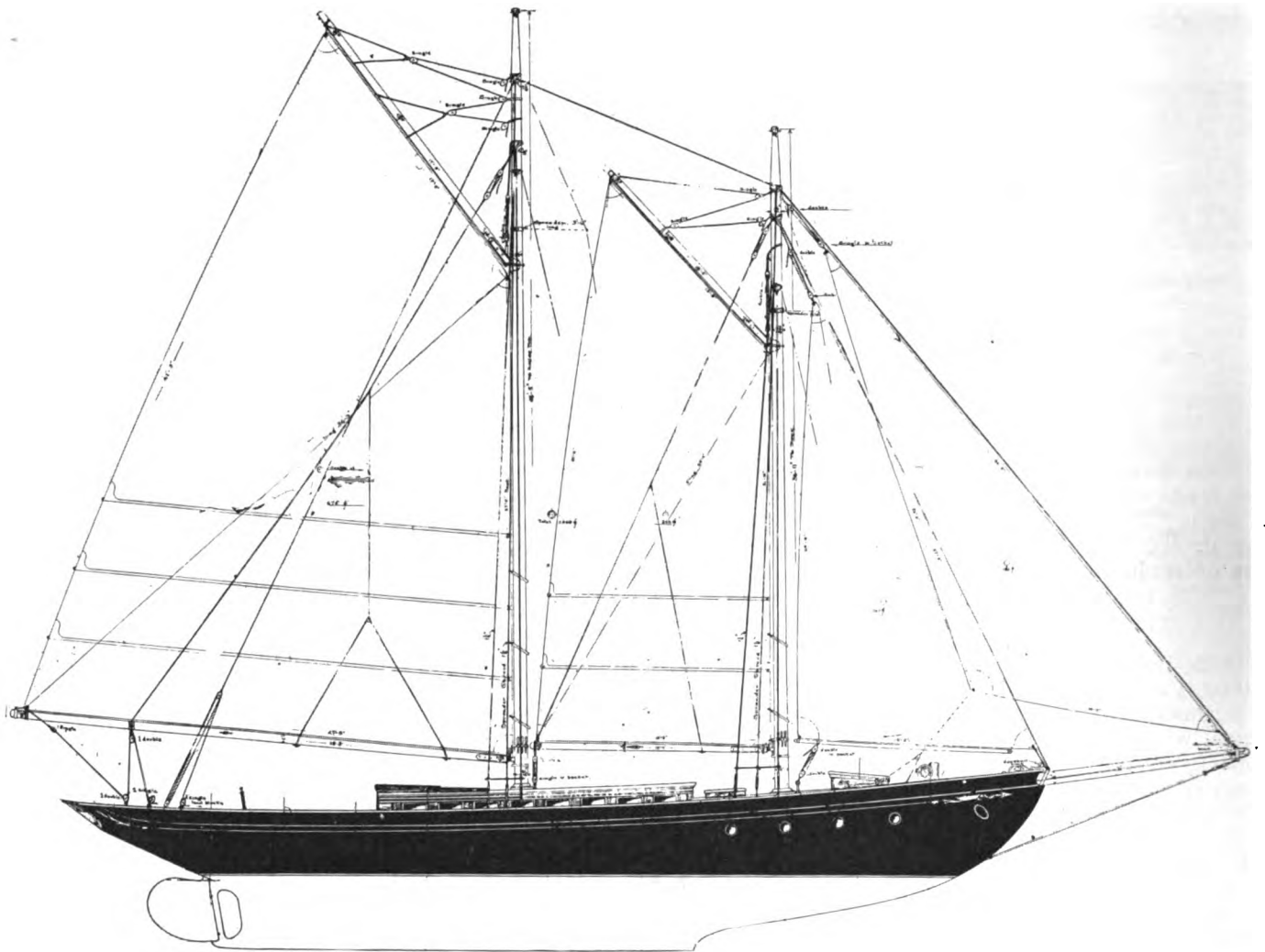
With regard to the Climax oiler, which while on the same principle is of entirely different design, and with it each feed can be shut off, or adjusted to suit particular



The Climax Oiler

requirements of any individual working part. The entire mechanism is immersed in oil and the movement of the operating parts is slow. As the mechanism rests on the bottom of the oil tank, the lift to the measuring plunger when the suction begins, is but a fraction of an inch—just enough to leave undisturbed any sediment from the oil that may have settled. It is controlled by one eccentric, thus eliminating small parts.

The sectional view is easily explained: The eccentric shaft, *N*, turns by means of worm gear, *M*, and worm, *O*, on driving shaft, *P*, which receives its motion from the engine through a belt, gear or other means. The barrel, *A*, is driven from the intake port to the outlet port and returns by means of eccentric shaft, *N*, which also operates the plunger operator, *J*, plunger operator, *J*, engaging plunger, *B*, thus drawing the oil into the plunger chamber at the intake port and delivering to sight-feed cup through pipe, *I*, from which this same oil is taken up by plunger, *B*¹, through pipe, *I*¹, and thence delivered to the bearing through pipe, *I*². The exact amount of oil desired for each bearing is accurately proportioned by means of adjusting screw-nut, *D*, on adjusting screw, *C*.



Plans of the 24-H.P. Auxiliary Schooner Yacht Building by the Wm. Wallin Shipbuilding Co., of Brooklyn for a Member of the Seawanhaka Y. C. from Designs by J. Murray Watts. Length 55 Ft. O. A., 40 Ft. W. L., Beam 16 Ft.



Utopia, a 50 Ft. by 10 Ft. 8 In., Bridge-Deck Cruiser. Built for Mr. Conrad Stein by the Luders Marine Construction Co., of Stamford, Conn., and Fitted with a 35-H.P. Sterling Gasolene Engine. Speed 11½ Miles per Hour

ELECTRICAL ACCESSORIES FOR MOTOR CRAFT

HANDY DEVICES AND EQUIPMENTS MANUFACTURED IN AMERICA

PART III

IT will be realized from the previous articles that the question of electric lighting not only is a fascinating one, but it also requires serious study before deciding upon a purchase, for light treatment of installations may cause persons to be left in the dark—paradoxical as it may seem. There are good and bad outfits on the market, and we can only advise the purchase of those that are advertised in our columns, which, were they not reliable, would not appear therein, because of THE RUDDER'S well-known policy of barring the announcements of crooks and junk mongers. We do not suggest, of course, that equipments are not good because they are not advertised, but those that we publish *are* good and reliable, so that the uncertainty is absent. Our columns are equivalent to a hall-mark.

Each lighting outfit has certain special characteristics, but it is not for us to praise these features; that we leave to our readers who, in most cases, are capable of judging for themselves, we being content with describing the operation and construction, from which even the novice can form conclusions. Some journals publish about products all the self-laudatory "tosh" that any manufacturer cares to send along, but THE RUDDER, with its loftier ideals, prefers to look after its readers' interests, so that they are not handed out shoddy or unreliable goods. Exactly the same policy is carried out with motors, boats and other accessories.

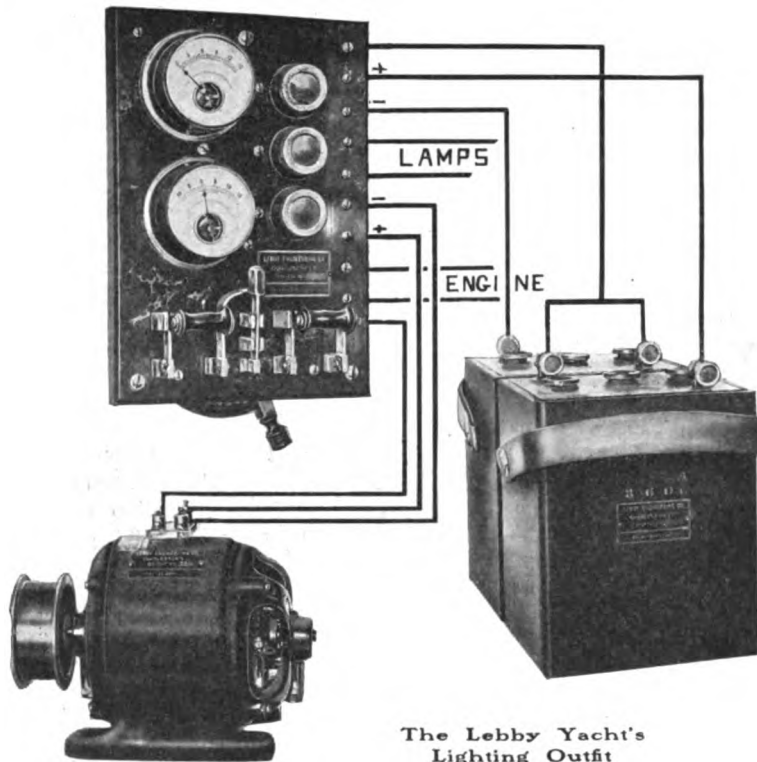
THE LEBBY SYSTEM AND ITS OPERATION

Like many other outfits, the Leby lighting system has certain features, and in this instance the leading

features are simplicity and flexibility of operation, due to automatic control. They claim that the results of their efforts enable their electric lighting plants to take care of themselves under the most severe conditions, everything being automatic. An important feature is the elimination of the voltmeter switch and all voltage regulation common to most other outfits, the engine switch operating the voltmeter as the same is wanted. Thus it is only necessary to push the charge-switch to start the charge. One operation of the engine switch cuts off the motor ignition, discontinues the dynamo charge to the battery, and cuts out the voltmeter.

The system comprises the following: A storage battery, preferably of the lead-plate type; a dynamo to be driven from any fairly constant speed; a source of power supply from which a small percentage of power may be taken; a compact switchboard with a voltmeter, which reads full scale when the battery is fully charged; an ampere meter which points to the left of zero the number of amperes being taken from the battery, or to the right of zero the number of amperes being stored into the battery; a simple combination of connections, controlled by three knife-switches, each having one simple underwriter's screw plug fuse in its circuit; a charge current regulator; a resistance moulded in porcelain connected in the dynamo circuit to automatically protect against any possibility of damage to apparatus; and necessary efficiency tungsten lamps, as needed.

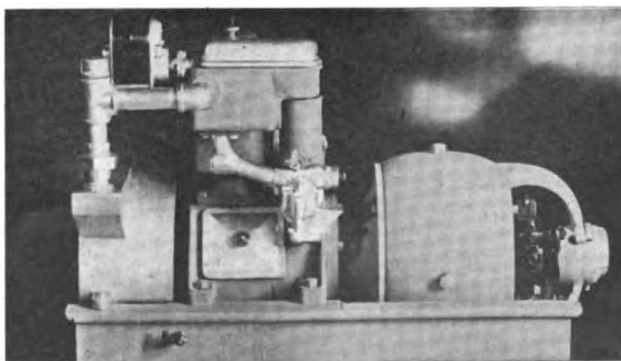
It is claimed that the above combination is so simple and serviceable that years of usage make no difference in its operation, and there is no expense of upkeep with



the great convenience of the electric lights in addition to a reliable and constant supply of current at six volts for ignition.

The operation is as follows: By closing the left-hand switch the six-volt ignition current is turned on to the engine, through the two terminal posts from top on right of switchboard. After the engine is under continuous speed, the middle charge switch is closed, and immediately the charge current (indicated on the ammeter by reading to the right of zero) is regulated to normal of the battery capacity, as instructed, by a lever at the bottom of the switchboard. The right-hand switch cuts on or off the light circuit, which is connected to terminal posts. On shutting down the engine, by removing the engine ignition switch, the interlocking arm at the same time removes the charge switch.

It is recommended that the charging switch be always removed before handling, or racing the engine, although in most cases this precaution is not taken, and no harm comes of same due to the extreme flexibility of the outfit, and in many cases the engine is "stalled" with the charge switch on, with absolutely no disturbance.



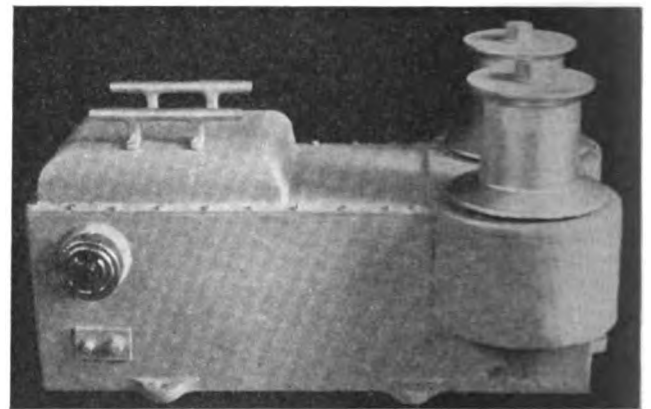
Matthews Yacht's Lighting Plant

The foregoing features are due to the fact that the generator field is excited from the storage battery through a special contact on the charging switch. Before charging, the switch can be closed to the charging contact; the field is therefore always constant regardless of variation in engine speed, and there can be no increase in charge current due to increasing the field, and the tendency to increase, due to high armature rotation, is taken care of by the resistance unit in series with the charging circuit. Further, by the use of a 25% weak generator field, high field distortion is allowed, thereby preventing the abnormal charge rate.

The field excitation is made through a contact before charging contact is made, and this excitation being from a constant source, the generator is not dependent on residual magnetism to build up its field. It is correctly polarized before the charge contact is made, regardless of whether it is of wrong polarity. It is also charged in proportion to the needs of the battery by the battery itself.

THE MATTHEWS AUXILIARY PLANT

Quite a different type of yacht's lighting set is to be found in the equipment made by the yacht-building concern of Matthews Boat Company.



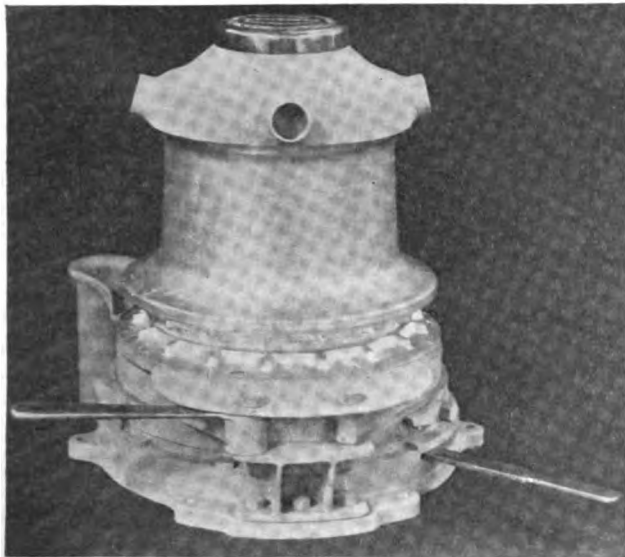
Matthews Yacht's Tender Hoist

inasmuch as a regular supply of current is maintained, irrespective of the storage batteries and running of the main engine, thus there is no need to economize lighting when a lengthy stay is made in harbor. Somewhat similar sets are made for boathouses and country residences, with the difference that the switchboard is combined in the engine base, whereas with the marine plant the switchboard is separate and is mounted on the engine room bulkhead.

The marine equipment supplies 50 lights, and consists of a single-cylinder, 2-h.p. four-cycle gasolene engine, directly connected to a 32-volt generator, the two being mounted on one cast-iron bed-plate. There also is an enclosed type 32-volt storage battery. The latter is used more for the purpose of starting the engine and for its control rather than for actual lighting, as with all heavy loads the engine carries the load, and so only 15% of the battery is discharged under any condition, when it is automatically replaced. The duo use assures a clean and steady light, apart from giving long life to the battery. The lubrication is taken care of by a positive-

driven pump to all moving parts, and as the pump is located under the level of the oil reservoir, there is no danger from failure of the pumping system, as a sufficient supply is always provided for the engine.

This equipment is furnished with either hand-operated or a full-automatic switchboard. The full-automatic plant starts the engine without any attention from the crew, when the batteries have reached a certain point of discharge, and when batteries have been fully charged, the plant automatically shuts down, with no further attention required. This may appear to be hot-air, but on one



Mattheus Electric Capstan

of the trials this plant automatically stopped and started over 2,500 times, without any intervening adjustments of any kind. This would represent a number of years' general service aboard a yacht.

YACHT'S TENDER HOIST AND CAPSTAN

Two other valuable electrical accessories made by the Mattheus Company consist of a yacht's tender hoist and a capstan, respectively. The boat hoist is a device that should appeal to the yachtsman, particularly to the owner of a medium-sized boat, where no crew or only a small crew, is carried. In such cases, one of the hardest tasks is getting the power tender or dinghy on board. With the use of this hoisting equipment, one man can readily lift a boat up to 1,500 lb weight, and do it perfectly. The equipment is made up of areo metal, all

waterproof, motor inside with worm-drive and two vertical capstan spools, all rotating in opposite directions. All moving parts run in a bath of oil.

With regard to the capstan, this consists of an ap-



Dayton Hand-Lamp for Engine Room



A Boat's Searchlight

paratus made up of areo metal, which is a non-corrosive alloy, with nearly the light weight of aluminum and the strength of bronze. The motor reduction gears, and in fact, all moving parts, are enclosed within the capstan shell and the capstan shell has ball-bearings throughout. All gears run in transmission grease and are wholly enclosed and weatherproof. On test, the equipment made a direct pull of 1,200 lb, at an average rate of 16 feet per minute, with a current consumption of only 750 watts. The weight is only 280 lb, which the makers claim is about one-fifth of that of any other electric equipment of equal power they know of on the market. The construction is very rugged, and with several of these equipments that have been out for two years, they have never had any trouble.



TROPHY FOR MARBLEHEAD RACE

MR. J. STUART BLACKTON, with his usual generosity, has very kindly put up a trophy for the Marblehead Cruiser Race, which will be held under the auspices of the Corinthian Y. C. and the Long Island section of the American Power Boat Association.



The Four Sterling-Engined Torpedo Chasers One of Which Was Described in the April Rudder

EFFECT ON BREADTH ON THE SPEED OF HYDROPLANES

A PAPER RECENTLY READ BEFORE THE INSTITUTION OF NAVAL ARCHITECTS

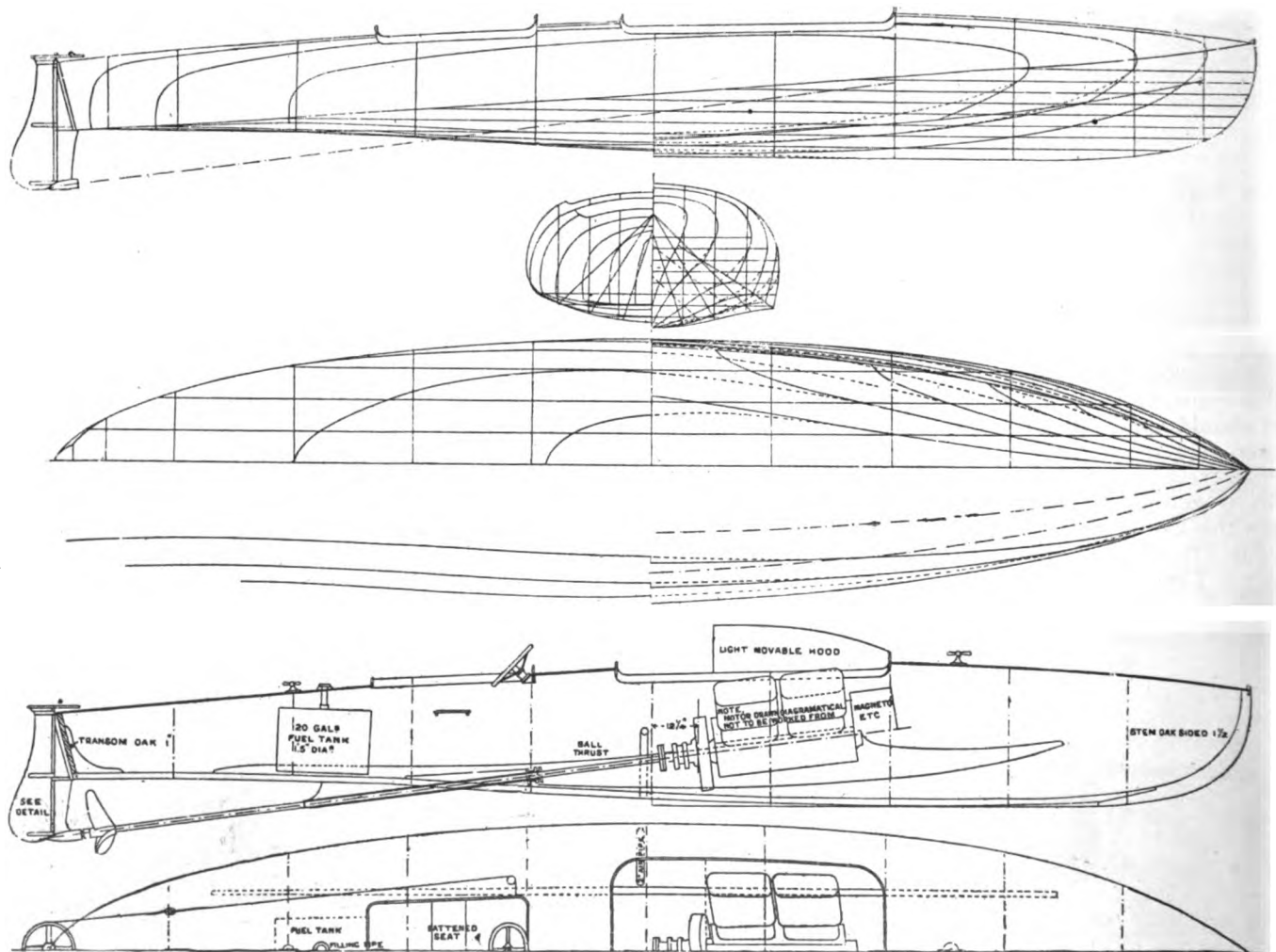
Linton Hope, M. I. N. A.

BEFORE going into details, perhaps it may be as well to explain how I arrived at the formula which has led me to believe that beam has such a marked effect on the speed of hydroplanes. Being commissioned to design that fastest hull that I could produce, to take a certain motor, which the owner stated to be 250-b.h.p. to 300-b.h.p. and only 1,100 lb weight, I thought I saw a possibility of attaining a fairly high speed, provided these statements were correct, and provided I made no mistake in the selection of the type of hull, which would, of course, be a skimmer or hydroplane of some sort. As there are three totally different types—multi-step, single-step, and stepless—it was not easy to say off-hand which would be the fastest, the designer of each type naturally claiming superiority over the others. I therefore set to work to collect all available data of the actual performances of well-known hydroplanes of each of the three

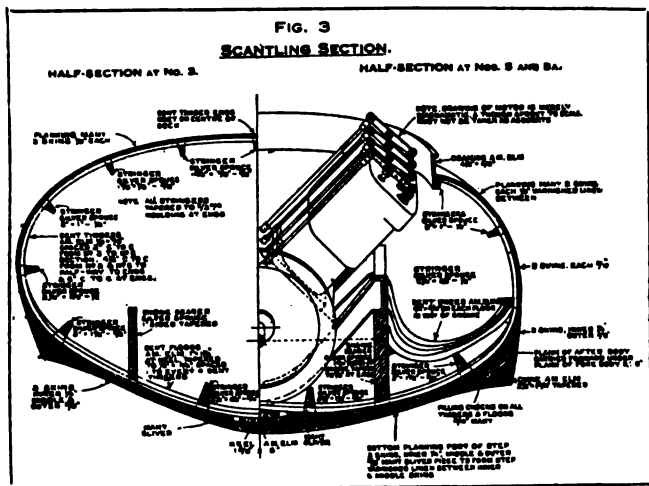
types, tabulating them according to the ratios of $\frac{W}{P}$ and $\frac{V}{L}$, which enabled me to eliminate those which were obviously bad performers.

Altogether I obtained details of some fifty or sixty hydroplanes and fast boats, for which I have to thank the various builders, and especially Messrs. Thornycroft, who very kindly put at my disposal an enormous amount of extremely accurate and carefully compiled data; but I am indebted most of all to Dr. R. E. Froude for his most generous assistance and advice regarding the formulæ.

The first result of my tabulation, after knocking out the obvious "wasters," was to show that the three types already mentioned must be treated separately, the single-step being much superior to the stepless, while the multi-



Figs. 1 and 2. Hope-Thornycroft Skimmer, 26 Ft. x 5 Ft. 6 In.



step appeared to come somewhere between the two. Even with this further classification there were many examples of the same type, where length, power and weight were the same, or nearly so, while the speed varied considerably, even when (as in one case) the same propeller and motor were transferred from one boat to another.

It was now fairly clear that I must go farther than the simple ratios of $\frac{W}{P}$ and $\frac{V}{\sqrt{L}}$ to find out what speed I should expect from a certain combination of weight and power in a hull of a given type, and on arranging the various examples of each of the three types in the order of their $\frac{B}{L}$ ratio, it became apparent that, other things being equal, the beamy boats had a decided advantage in speed, at any rate when the ratios $\frac{V}{\sqrt{L}}$ and $\frac{L}{\sqrt{W}}$ were high, and, of course, under favorable conditions of sea and wind. As this agreed with aeronautical experience regarding the "aspect ratio" of aeroplane wings, I felt the more convinced that beam in some form should be taken into account, and in my first experimental formula I tried $\sqrt{L+B}$ in place of \sqrt{L} , and certainly obtained better results than before.

Not feeling much confidence in my mathematical abilities, I submitted my crude formula and examples to Dr. R. E. Froude, who most kindly went into the matter very carefully, correcting a dimensional error, and also showing me how to express the formula in a much simpler manner.

Although approving of the formula generally, he strongly objected to the introduction of beam in any form, on the ground that only one dimensional factor was necessary or desirable, and that the proper proportion of beam for any given conditions would be determined by experience, while its introduction in the formula might lead to a wrong conception of its true value when designing future boats. Admitting this fully, there yet remains the fact that our knowledge of the best proportion of beam to length is very slight, so, for analytical purposes only, I ventured to go against Dr. Froude's advice, and have used a constant varied by the ratio $\frac{B}{L}$, with results which certainly surprised me very much.

Turning to the formula as corrected, it now reads as follows:

$$B.H.P. = \frac{W \cdot V \cdot \left(\frac{V}{\sqrt{L}}\right)^{1.4}}{C}$$

for power, and—

$$V \text{ (kts.)} = \sqrt[2.4]{\frac{P \cdot C \cdot L^7}{W}}$$

for speed. The co-efficient C is obtained by multiplying the constant for each type by the ratio $\frac{B}{L}$; thus $C = 66,000$

$\frac{B}{L}$ for single-step hydroplanes, while for the stepless type it would be $55,000 \frac{B}{L}$, or thereabout. The type constant 66,000 or 55,000 would again vary according to the ratio $\frac{E.H.P.}{B.H.P.}$; but, as this appears to vary only from .47 to .48

in most of the examples which I have obtained, I have taken .475 as a mean propulsive co-efficient, and fixed constants of 66,000 and 55,000 for the two types.

It is unfortunate that in many of the examples I have been unable to ascertain the exact E.P.H., but in several instances it has been obtainable, notably in the case of Sir John Thornycroft's Miranda IV, which has the highest efficiency of any example of a racing hydroplane which I have come across. Miranda's ratio of E.H.P. to B.H.P. is .48, while the next highest (also a Thornycroft design) is .478, and most of the others appear to be about .475, except one, which is as low as .47.

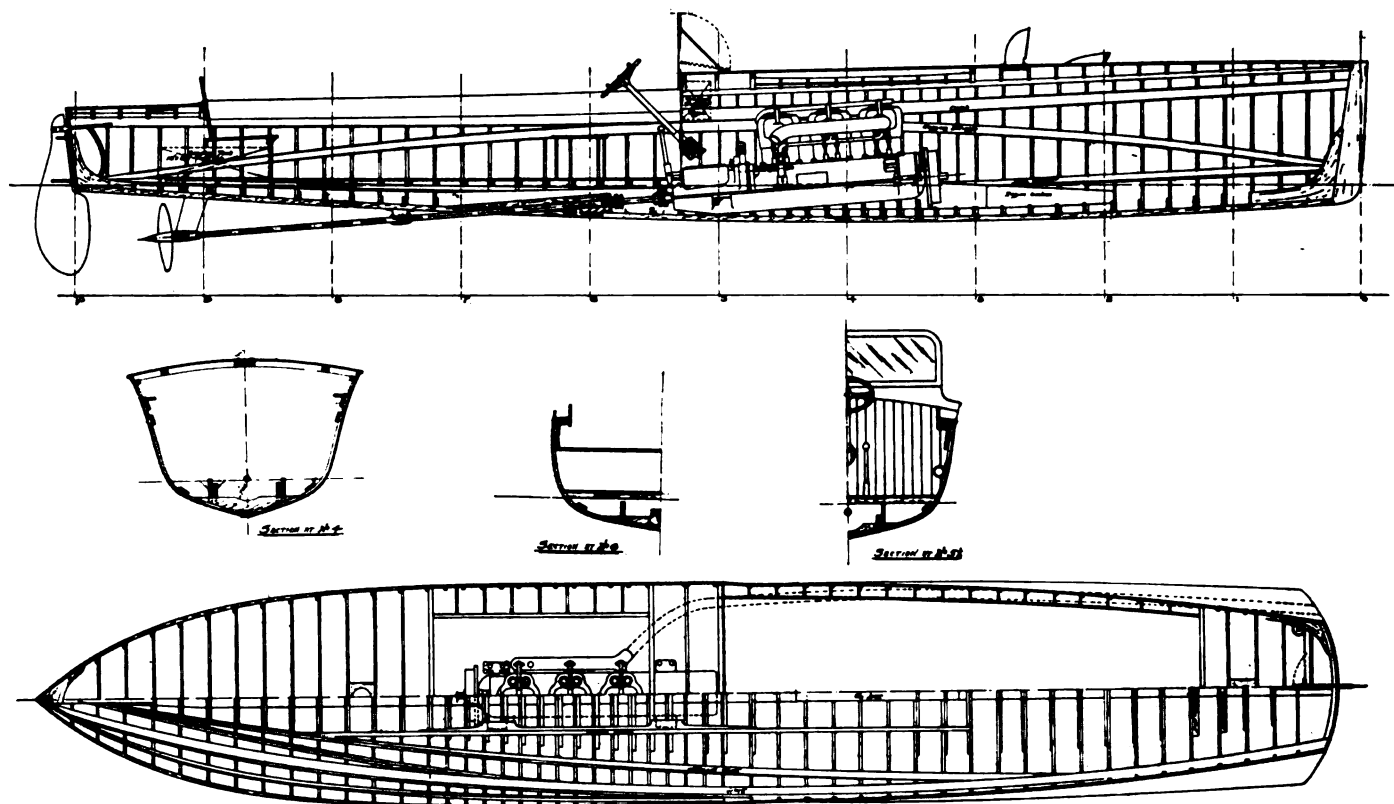
Taking .475 as the mean, we shall have to increase the constant $60,000 \frac{B}{L}$ to $138,950 \frac{L}{B}$ to obtain the approximate E.H.P. necessary for towing experiments, or for the floats of hydroplanes. For ascertaining the resistance only, the formula is simplified to

$$R = \frac{W \cdot \left(\frac{V}{\sqrt{L}}\right)^{1.4}}{K}$$

the value of the constant K being $425 \frac{B}{L}$ for the single-step and $355 \frac{B}{L}$ for stepless, while, for the multi-step type it appears to be about $400 \frac{B}{L}$.

Turning to the table of data of the various examples, the first six columns give the number of the example, length over all, beam (taken at the water-line across the plane or step), total running weight in lb, b.h.p. on trial, and mean speed on trial in knots. All thoroughly authenticated figures are printed in heavy type, those which have been obtained from reliable sources, but are not fully authenticated being printed in italic figures. In some few cases the figures given are only estimated, and are printed in ordinary type. I should explain that the examples in which some of the figures are merely estimated are only given to extend the range of size, except in No. 1, Class A, where the estimated power is known to be reasonably correct and the small beam ratio made the example of importance.

I should like to point out that the little boat, Flapper, was the first vessel to reach the speed of 40 knots, as the trials (at which I was present) were run early in the year 1910. Flapper, which was designed, owned and engined



Construction Plans of the Hope-Thornycroft Hydroplane

by Mr. M. E. Batting, was similar in type to Sir John Thornycroft's *Miranda III*, but much lighter in proportion, and, so far as I am aware, her ratio of $\frac{W}{P}$, 13.44 lb per h.p., has only been beaten by the French competitor for the British International Trophy last year.

I should have liked to have been able to include this latter boat in my table, as her best authenticated speed on the Seine is stated to be 51 knots, but, although the following figures are believed to be fairly correct, I have been unable to verify any of them; still, as they may be of some interest, I give them here: Length, 7 meters, or 23 feet; beam, 1.6 meters, or 5.45 feet; weight, 3,360 lb; power, 325-b.h.p.; and speed, 51 knots; ratio $\frac{W}{P} = 10.34$ lb per h.p.

Although I have only referred to three types of hydroplanes, which I have classed A, B and C in the order of their efficiency, I have included a fourth, Class D, in the table, as these three examples, which are ordinary racing motor boats of the type in vogue before the advent of the hydroplane, undoubtedly skimmed to some extent, and were of value in the table on account of their $\frac{B}{L}$ ratio being very low, thus enabling me to extend the range of $\frac{B}{L}$ from .1145 up to .36.

Returning to the table, after five columns of data, we have three columns of the ratios—

$$\frac{B}{L}, \frac{W}{P}, \text{ and } d\sqrt{\frac{V}{L}};$$

then in the next column the type constants—

$$C = 66,000 \frac{B}{L}, 618,000 \frac{B}{L}, \text{ and } 55,000 \frac{B}{L},$$

according to the classes A, B and C, and in the adjoining column the constant c obtained by the formula—

$$c = \frac{W.V \left(\frac{V}{\sqrt{L}} \right)^{1.4}}{P}$$

The twelfth column gives the percentage of error between the last two columns, and the others give power and speed obtained by the formula with the percentage of error. It will be seen that, except in the case of two boats in Class B, and two in Class D, the error is generally well under 1%. Even in these cases the maximum error is only 1.69%, while the average error of all the examples in Class A is 0.37%, in Class B 0.85% and in Class C 0.25%.

The example, No. 4, in Class B, is of interest, beyond the fact that she is the widest example obtainable, as she is the only one fitted with an aerial propeller similar to that of an ordinary aeroplane. Her performance is above the average, but it is impossible to say how much is due to hull design and how much to propeller efficiency. The difference, however, does not appear to be sufficient to warrant the claim so frequently put forward by aeronautical experts that aerial propellers are far more efficient than the ordinary marine type, *unless the effect of beam has now become detrimental* on account of the high ratio of $\frac{B}{L}$, 0.36. It is obvious that the beneficial effect of beam must have some limit, and I should expect that limit to be reached with a $\frac{B}{L}$ ratio of 0.3.

$$\text{No. } \begin{matrix} L \\ \text{L.O.A.} \end{matrix} \begin{matrix} B \\ \text{Beam.} \end{matrix} \begin{matrix} W \\ \text{Weight.} \end{matrix} \begin{matrix} P \\ \text{B.H.P.} \end{matrix} \begin{matrix} V \\ \text{Speed.} \end{matrix} \begin{matrix} B \\ L \end{matrix} \begin{matrix} W \\ P \end{matrix} \begin{matrix} V \\ \sqrt{L} = 66,000 \frac{B}{L} \end{matrix} \begin{matrix} C \\ W.V. \left(\frac{V}{\sqrt{L}} \right)^{1.4} \end{matrix} \begin{matrix} \text{Error} \\ \text{per cent.} \end{matrix} = \frac{P}{C} \begin{matrix} P \\ W.V. \left(\frac{V}{\sqrt{L}} \right)^{1.4} \end{matrix} \begin{matrix} \text{Error} \\ \text{per cent.} \end{matrix} = \sqrt[2.4]{\frac{V}{CPL}} \begin{matrix} \text{Error} \\ \text{per cent.} \end{matrix}$$

Class A.—SINGLE-STEP TYPE.

No.	Feet.	Feet.	Lbs.	Knots.						Per cent.		Per cent.	Knots.	Per cent.	
1	33.00	6.55	5,200	268.00	41.80	.1985	20.00	7.276	13,101	13,052	-0.39	266.98	-0.38	41.86	+0.10
2	28.00	6.00	3,023	108.00	35.00	.2143	27.73	6.614	14,145	14,062	-0.59	105.36	-0.60	35.10	+0.29
3	25.00	5.50	2,350	105.33	38.00	.2200	22.31	7.600	14,520	14,505	-0.10	105.21	-0.11	38.02	+0.05
4	22.50	5.00	1,820	40.00	27.80	.2222	45.50	5.863	14,667	14,691	+0.16	40.07	+0.17	27.52	-0.10
5	22.50	5.00	2,000	54.00	30.01	.2222	37.04	6.339	14,667	14,751	+0.57	54.30	+0.56	29.97	-0.13
6	40.00	9.00	11,700	720.00	50.20	.2250	16.30	7.936	14,852	14,826	-0.17	718.79	-0.17	50.26	+0.12
7	15.00	3.40	672	50.00	41.00	.2267	13.44	10.586	14,963	14,990	+0.17	50.08	+0.16	40.96	+0.10
8	28.00	6.00	2,850	55.00	28.50	.2308	48.18	5.589	15,233	15,275	+0.27	55.15	+0.27	28.47	+0.11
9	28.00	6.00	3,100	109.00	35.58	.2308	28.44	6.974	15,233	15,382	+0.98	110.04	+0.95	35.46	-0.28
10	22.00	5.25	1,568	66.00	37.00	.2387	24.00	7.889	15,754	15,850	+0.61	66.39	+0.59	36.94	-0.16
11	20.50	5.50	1,540	78.00	41.00	.2683	18.67	9.055	17,709	17,709	-0.05	77.96	-0.05	41.02	+0.04

No. 2.—This boat had the engine and propeller of No. 9. No. 4.—Sister boat to No. 5. No. 5.—Geared propeller. No. 6.—Speed only attained once. No. 7.—"Flapper" with plane. No. 8.—"Miranda IV" with small motor. No. 9.—"Miranda IV" with large motor.

$$C = 61,800 \frac{B}{L}$$

Class B.—MULTI-STEP TYPE.

1	28.24	5.25	1,985	63.00	30.00	.2000	31.19	5.974	12,360	12,269	-0.88	62.49	-0.81	30.79	+0.13
2	28.24	5.25	1,800	66.00	32.50	.2000	28.34	6.345	12,360	12,230	-1.05	65.24	-1.15	32.64	+0.43
3	28.24	5.25	3,095	153.33	37.77	.2000	20.18	7.373	12,360	12,502	+1.15	155.07	+1.37	37.54	-0.61
4	18.00	6.50	1,000	30.00	39.00	.3600	25.64	9.192	22,248	22,235	+0.35	39.10	+0.35	38.94	-0.15

Nos. 1, 2 and 3.—One hull with different powers and weights. No. 4.—Aerial propeller.

$$C = 55,000 \frac{B}{L}$$

Class C.—STEPLESS TYPE.

1	21.00	4.25	1,438	38.00	28.00	.2024	38.32	5.674	11,133	11,166	+0.30	38.10	+0.26	25.97	-0.12
2	21.00	4.33	1,531	45.00	27.30	.2062	34.02	5.957	11,340	11,297	-0.38	44.83	-0.38	27.34	+0.15
3	21.00	4.50	1,330	40.00	28.00	.2143	33.47	6.109	11,787	11,816	+0.25	40.10	+0.25	27.96	-0.13
4	15.00	3.40	670	50.00	38.00	.2267	13.44	9.811	12,466	12,455	-0.09	49.94	-0.12	38.02	+0.05

Nos. 1, 2 and 3.—B.M.B.C. 21 ft. class. No. 4.—"Flapper" without plane.

$$C = 55,000 \frac{B}{L}$$

Class D.—DISPLACEMENT TYPE.

1	40.00	4.58	4,700	247.00	32.97	.1145	19.03	5.213	6,298	6,335	+0.59	248.00	+0.40	32.91	-0.18
2	39.48	5.00	5,071	145.78	28.58	.1251	34.80	4.237	6,881	6,986	+1.53	147.87	+1.49	26.44	-0.54
3	39.00	5.00	5,000	140.00	25.10	.1253	40.47	3.973	6,893	7,010	+1.69	142.35	+1.68	24.94	-0.63

No. 1.—"Dixie II." No. 2.—"Legru-Hotchkiss." No. 3.—"Hutton II."

Effect of Beam on the Speed of Hydroplanes—Table of Data

Turning to the illustrations, the table below shows the variation of the constant (C) for each type according to the ratio of $\frac{B}{L}$, and the numbered circles indicate the various examples placed in accordance with C as found by the formula. Plate I (not reproduced) also shows with small circles some results of tank experiments made by Mr. G. S. Baker with five models of floats for hydro-aeroplanes. Unfortunately, these models are all very heavy in proportion to their length and power, their ratio of—

$$\frac{L}{\sqrt{W}}$$

being 1.05 to 1.36, while, so far as I am aware, none of the real hydroplanes have ever obtained satisfactory results with this ratio below 1.7.

In my examples the average is 1.83, and runs up as high as 1.93 which amounts to a difference of 74% between the widest model and the average of the real boats of the same single-step type in Class A.

Mr. Baker's toboggan-shaped stepless model No. M98, was extraordinarily efficient and attained a speed of 24 knots with only 12.75-e.h.p. If we take her probable power at a speed of 22 knots to correspond with the two previous models, it appears to be about 14-e.h.p., or, say, 29.5-b.h.p., which gives her a constant of 9,893, whereas the formula for the C Class only gives her a constant of 7,895, so that even at 22 knots, her constant is 25.6% better than that of any of the stepless racing hydroplanes of which I have been able to obtain particulars and results. This discrepancy may perhaps be due to the model trials

having been made on perfectly smooth water, a condition which can never be obtained on the sea with a real boat. This rectangular toboggan-form of hull has proved most inefficient in actual practice, even under ordinary smooth sea conditions; but no doubt it may be the best on absolutely smooth water, as in the present instance, and it has the virtue of simplicity for construction and repair, which makes it a favorite form of float on hydro-aeroplanes.

In spite of these very valuable advantages, I feel sure that, for a given weight and size, a much stronger and more efficient form of float can be designed to suit the usual sea conditions which hydro-aeroplanes have to encounter, perfectly smooth water being very rarely met with. Such a form as I have in my mind would be just as easy to repair as the toboggan-form, and, although it would undoubtedly cost more to build, the great increase in strength for a given weight or decrease in weight for a given strength, in conjunction with probably much superior speed in disturbed water, would be well worth the extra expense. Such floats can be built to weigh only about 90 lb to 95 lb each for 720 lb displacement at rest, with 830 lb reserve buoyancy. Larger ones would have the same proportion of weight to displacement, but their cost would not increase in the same ratio.

In Fig. 1 is a Thornycroft type of hydroplane representative of Class A, and her construction drawings are shown in Figs. 2 and 3. Fig. 4 (not reproduced) gives a general idea of a multi-step hydroplane of the Fauber type, Class B.

[We shall be glad to receive for publication criticisms and opinions on Mr. Hope's interesting article.—EDITOR.]

4500 REVOLUTIONS PER MINUTE

IN the light car and cyclecar industry in Great Britain, extraordinarily high speeds are being attained with four-cylinder, four-stroke-cycle motors, and one engine has made 4,500 r.p.m. on the test-bed. This remarkable machine has steel pistons machined from the solid and drilled for lightness, while the steel cams have a specially high lift, and the carbureter is hot-water-jacketed from the cylinders. The bore is 62 mm. ($2\frac{1}{2}$ inches) by 90 mm. ($3\frac{1}{2}$ inches) stroke, giving a capacity of 1,186 c.c. It may be thought that such a motor would be very expensive, but it seems that such is not the case, as the entire car, complete with equipment and spars, is but \$1,250.

Another engine, but of different make, develops 37-b.h.p. at 3,720 r.p.m. This is the limit of its power; for at 3,820 r.p.m., only 36-b.h.p. is developed.

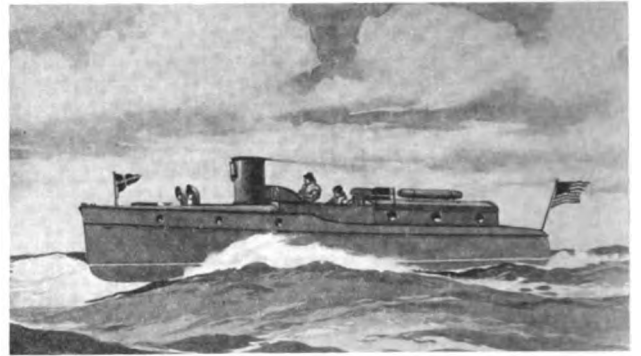
As such motors, if fitted in small, light, bow-wave-collecting boats, or hydroplanes and geared down, would give unusually high speeds for the power, we hope shortly to publish drawing and full details.

M. B. C. A. ONE-DESIGN CLASS

WE recently had the pleasure of a run on the first of the one-design 21-foot motor boats for the Motor Boat Club of America. Although the craft was not completed, the deck not having been built, she proved to be very dry and seaworthy in broken water. At the time the engine had not been tuned up, nor the correct propeller fitted, but a speed of over 22 m.p.h. was attained as a mean of six runs over the measured mile on the Hudson. All of these boats will have 35-h.p. Loew-Victor engines installed, and the hull design is of the reverse-curve, or bow-wave-collecting type, which, of course, is a great improvement over the displacement design for high-speed work. An illustration of the first boat is given on page 278.

NEW HIGH-SPEED CRUISER

To the already lengthy list of new high-speed cruisers may be added a boat designed for Mr. H. Wesson, by



Mr. H. Wesson's New Speed Cruiser

Swassey, Raymond & Page. This craft is to be light, but seaworthy construction and will be of the fair-lined displacement type, 39 feet 6 inches long water-line, by 7 feet 8 inches breadth. Her power plant is to be an eight-cylinder, $5\frac{1}{2}$ inches by $6\frac{3}{4}$ inches Sterling motor, of 150-n.h.p., but developing about 175-b.h.p. at 1,200 r.p.m. Her builders are Britt Bros., of Lynn, Mass. To us it seems that the reverse-curve, or bow-wave-collecting type of hull design could well have been applied to this particular boat, as an increased speed could have been obtained, at the same time improving the seaworthy qualities, especially as we understand that her owner may enter her for long-distance races during the season. The new cruiser will fly the burgee of the N. Y. Y. C.

REGATTA COMMITTEE OF THE M. B. C. A.

ON May 24th the following were elected as the regatta committee of the Motor Boat Club of America. Mr. August Heckscher (Chairman), Mr. Alan R. Hawley and Mr. Chas. M. Englis. The fleet captain is Mr. Alvah Nickerson. The duties of secretary, which position Mr. Morris Whitaker recently resigned, have been taken over by Mr. H. W. Williams.



A Thirty-Five-Foot Elco Express Launch. Engine 65-H.P. Elco. Speed 22 Miles per Hour



Producer Gas-Driven Freighter Richmond

PRODUCER GAS FOR MARINE POWER

A FORM OF POWER THAT IS RAPIDLY DEVELOPING IN THE UNITED STATES BY REASON OF ITS LOW FUEL COSTS

A. L. Galusha

GAS producers are related to internal-combustion engines, such as gas, gasoline and oil engines, in the same manner that steam boilers are related to steam engines. The steam boiler, as is well known, by using coal, wood or oil fuel, makes steam which is turned into power by the steam engine. The gas producer, by using solid fuel, makes gas which is then turned into power by the gas engine.

The reason for using the producer and gas engine instead of the average steam engine power plant, is that it is much more economical, weighs less, takes up less room, and requires less work and attention. For instance, the average marine 100-h.p. steam plant will average in use from 4 to 8 lb of coal per horsepower hour, whereas a gas producer plant will use but one pound of coal per horsepower hour. In other words, if a steam 100-h.p. plant runs 10 hours full power, it will average in use about 6,000 lb of coal, whereas the producer plant, giving exactly the same amount of power, uses but 1,000 lb of coal to give the same amount of power. This means but one-sixth as much coal to buy and provide room for on the boat, to say nothing of the saving in weight and labor.

The producer is added to the gas or gasoline engine because it saves fuel cost, insurance cost, and danger. Eight pounds of coal does the work of a gallon of gasoline. Producer gas coal at \$5 per ton is as cheap as gasoline at 2 cents per gallon. Producer gas coal at \$10 per ton is as cheap as gasoline at 4 cents per gallon.

In addition to its remarkable economy, the marine gas producer weighs but from one-fourth to one-third as much as a Scotch marine boiler and takes up only about one-third as many cubic feet of space as a water-tube boiler. It also requires less help, as the coal is charged into the producer in large quantities in comparatively cool quarters at intervals of about 4 hours, whereas with the steam plant it is necessary to have stokers in constant attendance.

Money invested in gas producers, used say 10 hours per day, averages to earn about 100% per year, as compared with steam, and 200% per year as compared with

gasoline, etc., used for power purposes. The users of some of the boats illustrated in this article say that the cost of insurance on their boats is but one-half as much as it was when they used gasoline instead of producer gas.

Producer gas power is being adopted at a very rapid rate. The United States Government has, during the last few years, carefully investigated over 1,000 plants in use in this country as well as foreign plants. The Government has made accurate tests with many kinds of fuel in the producer plants owned by the Government, and has printed several pamphlets on the subject, which speak in the highest terms of this new means of developing power, with a surprisingly small fuel consumption, a total absence of smoke when in operation and an engine exhaust, clean, colorless and odorless.

Those who have only seen the crude and entirely experimental producers that were built a few years ago, and who are only familiar with the erratic operation of this mechanical "baby," when it was first "learning to walk," or "to go alone," are surprised to see how quickly it has developed and taken its proper place in the world. The steam-power man can no longer truthfully call the up-to-date gas-power plant unreliable. Insurance reports for Great Britain giving averages for an entire year of land installations, show that there was an average of one break-down in every eight among steam plants, whereas there was but an average of one break-down in twelve among gas power plants. These averages of hundreds and hundreds of plants show the gas plant not only as reliable as the steam plant, but more reliable than steam plants of the same size.

[Several important British engineering concerns have made attempts to build and run producer-gas-engined craft, even the Admiralty tried out an engine of 500-h.p., but none of the experiments proved successful, although land installations may have been satisfactory.—EDITOR.]

One of the illustrations depict the twin-screw, tunnel-stern producer-gas-powered barge, Richmond, owned by the Augusta-Savannah Navigation Company, and which

had a very successful trial trip the latter part of 1914. She is a fireproof steel barge, 150 feet long by 30 feet breadth, having a mean draught, when running light, of but 24 inches; 125 tons of freight are carried with a draught of but 31 inches, 320 tons of freight on a 4-foot river. The tonnage of the barge is 568. Her hull is divided into five or more watertight compartments. Solid freight is all carried above the deck. There are two freight compartments, each 52 feet long and 26 feet wide. The clear headroom in the freight space is 15 feet.

Propulsion is by two gas engines of 72-h.p. each. Each engine drives a propeller wheel in a tunnel in the stern and the distance between the two engines and between the two tunnels is about 12 feet. Gas is supplied to the two engines by one 150-h.p. marine gas producer, built by A. L. Galusha & Co., 315 Atlantic Avenue, Boston, Mass. About 150 lb of coal is the total amount of fuel used per hour by the gas producer to make gas for the two engines. The fuel consumption running full power 24 hours per day for about 4½ days per week, and for operating and manipulating about crowded docks picking up freight most of the remaining 2½ days in each week is from 8 to 11 tons.

Steam plants on boats of even less size and of the stern wheel type, take up more than twice as much space fore-and-aft, and leave but half as much enclosed freight space. The steam plants also require several times as much fuel for which additional weight and bunker space provision must be made. There is a first-class stern wheel steamboat operating on the same line, also making one trip per week. She is slightly shorter in length and has but one-half as much enclosed freight space, yet she consumes 25 tons of coal and 10 cords of wood per trip as against 8 to 11 tons total fuel consumption on the producer gas barge.

The remarkable compactness of the power plant is indicated by the over-all dimensions from the rear of the aft freight room to the after side of the gas producer. In this space of but 16 feet fore-and-aft, is the engine room and the gas producer. In the engine room there is placed, in addition to the engines, bilge pumps, air compressor, storage batteries for electric lights and high-powered searchlight, a 10-kilowatt electrical generator, and a very powerful fire pump, capable of delivering two streams from 1-inch nozzles.

The Richmond has a speed of between 3½ and 5 miles per hour against the current, and of from 9 to 11 miles with the current. The owners are much pleased with results. At the present time they are having a

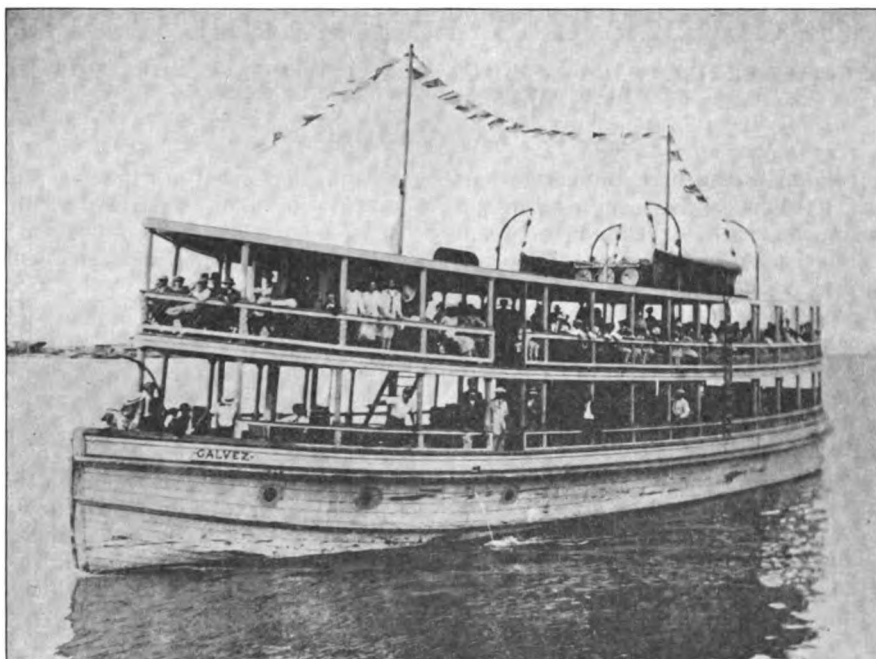
sister barge, the Chatham, built, in which a producer gas power plant, exactly like that in the Richmond, will be installed. Handling through freight on the 200 to 300-mile run between Augusta and Savannah, Ga., is the exclusive work of these two barges.

The Savannah River is extremely crooked, there being sharp reverse curves and swift cross currents. At times the river is very shallow. At other times there is a sudden rise in the water of from 20 to 30 feet. These rises with their swift currents will average to occur once and sometimes several times a month. Floating snags and logs are very common. A craft that can operate successfully here will operate most anywhere on inland waters.

The engineers state that it is very easy to operate the plant on continuous service. They have made continuous runs as long as 87 hours without a stop in rough flood time. They also state that engines are manipulated on producer gas about crowded docks picking up freight with the greatest ease. Engines can be manipulated from

dead slow up to high speed without any trouble. They can go from full speed ahead to full speed astern in but one-quarter of the time it usually takes a steam engine of the same size to do the same thing. On long runs, engines are operated at 325 r. p. m., although rated at 150-h.p. at 200 turns per minute.

Next I will discuss the passenger excursion boat, Galvez. She is 101 feet long and has been in use during the past two seasons at Galveston, Texas. She carries 318 passen-



Passenger Boat "Galvez"

gers, and a 100-h.p. motor in conjunction with a Galusha gas producer drives her. This 100-h.p. plant uses about one-half of a ton of coal per 10-hour full power run. If coal costs as high as \$8.25 per ton, the cost to run a 100-h.p. producer plant full power for 10 hours is only \$4.13. The lowest price at which gasolene is ever sold at Galveston is reported to be 9 cents a gallon. It would take 125 gallons of gasolene to give 100-h.p. for 10 hours of this work, at a cost of \$11.25. So the producer in the Galvez under most unfavorable conditions, saves the owner \$7.12 per day of 10 hours work. In New York producer gas coal can be bought for \$4 a ton. If it cost \$5 a ton, fuel expenses would be as low as gasolene at 2 cents a gallon. With gasolene at 15 cents a gallon, the saving is \$18.75 less \$2.50, or \$16.25 per 10-hour run. In many parts of Central and in South America, as well as in some sections of North America and foreign parts, gasolene and kerosene cost from 40 to 60 cents per gallon, and coal is \$12 to \$15 a ton.

(To be Continued)



TWELVE-FOOT OUTBOARD MOTOR DINGHY

IN last month's issue, the lines, construction plan and table of offsets of this boat were published, and as promised, the balance of the details are shown herewith.

There are two sail plans shown, the small one, sprit-sail, is the one which would generally be used in connection with the engine for general use. The large one, lug-sail, was intended for out and out sailing, such as might be used where a club had a fleet of these boats and wanted to sail them as a one-design class.

One special feature among the details I should like to call particular attention to. In all tenders that have a centerboard trunk in and are frequently towed, difficulty is experienced in keeping the water from coming through the slot in such quantities as to swamp the boat.

To prevent this, a watertight cover is made, which may be put on or taken off in a few minutes by means of the thumb-screw bolts shown.

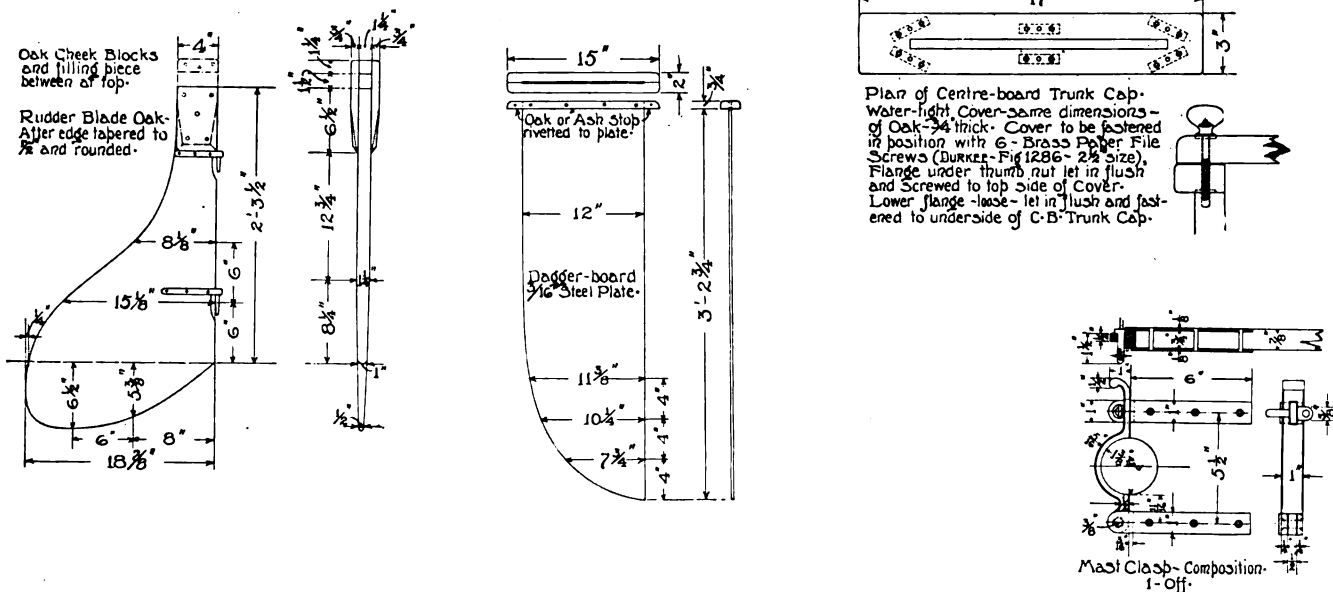
The lower flange, which acts as a nut, is fastened to the under side of the centerboard cap before the latter is fastened in place. The upper flange, to which the bolt

itself is fastened, is screwed to the top of the cover, directly over the lower ones.

If either surface is unfair or uneven, a piece of canvas may be tacked to the under side of the cover, with suitable holes for the bolts to go through, and thus insure an absolutely tight job.

Since publishing the lines, we have had several inquiries as to the cost of the boat. It is our opinion that, built by a good builder the boat will cost anywhere between \$100 and \$125 complete, without motor, sails or spars. We have received from the Valley Boat Company an estimate for the completed boat, without centerboard box or centerboard, of \$98.

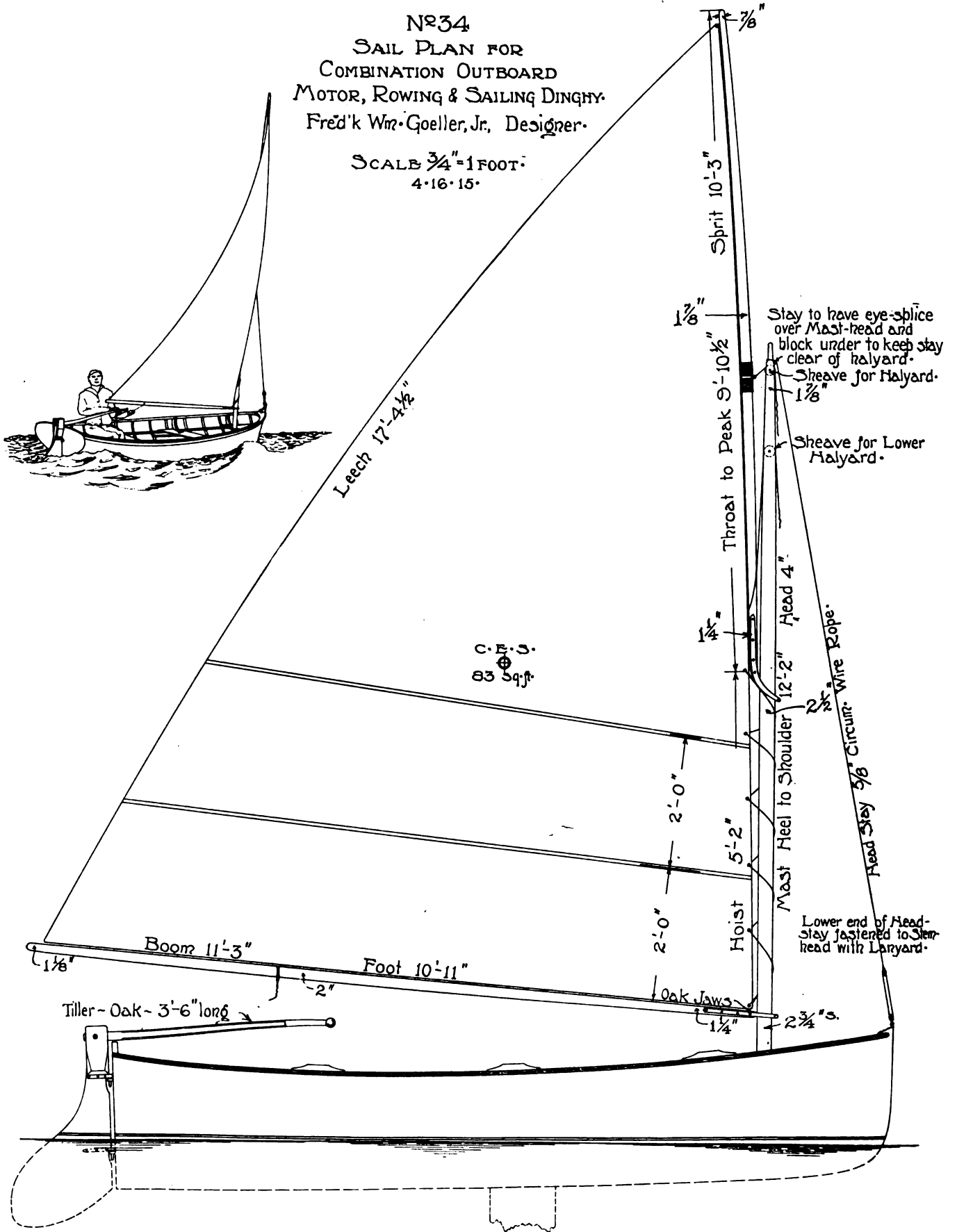
They will furnish just the planked hull, to be finished by the owner, for \$55; the frame, erected and ready for planking for \$32, and will furnish to anyone interested, prices for the balance of the materials necessary to complete the boat. For a man who desires to do at least a part of the work himself, from the above it will be seen that this can be easily done, at a saving both in labor and price.



Details of Twelve-Foot Dinghy. Designed by Fred. W. Goeller, Jr.

N^o 34
 SAIL PLAN FOR
 COMBINATION OUTBOARD
 MOTOR, ROWING & SAILING DINGHY.
 Fred'k Wm. Goeller, Jr., Designer.

SCALE $\frac{3}{4}$ " = 1 FOOT.
 4-16-15.



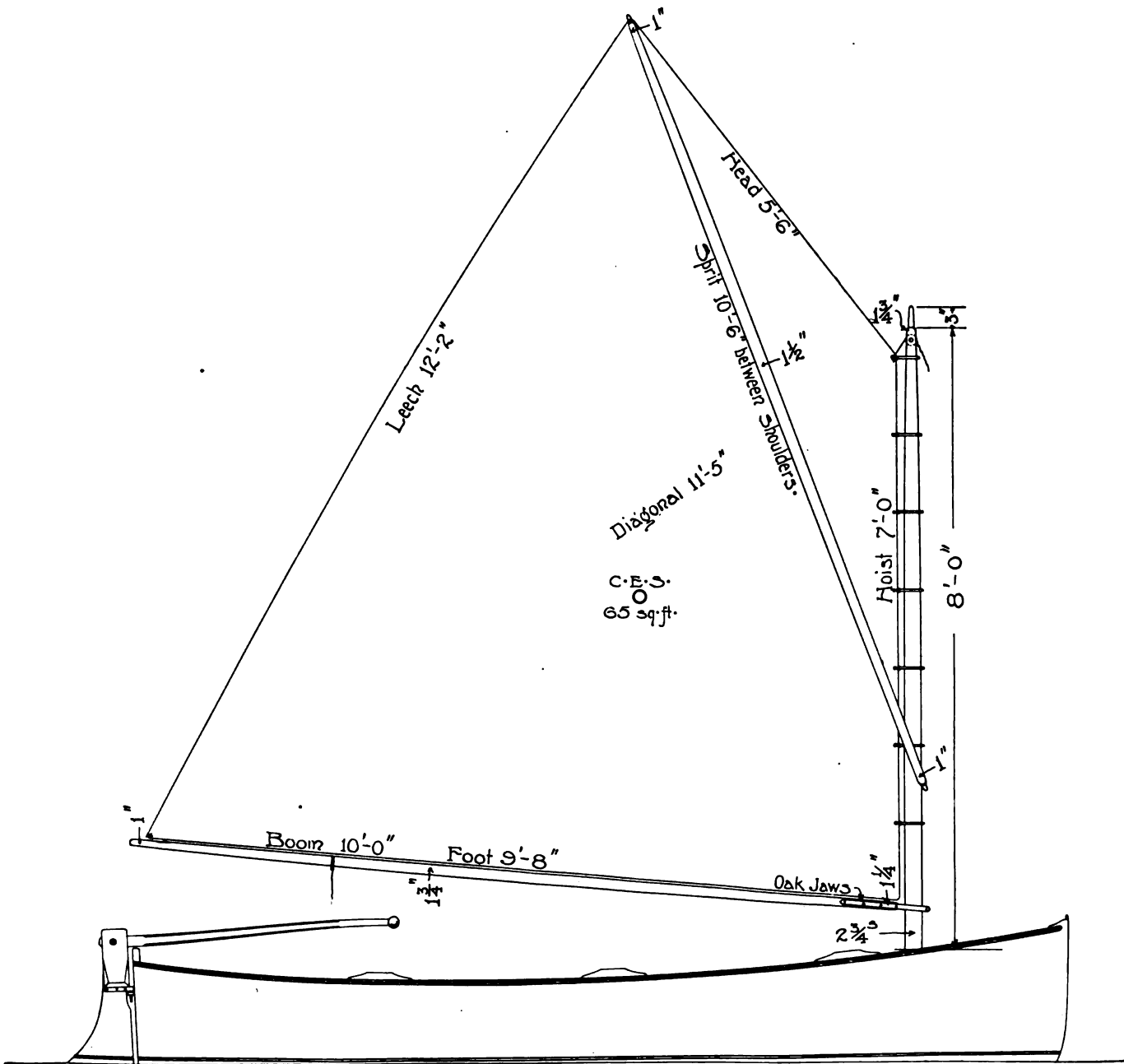
Large Sail Plan for Outboard Motor, Rowing and Sailing Dinghy

LONG ISLAND SOUND MOTOR BOAT ASSN.

Fred. W. Goeller, Jr.

A NEW section of the American Power Boat Association, to be known as the Long Island Sound Motor Boat Association, has recently been formed and will be composed of the various clubs of the Sound which now belong to the A. P. B. A. and, in fact, all of the clubs should join whether previously enrolled in the Association or not.

Those who have already joined are the Harlem Y. C., Huguenot Y. C., Knickerbocker Y. C., Motor Boat Club of America, New York A. C., New Rochelle Y. C., Port Washington Y. C., and the Stamford Y. C., and if the efforts of those who are working to swell this list meet with the success which they merit, this list should be doubled by the time this issue appears.



Spritsail for Outboard Motor Dinghy

There has been a very great need of this section for a number of years. The races held up to the present time have been more or less successful, but a lack of concerted action and of some such governing body has left Long Island Sound far behind the majority of the other eight local sections, as far as power boat racing is concerned.

There are as many and as fine power boats located on the Sound as will be found anywhere in the country, I might say the whole world, and we feel sure that by the end of the coming season, after the various events scheduled have been run, it will receive an impetus which will make it the real center of power boat activities.

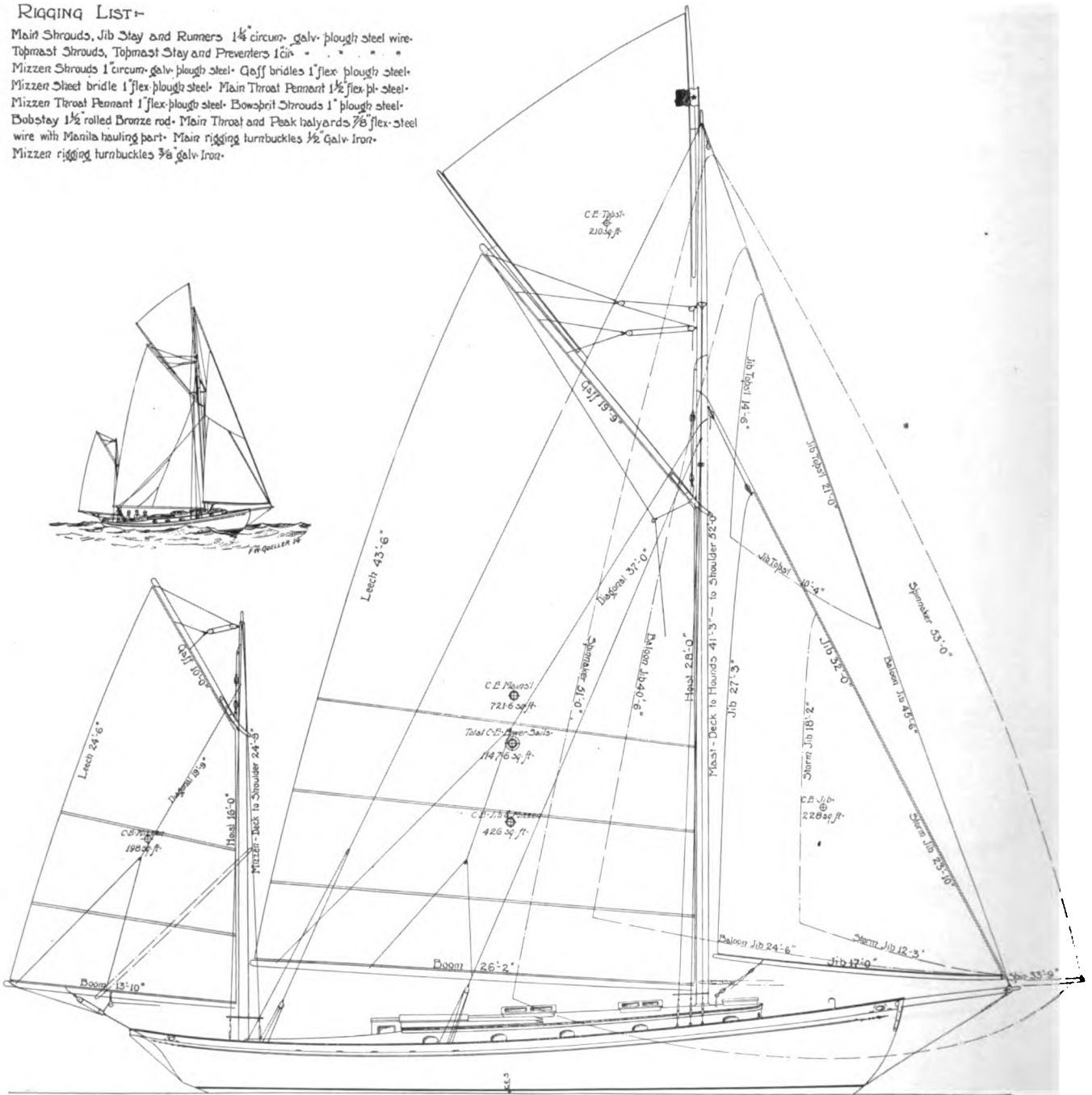
The object of this section shall be "promoting the general welfare of power boats and yachts in this locality, to formulate and record all data calculated to advance the sport, especially in rating and governing the trials of power boats and endurance runs, and to further legislation and the interests of the respective clubs composing this section."

The waters over which the Long Island Association will have jurisdiction extend from Hell Gate, on the West, to a line extending from New London to Montauk Point on the East, and includes all the bays, rivers, etc., on or running into Long Island Sound.

The Motor Boat Club of America has turned over the

RIGGING LIST-

Main Shrouds, Jib Stay and Runners $1\frac{1}{2}$ " circum. galv. plough steel wire.
 Topmast Shrouds, Topmast Stay and Preventers 1" " " " " " "
 Mizzen Shrouds 1" circum. galv. plough steel. Gaff bridles 1" flex. plough steel.
 Mizzen Sheet bridle 1" flex. plough steel. Main Throat Pennant $1\frac{1}{2}$ " flex. pl. steel.
 Mizzen Throat Pennant 1" flex. plough steel. Bowprit Shrouds 1" plough steel.
 Bobstay $1\frac{1}{2}$ " rolled Bronze rod. Main Throat and Peak halyards $\frac{3}{8}$ " flex. steel
 wire with Manila hauling part. Main rigging turnbuckles $\frac{1}{2}$ " Galv. Iron.
 Mizzen rigging turnbuckles $\frac{3}{8}$ " Galv. Iron.



Thirty-Eight-Foot Auxiliary Water-Line Yawl. Designed by Fred. W. Goeller, Jr.

management of the Gold Challenge Cup races to the Association, and they will be held on Manhasset Bay around the first of August.

Among the various other events, there is an effort being made to revive the Marblehead Race, to be run, starting from Marblehead, and finishing at the Western end of the Sound, just prior to the Gold Cup Races.

This would give the visiting boats from around Boston an opportunity of witnessing what practically amounts to the American speed boat championship in addition to the incentive of racing for the cup offered.

Another proposed race is that from New York to Portland, Me., to take the place of the Bermuda Race. If this is carried through it will start after the Gold Cup Races and should be participated in by the visiting Eastern boats as well as some of the Long Island boats, which have signified their intention of going.

The present officers of the Long Island Sound Motor Boat Association are: Thomas B. Taylor, Chairman; Herbert L. Stone, vice-chairman; H. W. Lowere, secretary, and Robert Haydock, treasurer, and while these men, together with the various committees, are doing a prodigious amount of work and are going to make the section a success, the co-operation of all those interested in the sport will help to lighten their load as well as to promote a good cause.

THIRTY-EIGHT-FOOT WATER-LINE AUXILIARY YAWL

It is almost impossible to say what type of power-propelled craft has made the greatest gain in popularity since the activities of 1914. It is safe to say that the auxiliary yacht will come very close to the type in which the growth has been most noticeable, at least, in such waters as are to be found any considerable number of sailing craft. Because of the wonderful growth of the motor-boat industry in the last few years, many believe that the days of sailing yachts are numbered.

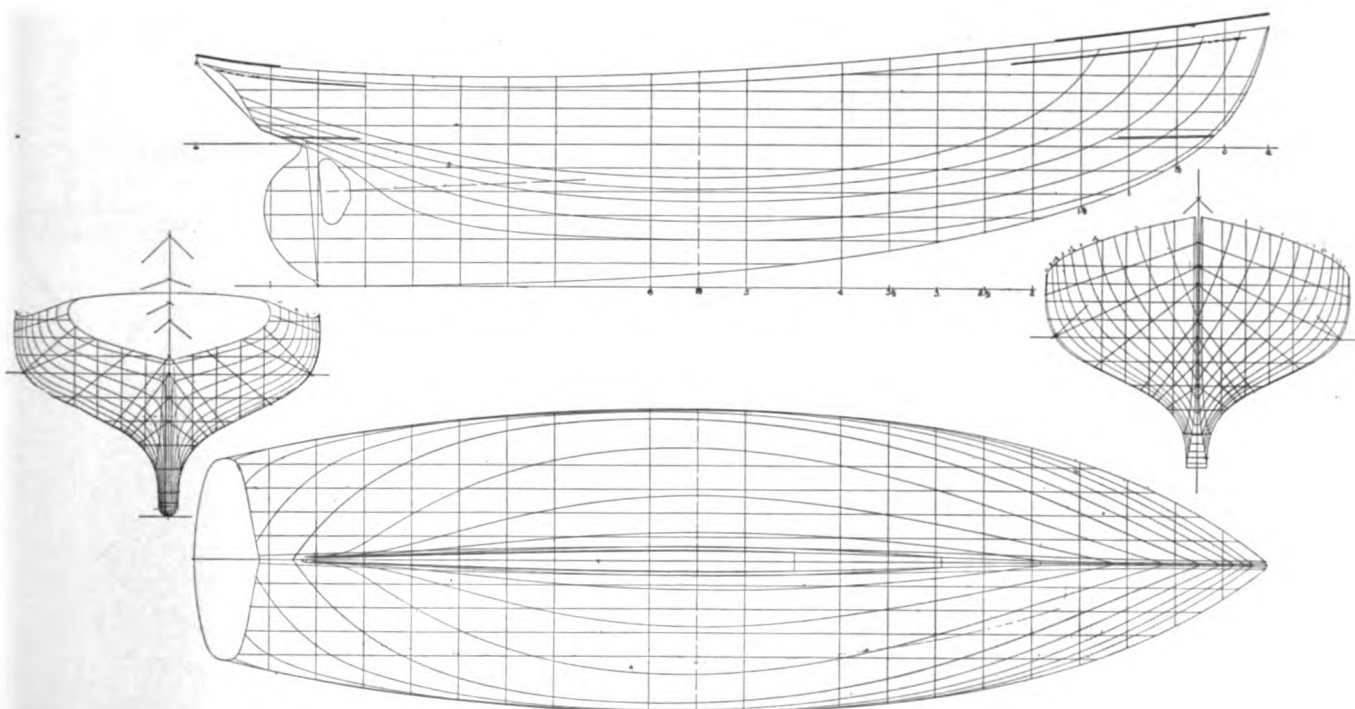
The proof of the ever-increasing popularity of sailing is best afforded by the records of the numbers of starters in the various regattas on Long Island Sound and to the Eastward. The 177 starters one day off Larchmont and 192 in a single day off Marblehead, are so far in excess of the greatest number of starters at either of those places ten years ago that there is no comparison.

However, there has been a certain merging of the two powers, sail and motor, in the auxiliary craft, and this has grown rapidly. Classes for auxiliaries are included in the schedules of many yacht club regattas, and they have taken an active part in long-distance races.

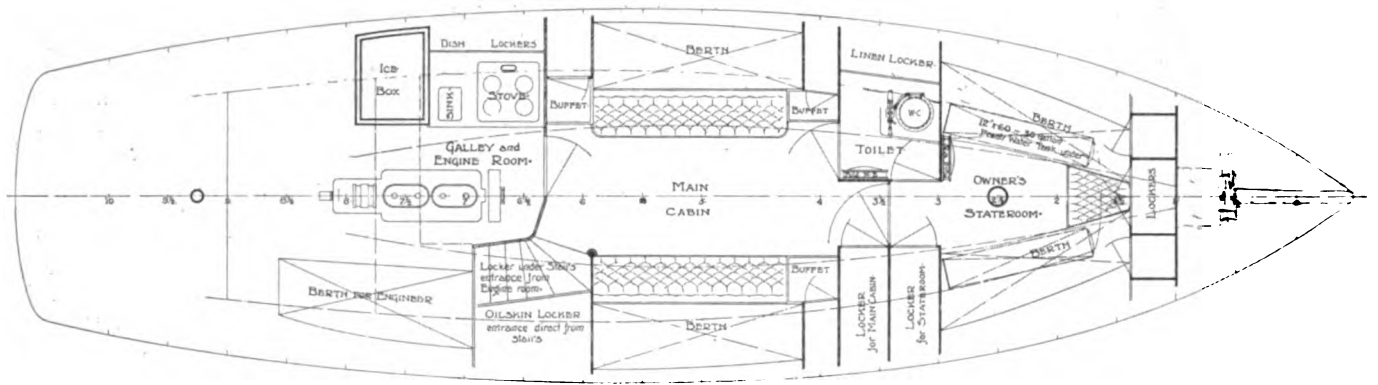
A class for auxiliary yachts has been suggested in connection with the proposed motor-boat race around Long Island, which is one of the fixtures of the Jamaica Bay Yacht Racing Association for this Summer, and it is probable that there will be several of these sturdy and doubly serviceable craft entered.

While the majority of the yachting contingent of Long Island Sound like a pure and simple sail yacht, the uncertainty of the weather and the necessity of being home or at business at a certain time results in there being but a very few out-and-out sailboats now building, the call being almost entirely for auxiliaries. There has recently been designed for Clifford D. Mallory a 38-foot water-line auxiliary yawl, the sail and power being split about fifty-fifty. This boat, from the board of Fred W. Goeller, Jr., presents many original features, among them being the entire separation of the engine room and galley from the owner's quarters and the elimination of the necessity of the hired man entering the latter except to clean up and serve the meals. The yacht will be 45 feet over all.

Great care has been taken in working out this design to produce a good all-around vessel. While the breadth of 12 feet 8 inches is generous, the underwater portion is fairly fine and will be easy to drive. The deep fore-foot and sharp sections forward will make her dry when



Lines of Thirty-Eight-Foot Water-Line Auxiliary Yawl. Designed for Clifford D. Mallory, Esq.



Arrangement Plan of Thirty-Eight-Foot Water-Line Auxiliary Yawl

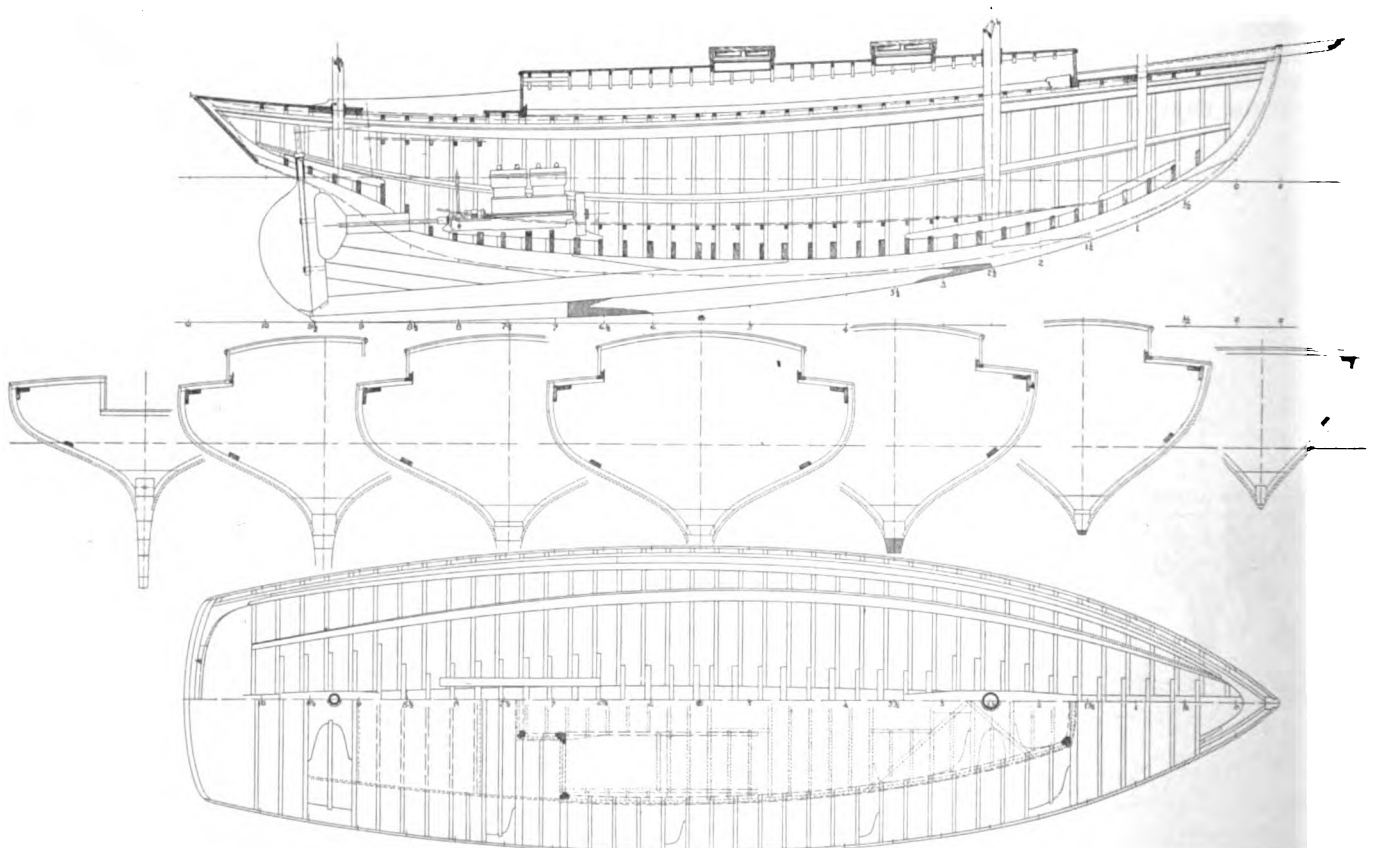
plunging into a head sea, and the draught, 6 feet, on account of the long keel, is sufficient to permit of deep-sea trips and at the same time not prevent entering any of the harbors along the New England Coast.

There is a movement now on foot to promote a one-design class from these designs, and as an auxiliary class will appeal to many. The sail plan is moderate, the power plant larger than usual, and the second-hand value would be 50% in excess of that of a racing craft of the same dimensions after a few seasons' use.

Besides the above, the yacht is equally adapted to either day sailing or long cruises, and with several all alike, would afford just as keen racing as any other class. The auxiliary yawl is a practical type of craft for those who enjoy sailing and at the same time find it necessary to overcome such obstacles as calms and adverse tides.

THIRTY-FOOT WORKING BOAT

SHOWN herewith are the plans of a small working boat which should be of interest to RUDDER readers. The boat was designed by Bowes & Mower for Mr. Geo. P. Cooke, for use at his ranch in the Hawaiian Islands, and built by the Inter-Island Steam Navigation Company, at Honolulu. She is fitted with a 16-25-h.p. Frisbie motor and the owner states he has found it very reliable. The boat was designed as a sort of general utility boat and for use chiefly as a tender for taking freight and passengers from the transpacific liners which are obliged to lay-to outside the harbor of the island where Mr. Cooke's ranch is located. She was also required to be able to make an ocean run of about 50 miles, regardless of weather. The owner writes that the boat has been



Construction Plan of Thirty-Eight-Foot Water-Line Auxiliary Cruising Yawl for Mr. C. D. Mallory

through some very severe weather and has given a good account of herself.

The dimensions are:

Length o. a.....	30 feet 7 inches	= 9.320 meters
Length w. l.....	30 " 0 "	= 9.144 "
Breadth, extreme..	7 " 10 "	= 2.386 "
Draught, extreme.	2 " 10 "	= 0.862 "

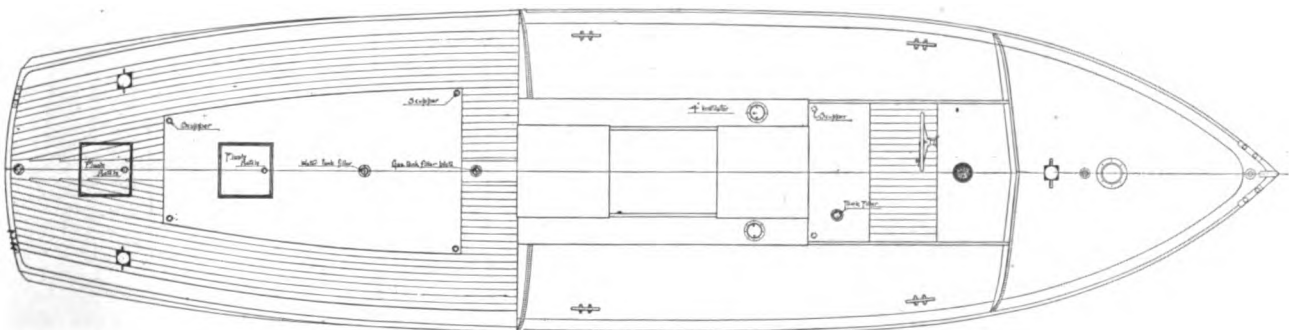
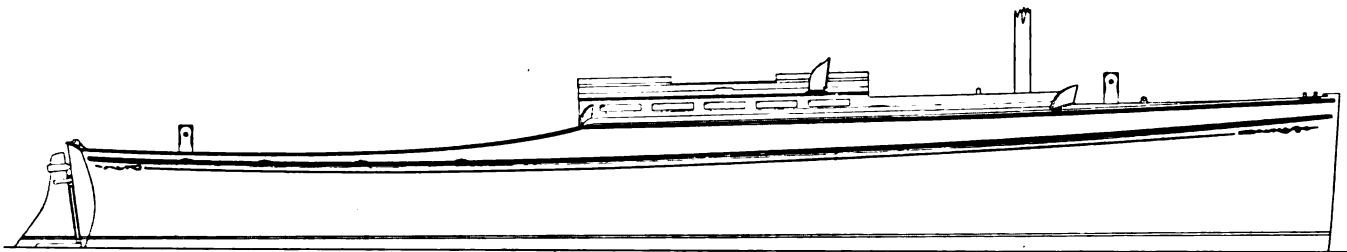
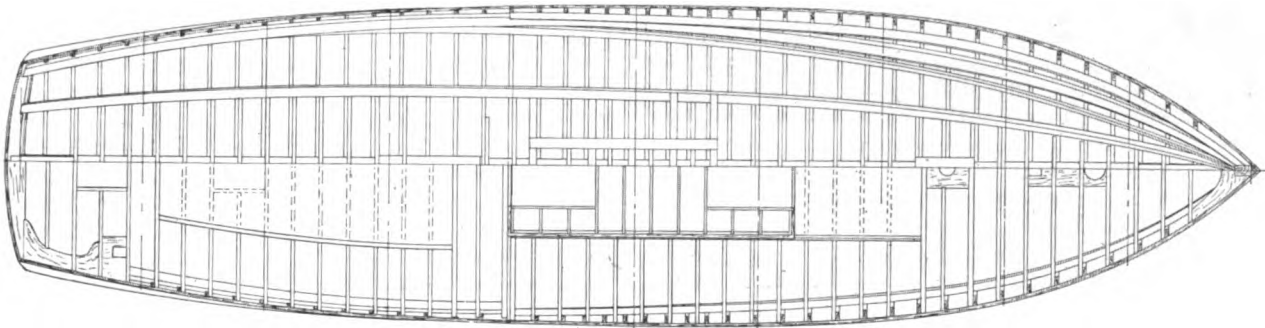
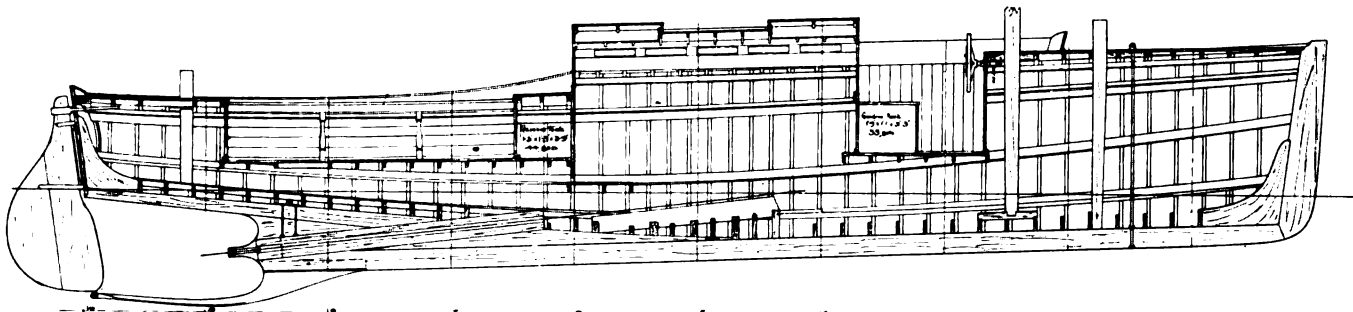
FORTY-FOOT CRUISER

THE accompanying plans for a 40-foot power cruiser, from the board of Martin C. Erismann, naval architect, of Seattle, show a type of boat which the prospective

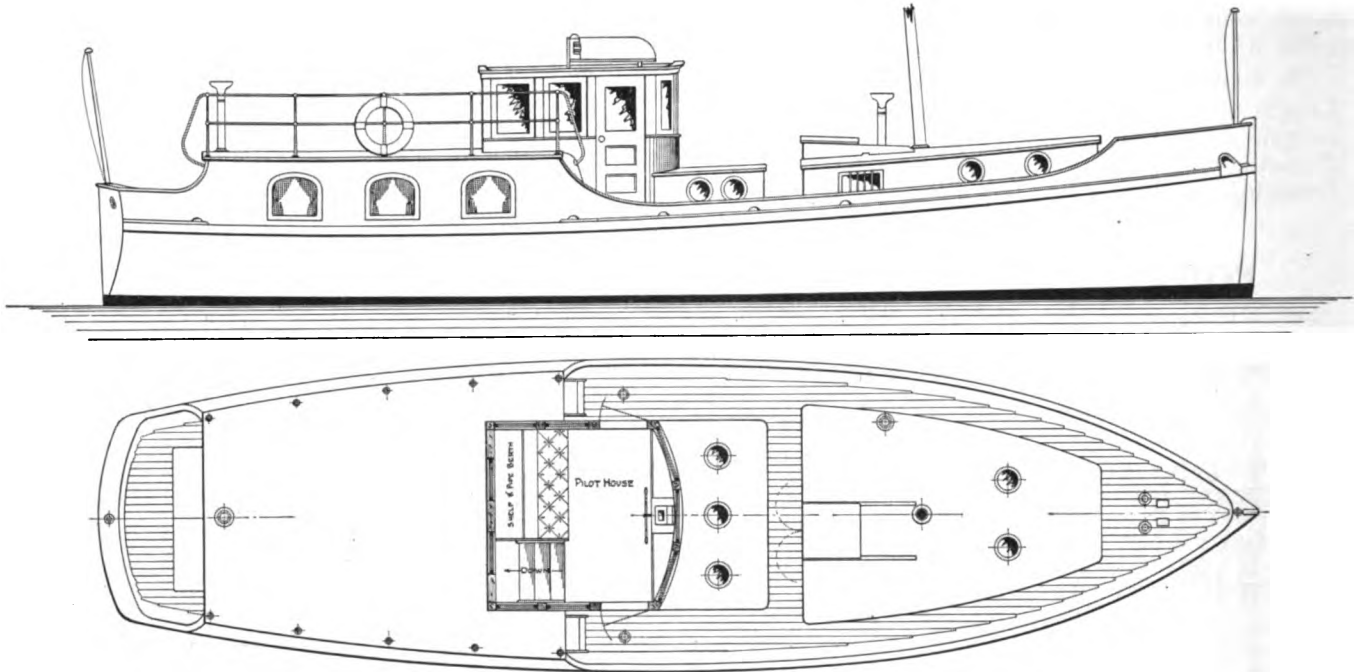
owner of a seagoing cruiser would be likely to study with some care.

Characteristically, Mr. Erismann has made a working boat first of all—the sort that a man would feel like taking a long jaunt in, with confidence that he would be comfortable in all kinds of water, and in any climate.

The seagoing qualities of the boat in the absence of the lines, can only be conjectured; but there is a turn to the stern, a generosity of breadth and a general sweetness of sheer, that bespeaks a boat which will take kindly to rough water. Too many of our modern cruisers sit the water with the empty buoyancy of a cask. This boat sits in the water as if she liked it, and it had no terrors for her.



Outboard Profile, Deck Plan and Construction Plan of Thirty-Foot Working Boat. Designed by Bowes & Mower



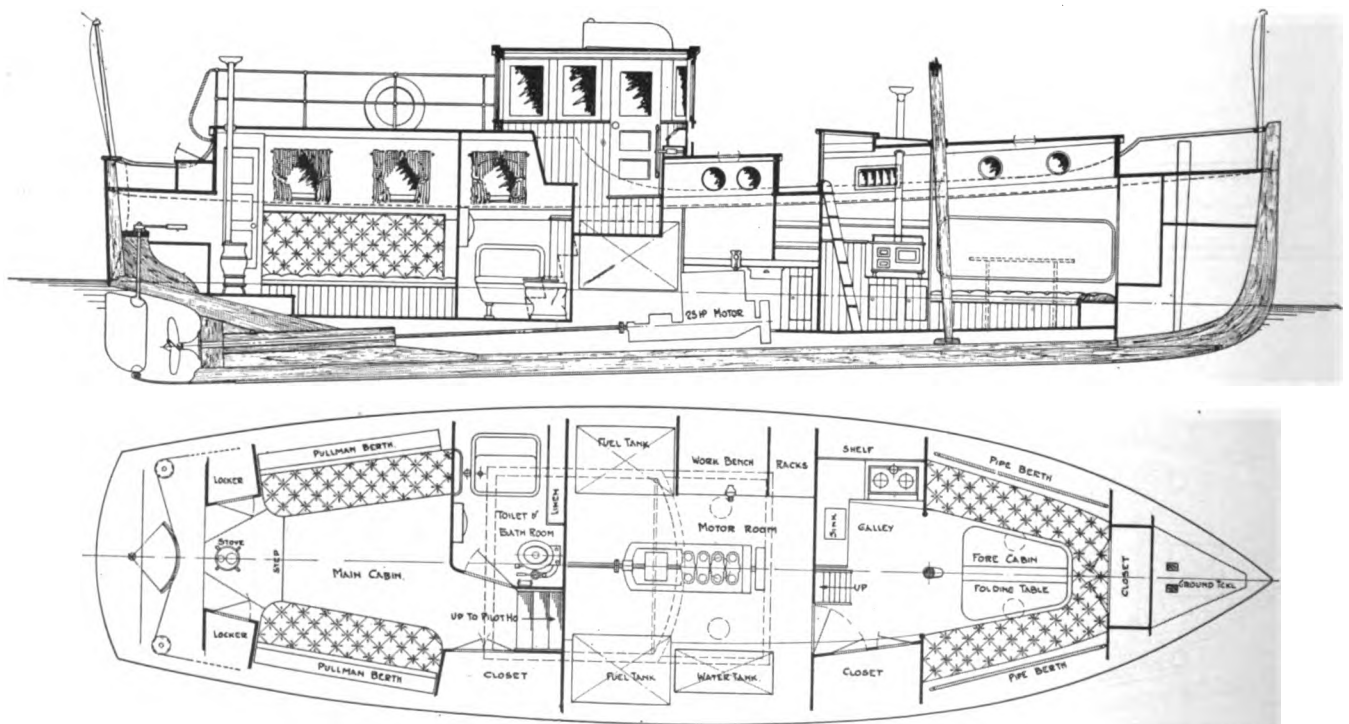
Outboard Profile and Deck Plan of Forty-Foot Cruiser. Designed by Martin C. Erismann

In working out his accommodations, Mr. Erismann evidently has felt two influences, namely, that of the old-time high-stern galley, of earlier centuries, and that of the modern working boat of the Pacific Coast. The first influence is detected in the character of the stern cabin, suggesting an experimental design of some years ago, by the same designer, in which the raised stern of the period of Charles II was boldly adapted. We have seen this idea later elaborated in the galleon Halcyon, one of the most striking show boats in the American fleet. In the

present design, the old lines have been abandoned, but the position of the house, and its generous headroom, its deck roof, and the like, show the best features of the old idea cleverly employed.

The influence of the Pacific Coast working boat is traced in the midship pilothouse, which seems inseparable from certain West Coast craft. It is surely a contrivance for comfort, and since it has a berth in it, it serves a double purpose.

The sleeping accommodations, for five, are perhaps



Arrangement Plan of Forty-Foot Pacific Coast Cruiser

more notable for their character than their number—although five is by no means a small number of berths for a 40-footer. These are real berths, inviting slumber for the weary navigator or cook, that will not remind him, every time he turns over, that he is sleeping on the first cousin to the parlor mantlepiece.

In the galley arrangement of the design the keynote is comfort and utility. The galley range, the sink, the lockers, and table, all look like business, the pleasant business of producing and disposing of properly cooked and served "grub." The absence of an ice-chest suggests cruises that will be independent of that effete adjunct to modern cruising, although, of course, when in port there is no reason why the cook should not smuggle aboard enough ice for special purposes.

If this boat is built, and we may assume that the design was not made without an order behind it, the owner will doubtless have the satisfaction of receiving many compliments on the practical features of his craft.



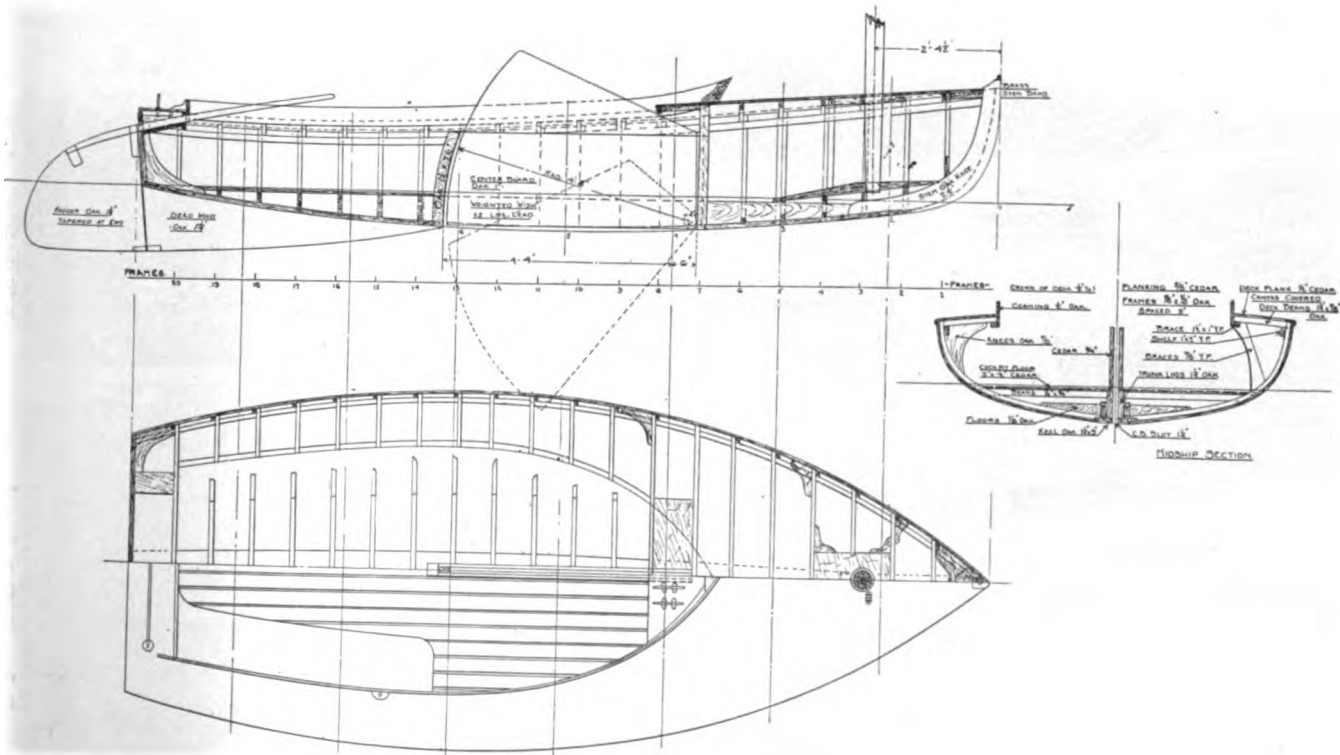
SIXTEEN-FOOT BONNEY CAT

THIS big little boat was built for Mr. A. R. Hoyt, of Sewaren, N. J., and is the latest addition to Mr. Bonney's fleet of stock boats of which the readers of THE RUDDER are long familiar. Mr. Bonney's sailing dories and power whaleboats have been universally praised for their staunchness and their seagoing qualities. Mr. Bonney is a native of New Bedford, Mass., and an old-fashioned boatman or what you would call a natural-born sailor, having come from a family of sailors on his mother's side. The double-cabin power boat now coming into general use was first brought out by him. The 18-foot Bonney dories have been the most popular of all the Bonney boats. Hundreds of these able little sea-boats have been built and shipped to all parts of the world.



Sixteen-Foot Bonney Cat on Trial Spin

In planning the 16-foot catboat, Mr. Bonney has had the assistance of Mr. Francis Sweisguth of Mr. William Gardner's staff of naval architects, to whose credit should



Construction Plan of Sixteen-Foot Bonney Catboat

be given the details of construction so carefully worked out, together with the beautiful lines of this little boat.

As seen from the accompanying illustration, this cat-boat has been built and is in actual proved success, more than coming up to the expectations and filling all of Mr. Bonney's very particular requirements based on his long experience and knowledge of what a real boat should be.

Primarily a stock boat should be a safe boat, or as safe a proposition as is possible without building a tub or a raft, and she should have no bad tricks.

This cat has been tried out during the last season by

her owner, who claims there is not a trick in her whole make-up. She makes what she heads for, which is more than can be said of a good many. She is so able she can be sailed without ballast in a good wholesail breeze. This is on account of the cut of her sail and her good full bilges. She is so well balanced a child can handle her as far as strength is required to steer her. She will not root and steers perfectly in a heavy following sea with the very minimum of effort. Considering her roominess and stability there seems nothing to be desired that could add to this little boat.



THE N. Y. A. C. BLOCK ISLAND RACES

Fred. W. Goeller, Jr.

ON June 26th, under the auspices of the New York Athletic Club, the 12th Annual Block Island Race (for sailboats) and the 8th Annual Power Boat Race to Block Island will be run. The latter also will be the 3d Annual Race for the Lipton Viking Trophy.

In the sailboat race, the start, as heretofore, will be at 11 a. m., from a line established to the East of Whortleberry Island, and the finish in the West Harbor of Block Island, the distance being 100 nautical miles.

There will be no restrictions as to crew or the sails carried or as to keeping on the channel side of Government buoys. In other words, it's go as you please, the only condition being that each boat must have a lead line, compass, charts, fog signals, anchors, cables, life preservers, etc.

This has proven to be the most satisfactory way to run a long-distance sailing race.

The time allowance is 10 minutes per over-all foot; yawls 5%, and auxiliaries 5% additional.

Auxiliaries must have their engines sealed before the start and are to be removed by the Committee only at Block Island, under penalty of disqualification.

The entries close June 23d, at which time measurement certificate must be received.

The conditions for the power boat race call for boats which are cruisers of Division 1, A. P. B. A. 1915 Rules, enrolled in any recognized club, of less than 50 feet over all, and whose rating is not less than 32°. Boats of less rating will take this minimum. The course and distance will be as described above for the sailboat race, the starting signal being given at 5 p. m.

All competing boats must be measured by Mr. Fred'k K. Lord, the official measurer of the A. P. B. A., or by one of the following assistant measurers: F. W. Horenburger, New York Motor Boat Club; L. Huxtable, Colonial Y. C.; C. O. Gunther, Columbia Y. C.; or Roger M. Haddock, New Rochelle Y. C.



Start of a Bang-and-Go-Back Race

The above is the list given in the circular just issued but we imagine that a certificate furnished by the official measurer of a recognized club in a locality some distance away from those indicated above will be accepted.

The Race Committee interprets the words "be steered by an amateur" (Rule XII, 1915 A. P. B. A. Rules), to include any and all directing of the course of the boat, whether by advice or otherwise. Professional pilots should not be included in the crew in any capacity.

The boats must be fully equipped, according to the 1915 A. P. B. A. Rules, carrying anchors, cables, lead line, compass, charts, a suitable tender, etc. The time allowance will also be the limit 1915 A. P. B. A. Rules.

In addition to the regular prizes there will be a special trophy, to be known as the Long-Distance Championship of New York City, offered to boats competing in any or all of the following races: New York Motor Boat Club, Albany Race, June 19th; New York Athletic Club, Block Island Race, June 26th; Colonial Y. C., Cornfield Race, July 10th; Columbia Y. C., Stratford Shoal Race, July 17th.

The winner of this trophy shall be determined by the point system, whereby each boat finishing any of the above races receives one point for finishing and one additional point for each boat which she defeats, the winner being the boat scoring the highest aggregate number of points in the above races. In computing points, the total number of different starters in the above races shall be considered as racing in each event, and those that do not start shall be counted as defeated boats.

A boat which starts in any of the races, but does not finish, shall receive no points for that race, but shall be counted as a defeated boat in that race by the boats finishing.

An American Power Boat Association record certificate, signed by the president and secretary of the A. P. B. A., will be presented to the boat making the best corrected time in each race.

MEASUREMENT OF HORSEPOWER

Rule V, Section 5, 1915, A. P. B. A.

The race committee interprets under "R = maximum number of revolutions obtainable under racing conditions" as follows:

Racing conditions include all varieties of weather, adverse winds, rough water, etc., unfavorable to the highest r.p.m. possible. To secure a standard statement from all competitors and to agree with the 10% variability

allowed under Section 6, Pages 64-5 (misprinted as Section 3). "R" = 91% of the highest possible r.p.m. obtainable under the most favorable conditions of carbureter adjustment, fuel, atmosphere and sea. Any increase of more than 10% above "R" as given for measurement demands that the contestant in such case declare this increase to the Race Committee and secure at once a new rating for his boat, or be liable to suspension as provided in Rule V, Section 6.

In regard to the Lipton Viking Trophy, the general conditions to be the same as above, with certain modifications given below:

Ownership.—Boats must be owned by a Viking and not have changed ownership subsequent to May 1, 1915.

Viking.—A Viking is a yachtsman who navigates or assists in navigating a power boat for the love of the sport, and who is not and for at least one year has not been directly or indirectly concerned in boat or engine designing, building, buying, selling, repairing or operating as a vocation.

Crew.—To be composed entirely of amateurs—no one who has accepted remuneration for services in handling or serving on a boat allowed on board.

Viking Cruiser.—A Viking boat is a cruiser as per A. P. B. A. 1913 definition, and having a length on the water-line between 30 and 38 feet, a piston displacement in cubic inches between $\frac{L.W.L^2}{2}$ and $\frac{L.W.L^2}{4}$ (Piston displacement of two-cycle-engined boats 15% less) and a breadth of not over $\frac{L.W.L.}{9} + 5$ feet.

The rating is found as follows:

For four-cycle engines—

$$15 \frac{\sqrt{\text{Bore of engine} \times \text{stroke} \times \text{number of cylinders}}}{\text{Water-line Breadth}}$$

For two-cycle engines—

$$18 \frac{\sqrt{\text{Bore of engine} \times \text{stroke} \times \text{number of cylinders}}}{\text{Water-line Breadth}}$$

Entries for all of the above should be sent to H. A. Jackson, Jr., Chairman Regatta Committee, 409 Pearl Street, New York City, not later than June 23d for the power boat race, and June 22d for the sailing race.

These events have always been well handled and successfully run, and as each year has had more starters than the year before, so this year's list is expected to exceed any previous one.



Anna, Thirty-Foot Working Boat. Designed by Bowes & Mower. Geo. P. Cooke, Owner. Plans Shown on Page 297



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



INSIDE ROUTE PILOT BOOKS

At the request of Mr. E. B. Latham, an officer of this bureau, I take pleasure in sending you, under separate cover, a copy of the Inside Route Pilot, Key West to New Orleans.

As a matter of general information, I will also add that the publications issued by the Federal Government that are of use to make a trip in a motor boat from New York down the coast to Key West and thence to New Orleans, up the Mississippi and Illinois rivers, through the canals and great lakes into the Hudson River and back to the starting point are the following:

Inside Route Pilot, New York to Key West,
 Inside Route Pilot, Key West to New Orleans,
 United States Coast Pilot, Atlantic Coast, Part 4,
 Point Judith to New York, issued by this bureau.

Charts and publications of the Mississippi River Commission, 1307 Liggett Building, St. Louis, Mo.

Charts and publications of the Lake Survey, Old Custom House, Detroit, Mich.

O. H. TITTMANN,
Superintendent.

*U. S. Coast and Geodetic Survey,
 Washington, D. C.*

SEA BIRD IN URUGUAY

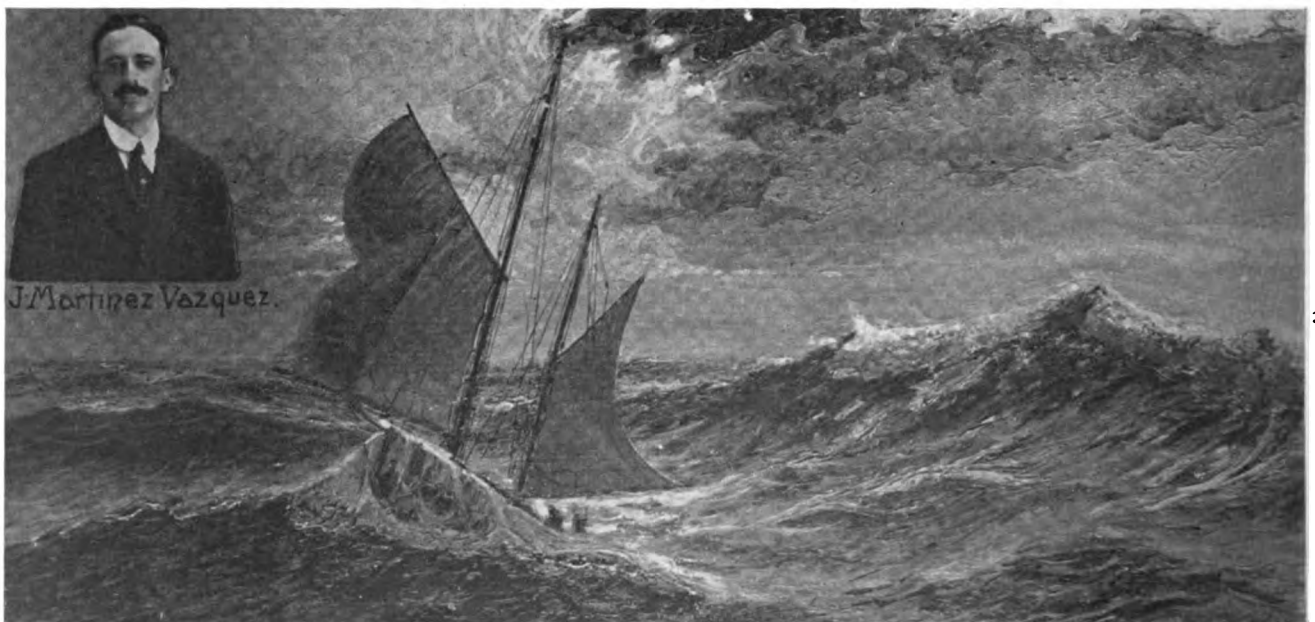
ONE of our many readers in Argentina kindly sent in a photograph of a painting of Sea Bird, made by Señor Vazquez, a Uruguayan artist and sailor. My correspondent asked me not to publish his letter, but I am going to disobey his injunctions, and know that my doing so will be forgiven.—EDITOR.

Dear Oldman:

If you bear this year to the West in search of San Francisco's Exposition, kindly stand into the Arts Section and cast your anchor in a very small port called Uruguay's Saloon; there you will perceive a picture of Sea Bird running with quite a stiff breeze.

A photograph of the same is going with this for you. Its author, Mr. T. Martinez Vazquez, is an Uruguayan artist, and one of the many admirers that you have in these very far countries. He, as a painter as well as a sailor, having a good record of prizes won in sailing races. He has also been vice-commodore of the Club Nautico Belgrano and member of the most important sailing clubs in the River Platte. Under his direction there have been built several Sea Birds, with good results.

Speaking of his picture, Mr. Martinez Vazquez said that he hopes in placing the Sea Bird on canvas, it will



Painting of Sea Bird on Exhibition at San Francisco Exposition

not only help to remember one of the greatest achievements of the Oldman, but give proof of admiration, recognition and friendship from one of the smallest countries of the South to the Great Nation of the North in the magnificent moment in which it shows to the world "What the American people can do."

Yours truly,
E. SEINLURIA.

LETTERS TO THE OLDMAN

THOS. FLEMING DAY:

I HAVE pleasure in sending you the enclosed in response to your general appeal to yachtsmen and lovers of water sport and the ways of the sea. You have been an indefatigable worker, and your acts and writings an inspiration, with an intelligence which has made good. Many fail to respond probably because they do not act at the moment, trouble of mailing, form of remitting causing delay, then forgetfulness.

I have just mentioned the matter to a yachting friend, who says: "That man ought to be supported. Has any individual in this country or even in Europe done better? Get me back numbers, too."

Yours very truly,
JOS. F. SABIN.
Ex-Com. Jamaica Bay Y. C.

I AM sending you P. O. order for \$2.00. When I moved here from Chicago, I sold my yacht, as we have no open water here, but we have a small lake, and I have tried to get the boys in the boat game here. So if I can get them to read THE RUDDER, it will wake them up. I will try and get some more to subscribe.

Hillsdale, Mich. D. H. WEBB.

CONGRATULATIONS on twenty-fifth anniversary. Our crew were greatly interested. We have a goodly stock of well-thumbed, bound volumes on our shelves now.

C. S. KIRKPATRICK,
Secretary Kingston Yacht Club.

I HAVE been looking up my RUDDERS to find how long I have been a subscriber; I find I have continuously subscribed to THE RUDDER for seventeen years. Some time before that, while spending Winters in Florida at Rockledge on the Indian River, I took the magazine I think about three years. These copies I cannot find as they were left in Florida.

At that time I loaned some copies to my friend and neighbor, George Gingrass, who was then doing some boat-building. He has since been referred to as the Florida Wizard, having competed in the Palm Beach motor boat

races. I have always felt a great affection for the magazine and great loyalty to it and Captain Day, and appreciated his unselfish determination to uplift and push the sport.

While I am a sailboat man for so long a time I cannot remember when I could not sail, I enjoy anything THE RUDDER cares to present. I'll stick with it as long as I live. I am sorry I'm not in the line and able to use the advertising columns instead of a manufacturer of automobile tonneau wind shields. I wish to extend to Captain Day and THE RUDDER congratulations on the twenty-fifth anniversary.

C. R. CLARK.

I WAS very much interested in your anniversary number of THE RUDDER. It seems hardly possible that twenty-five years have slipped by since the first number came out, and while I do not imagine that the amount of money you have accumulated from publishing THE RUDDER is sufficient to give the income tax sleuths much concern, yet I know and so does everybody else in the industry, that you have accomplished more for the sport of boating than any other man in the country, and you have a great deal to be congratulated for.

In these days, when the success of every commercial enterprise is judged solely by the amount of money it has made, you have a right to feel a keen sense of pride over the fact that your particular effort has resulted not merely in a financial success, but in added pleasure to many thousands of people.

With my sincerest congratulations, and best wishes for many more successful years, I am,

THE GRAY MOTOR COMPANY,
O. J. MULFORD, *President.*

ADJUSTING THE COMPASS

Setting and Tabulating the Compass and Its Errors on a Small Boat.

WHILE studying the lesson in navigation in THE RUDDER and the talk on compass bearings, etc., which it contained, it came to my mind that perhaps our experience, setting and tabulating the error in our compass might be of interest to some other small boat owner.

A few years ago we kept our compass setting on a shelf in the cabin, bringing it out only when thick weather demanded it. It was set to some marks we had on the seat when in use, and I remember one trip when it was twice thrown into the lee scuppers by the motion of the boat; the second time finished the box so that we could not use it. We had varying luck steering by compass and did not feel sure of it. On an east and west course it would work out all right, the same as in running from New London to Buzzards Bay, but in short runs on



Catamaran Coaching Launch

a north and south course across the bay we would get way off our supposed course.

After a number of bad landfalls on north and south courses we woke up to the fact that we had better permanently set our compass and locate its error and then depend more on the compass and less on our intuition. Our boat has an extra large iron steering wheel, and, while it is none too large for steering, we found that it was attracting the needle to the extent of $1\frac{1}{2}$ points on north and south courses, and practically nothing on an easterly course. We installed the compass permanently under the seat in the cockpit by cutting a hole in the same and setting in a light of heavy glass and then fastened the compass up under it. By striking a line on the seat parallel to the center line we were able to place the lubber's mark in the correct place. After screwing up some fender blocks so that it would not get hit and wiring a couple of batteries to light it up it was O. K. Of course it would have been better to have a set binnacle or even to have cut it in under the cockpit floor in the center of the boat, but we did not have room for either.

To find and tabulate the error we went out into the bay to a can buoy, located in nine feet of water on Wilkes ledge. On the way down we laid the bearings of certain objects with this buoy, on a sheet of paper. This buoy is centrally located so that the bearings of such objects as land marks and lighthouses could be obtained in nearly every direction. On getting near the buoy we began bringing the different objects directly over the buoy from us, then heading directly for the buoy and still keeping the object directly in range over same we read the course as shown on our compass and set it down on the paper. We worked all around the buoy getting bearings of the different objects which we had set down.

In getting ranges as above we found it better to have a good man at the wheel to watch the ranges while another good A. B. read the compass and noted same on the paper. Also that it was well to figure on reaching the buoy at slack water and on a fairly smooth sea. Great care should be taken in getting the ranges and readings as a lot of confidence in the same is necessary in laying out future courses. After we had tied up to our moorings again, we made up a table, as per sample shown below, which we keep with the charts, and, by always correcting the true chart course by this table, we have had good landfalls ever since.

SAMPLE OF OUR TABLE

True Compass Course.	Our Compass Course.	Variation.
North.	N. x E. $\frac{3}{8}$ E.	$1\frac{3}{8}$ westerly
N. $\frac{1}{2}$ E.	N.N.E. $\frac{1}{4}$ N.	$1\frac{1}{4}$ "
N. x E.	N.N.E. $\frac{1}{8}$ E.	$1\frac{1}{8}$ "
N. x E. $\frac{1}{2}$ E.	N.N.E. $\frac{1}{2}$ E.	1 "

New Bedford, Mass.

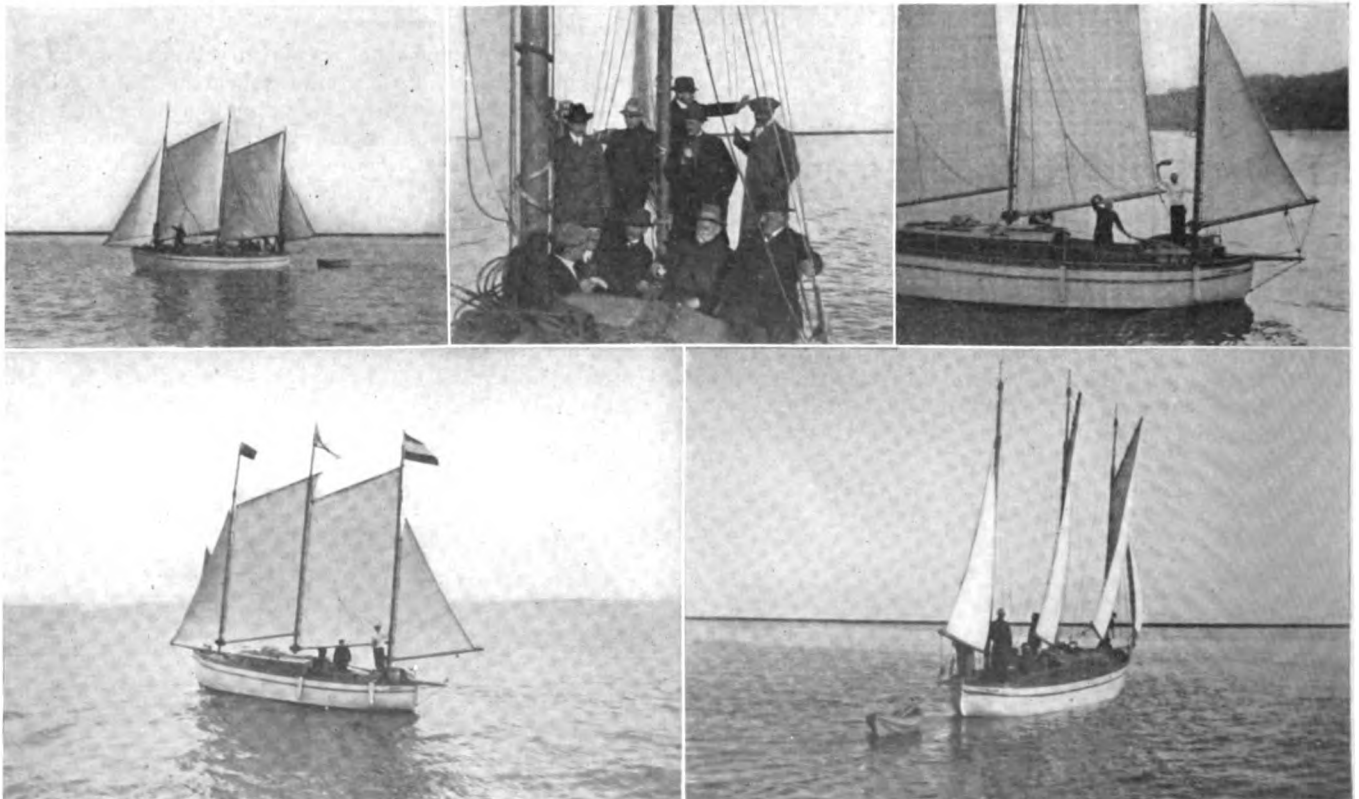
GEORGE H. SISTARE.



A SUGGESTION FROM JAPAN

No one is as well able as yourself to call the attention of boat owners to the importance of keeping some kind of a log-book to record the performances of their yachts, and engines. There is no yachtsman who wouldn't be wiser too for keeping tab of the money he spends on the supplies he buys, the passengers he entertains, etc. When I was a boy, I used to write a log for my canoe and have kept up the practice as a powerboatman, so if any one asks me questions I can give him real facts for answers as to speed, cost of operation, comparative wear of various brands of paint, etc.

WILLIAM L. SCHWARTZ.



Boat Built by Captain J. C. Voss for Voyage Around the World. Captain Voss Formerly Voyaged in Tilikum, Xora and Sea Queen

ABAFT THE BINNACLE

ONE of the unfortunate habits peculiar to this race of mankind is the booming of things regardless of present conditions or after consequences. Booming or boosting, as it is called, is well enough in its way if the thing boomed or boosted is worthy of the effort, and the effort is expended in the right direction. But where, as is most frequent, it is simply done to fill somebody's pocket by creating a fictitious market, the after-effects are always damaging and sometimes disastrous. It has ruined and wrecked countries, cities, businesses and sports. Our country is full of boomed cities with their miles of grass-grown streets, where millions have been put into worthless land by unreasoning buyers, who if they live to be a hundred will never see the original payments back. It is the same with business. Wonderful, astounding, overwhelming trade, shops running 48 hours a day, turning away orders, no delivery for months, grand boost all along the line. The very man who utters this hurrah knows it is false, yet he believes that those who hear will accept it as chock-a-block with truth. Now take my advice, don't boom or boost anything with false assertions and wild lies. If the thing is to be put on its feet and kept going first make sure it is worth the effort and then use work not wind to accomplish the effort.

* * *

We will all admit privately that in the last five years the sport has been losing and losing heavily. In some few localities this is not the case, but take it all over the world and the sport has gone back. The principal cause of this falling off is the motor-car; this is especially so in this country and Great Britain. Admitting this, what are we going to do to bring the sport back into popular favor, to get the coming men to come to the water instead of taking to the highway. It is no use shouting that the sport is going grandly, bigger than ever, never so flourishing, and all that windy boosting nonsense, that won't bring in a single new man or keep one already in from leaving. What is required is earnest, sensible, heartfelt work, a systematic pushing of what is attractive to the younger element: action not talk.

* * *

The Secretary of Commerce, Mr. William C. Redfield, who is an official who knows his business, and a man of sense, is suggesting that the Act of June 9, 1910, be added to, so as to oblige the registering of all undocumented power-driven craft. These boats are to be numbered and the name and address of the owner registered at the Custom House. I approve of this move, and also of the additional change to oblige the operators of small passenger craft to pass an examination on the rules of the road, etc. Why not make the operators of all craft whether run for hire or pleasure pass an examination? Certainly if a man cannot learn the rules of the road he has no business to be running a boat, either power or sail. This would keep a lot of dubs and fools away from the helm of boats who as it is today make themselves a nuisance, especially around harbors and in narrow fairways. But while amending the law of 1910 why not cut out a lot of nonsense in re-

gard to equipment? Bells, whistles, life preservers and other duffle in ten-foot dinghys, a lot of useless stuff cluttering up a small boat, and of no service whatever.

* * *

The Bermuda Race, I'm sorry to say, fell through, owing to the war. It is safe to blame it to the war, anyhow, or to my getting cold feet, and refusing to go in the boat. Never mind, we will try again next year. Am trying to get the Marblehead going and it looks just at present as if she will be run again in July. Have arranged a race from Poughkeepsie to Brightwaters on Great South Bay for cruising motor boats—a distance of 125 miles. This will be given under the flags of the Poughkeepsie Y. C. and the Brightwaters Association on July 30th, the start being from Poughkeepsie and the finish off Fire Island Light. It is strange that with a splendid cruising and fishing sheet like Great South Bay within ten hours' run of New York, few of our yachtsmen ever visit it. One reason is the idea prevails that Fire Island inlet is dangerous. It is nothing of the kind. Except in very heavy weather Southerly winds, the inlet can be entered with safety by any vessel drawing less than 7 feet. Get into this race and go down and see for yourself.

* * *

Two years ago the whole English-speaking people uncovered their heads, and with a profound, proud sadness acknowledged the heroic conduct of the men, who on the decks of the sinking Titanic, stood back and let the women and children escape. Lately, the people of another nation lifted their hats and with wild cheers acclaimed the crew of a submarine that deliberately torpedoed the Lusitania, and sent hundreds of women and children to death. That is the difference between the two races. If asked to draw a distinct line between civilization and barbarism, I should write the sentence, "Women and children first." No American, British or French naval officer would launch a torpedo against a passenger ship, and no Government of either of these nations would live twenty-four hours after it ordered such an infamous act. I doubt if any other Government in the world, except the German, would have fathered such a crime. It is the greatest infamy since that day when the women and children were slaughtered in the well house at Cawnpore. In warfare, the Germanic people have always been barbarous. Their whole history steams with slaughter of non-combatants. The smell of blood seems to wake in them all the ancient savage instincts and they run amuck. This is the only palliation of the terrible act, that they are temporarily a nation of lunatics, and that the man who ordered and the man who committed the crime are insane.

* * *

But what galls me is that, insane or not, these fellows should be allowed to get off without an attempt being made to punish them. Our Government will do nothing; it has neither the will, means or courage to bring these murderers to justice. Germany, not even under threats of war, would deliver up the wretch who launched the torpedo. But are we going to stand back and let these

women and children's slaughter go unavenged? It makes my blood boil to think that nothing is to be done to punish these barbarians. If the people of the United States will raise the money to equip an expedition, I will raise the men, lead them and go after the submarine and crew that are guilty of that dastardly act. If we can't get that fellow, we can get some of the others. What I want for the purpose will not cost much, not the price of one small war vessel, and I know from among the yachtsmen the men wanted can be found, who will gladly follow the Oldman wherever he leads. "Vengeance is mine," saith the Lord, but in this case it is our duty to assist Providence and get those murderers before the scent grows cold.

* * *

The following appears at the foot of Memorial Day program issued by the New Bedford Y. C., and it would be a good idea for other clubs to copy it:

Owners of yachts have offered their services for transporting members and guests to Padanaram Station, enabling them to see the finish of the sail-boat races. It is earnestly requested that those intending to take advantage will provide themselves with *rubber-soled shoes*.

A good natured owner offers to take out a party of club's guests. The aforesaid guests, expecting this treat, came prepared for it, the gents with hobnails in their boots, and the ladies with high, sharp-edged heels. Not content with stamping and stumping over the canvas or varnished decks, they sit on the deckhouse and gouge out intricate patterns along the side and rail. One season of this thing and the good natured owner shuts down and the hob-nailed guest has to remain on the clubhouse piazza and work his feet. It is mostly ignorance; the

guest don't know better. Why not knock a something into his noodle with a bit of information like the above notice?

* * *

For some reason or other, the sport woke up and bought RUDDERS briskly, so that five days after it was issued, the whole May Edition was sold out. As we no longer have returns from the news dealers, we will have no May numbers unless some of the good-hearted after they get through reading the thing will kindly send back a few copies. The only one I have has a page torn out. If you people will make a habit of buying up the whole edition in this way, my blessing will be upon your sunny curls. Keep it up; it is encouraging.

* * *

At last somebody has gotten out a useful and sensible book. A diamond among a whole bushel of rubbish. This book is called *Handbook on American Yacht Racing Rules*, and is an explanation of the rules governing the racing of yachts. And some of the rules do need explaining, we will all admit. There are a number of pages covering the questions of fouling and interference and I advise every racing man to buy a copy and study these. The book can be had from this office, price \$2.00.

* * *

A bit of wind came aft again this watch and lifted along into the sunshine. Mr. Rigg, secretary of the River-ton Y. C., notified me that the officers of his organization had conferred an honorary membership. The River-ton is a live company of good sailor men, and I am proud to be numbered among its crew. This runs my membership up somewhere into the seventies, and I still have hopes of making them a century before the times comes to strike the colors.



Start of a Race on the Hudson—Columbia Y. C.

THE RUDDER

JULY, 1915

Vol. XXXI

No. 7

JUL 10 1915
UNIV. OF MICH.



PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents



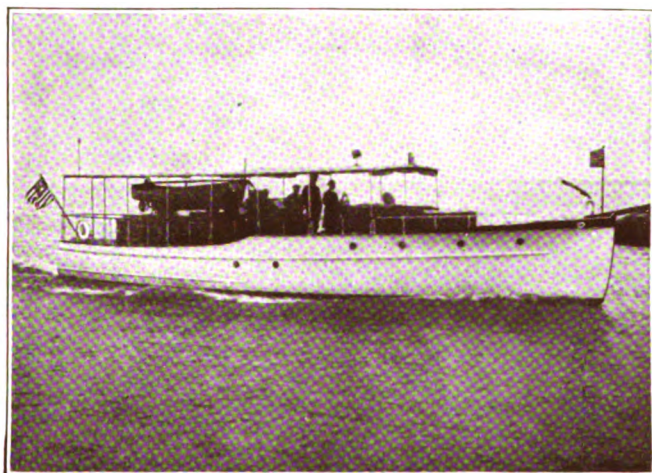
Speedway Runabouts in Stock

We are fortunate enough to have a limited number of the latest "Speedway" models ready for immediate delivery to purchasers making prompt reservation.



Also a line of "Speedway" yacht tenders, motors, alcohol ranges and other Speedway Products, ready for shipment.

**GAS ENGINE & POWER CO. and
CHAS. L. SEABURY CO., Consolidated**
Launch Dept. E. MORRIS HEIGHTS, NEW YORK CITY



55-Foot Florida cruiser, Jo-Lo. A shoal-draught cruiser which the owner states is a perfect sea-boat

Matthews cruisers have been perfected by years of study and experiment. Their construction and finish represent all that can be said for good construction and finish.

Eliminate chance of disappointment in quality or service.

Lighting plants for suburban and marine use.

Send your requirements to

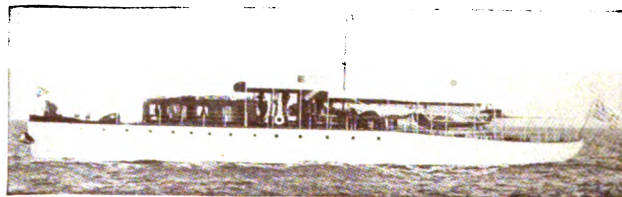
THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio

JAMES CRAIG Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

**Designers and Builders of Craig Marine
Oil Engines (Diesel Type)
Gasolene Engines**

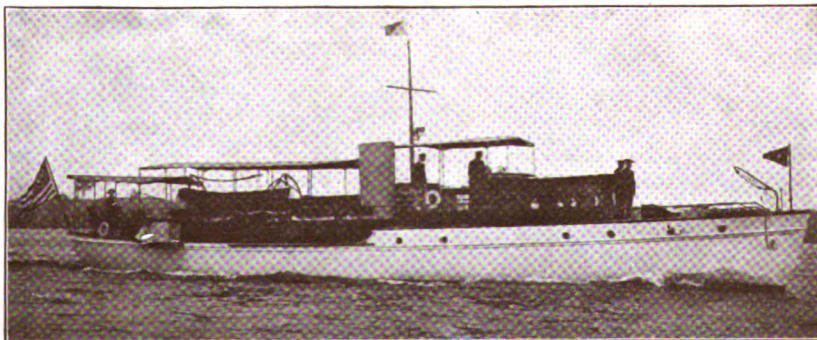


AELDCYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9' x 11

Gasolene Yachts and Engines



Noted for Reliability

Tregurtha Water-Tube Boilers,
Steam Engines, Electric
Light Outfits

MURRAY & TREGURTHA CO.

340 West First St. South Boston, Mass.

The Rudder

Vol. XXXI

JULY, 1915

No. 7

CHOOSING A PLACE TO BE WRECKED

“DO you consider Cape Cod or Cape Hatteras the most dangerous place on the Atlantic coast, Captain?” asked the landsman.

“I cal’late it’s a toss-up between ’em,” answered old Cap’n Tarr, removing the pipe from his mouth. “But neither one of ’em ain’t to be compared with some. On the sand a man’s most always got a chance to up-hellum and plunk her somewheres near high-water mark when he sees he ain’t got a chance to claw off. That way the crew stands some show of gittin’ ashore, only there ain’t many of ’em has the nerve to do it deliberate.

“I rec’lect a few years ago there was three vessels got ketched into a Southeaster off Virginia Beach. One of ’em was a three-master, called the Annie F. Conlon, belonged down here to Portsmouth, and a feller named Seawards was into her. He see he couldn’t claw off unless he could carry a lot of sail to drag her out by, and it was blowin’ too hard to carry much of anything, so there he was. And he see he couldn’t make no fist of it ridin’ to anchor, for the other two fellers had tried that and was walkin’ stern first toward the beach, crews already in the riggin’.

“So Cap’n Seawards rolls his wheel up, gives her sheet and drives her clean through the breakers, so’s the crew drops off the end of the bowsprit onto the beach. The Conlon was the only one of the three that didn’t lay her bones there, and she’s runnin’ yet in the West India trade.”

“So you think the dread and treachery of Cape Cod and Cape Hatteras have been overrated, then?” mused the landsman. “I suppose for your ideal, out and out, blood-curdling locations for a maritime horror you’d choose one of the proverbial desert isles, where they end by eating each other up.”

“No sir-ee,” declared the Captain emphatically. “There’s always a show of being taken off one of them isles. To my mind the dog-gonedest, all-firedest hell of a place to be wrecked into that you can scare up is at the foot of some of them cliffs same’s you see down around the God-forsaken Straits of Magellan, or around the Japanese and New Zealand coasts, or in them cussed Newfoundland latitudes where they manufacture the fog and icebergs.

“More big windjammers than you could shake a stick at has come to grief agin them Patagonian cliffs. Seven year ago a big new Bordeaux ship, the Duchesse de Bary, butted agin the foot of Staten Island full tilt in the fog, every rag of sail on her. I went through the Straits in the old Luckenbach in December, ’06, and see her layin’ there. Nestlin’ alongside the rocks same as to a dock, but with her decks under and her to’gallantmasts jammed hard agin the cliffs that reached half agin as

high as the trucks. A desolate lookin’ sight, I tell ye. Devil of a place to navigate anyways. Storms and blows all the time in them latitudes, thick o’ fog between times, and charts ain’t reliable nine times out of ten.

“Then about the same time as the Frenchman there was a four-master Glasgow ship named the Glencairn, bound around in ballast for a nitrate port I believe, that tried to take a short cut through the Straits of Le Maire, but fetched up all standin’ agin the rocks. Her crew managed to launch their boats, though, and finally was lucky enough to make a landin’ in the only hole in the cliff there was for a hundred mile.

“And the Liverpool ship Bidston Hill, another fine hooker, rammed a precipice down there the same way. You’ll see her boats in use by the natives now, with the name still stenciled on their bows. Lord Harry, any slathers of ’em has laid their bones there. I ain’t the least doubt that them ugly old granite walls could tell ye what became of the Arthur Sewall, and the Bangalore, and the Fort George, and the Adolph Obrig, and any number of good Yankee windjammers that’s been dropped off the lists lately. They may be found some day.

“See all that hullabaloo in the papers the other day about findin’ the hulk of the Glasgow ship Marlborough under the foot of one of them cliffs in a little cove near Cape Pilar, West of Punta Arenas? Twenty skeletons aboard of her, there was, and they’d been there a little matter of twenty-three years. Think what them poor devils must have went through!

“I rec’lect the case well. We was layin’ to Melbourne in the Shenandoah when she was posted missin’ at Lloyds’. She sailed from Lyttleton, New Zealand, in January, 1890, bound for London with a cargo of wool, but her real destination was the port of missin’ ships. She must have drove in there in a gale of wind and hung up on a shelf of rock so she never went to pieces, but the crew couldn’t shin up the rocks or launch a boat, nary one. Or so they must have discovered after half of ’em had been drowned tryin’, for there was nigh forty aboard her when she left port. And the rest starved right there.

“Some English warship searched the coast around there for her, because she was last spoken in about sixty South in the South Pacific to the West’ard of the Horn. But they never found her, for nobody does much explorin’ in them parts without it’s in the commerce lane. A ship drove in close by stress of weather finally found her, and that jest by accident.

“Lord only knows how many ocean mysteries like them is lyin’ around the seven seas waitin’ to be solved some day when somebody happens around jest by mis-

take. Did ye read here a spell back about a Rooshian explorin' expedition discoverin' the steamer Centennial fast in the ice in the Okhotsh Sea off the island of Sakhalin? Well, sir, they did, and she'd been among the missin' for six mortal years. Sailed from Muroan, Japan, with a load of sulphur for 'Frisco, and that was the last heard from her.

"The Rooshians found her a mass of red rust, so's they had a job to identify her. Lifeboats was gone, and of course they figger that she was abandoned when her people thought she was goin' to slide out from under 'em. But she fooled 'em, same's lots of vessels has done before now, and drifted way up into this God-forsaken place on her own hook. Small boats spilled 'em all, of course.

"There was another hooker that sailed plumb into a cave in the side of an island in the South Pacific in 1864, and whalers found her quite a few years later. Scraped off topmasts and to'gallantmasts when she went in, and jammed in there so tight that neither she nor the crew ever got out. She was a British ship called the Southern Cross, bound home to London from Zealand like the poor old Marlborough. I remember the particulars, because she used to be a Boston ship called the Flyin' Childers, named for a famous race-horse of them times. Cap'n Benjamin Creelman, a friend of mine, was mate into her when they sold her there to the Thames early in the sixties.

"Cap'n Creelman lives out in Colorado along of his daughter now, but I'd like to have him tell ye an experience he had in one of them cliff wrecks along toward the last of his goin' to sea. He went through one of the cussedest fracasas I ever heard tell of and all of 'em come out of it alive but the cook, who got washed overboard nobody knowed when.

"Creelman was skipper of the North American, a fine Boston ship. This was in 1894. He left Kobe with a full cargo of hemp for New York; weather clear and moderate. Twenty-four hours out he got ketched into a typhoon, one of them hell-rippers ye read about that don't give a man the least chance in the world. Well, sir, it blowed all his sails off in no time, the water was so deep his anchors wouldn't tech bottom, and the long and short of it was she drove ashore seventy miles down the Japanese coast from Kobe at the foot of a cliff a hundred and fifty foot high!

"They all took to the riggin', but Cap'n Creelman got jammed a-straddle of the shrouds by an old he-one of a sea that broke almost into the top, and was sufferin' like a thole-pin. Well, sir, she commenced to go to pieces immejit. There wasn't no habitation on the coast near there, but it so happened there was some Japs above on the cliff who'd jest been down to the wreck of a little native craft. They lowered ropes down and pulled 'em up, and the North American was all gone in less than an hour.

"But for out-and-out malicious deviltry commend me to the coast of Newfoundland. Water's so cold there, ye see, a castaway ain't even got the ghost of a show to swim ashore or ketch in some little nook in the cliff. Them Newfoundland cliffs are the boys that picks up the tramps bound out of the St. Lawrence, that takes a departure for the Channel from Cape Race.

"They collect a rich toll every year. See about that brand-new British collier Glace Bay, did ye, that piled up between Freshwater and Mistaken Points last summer? 'Mistaken Point' is a good one! The Glace Bay for a

wonder hung up fifty foot from the cliff, so the crew escaped bein' smashed like flies. They sent a wreckin' steamer up hot-foot from New York, but the Glace Bay had cashed in before ever she got there.

"She had better luck at that than the Furness Liner Florence, bound out for London, that butted into the rocks jest before that. Jest five out of twenty-two got out of her alive, and the steamer Morien took all hands down with her in about three shakes when she rammed the cliffs last spring. Nobody ever knowed jest when they did plunk her, but they picked up some wreckage in St. Mary's Bay. That's a cruel coast, and no two ways about it.

"And they ain't none too warm a reception waitin' on the other side, come to that. I rec'lect passin' in once—we had cotton from Savannah—when I sees a fine big German ship called the Hansa broad-sideways under the cliffs there to the Lizard. Every rag of sail onto her, but she'd bilged and the cargo of Novy Scoshy lumber was spewin' out all over the Channel.

"It was all day with her, of course, and a few months ago I see where the British bark Queen Margaret had laid her bones in the very same place. She had wheat aboard, from Australia for Limerick, and I cal'late it busted her all apart soon's she filled up, so there wasn't no show to float her. Swan if I hadn't rather piled up on the Australian coast than jest when I was thinkin' about downin' my mudhook and payin' off the crew, even if it was near home.

"Why, the very sight of a cliff frownin' down on ye and you drivin' onto it every minute would be enough to skeer the average man into conceptions. I know it's always been kind of a nightmare of mine, and I ain't over and above nervous neither. Rec'lect the case of the Marie Celeste, do ye? Most everybody does. She was a brig, hailin' from New York, and she was abandoned near the Azores in 1872. Calm weather, not a blessed thing wrong with the ship; but nobody ain't heard of her crowd sence. You've heard the particulars.

"Well, sir, she was picked up and towed into Gibraltar by a Novy Scoshy brig called the Dei Gratia, or some sech heathen name. I was acquainted some with her skipper—Joyce was his name. Well, sir, nobody wouldn't swallow none of the hundreds of explanations that was offered as to why she was abandoned, but Cap'n Joyce had a reasonable one, and his idee is mine.

"Ye see the North side of the island of Corvo is three or four hundred foot high, and risin' straight up. Joyce's idee and mine is that the Marie Celeste was becalmed in the night and drifted close in under the cliffs where of course there'd always be a deuce of an undertow churnin' even in calm weather. At daylight, when her people see where they was, they got panicky and piled into the small boats hell-bent for election. Then prob'ly a little catspaw of wind strikes after they had all left her, and the brig sneaks out by the rocks by the skin of her teeth and sails away from 'em. The boats swamps in the breakers and drowns 'em all. Reasonable enough, ain't it? But the world still calls it a mystery.

"No sir-ee!" reiterated the Captain in conclusion. "If it comes to the pass where I've got to lose my ship—which, please God, I ain't never done yit—give me a lee shore of sand, or rocks if they ain't too big. I don't care how hard they are; if I can't square away and ram her over the outer bar before she stops travelin', I'll git in the main-top and take my chances!"

THE DINGHY: ITS HISTORY, STRUCTURE AND MORALS

THE following interesting lecture was delivered by Professor Selvagee Strop before the members of the "Society of the Single-Handed Cruiser":

The one question that is always uppermost in the mind of the single-handed cruiser is: "What will I get for a dinghy?" It is certain, gentlemen, that the yachtsman, when too sober to relish swimming, must have some means of getting ashore; therefore the dinghy is a necessity, but, it is at times a confounded nuisance. The early history of the dinghy is lost in the mists of antiquity; the laborious researches of the most learned men of two continents have failed to discover the name and nationality of the reckless individual who first squandered life and reputation in an attempt to combine safety, speed, and comfort in an eight-by-four boat. It is certain that Noah had no dinghy aboard the ark. It is barely possible that the man who kept the log forgot to mention it, but the fact that Ham's father used a dove to establish communication with the land is, to my mind, gentlemen, conclusive evidence that he was dinghyless. The first extended yachting cruise of which we possess authentic record is the trip made by the great Ulysses, who proved himself a thorough yachtsman on every occasion that he chanced to visit the shore. His shoregoing adventures fill a very large volume, and, though they reflect no great credit upon him morally, are intensely interesting reading if perused in the original Greek, with illustrations by the best French artists. My learned friend, Dr. Tinker Hornbag, whose magnificent essay on "The Diameter of the Loom of the Phœnician Oar, Considered as a Component of Galley Speed" has attracted world-wide attention, coincides with me in the opinion that Ulysses had no dinghy. In fact, it is more than once mentioned that when he went on a shore he beached his galley. This practice of taking his ship ashore led to his endangering his vessel on several occasions. The enraged citizens of several municipalities, whose inner walls his crew incarnadinated, arose in righteous wrath, and attacked his stranded ship. It was only by great presence of mind and the use of very unseamanlike tactics that he escaped destruction.

Some authors, whose learning, though deeply profound, is not linked with a practical knowledge of the subject, insist that the boat used by Charon to ferry the soul of the dead over the Styx is a dinghy. If any of these wise men will take a short pull in a dinghy, they will, I think, agree with me that their hypothesis is too absurd even to admit of argument. If Charon does use a dinghy, I will wager my yacht against an oyster shell that there are more souls at the bottom of the Styx than there are in the halls of Hades. Absurd, gentlemen, absurd! Pluto is up to the times, and if the son of Nox is using anything, it is probably a gasolene launch.

I think, gentlemen, that I have proven conclusively that the dinghy was unknown to the ancients, and that

it is comparatively a modern invention; undoubtedly contemporaneous with the kerosene stove, the cat-rig, the canned corned beef, and other deadly yachting improvements, that have made single-handed cruising a source of profit to the physician and undertaker. Yet, gentlemen, despite the suffering, privations and expense, we love this glorious sport with a love as redolent as bilge-water, and as everlasting as a patent bottom paint. It is not until pulmonary phthisis or aggressive matrimony makes existence in a six-by-three cabin a physical impossibility that we mournfully strike our cruising colors and reluctantly consent to occupy a chair among the wrecks clustered about the clubhouse piazza. Yet, distressing as it is to give up your sport and become a mere sheer hulk, it is sadder still to learn that all your toil and suffering has been for naught; to learn—despite the fact that you have given the meat and marrow of your days to the sport; to learn—I repeat, gentlemen, to learn, from the lips of men who have never set a gaff-topsail or opened an oyster—that *you don't know how to handle a boat.*

The following lines express poetically the *desideratum dinghi*:

Easy to row,
Easy to tow,
Easy to take aboard in a blow.

To design a craft to meet the initial requirement expressed in the above effusion is, gentlemen, as simple as sitting down upon living seaweed seductively clustered on the wave-worn surface of a tide-uncovered reef. The second requirement is also to be surmounted without difficulty; but the last is the rock upon whose knobby crest the amateur dinghy builder runs his ideas and goes to pieces. A dinghy, to be boardable, must be light enough for one man to lift; it must be either narrow or shallow enough to allow the boom to play clear of it when resting on the deck; it must be short enough to allow passageway about the decks, and must not project over the side or stern. That is the problem, gentlemen, which stares the dinghy designer in the two eyes, and, like the ghost of "our dear friend Banquo," will not be downed.

I like to see a dinghy short and pursy, partaking largely of the physical peculiarities of the ideal alderman. I like to see a dinghy properly painted and bedecked, so as to look like a well-kept relation of the yachts, and not like a vagrant clothed in cast-off livery, and pressed for the time into a menial and unwilling service. Not that I ever saw a truly grateful dinghy, or one that had given up all of its tricks or forsworn its bad habits, but still I earnestly believe it can be taught to love, and learn, after years of kindness, to kiss the hand that sculls it. Leaving a dinghy exposed to the hot sun, without one drop of water to keep its seams tight; refusing it a new coat of paint in the Spring; dropping hundred-

weights of ice and kegs of water into its interior from great heights, and running it on rocks, are samples of treatment that either sours the nature of a dinghy, making it revengeful, or else, if it is really a tender and affectionate little creature, breaks its keel and consigns it to an early woodpile.

The collapsable, folding, patent, "coming-safe-in-a-box" dinghies are, gentlemen, a snare and a delusion! The mechanical ideas engrafted in their construction are extremely ingenious, but the practical realization of their perfect fitness for any other purpose than the one intended is demonstrated to the yachtsman when he puts his foot in them.

The materials of which a dinghy may be scientifically constructed are iron, wood and canvas. If you belong to a club whose members are afflicted with the borrowing fever, I advise iron as the material to be employed. Iron dinghies should have a long line, with a cork float at the end, attached to them, as it enables you to readily secure your property, and also assists the searchers who are sent out to grapple for the bodies. The only objection to canvas is that it invalidates a Mutual Accident insurance policy, and generally leaves the widow and orphans in straitened circumstances.

For dinghy building I much prefer wood of the cheapest kind. I find it less wearing to the nerves to kill a dinghy in the Fall than to keep it over Winter, and attempt its reformation in the Spring. Oarlocks, if used in a dinghy, should be riveted in, as they have an annoying habit of visiting other dinghies, and unless sought after and brought back will never return. They learn this trick from close association with the oar, which article is exceedingly nomadic in its habits, as you have probably observed.

The study of the moral peculiarities of the different types of dinghy is of intense interest. Indeed, it is a subject worthy of the attention of a mind as profound as Humboldt's, or minutely analytical, as that of the immortal Linnæus. It is impossible, without descending

deeply into the subject—far deeper than the time will allow—to clearly elucidate the separability of the type dinghy into divisions morally distinct, yet structurally coincident. (Here the lecturer was interrupted by Mr. Freshleigh, who wanted to know if the Professor did not think it a dangerous practice, the leaving of empty bottles on the floor of a dinghy. After intently studying the interrupting member's face for some moments, Professor Strop answered: "Empty bottles, as well as empty heads, have their uses; so far as I am concerned, I always make a practice of breaking them. Neither the floor of a dinghy nor the lecture room of a club are proper receptacles for such rubbish.") To continue, gentlemen, we may roughly divide the dinghy into two broad classes, namely: the *too-willing* dinghy and the *unwilling* dinghy. Twenty years of bitter experience, filled with tears of sorrow, oaths of anger, and piles of receipted bills, places me in a position to state positively that the first class is the one that strains the lachrymal glands, breeds profanity, and depletes the pocketbook with the most noxious pertinacity. Indeed, the ancient author who framed the warning sentence, that has been paternally delivered to the youth of all nations for centuries—"Beware of wine, women, and dice," would most certainly have added "Too-willing dinghies" to the list of excitements to be eschewed, if he had ever taken a 10-days' cruise with one hitched to the taffrail. The sole aim of this little creature's existence is to be near you. It cloaks its malignant sedition in a garment of obsequious affection, appearing most docile and obedient when planning to betray or annoy its owner. It has all the cunning tricks of a lap-dog, mixed with the malicious destructiveness of a marmoset, and no amount of hard usage, words or blows will deter it from indulging in unseemly frolics at the expense of the yachtsman or his friends. When you are underway, and have the too-willing dinghy veered astern at the end of two fathoms, it will playfully endeavor to catch you, first by rushing up to starboard and then to port; upon discovering that



At New London to See the Rowing Races

this does not attract your attention, it waits until a big sea comes along, and then, tobogganing gaily down the hill of seething water, hits the taffrail a resounding whack. It delights to have you put out your hand or foot to stop it when it is making one of these mad rushes. But it is at night, when your cruiser is riding at snug anchor, that (to use a vulgar expression) it gets in its fine work. Patiently waiting until you are sleeping soundly, it creeps up under the counter and commences softly rubbing up against its big friend. If this rubbing does not arouse you, it indulges in a gentle tapping, working forward along the side as far as the painter will permit; it varies this performance every now and again by giving the planking a tremendous thump. Roused from the balmy sleep that sits upon the eyelids of the single-hander, you scramble out on deck, visions of pirates, collisions, rocks and other marine horrors tumbling tumultuously about in your semi-somnolent intellect, to find—what, gentlemen? All quiet! your dinghy floating peacefully at the length of its painter, complacently casting a tide-rippled shadow upon the starlit waters two fathoms away from the yacht's stern. If the yachtsman is green he will allow his suspicions to be neutralized by the unwillingness of the dinghy to approach the yacht while he is on deck. If he is an old hand he will secure a pig of ballast, strip off his clothes, jump into the dinghy, row away for about twenty fathoms, anchor the dinghy to the ballast, and then, plunging into the briny element, return to the yacht to pass the balance of his watch below in undisturbed slumber. It also delights to have your green friends step on its gunwale or bow, and it will, when alongside of a float, by pretending to be very steady, entice another man aboard, despite your protests. Ah, how the little dinghy delights to see the suit of clothes drying on the boom, and the merry yachtsman endeavoring to extract warmth out of a gaff-topsail and a pair of swimming pants!

The second class of dinghy is the sullen, morose, "don't-want-to-have-anything-to-do-with-you" craft. This obstructive specimen generally receives more rough treatment and less paint than its frolicsome brother. It always persists in holding back, and if possible breaking its towline when you are in some difficulty. It never offers to come alongside of the yacht of its own accord,

but will brutally foul every boat or stake within towline length. If on approaching a float, or dock, it sees a particularly nice-looking boat within assailable distance, it will rush at it savagely and then appear to sullenly rejoice while its owner is trying to explain to an irate individual how easy a black mark can be removed from a white surface, or vice versa. There being nothing playful in its nature, it seldom upsets, considering it more annoying and deadly to keep two or three inches of water on its floor.

Gentlemen, you have all owned dinghies of some kind, therefore, you know their habits, and no more need be said; but before closing my remarks, let me conjure you to continue striving for the ideal. Boldly pursue researches, never forgetting that by experiment only can the knowledge be obtained that will enable posterity to cruise single-handed with comfort, safety, and one suit of clothes. This generation of yachtsmen must sail and suffer, they must toil and crawl like the despised worm, so that the next watch can live the luxurious life of the butterfly. Black as are the clouds about us, I behold in the hope-blazened confines of the pregnant future the rainbow of unalloyed success, one pillar of the resplendent arch firmly embedded on the deck of the ideal cruiser, the other rising grandly from the form of the ideal dinghy. The blood that circulates through the gray matter of our brain is the blood of a race whose muscles, energized by the genius of invention, has given to the world the 8-day clock, the sliding-seat canoe and the grafaphone; it has made it possible for man universally to obtain by the expenditure of a nickel, a photograph of his girl, a package of cough drops, or a Turkish bath. *Nil desperandum*, gentlemen! The single-handed cruiser's millennium is not far distant.

* * *

After several questions had been asked and answered, a vote of thanks was tendered the lecturer, all the members present voting "yea" with the exception of Mr. Freshleigh and Mr. Rufdog; the latter gentleman's feelings being hurt by Professor Strop in his last remarks failing to mention among other great inventions, "The Rufdog self-mousing gaff-topsail halyard hooks." At the suggestion of Mr. Guffy a subscription was started for the purpose of erecting a monument, underground, to the man who first called the dinghy a *jolly-boat*.

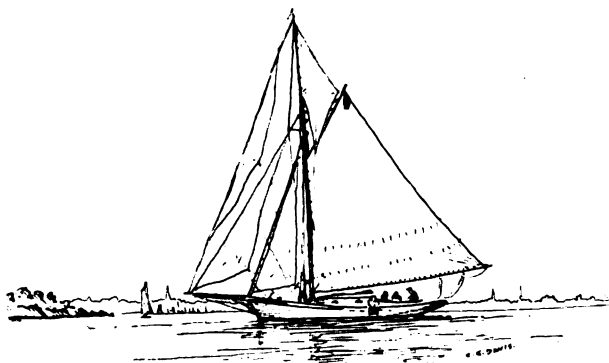


A YARN ABOUT AUXILIARIES

Charles G. Davis

SOME men don't know enough about machinery to oil a pair of roller skates. I've heard such men condemn a certain make of motor and then in another locality found everyone using that particular motor and willing to swear by it 365 days in the year. So when a man begins to knock a certain motor, look out for him; he will expect a motor to run with the feed pipe shut off.

Human nature is a queer critter any way you look at it. Away back in 1888, or thereabouts, we used to lay becalmed all day on Long Island Sound, right in sight of a harbor—see the hands of the clock go round to the time the last train to the city left that town—with guests



We used to lay all day becalmed right in sight of a harbor

aboard whom we had promised to see would catch that train, and not be able to make an anchorage in any harbor until along about midnight. Then we'd say we hoped we lived to see the day when some one would invent a small, compact engine, suitable to be carried in a yacht, that could push her along about three or four miles an hour. All that was needed was power enough to stem a four-mile tide, and we used to do it sometimes by brute force and a pair of oars, getting our catboat South of Fort Washington Point on the Hudson River, against a flood-tide. The only thing in the engine line then in use was the old naphtha launch engine or alco-vapor engine that belched flame out of its funnel so as to prohibit its use on a sailboat.

Today we not only have this ideal motive power, but we have it perfected and in such a variety of shapes, sizes and prices that nearly every yachtsman can afford one; yet, now, some sailboat men are reluctant in utilizing them.

Only a short time ago, when I went out on Long Island Sound looking for a heavy sea to try out a new type of motor lifeboat, nearly every little oyster smack we met coming down the East River had a white veil of steam or smoke trailing out from under her counter stern. All the fishermen have a "kicker" in them nowadays. When the wind dies out, these boats keep right on gliding along the horizon, with sails all standing—which

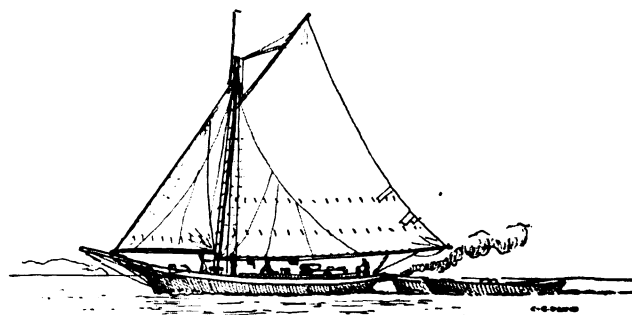
is often deceptive to a man in a sailboat race, looking around the horizon for signs of a breeze.

To my way of thinking, the trouble with most auxiliaries is that they install entirely too big a motor. They have too much power. The salesman that sells them the motor shows them how easy it is put in and the advantages of having an excess of power over what they really need, knowing that the result will be in the discarding of sail for the use of the motor. This big motor spoils a good auxiliary and makes but a poor motor boat.

You don't find the fishermen doing that; they, with a small, single-cylinder or two-cylinder motor tucked away under the cabin stairs, are to all intents and purposes sailboats.

Instead of detracting from the sailboats, as many claim the motor has, I believe that in the long run, the advent of the motor is going to be a benefit to the sailing of this country. There are hundreds of localities throughout the United States where sailboats are an impossibility. That those localities are now motor-boat centers is surely no drawback to yachting as a whole. There are hundreds of people unfamiliar with sailboats and afraid of their "tippiness," as they term it. If they can be induced to taste of the joys of being on the water in Summer, when it is sweltering hot on land, their ideas on the subject have a chance to broaden when they see the enjoyment that others get out of yachting, and before long, boating, be it sail-boating or motor-boating, has a new recruit.

With so many business-men it's a case of have a boat with a motor or have no boat at all, for business engagements must be kept, and the possibilities of combining the two were never in a better condition than they are today.



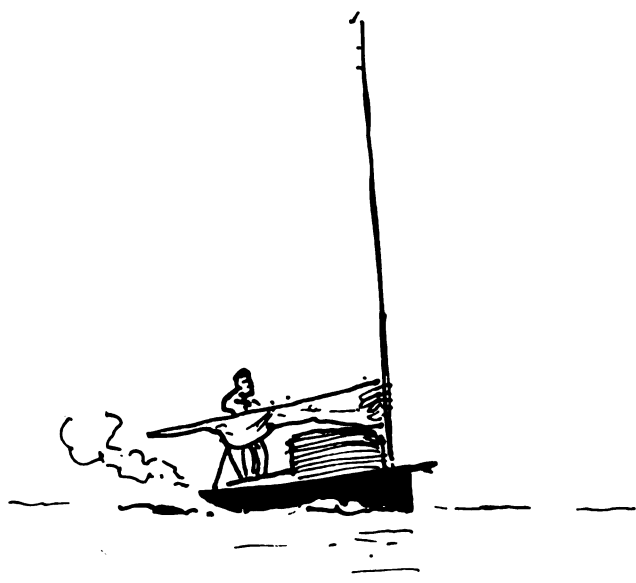
Nearly every smack we met had a veil of smoke out aft.

The advantages of the auxiliary are, that in case of a breakdown, you can always get home. It may be late, but you have a sure means of getting there and don't have to be towed. Some of the men who handle these little motors are not very careful, some of them do not understand machinery, and in most cases, breakdowns are due to the fault of men and not of the machinery. Motors

have been brought to such a stage of perfection today that many points that formerly gave trouble, as ignition, for example, have all been made automatic. That desire to meddle and experiment is the greatest foe to the consistent running of a motor of today.

Another advantage—one the owner of an out-and-out motor boat would appreciate—is the saving in fuel bills effected by the setting of sail and shutting down the motor altogether when the yacht, making an all-day run, has a fine, fair breeze to lift her along under sail every bit as fast, if not faster, than the motor could drive her.

The greatest drawback to auxiliaries is the lack of knowledge on the subject of sails and their use on a boat. A man with a narrow, round-bottomed launch, built, as nearly all launches are, very narrow, to make them easy to push through the water, will put sails on her, and, of course, she is cranky and tips over too far for comfort, and so he condemns auxiliaries in toto—he's tried them.



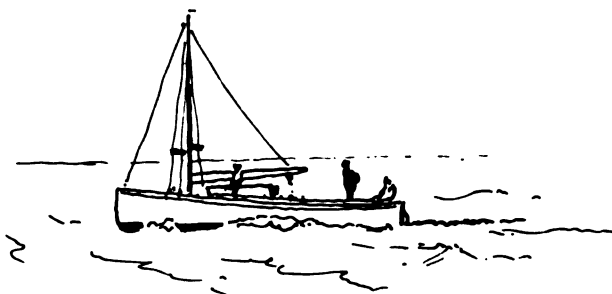
A cat-boat with a "kicker."

To be a successful auxiliary, the hull should be modeled for a sailboat. Proportioned and ballasted so, she will stand up under sail; she will be, besides being far more comfortable to "ride" in, as those who take their pleasure in an auto or a buggy would express it, a good handling boat under sail.

In fitting in the propeller, do not cut away too big a hole for it to work in, or it will affect the steering of the boat under sail, and at the same time, trim the wood down to a fine point in front of the propeller so the water can flow to the propeller in as solid a body as possible.

This, as in every other point in yacht designing, is a case of choosing the lesser of two evils. You want a boat wide to make her have stability to stand up under sail, and yet you don't want beam for speed under power. You want depth to make her easy in rough water, and yet you don't want depth for smooth-water use. You want a big hole for the propeller to work in solid water and for sailing you want the smallest hole possible under the circumstances, and so it goes all through the designing of a boat. A successful designer is he who can give and take and best adapt the various points to the kind of

work the boat is to do. That is why you can never have one ideal for a boat for all conditions. It's an impossibility. And if your experience does not qualify you to judge the elements in a yacht's design, go to some one



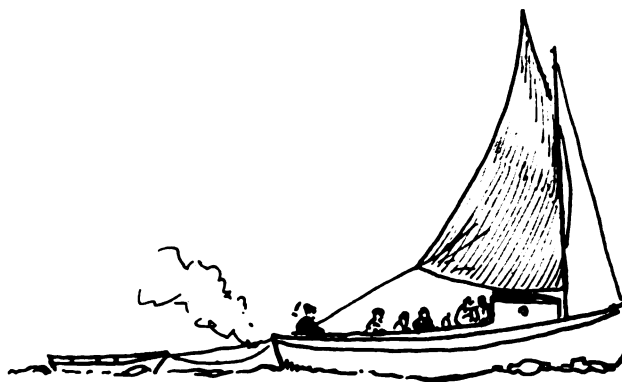
A handy type of auxiliary fishing boat.

who has proven by his work that he has, and get a successful boat and don't build a failure.

Fitting auxiliary power into a Gloucester fishing schooner is a far different proposition to putting power into a sand schooner to run in sheltered sounds and rivers. The former needs a big, powerful motor to hold her head up to the seas in a Nor'wester, but the latter, as I recall seeing one only last Summer, generally only uses the power when becalmed or in smooth water.

We lay in Lloyd's Harbor, and about sundown a grimy-sailed schooner poked her bluff bows slowly in around the sand-spit, against the tide. Then everything was lowered down on deck, a popping sound vibrated through the still air, and very slowly, the schooner slid past the fleet of yachts at anchor and grounded herself on the flat beach of a creek ashore, where the next day we saw them hoisting in cord wood.

Auxiliary power in a yacht is an encroachment upon the living room, but one well worth the sacrifice. In many cases, motors are installed so they do not intrude



A fair wind helping her along.

upon usable room, but are put in some dead space, such as under the cockpit floor (Fig. 1), or under the companionway steps (Fig. 2), or even, as I have seen it, away up forward in the galley (Fig. 3) where its smells, if there are any, mingle with the cooking; the shaft running under the cabin floor, and in cases where a true line of shafting cannot be run, slight corners are gotten

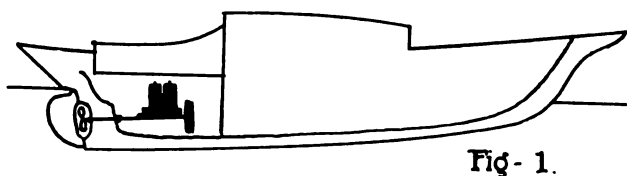


Fig-1.

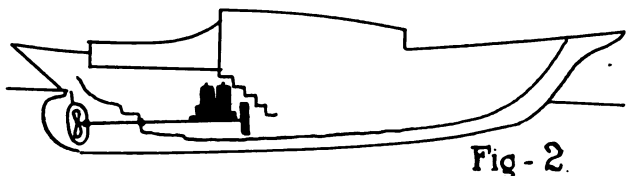


Fig-2.

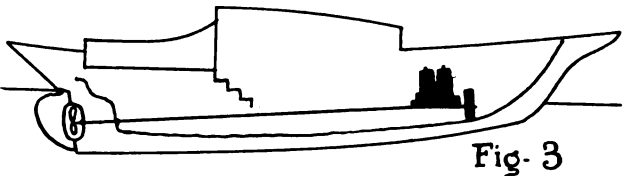


Fig-3.

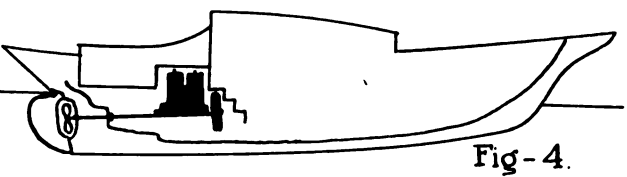


Fig-4.

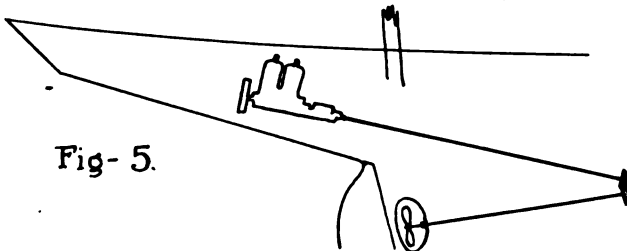


Fig-5.

around by the use of universal joints. This is often resorted to, so that the motor may be set level, but most marine motors are designed in regard to their oiling system, etc., to stand at a slight angle. The queerest installation of power in a sailboat I ever saw was the case of a big yawl, where the motor was put aft in the overhang back of the mizzenmast (Fig. 5). The motor shaft extended forward and down to a bevel gear, engaging in another which sent the tail shaft down and aft so the propeller was just about under and some three feet below the motor. That was an extreme case of tucking the motor away in a corner, "out of sight and out of mind."

In this case, a slot was cut in the heel of the mizzenmast, reinforced with iron for the shaft. The usual way is to set the motor shaft and all to one side "off center" far enough to clear the mast and, if the boat has one, the centerboard case. When motors first came into use, people were greatly prejudiced against setting the shaft and propeller off center. It had to come out plump in the middle of the deadwood, so the motor was always put somewhere aft of the centerboard case, where, due

to the companionway stairs, there was little enough room anyway, and that made a jumble of things. To get the shaft out through the center of the deadwood, many of the iron deadwood bolts had to be cut through, or partly reamed out to make room for the propeller shaft (Fig. 6). Sailboats were not built then, as they now are, to take a shaft (Fig. 7), by having their deadwood bolts spread apart.

Later, in converting sailboats, all this trouble was easily overcome by setting the motor slightly off center (Fig. 8), and either leaving it exposed along the deadwood or covering it with a metal or wooden sleeve fastened to the side of the deadwood, and the skeptical became convinced, after seeing it actually demonstrated, that this slight off-center offset of the propeller would not make a boat spin around in a circle, like a dog after its own tail, as was predicted.

Stuffing-boxes and stern bearings were for a long time the greatest source of trouble for the yachtsman who tried to do his own altering. There were only one or two patterns; all were faced up at right angles to the shaft and required all sorts of notches to be cut in the sternpost and shim blocks fitted inside to put them in place.

Of later years several manufacturers have come to



Fig-6.

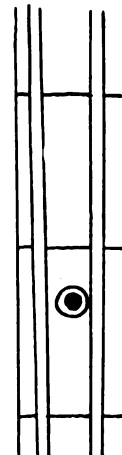


Fig-7.

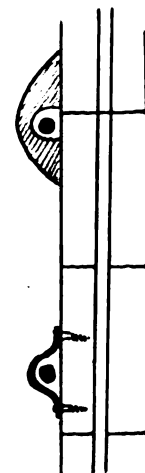


Fig-8.

the rescue with a variety of stern bearings and stuffing-boxes that makes almost any combination of shaft-angle and deadwood a comparatively simple matter, within the ability of a great many amateurs to make a successful job of fitting in auxiliary power in their boats.

There is no limit to the size of the boat to which auxiliary power may be fitted. In the small boat, it saves hours of rowing, and in the large boat, saves many dollars that would otherwise be paid for towing. The large boat can make quicker trips by pushing through the calm belts at sea, where a sailing vessel will roll becalmed sometimes for a week or two at a time, and in the case of the small boat, its usefulness is unlimited.

MODERN MARINE MOTORS



by T. ORCHARD LISLE, A.M.I. MAR. E.

BOATS

PROTECTING THE READER

FOR the twenty-five years that THE RUDDER has been navigating the seas of the world, its policy has been to keep its editorial deck and advertising log C-L-E-A-N, and so far as is possible protect its readers in this country and abroad from crooks or junk-mongers.

Where goods such as marine motors, boats and accessory fittings are purchased through advertisements, and when the purchaser and advertiser are separated by hundreds or thousands of miles, the average buyer has but little protection, as there usually is nothing to indicate to the novice the difference between the genuine advertisements and those that are issued from the "desk-room advertiser." Hence it frequently is that trusting readers, lured by attractive advertisements, are caught by concerns of shady repute, who, in all industries and businesses, lie in wait for the unwary.

Unfortunately, the actions of these unscrupulous dealers, for such they are, in handing out worthless or inferior goods are apt to indirectly inflict harm upon reliable firms whose advertisements appear in the same magazines, or journals, especially when they are allowed to continue unchecked their nefarious dealings, because it naturally makes the purchaser in distant parts lose faith in advertisers in general, as he has no means of distinguishing the good from the bad, particularly when he happens to be a foreigner, with but a slight knowledge of the English language.

To fully realize what we mean can be understood by placing oneself in the situation of a reader, say, in South America, who attracted by the flowery description and low price of the "Dump" engine, as advertised, sends along the payment. After much delay, he receives a motor that has been "thrown together," and which contains but half the proper fittings. Being but a working-

man and not overburdened with funds, he hasn't the money to place the matter in the hands of attorneys in America, and so has to bear in silence the loss of the money that was to have purchased a power plant to assist him in making his living.

Actually, hundreds of such, or similar, cases occur each year, but how different are the methods of reputable firms whose name are a credit to the advertising pages of any motor-boating or yachting magazine!

How can the reader differentiate? may be asked. This really offers no difficulty, for the reader is safeguarded if he strictly follows the principle of purchasing no motor-boat or yacht products that are not advertised in the pages of THE RUDDER. The Oldman has always done his best to prevent the advertisements appearing in these pages of any firm whose goods he knows to be worthless, or that they are shady in their dealings with our readers. Consequently, there are a number of marine motor and boat firms whose advertisements the Oldman has positively refused to accept, even after our own business canvassers have unwittingly secured their insertion orders.

At the same time, we do not for one moment suggest that any firm is no good because they do not advertise in THE RUDDER, as, unfortunately for us, there are several high-class concerns whose announcements do not regularly appear in our columns. But we do state, that so far as our careful investigations show, every advertisement now appearing in THE RUDDER is of a responsible and reliable firm. Therefore, by only doing business with these people, our readers are safeguarding themselves, and at the same time assisting the Oldman in his work.



IS BUSINESS BAD?

IN the October RUDDER we pointed out the false economy of cutting advertising expenses because the outbreak of the war temporarily interfered with orders, and we then showed how the steady groundwork of years in foreign and home markets would be lost to those who had stopped their publicity campaign. Our surmise proved correct, and now that orders in plenty are being placed, there are many firms whose shops are almost devoid of work, simply because purchasers have lost track of them, the public having a very short memory.

On the other hand, those concerns who kept their advertisements in full swing are now busy night and day, carrying out orders. When war was declared, the Sterling Engine Company were one of the first to reduce their advertising expenses, but evidently they quickly saw their mistake, for they almost at once resumed the old strenuous publicity policy, with the result of the receipt of an abundance of orders. The most important of these orders are seen in the list on the following page, but there are many smaller engines not included.

As it happens, there is still a good chance (for those who make no delay and boldly advertise in *THE RUDDER*) to secure their proper share of the foreign and domestic business, because British firms are unable to meet the demands of their Colonies, as war orders practically pre-

vent exportation of marine motors. The time to advertise for foreign business is in the Summer, because *THE RUDDER* is then received at "fitting-out" time in Southern countries. When Americans are laying-up for the Winter, Australians, etc., are just commencing racing and cruising.



Fleetwing and Disturber at Full Speed

TWENTY-ONE-FOOT CLASS RACING IN NEW ZEALAND

ANOTHER VICTORY FOR FLEETWING

INTEREST in the International 21-foot class is increasing in New Zealand, and the speedy Fleetwing, which was fully described in the May *RUDDER*, is causing much favorable comment. Recently, this boat at Auckland, raced with the Disturber, which was specially brought from Christchurch by Mr. L. A. Curtis, on behalf of her owner, Mr. W. H. Downer. Three races were to have been run, but Fleetwing, by winning the first two, rendered this unnecessary. Fine weather favored the first contest, but on the second day the conditions were a distinct contrast, for a stiff Northeasterly wind was blowing, and raised a fairly rough sea.

Such conditions seemed to suit the Fleetwing even better than those of the first day, for she covered the three and one-half knots in 9m 47s, against the first day's time of 10m 22s. The Disturber was slower, taking 11m 18s to cover the course, in place of her former time of 10m 57s.

The speeds attained by the two boats in the speed trials were as follows: Fleetwing, first trial, 20.25 knots; second trial, 21.46 knots. Disturber, first trial, 19.18 knots; second trial, 18.57 knots.

In the second race, an unofficial competitor put in an appearance and went over the course. This was a new boat, designed and built in ten days by Lane & Sons, and fitted with the engine from the day cruiser Scripps III, which previously raced with Fleetwing.

Disturber is a 21-foot by 4½-foot V-bottom boat, fitted with "false planes" and driven by a three-cylinder, 4½-inch by 4½-inch, high-speed, two-cycle-type engine, while Fleetwing, it will be remembered, is a Redwing-engined 21-footer, of the semi-displacement type, with concave-convex sections, and is owned by Mr. J. S. Collings.

It is of particular interest to note that the owner of Fleetwing believes that this type of hull is also a good one for slower speeds, provided different topsides are built, for when the boat is slowed down in a chop, the waves hit the sides, and the spray flies all over the crew, but she is quite dry when driven out. In regard to this it may be remembered that we advocated convex sides, whereas Fleetwing has concave sides. Messrs. Collings & Bell, the builders, are designing a 25-footer, to have a Model B Red Wing motor. She will be used as a runabout on a river, by a local owner.



Fleetwing at Speed. Judging by the Illustrations It Seems That She Would Run on a More Even Keel If Her Motor Was Moved a Few Inches Further Forward

LIST OF NEW BOATS EQUIPPED WITH STERLING ENGINES

Name of Boat	Owner	Port	Type of Boat	Single or Twin-Screw	Dimensions	Designer	Builder	Model	No. Bore and Cyls. Stroke	H.P. Eng.	No. of Eng.
Marold	Roy A. Rainey	New York City	Ex. Cruiser	Twin	90'	Geo. Lawley & Sons	Geo. Lawley & Son Corp.	F	8 6 3/4 x 9	300	2
Elmasada	C. Harold Willis	Detroit, Mich.	Ex. Cruiser	Triple		Matthews Boat Co.	Matthews Boat Co.	F	8 6 3/4 x 9	300	3
(Old power plant)	Daniel Good	Buffalo, N. Y.	Cruiser	Triple				D	8 6 3/4 x 8	300	2
Ankle Deep	Too C. S. Mankowski	Lake George, N. Y.	Hydro	Twin	32'	Tams, Lemoine & Crane	Wood & McClure	R-5	8 5 1/2 x 6 1/4	225-250	1
Peter Pan	E. C. McGraw	Pittsburgh, Pa.	Hydro	Single		C. C. Smith Boat & Engine	C. C. Smith Bt. & Eng. Co.	R-3	8 5 1/2 x 6 1/4	225-250	1
Tech.	James Simpson	New York, N. Y.	Hydro	Single		Geo. F. & A. W. Crouch	Reliance Motor Boat Co.	R	8 5 1/2 x 6 1/4	225-250	2
Little Joker	Mr. Chesebrough	Grand View, N. Y.	Hydro	Single	32'	A. E. Apel	Luders Marine Const. Co.	R	8 5 1/2 x 6 1/4	225	1
	Coleman DuPont		Hydro	2 engines in tandem		Fred Adams	Ventnor Boat Works	R	8 5 1/2 x 6 1/4	225	2
	Harry S. Ford	Baltimore, Md.	V-Bottom	Twin	59'x10'6"	Baker	Chance Marine Cons. Co.	B	8 5 1/2 x 6 3/4	150	2
Winomish (new boat)	H. Wesson	Troy, N. Y.	Ex. Cruiser		40'x10'	Swasey, Raymond & Page	Britt Bros.	B	8 5 1/2 x 6 3/4	150	1
	L. C. Cramer		Cruiser		40'			B	8 5 1/2 x 6 3/4	150	1
	F. A. Gantnier	Providence, R. I.	Cruiser		40'	Matthews Boat Co.		B	8 5 1/2 x 6 3/4	150	1
	C. Harold Willis	Detroit, Mich.	Runabout			Geo. F. & A. W. Crouch	Reliance Motor Boat Co.	R	6 5 1/2 x 6 3/4	135	1
	John Boscort	Brooklyn, N. Y.	Cinderella		28'	Geo. F. & A. W. Crouch	Reliance Motor Boat Co.	R	6 5 1/2 x 6 3/4	135	1
	J. D. Betz	Philadelphia, Pa.	Cinderella		32'6" x 6'		Hutchinson Bros.	R	6 5 1/2 x 6 3/4	135	1
(Old Boat)	Francis M. Bacon	New York City	V-Bot. Run.		35'	Geo. F. & A. W. Crouch	Ramaley Boat Co.	R	6 5 1/2 x 6 3/4	135	1
	W. J. Murphey	Minneapolis, Minn.	Cinderella		35'x8'	Tams, Lemoine & Crane	Staten Is. Shipbuilding Co.	R	6 5 1/2 x 6 3/4	135	1
	J. J. Harty	Kingston, Ont.	Hydrobiel Jr.		35'x8'	Geo. F. & A. W. Crouch	Leyare Boat Works	R	6 5 1/2 x 6 3/4	135	1
	M. C. Kimball	New York City	Cinderella		35'x8'	S. F. Brown	Brown Bros.	R	6 5 1/2 x 6 3/4	135	1
	L. F. Percival	New York, Mass.	V-Bottom		45'x8'6"	Fay & Bowen Engine Co.	Fay & Bowen Engine Co.	R	6 5 1/2 x 6 3/4	135	1
	Oscar Daniels	New York City	Runabout		30'x6'	Hutchinson Bros.	Hutchinson Bros.	R	6 5 1/2 x 6 3/4	135	1
	E. McMillan	New York City	Day Cruiser		40'	Geo. F. & A. W. Crouch	Fay & Bowen Engine Co.	R	6 5 1/2 x 6 3/4	135	1
	W. D. Fox	Penn Yan, N. Y.	Cinderella		35'	Matthews Boat Co.	Matthews Boat Co.	R	6 5 1/2 x 6 3/4	135	1
	Mr. Sheppey	Toledo, Ohio	V-Bot. Run.		32'	John Alden	Cam n A R'd. Mach. Co.	R	4 5 1/2 x 6 3/4	90	1
(Old Boat)	A. W. Ericson	Pittsburgh, Pa.	Runabout		26'	Geo. F. & A. W. Crouch		R	4 5 1/2 x 6 3/4	90	1
	R. H. Clemson	Philadelphia, Pa.	Runabout		26'			R	4 5 1/2 x 6 3/4	90	1
(Old Boat)	J. M. Rowland	Essex, Conn.	Cinderella		26'	Hacker		R	4 5 1/2 x 6 3/4	90	1
	C. A. Goodwin	Baltimore, Md.	Hacker		26'			R	4 5 1/2 x 6 3/4	90	1
	Wm. Smith		Bot. Runa't					R	4 5 1/2 x 6 3/4	90	1
	P. V. Griffin	New Rochelle, N. Y.	Cinderella		26'	Geo. F. & A. W. Crouch	Reliance Motor Boat Co.	R	4 5 1/2 x 6 3/4	90	1
	Collier W. Baird	New York City			26'	Hacker	Valley Boat & Engine Co.	R	4 5 1/2 x 6 3/4	90	1
	A. O. Lundgren	Philadelphia, Pa.	V-Bot. Run.		30'x5'	Chance Marine Const. Co.	Chance Marine Const. Co.	R	4 5 1/2 x 6 3/4	90	1
	L. W. Welch	Grand Rapids, Mich.	Runabout		36'	Hand		R	4 5 1/2 x 6 3/4	35-35	1
	C. H. Bryan	Annapolis, Md.	V-Bot. Cru'r					R	4 4 1/2 x 5 1/2	50	1
Katydid (Old Boat)	J. K. Van Denburg	New York City	Cruiser		64'x11'6" x 4'6"	Matthews Boat Co.	Matthews Boat Co.	D	6 5 1/2 x 8	50	1
(Old Boat)	J. K. Robinson	Newark, N. J.	Cruiser		50'x10'3" x 4'	Binney	Geo. Lawley & Son, Corp.	D	4 5 1/2 x 8	25-35	1
	J. O. Paine	Toledo, Ohio	Cruiser		66'x13'8" x 3'8"	Luders Marine Const. Co.	Luders Marine Const. Co.	D	6 6 1/2 x 9	70	1
	Geo. Ketcham	Burlington, Vt.	Cruiser		94'6" x 20' x 9'4"	Weekler Boat Co.	Greenwich Yacht Yard	D	6 6 1/2 x 9	70	2
	F. H. Wells	Chicago, Ill.	Cruiser			Whittelsey & Whitaker	Swasey, Raymond & Page	D	4 6 1/2 x 9	45	2
	C. J. Stein	Bay City, Mich.	Cruiser	Twin	77'	Swasey, Raymond & Page	Camden Anchor-Rockland Machine Co.	D	4 6 1/2 x 9	45	2
	Wm. M. Derby, Jr.	New York City	Aux. Yawl					D	4 6 1/2 x 8	25	1
	Chas. Coryell	New York City	Houseboat					D	4 6 1/2 x 9	70	1
	J. H. Ottley	New York City						D	4 4 1/2 x 5 1/2	20-35	1
	A. W. Billings	Boston, Mass.						D	4 4 1/2 x 5 1/2	20-35	1
	Stewart Davis							D	4 4 1/2 x 5 1/2	20-35	1
Neuse	Paul Wick	Morehead City, N. C.				S. H. Brown, Jr.	Geo. Lawley & Son Corp.	D	4 6 1/2 x 9	70	1
	U. S. Government	Winchester, Mass.				W. B. Hand	J. E. Graves	D	4 4 1/2 x 5 1/2	20-35	1
	A. C. Lombard	Newton, Mass.				Camden Anchor-Rockland Machine	Camden Anchor-Rockland Machine Co.	B	4 4 1/2 x 5 1/2	20-35	1
	H. Bixby							B	4 4 1/2 x 5 1/2	20-35	1

REDUCTION GEAR FOR CRUISERS

WILL IT SUPPLANT HEAVY-DUTY ENGINES? THE ADVANTAGES AND DISADVANTAGES OF THE SYSTEM FULLY DISCUSSED

IN engineering practice, it is recognized that high-speed machinery, if properly designed and constructed, is more efficient than slow-speed, because greater power is developed on the same weight. Even several recently-built Atlantic liners are operated by relatively small, but high-speed, turbine engines, driving the propellers through gear boxes, etc., so that the propeller may turn at its more efficient speed, which is many times slower than the driving motor. This enables power plants of huge power to be installed in less space than were the older power plants of ordinary powers, but slower speed. In fact, shipowners are becoming strong believers in the geared turbine.

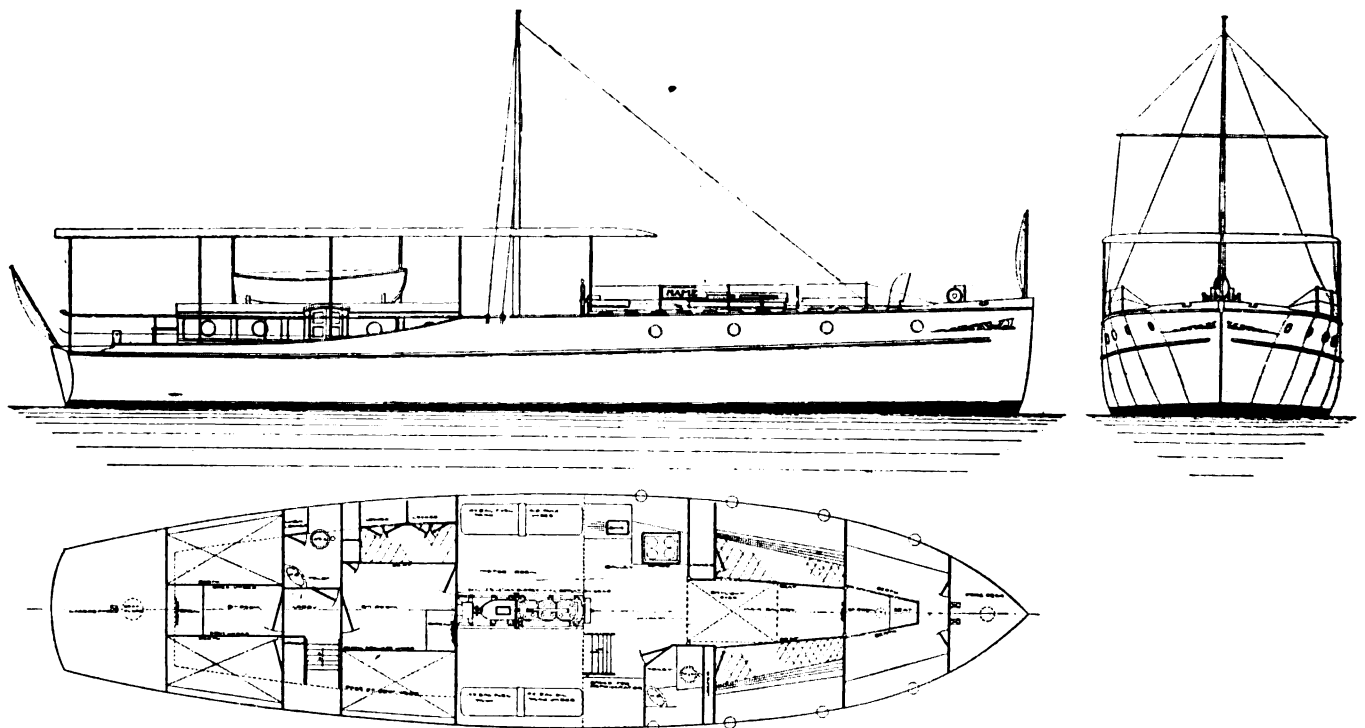
Have you ever watched the huge cranes in a steel mill work? Or on the large docks and battleships? If you have, you must have wondered how the little tiny motor down in the bottom of the machine could operate the huge machine; but the same principle applies, and sometimes the little motor is turning at three, or four thousand revolutions, transmitting its power through gears, so that it can be handled easily. The motor that operates the street car is small, compact, but whirls at a very high speed, yet the wheels of the car only operate at a comparatively low speed—all done with efficient gear reduction.

For years, the cruisers and work boats of this country have been using slow-turning, and necessarily somewhat cumbersome engines, as it is not practical to turn propellers in such boats at high speeds. But the design and construction of cruisers have advanced and improved

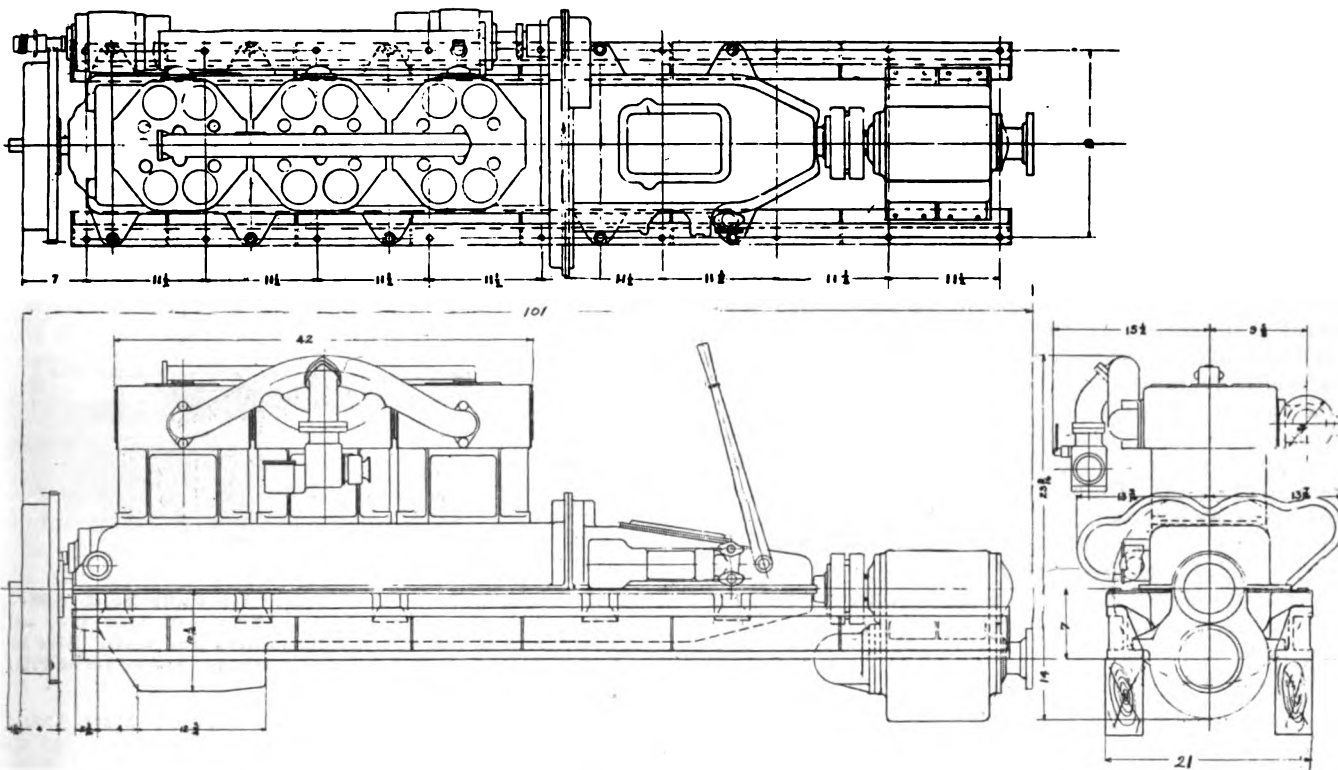
rapidly in the last few years. The demand is now for comfort, seaworthiness, safety and speed. But speed means power, and power, in the heavy-duty type of engine, means size and weight, and the amount of extra room required for the power plant necessary to drive the boat at a few extra miles per hour has rapidly increased, until now it sometimes takes the best accommodation in the boat. Flyaway III opened the eyes of the industry to the possibilities of fast and seaworthy cruisers. Enchantress, Shadow and Wilfreda were other boats that demonstrated the possibilities of driving cruisers of ample size and accommodations at speeds hitherto unheard of.

However, these boats especially, still use up too much space for engine room to be ideal, and Mr. Joe Van Blerck has been studying the details of an ideal fast cruiser power plant. He reasons that what is practical in steam engineering is practical in gasoline engineering, consequently assumes that a motor developing 100-h.p. at 1,000 r.p.m. can be so geared that the propeller will only operate at 500 r.p.m., in this way getting an efficient propeller speed, an efficient engine speed, large power, yet occupying less space than a normal 25-h.p. heavy-duty motor. In addition, this type of power plant is quieter, has practically no vibration, and (the Van Blerck Company claim) is more economical in consumption of fuel per h.p. developed.

At the same time, it should not be overlooked that in marine steam engineering gear-reduction is not used with reciprocating engines, but with turbines, the greatest



A Cruiser with a High-Speed Engine and Reduction Gear



Van Blerck Engine and Reduction Gear

economy of which is obtained at high speed. In fact, it is well known that turbines are far from economical when running at low speed. Now with reciprocating engines, both steam and internal-combustion types, the greatest fuel and lubricating oil economy per b.h.p. hour is obtained from a plant designed to give its maximum efficiency power at slow speed. Furthermore, the wear and tear of such an engine is less because of the greatly reduced piston and bearing speeds. Thus it will be seen that there are both "fors and againsts" with gear-reduction plants. There can be no doubt but that the system is excellent for certain types of craft, but much depends upon individual boats, and before a decision is made, the question should be well discussed with the hull designer. Electrical reduction and transmission also have been tried, but from our personal experiences, we believe that considerable developments must take place before we would recommend the latter for small motor craft.

A recent example of the gear-reduction in combination with a high-speed engine is to be found in the new cruiser built for Mr. W. H. Sampson, of Chicago, by the Weckler Company, from designs by Mr. Morris Whitaker. Mr. Sampson recently sold his boat, Florence III, and his new yacht is 56 feet long by 13 feet 6 inches breadth. We have been given to understand that he fully intended to purchase a regular 100-h.p. heavy-duty motor, but found that he had to give up several cherished ideas in regard to accommodations in order to install so large a set of machinery. Just about this time Mr. Joe Van Blerck was in Chicago and met Mr. Sampson at Weckler's Yard, and immediately started in on his pet theory of small, efficient, high-speed engines, operating through a gear box. Mr. Sampson became enthused on the proposition and instructed Mr. Van Blerck to go ahead and build him up a standard six-cylinder Van Blerck, delivering 100-h.p. at 1,000 r.p.m., and attach an efficient gear box, so that the propeller would

only operate at 500 r.p.m. This engine is now being built and will be equipped with a Leece-Neville, two-unit, electric starter, governor, bilge pump and the gear box. The boat is to be finished complete and delivered August 1, 1915. So keen was Mr. Sampson over this type of installation that he persuaded a friend, Mr. Doran, of Chicago, who is having a duplicate of the Sampson boat built, to purchase the same power plant and he did, consequently two of these boats will be launched this Summer.

The engine is a regular stock model, bore $5\frac{1}{2}$ inches, stroke 6 inches, developing 100-h.p. at 1,000 r.p.m., weighing 1,280 lb and only occupying 80 inches of longitudinal space and 19 inches of lateral space. The gear box is attached as shown in the illustration, the lubrication of the gear box being taken care of in a similar manner to that of an ordinary transmission in an automobile. The lubrication of the engine proper is all by the Van Blerck system of pressure-feed, even including the reverse gear, which is running in a constant bath of oil, yet so well is the motor constructed that not a drop of oil can get onto the outside of the machine. In addition to this, the motor is so thoroughly enclosed that even at high speeds it can scarcely be heard. The result of the working of these two boats will no doubt be watched with the closest interest by yachtsmen and naval architects throughout the United States.

FROM TWO-CYCLE TO FOUR-CYCLE

BECAUSE of their unsatisfactory working in seagoing service, the two Swedish-built, 850-b.h.p., two-cycle-type Diesel engines of the ship Sabastian, have been removed and are being replaced with Werkspoor four-cycle-type Diesel engines. Nine other two-cycle Diesel-engined ships have had their motors removed; but no four-cycle Diesel vessels.

COLUMBIA Y. C. OPENS THE SEASON

COLUMBIA Y. C., New York, opened its active racing season with a regatta on the Hudson on June 5th, and altogether, sixteen boats started, including several newcomers. In the displacement class, the new Reliance-built *Invader* easily defeated our old friend, *Cinderella*, averaging more than 34 miles an hour. Mr. J. K. Van Denburg's V-bottom cruiser *Katydid*, which we illustrate, also is a new craft, and she was successful in the small cruiser class, beating the motor yachts *Lurline* and *Fabius*. In another event, the famous fast cruiser *Wilfreda* was easily outpaced by the *Runaway*, a new boat with a Wisconsin engine, that lived up to her name. *Bunk III* walked over in her class, while *Amorita* won from *Standard*, *Eastern Star* and *Mon Plaisir*. There were no starters in the hydroplane race, the two entries being hors-de-combat.

The times were as follows:

Open Launches—First Division. Course, 10 Miles. Start, 2:15

Boat and Owner	Finish H. M. S.	El. Time H. M. S.
<i>Bunk III</i> , C. Firth.....	3:19:30	1:04:30

Open Launches—Second Division. Course, 15 Miles. Start, 2:20

<i>Amorita</i> , W. T. Randolph.....	3:06:00	46:00
<i>Standard Sr.</i> , R. L. Kingston.....	3:10:30	50:30
<i>Eastern Star</i> , E. W. R. French.....	3:11:30	51:30
<i>Mon Plaisir</i> , W. H. Latimer.....	3:17:00	57:00

Corrected Times—*Amorita*, 44:52; *Eastern Star*, 49:50; *Standard Sr.*, 50:30; *Mon Plaisir*, 54:30.

Cruisers—First Division. Course, 10 miles. Start, 2:55

<i>Satum</i> , Thomas Farmer, Jr.....	4:14:45	1:19:45
<i>Respite</i> , V. C. Pedersen.....	4:07:15	1:12:15

Corrected Times.—*Satum*, 1:10:50; *Respite*, 1:12:15.



Minerva, an Eighty-Foot Cruiser Recently Sold to Mr. Alexander Smith Cochran. Who will Use Her as Tender to the Auxillary Schooner Sea Call. She is Powered with Two 45-H.P. Sterlings. Speed 13 M.P.H.

Cruisers—Second Division. Course, 10 Miles. Start, 3:00

Boat and Owner	Finish H. M. S.	El. Time H. M. S.
<i>Katydid</i> , J. K. Van Denburg.....	3:48:45	48:45
<i>Lurline</i> , Mrs. J. C. Campbell.....	3:53:45	53:45
<i>Fabius</i> , W. E. Thomas.....	4:11:35	1:11:35

Express Cruisers. Course, 20 Miles. Start, 3:05

<i>Runaway</i> , A. C. Cushing, Jr.....	4:15:35	1:10:35
<i>Wilfreda</i> , J. M. Rutherford.....	4:28:15	1:23:15

Displacement Boats. Course, 30 Miles. Start, 2:35

<i>Invader</i> , C. W. Baird.....	3:38:50	1:03:50
<i>Cinderella</i> , N. Bahnson.....	3:45:15	1:10:15

Hydroplanes. Course, 30 Miles. Start, 3:10

Little Gunfire, W. J. Brainard (Withdraw)
Little Joker III, H. S. Ford (Hit log and did not start).



Katydid Winning in Her Class at the Columbia Y. C. Races

TRIALS OF M. B. C. A. TWENTY-ONE-FOOTERS

ON May 25th last, the first of the one-design 21-footers of the M. B. C. of America's new class carried out her trials on the Hudson. A speed of 23 m.p.h. had been guaranteed, and the little boat well bore out our repeated statements that this reverse-curve type of hull is faster and more seaworthy than the round or V-bottomed displacement designs; as an average of six runs, with and against the tide, a speed of 24.17 statute miles per hour was obtained, which is indeed good, considering the power and weight of the engine, and that there was a crew of two (330 lb) aboard.

The motor is a four-cylinder, 4½ inches by 5 inches, four-stroke type Loew-Victor, developing on the test-bench, 44-b.h.p. at about 1,400 r.p.m. This engine drives a two-bladed, 18-inch by 21-inch Columbian propeller. On the trials, the average revolutions of the engine were 1,380; there was 10 gallons of fuel aboard, the tide was flooding and the wind 10 miles S.E.

The runs were as follows:

No.	Tide	Time m. s.	Miles P.H.	Means	Means	Aver. Speed
1	Against	2:33	23.22	} 23.98	} 24.13	} 24.17
2	With	2:23	24.65			
3	Against	2:30	24.00	} 24.28		
4	With	2:27	24.49			
5	Against	2:33	23.52	} 24.22		
6	With	2:25	24.82			

Total time.....14m. 56s. Total boat travel.....31,680'
 Total revolutions.....20,608 Slip4.384'
 Total prop. travel.....36,064' Slip %.....12% plus

NOTE.—Two-fifths second called on second less; three-fifths second called one second more.

Two days later the designer, Mr. Morris Whitaker, held the trials of a 25-footer, also of the reverse-curve, or bow-wave-collecting type of semi-displacement hull, as follows:

Top-notch measured mile. Motor four-cylinder, 4¾x5½ L-V Model 13-40-h.p.
 Propeller, three-blade Columbian Type E, 20x24 inches.
 Tide ebbing; wind, North, about 20 miles.
 Load, 10 gal. fuel; 380 lb crew.
 Average number r.p.m., 1,170; h.p. by curve, 45.

No.	Direction	Time m. s.	Miles P.H.	Means	Means	Aver. Speed Stat'e Miles
1	Down	2:47	21.55	} 21.36	} 21.56	} 21.68
2	Up	2:50	21.17			
3	Down	2:40	22.50	} 21.76		
4	Up	2:52	20.93			
5	Down	2:42	22.22	} 21.80		
6	Up	2:46	21.68			

Total time.....15m. 17s. Total boat travel.....31,600'
 Total revolutions.....17,884 Slip5,168'
 Total prop. travel.....35,768' Slip %.....145%

Blackbird, as this boat is named, is owned by Mr. F. A. Ward, of Brooklyn, N. Y.



Mr. F. A. Ward's Blackbird

On June 10th, the third of the 21-footers underwent trials, this being Prince Charlie, Commodore Blackton's boat, which, like the others, has a four-cylinder, 4½-inch by 5-inch Loew-Victor engine, that drives a two-bladed 18-inch by 21-inch propeller. The trials were as follows:

Tide—Start of ebb. Wind—North, 25 miles.

No.	Direction	Time m. s.	Speed	Means	Means	Speed Stat'e Miles
1	Down	2:25	24.82	} 24.99	} 25.40	} 25.50
2	Up	2:23	25.17			
3	Down	2:17	26.27	} 25.81		
4	Up	2:22	25.35			
5	Down	2:18	26.08	} 25.41		
6	Up	2:25	24.82			

First mile not getting gas right. Total revolutions.....21,250
 Last mile spark not fully advanced. Total prop. travel.....37,187'
 Average number r.p.m....1,500 Total boat travel.....31,680'
 Total time.....14m. 10s. Slip5.507'
 Slip %.....14.8%

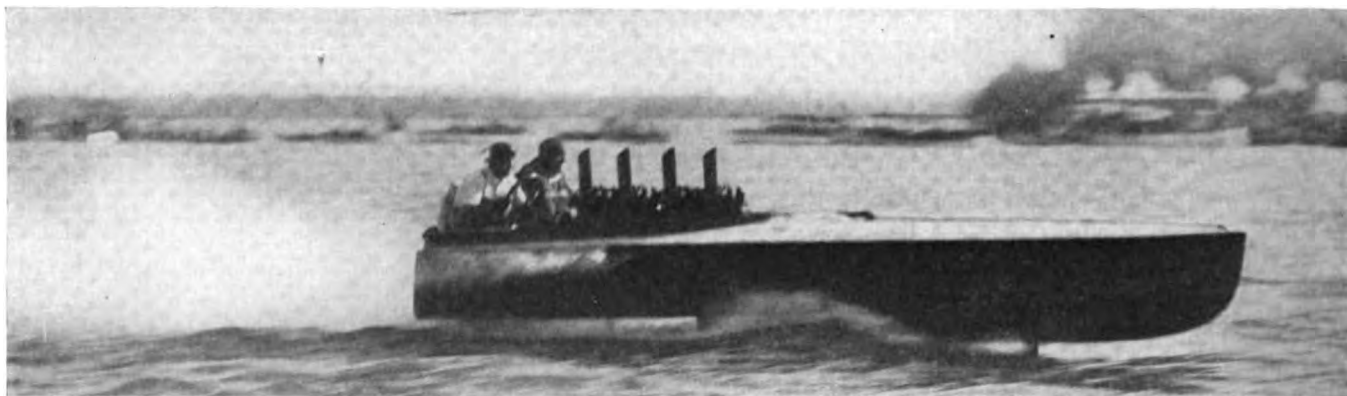
In view of the trials of the first three boats, it is well to summarize the results, and apparently the difference in speed is chiefly accounted for by the running of the engines, particularly in the case of Prince Charlie.

Owner	R.P.M.	Speed Statute Miles
Mr. Heckscher	1,330	23.71
Mr. Francis	1,370	24.14
Mr. Blackton.....	1,500	25.50

Possibly, when the boats are tuned-up, the results will be more even, but in any case, lots should be drawn for the craft.



The First Three One-Design Class Twenty-One-Footers Undergoing Trials on the Hudson



Baby Speed Demon II, the Defender of the Gold Cup

GOLD CUP RACERS

THE 1915 CHALLENGERS

THREE of the most keenly contested Gold Challenge Cup Races ever held are expected on the 31st July to August 3d, at Manhasset Bay, Long Island Sound, which event will be run under the auspices of the American Power Boat Association and the Motor Boat Club of America. The present holder of the Trophy, which represents the 40-foot championship of America, is Mrs. Paula Blackton, whose boat, Baby Speed Demon II, won the event on Lake George last Summer in a field of eight of America's speediest craft. Her average speed for two of the 30 sea-mile runs was 43.9 knots, and 41.7 knots on the third day, breaking all then existing United States speed records.

Five new boats have been specially built for this year's contests, one of which is said to have attained 62 m.p.h. on trials. While we do not expect that anything very close to this speed will be attained, we fully believe that, given fine racing conditions, at least 45 knots (51.8 miles an hour) will be made as an average by the winner. If our estimate is exceeded, so much the better for the winner.

The present tendency is to build small light-weight skimmers of 18 to 30 feet length, and apparently the vogue of the formidable 40-foot hydroplane has passed, although we firmly believe that before many seasons are over there will be a revival for the boat that can race in almost any kind of sea, such as could Maple Leaf IV, Disturber IV, Dixie IV, Ursula and craft that used to race in the open sea at Monte Carlo every year. At the present time, owners are too fond of placing orders for fair-weather skimmers and making extreme speed the principal object, while regatta committees only too readily assist them. The higher cost of the big boats was no obstacle in the past and should offer no difficulties now. The ideal should be "speed with safety."

Perhaps the most interesting of the new challengers is Count Casimir Mankowski's hydroplane, Ankle Deep Too, which name, by the way, was suggested by ourselves, it being the Count's original intention to call her Ankle Deep II. The hull, although by Clinton Crane, is quite a departure from existing practices, and will in no way resemble her predecessor; in fact, she will be a freak in comparison with Ankle Deep. The canoe

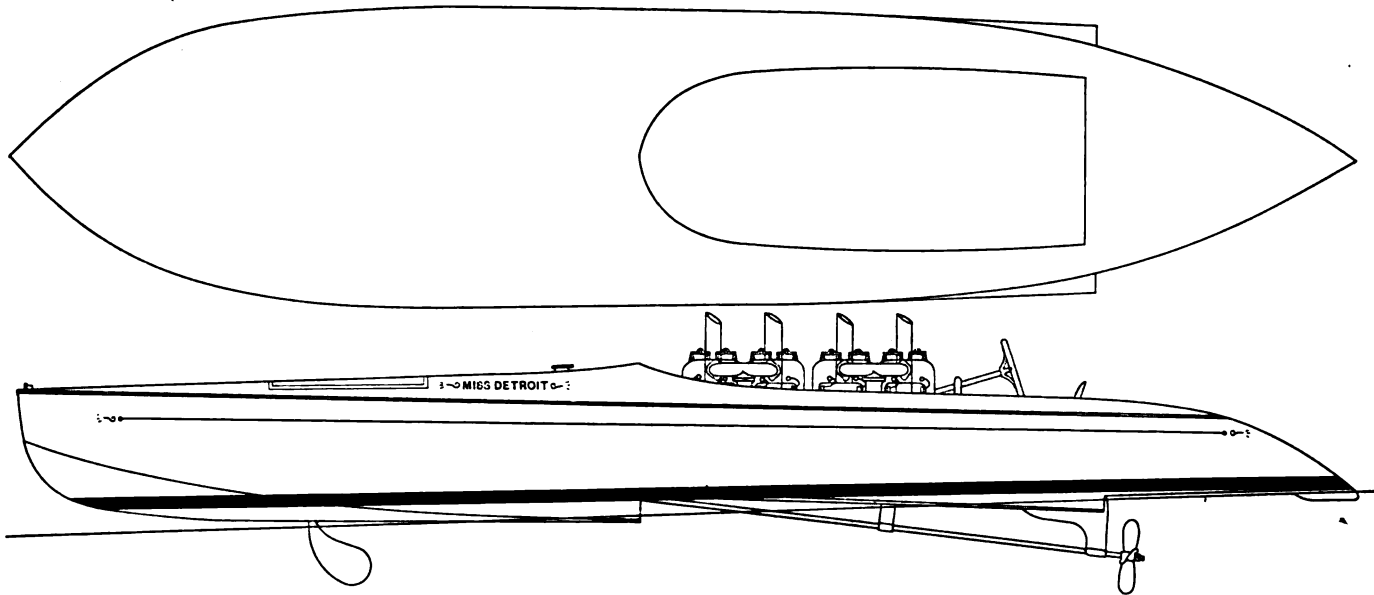
stern, abrupt chime and hog sheer will be her outwardly most noticeable features. There is one step underneath, which is built on. She is 26 feet long by 7½ feet breadth and is powered with two eight-cylinder Sterling engines of about 250-h.p. each. With these particular engines, the overhead valve system has been abandoned, and an ordinary T-head cylinder adopted, in spite of it being a well-known fact that the greatest power can be obtained with the valves directly over the cylinder. However, the owner intends using Ankle Deep Too as a run-about and so accessibility plays an important part in the design of the engines. To the public, her speed will be an unknown quantity until the races, because her designers will make no rash statements.

A new Gold Cup challenger that, to us, seems essentially a smooth-water skimmer is the Tech Jr., Mr. Coleman du Pont's Apel-designed flier, which is driven by a 150-200-h.p. eight-cylinder Sterling motor of the overhead valve type. The hull of Tech Jr. has what might be termed chime-plates, or water-wings, attached forward to assist the planing, but this arrangement we do not consider, from our boatbuilding sense, a desirable form of design or construction. Still, we have no doubt but that she is a speedy craft, although we personally should not desire to drive her at full speed in choppy water.

Another unknown quantity is Commodore Harry S. Ford's Little Joker III, which will represent the Tappan Zee Y. C. Her power plant will be two 250-h.p. Sterling engines, so she should be a "dark horse" to be feared by the holder of the trophy. Her hull is that of last year's Gold Cup racer P. D. Q. V, purchased from Mr. A. Graham Miles, and previously she only had one motor.

It is hoped that Mr. James Pugh will send his new 21-foot skimmer, Disturber V, the twelve-cylinder Duesenberg engine of which is said to develop as much as 1,000-h.p. Even if anything approaching this power is generated, upon which point we are dubious, at least a mile-a-minute speed should be made with smooth-water conditions.

The defender of the trophy, Baby Speed Demon II, is believed to be running faster than ever, so should put up a tough defense. She is a 20-footer, with 7 feet breadth, fitted with a 225-250-h.p., eight-cylinder, 5½-



Miss Detroit

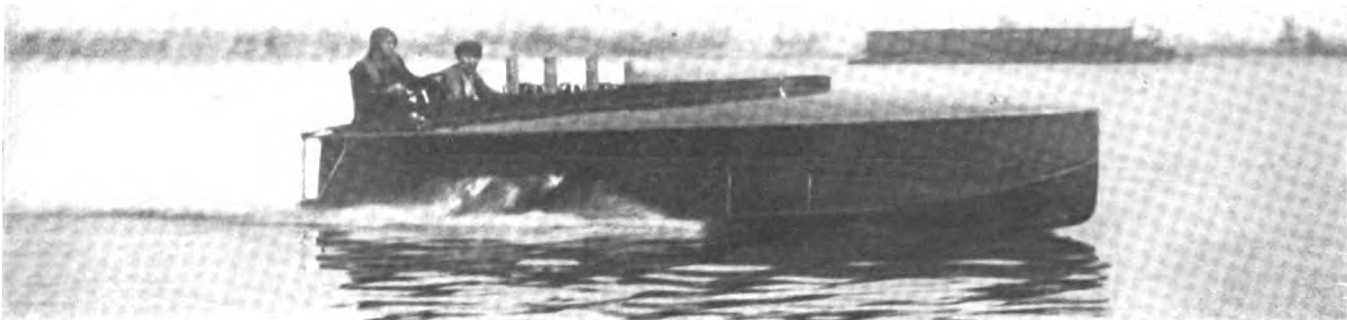
inch by $6\frac{3}{4}$ -inch Sterling motor, turning at about 1,600 r.p.m., and driving through forward gearing, a 20-inch by 40-inch propeller at about 2,000 r.p.m. The sister boat to her, the Baby Reliance V, will be raced by Commodore J. Stuart Blackton.

Detroit expects much from the Smith creation that they have entered. A syndicate was formed for the purpose and the boat's name is Miss Detroit. It will be seen that the designer has gone back to the double-step type of hull, which we rather doubt is quite so efficient in speed as the single-step type, but other reasons may have overruled this point when the problem was being studied and weighed by the designer. Naturally, a designer would not be wise in making public his reasons so long ahead of the race, and it is not wise to freely criticise on appearances alone. She will be easily recognized by her pointed stern and the tumble-home of the after deck. Furthermore, there are two brackets forward of the propeller, and this, we think, may produce a certain amount of cavitation, and so partially retard the extreme speed otherwise possible. Like the Blackton craft, she has the

forward rudder, with a little guide fin under the stern. Her motor also is an eight-cylinder Sterling of about 250-h.p.

Mr. James Simpson, of the Columbia Y. C., is understood to be building a new boat, named Hawk Eye VII, from designs by Mr. Geo. F. Crouch, in which two 200-h.p. Sterlings are to be installed. While little has been revealed about her, she is a boat to be regarded seriously, and this will fully be realized by other competitors.

Another last year's entrant is the Hawk Eye, entered by a Lake George syndicate of owners. She is a 26-footer, equipped with a twelve-cylinder, 300-h.p. Van Blerck motor and her best average speed in last year's contest was 37.5 knots. To be feared this year, she will have to do much better. On the whole, it will be seen that there is likely to be an imposing array of boats at the starting line of the first day's contest on July 29th, even if no other "dark horses" put in an appearance when the gun fires.



Tech Jr. II, Col. T. C. du Pont's Gold Cup Challenger



Rita

RITA—SOME BOAT

EARLY last season Mr. C. H. Borntraeger, of Pittsburgh, took over from the builders, the 50-foot motor yacht Rita, shown in the accompanying illustration, and this little craft by reason of the service given, proved to be very roomy for her dimensions, having accommodation for forty persons when day cruising, with sleeping quarters for eight and the crew. Her length over all is 50 feet, with a breadth measurement of 9 feet 4 inches. The power plant is a regular six-cylinder motor, and when turning at 1,000 r.p.m., develops a conservative 80-h.p., and gives this cruiser a speed of 17 to 18 m.p.h. A very noticeable lack of vibration is one of the comforts, regardless of the speed at which the motor is driven. Another noticeable and equally pleasing feature is the great mileage obtainable from a given quantity of fuel, even at the maximum speed.

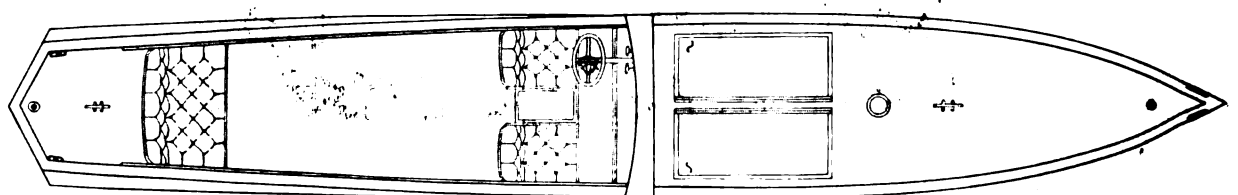
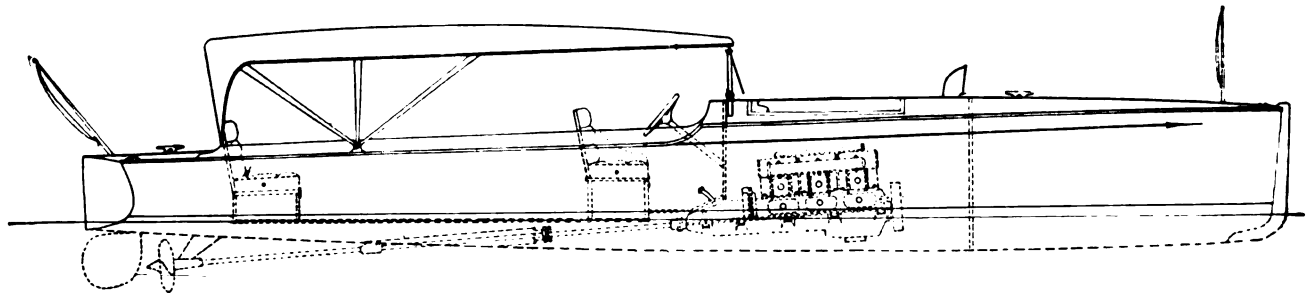
Mr. Borntraeger, the owner, states that with the engine turning at cruising speed (675-700 r.p.m.), the boat will make from $4\frac{7}{8}$ to 5 miles per gallon with fifteen people aboard under normal conditions. Her full power speed is 18 m.p.h. Built of white oak frames with cedar planking, copper and brass fastened with screws and rivets, the hull is very strong, but at the same time has sacrificed none of the grace or beauty for the other essentials.



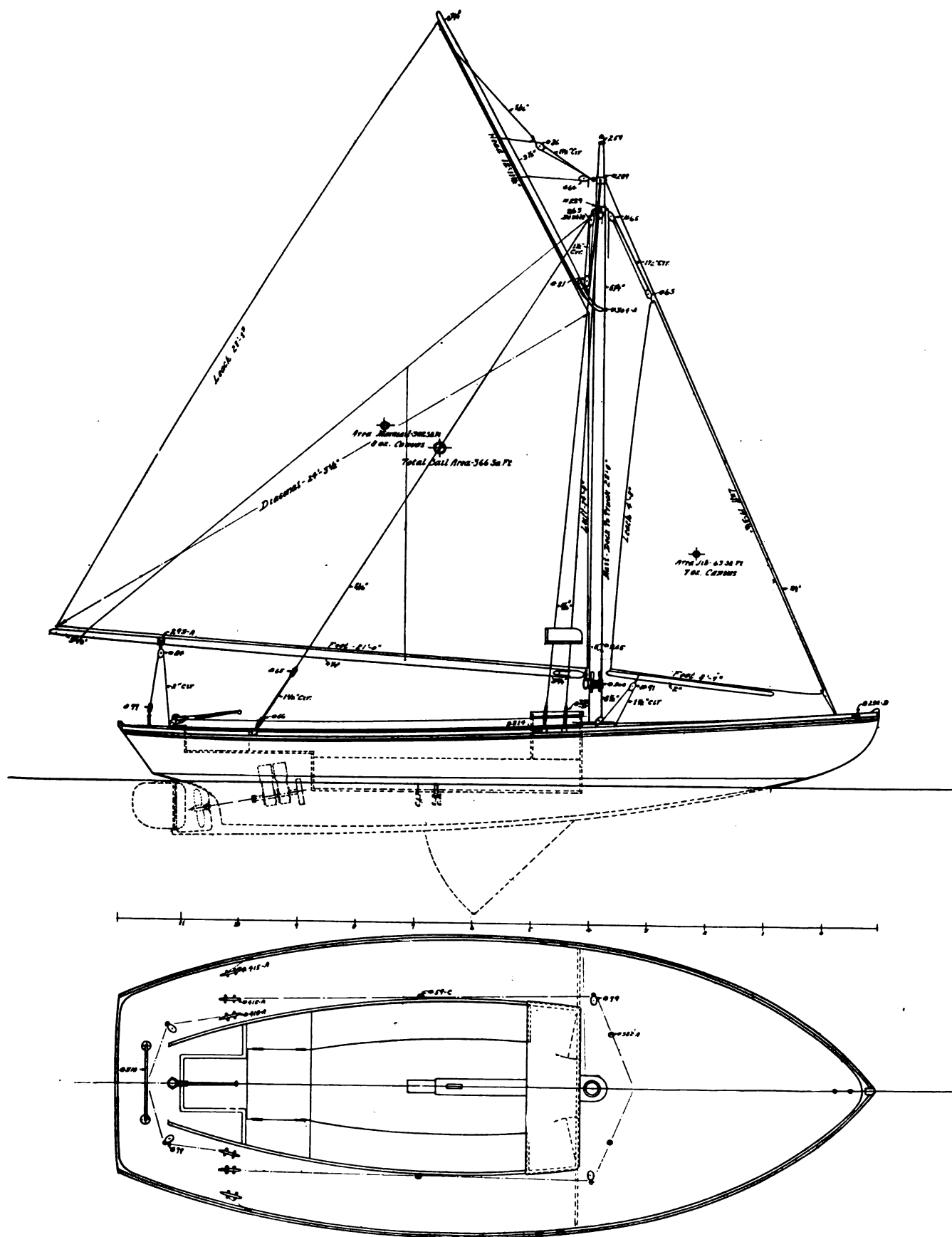
The Whitaker-Designed Thirty-Footer

THIRTY-FOOT AUXILIARY SLOOP

IN designing the 30-foot auxiliary sloop, which we illustrate, the main consideration was "safety first," because she is to be used for sailing with ladies and children aboard in Packets Harbor and vicinity, Lake Ontario. The design shows an attractive little craft, with 12 feet breadth on deck and 2 feet draught, without the center-board; but it seems to us that the freeboard could have been increased a little with advantage. As the speed is no object the sail plan is small and there is a two-cylinder, 10-h.p. motor of the two-cycle type as auxiliary, and this gives her enough power to make port if becalmed. She was designed by Mr. Morris Whitaker and built by Joe Peterson, and there are six air tanks, which are sufficient to float all weights, including one ton of ballast. The fuel tank is a Janney Steinmetz. All sheets lead to the steersman's cockpit aft of the main passenger space. The hull is of Spanish cedar planking on oak framing, and throughout the construction is heavy.

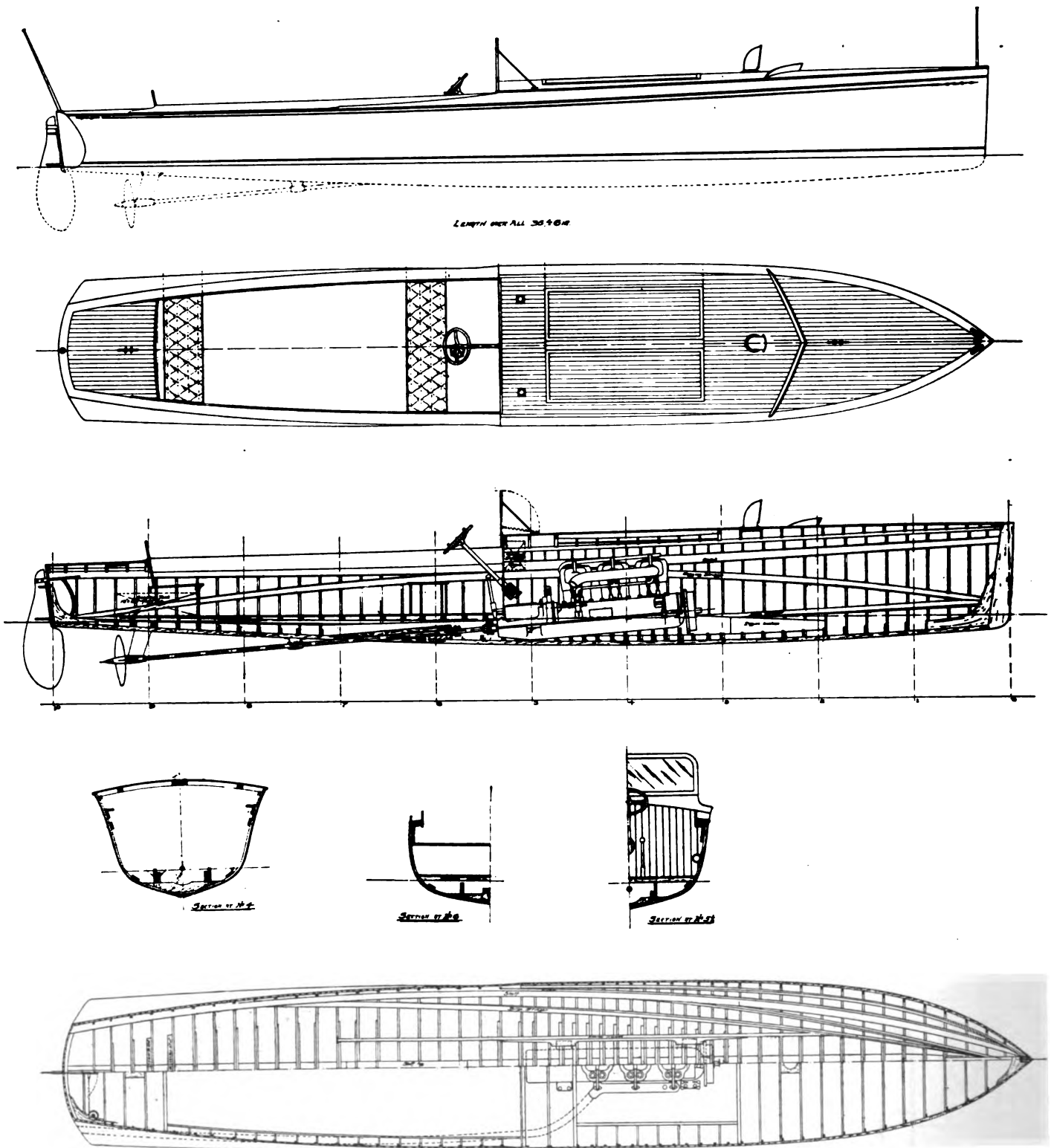


A Thirty-Six-Footer Equipped with a 100-130-H.P. Van Blerck Engine for Lake Winnepesaukee



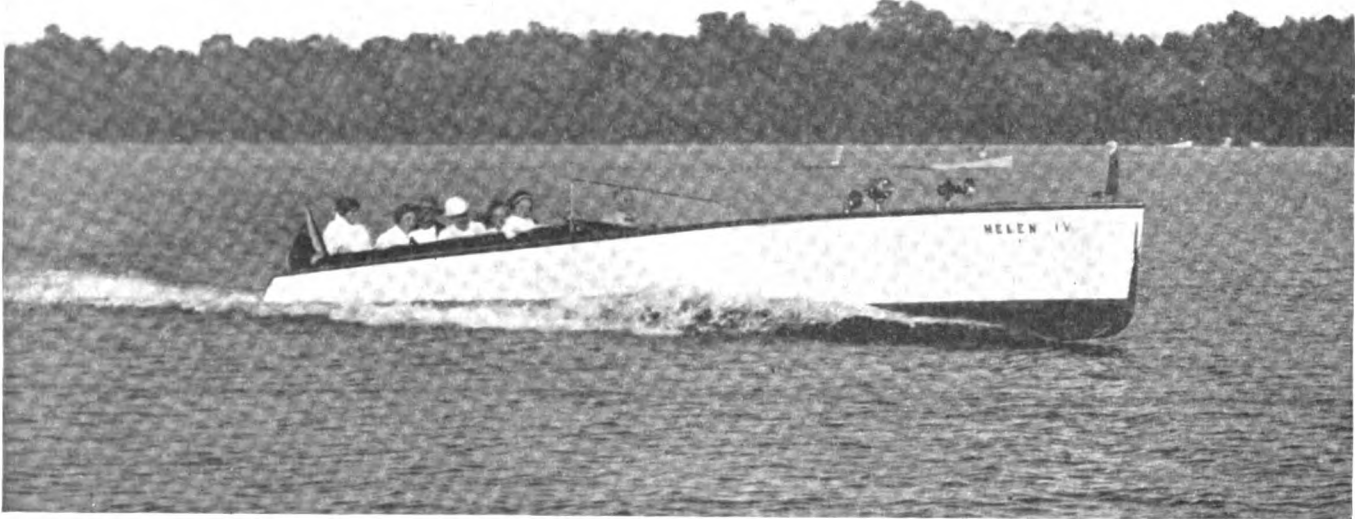
Plans of the Thirty-Foot Auxiliary Sloop, Described on the Previous Page

THE RUDDER

**ATTRACTIVE SPEED RUNABOUT**

ABOVE are given the plans of a useful runabout that were gotten out by Messrs. Bowes & Mower, and built by the C. H. Ray Company, for Mr. A. H. Wood, of Boston, who will use her on Lake Winnipiseogee, N. H. This attractive craft is equipped with a six-cylinder, 5½-inch by 6-inch Van Blerck motor, which develops 748-

b.h.p. at 1,400 r.p.m., and 160-b.h.p. at 160 r.p.m. This is expected to give a speed of 30 miles an hour. The boat is 35 feet 6 inches long over all, with 35 feet water-line, and 5 feet 6 inches breadth. From the plans it will be realized that she is quite a nice little vessel and well suited for the purpose required. Through a mix-up of cuts, the lower illustration was given last month as a Hope-Thornycroft hydroplane.



HELEN IV

AS a speed boat, Helen IV is credited with better than 27 miles an hour, so ranks among the fastest displacement boats in Canada, if not the swiftest of her class. She was designed and built for Mr. H. C. Knox last season by the Pyke Motor & Yacht Company, of Montreal, and already has won many cups in various races. With ten persons aboard, she will maintain a steady 21 m.p.h., with comfort, and the illustration shows that she glides through the water with a good speed, with absence of spray and fuss.

The layout is complete to the last detail. The cockpit arrangement includes everything to add to the comfort of her owner and guests. It is equipped with a divided front seat with folding back and rear seat with removable back and six wicker chairs. Throughout the upholstery is of the finest quality, dark green car plush giving the equipment an added appearance of refinement. The cushions are stuffed with Kapok, making them reliable life-preservers. The construction of Helen IV throughout is of high grade, the entire frame being of selected straight-grained white oak with cedar (screw fastened) for planking. The decks, hatches, coamings and, in fact, all exterior and interior joinerwork is of the best quality of mahogany, which was all taken from the hull of one tree, therefore the matching of color is perfect. The decks are inlaid with wide strips of spruce, with flush folding hatches over the motor compartment.

Her power plant, a 5½ inches by 6 inches, six-cylinder aluminum-base Sterling motor, is inclosed underneath the hatches, and is equipped with an electric starter, Bosch dual ignition, the drive being through a Sterling reverse gear. All piping is neatly concealed, but readily accessible behind the bulkhead. The controls, including electric starter, electric light, electric horn, etc., are handled from the wheel, giving the helmsman control equal to that of the modern automobile. She is also equipped with a powerful searchlight, that is controlled from the bulkhead. Holding 40 gallons apiece, the two fuel tanks are placed one on each side of the engine,

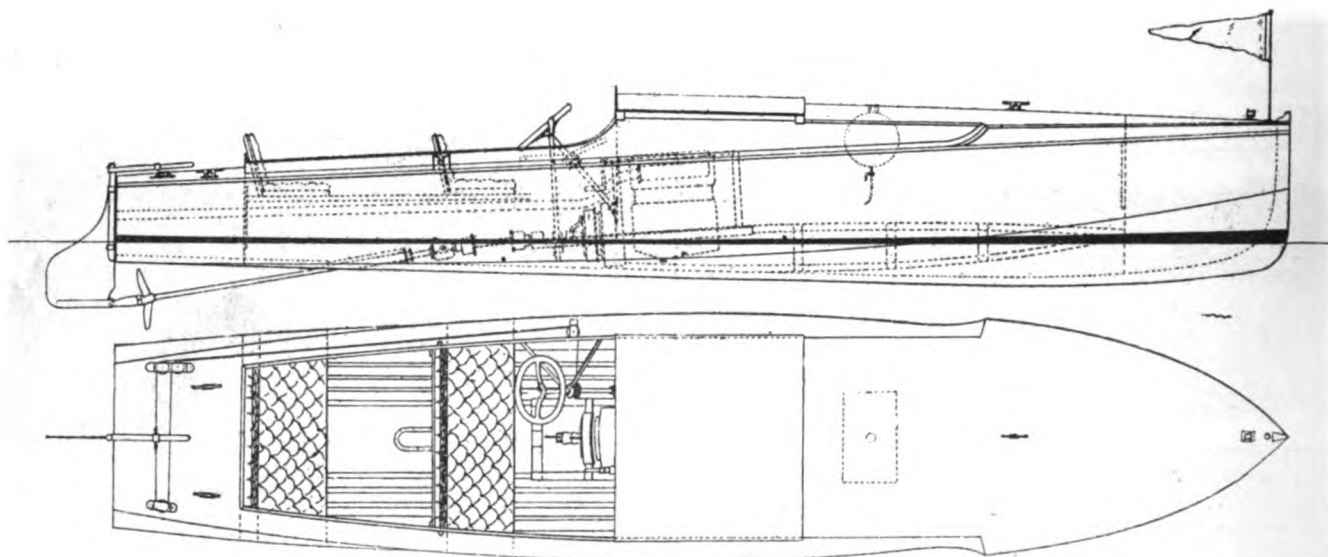
alongside of the top of the boat under the deck. This arrangement has the advantage of bringing the weight well to the center of the boat, as well as providing two tanks, so that one may always be kept filled, also allowing an easy inspection of the tanks and piping. The gasolene valve is controlled from the bulkhead, making it an easy matter to shut off the supply.



ON May 22d it was announced that H. M. the King of England had approved the grant of the Victoria Cross to 2d Lieut. W. B. Rhodes-Moorhouse, a member of the British Motor Boat Club, "for most conspicuous bravery on April 26, 1915, in flying to Courtrai and dropping bombs on the railway line near that station. On starting the return journey, he was mortally wounded, but succeeded in flying for thirty-five miles to his destination, at a very low altitude, and reported the successful accomplishment of his object." He has since succumbed to his injuries. Thus is this terrible war killing the finest sportsmen of all belligerent nations.



Some Trophies Won by Helen IV



An Attractive Twenty-One-Foot Runabout of the Bow-Wave-Collecting Type, Designed and Built by G. De Coninck & Co., Maisons Laffitte, Paris, France. This Boat could be Driven at Full Speed in Rough Water with Safety, and the Design Shows Many Other Good Features

PRODUCER GAS FOR MARINE POWER

A FORM OF POWER THAT IS RAPIDLY DEVELOPING IN THE UNITED STATES BY REASON OF ITS LOW FUEL COSTS

A. L. Galusha

PART II

IN the drawing of the typical marine gas producer installation, 7 is the generator. This is simply a cylindrical shell resting on end and held down by means of the lugs 7¹. In the bottom of this shell is an ash pit, above which is a shaking grate. The inside vertical walls are lined with brick. The smaller cylinder, 2, on top of the generator, is the coal hopper, by means of which the generator is charged with coal or other solid fuel. What would be smoke if this device were a stove or furnace for heating a house, is in this case the gas. The gas generated leaves by the pipe elbow 1, on top, and goes to the scrubber 9. As the gas is at this time hot and dusty, it is treated with water in the scrubber, where it is cooled, washed and dried. The gas is then ready for use, and goes through pipe 13 to chamber 11, and then through valve 16, and down to the engine. Air is drawn in through pipe 15, the amount being controlled by the amount of opening in valve 17. The gas and air are then mixed, making an explosive mixture in the pipe tee below 17; 18 is the throttle valve, by which the speed of the engine is controlled; 19 is the intake manifold of the engine.

Several tugs have been equipped with this power, including the towboat Webb, 63 feet long over all, 14 feet 4 inches breadth and 7 feet depth, fitted with a 100-h.p. marine gas producer and engine. The coal consumption of this plant is only 100 lb per hour. It is the third producer gas towboat placed in operation by one concern within 18 months.

Wolverine IV is a steel towboat, 50 feet long by 11 feet 3 inches breadth and 5 feet 3 inches draught, owned by the American Fruit & Steamship Company, of New Orleans, La. This boat has been in active operation since 1910. The power equipment consists of a 75-h.p. Wolverine engine. According to the owners, the power plant

works with the utmost regularity and with minimum attention. The boat is used on long hauls of several days' duration, with the engine running full power all the time.

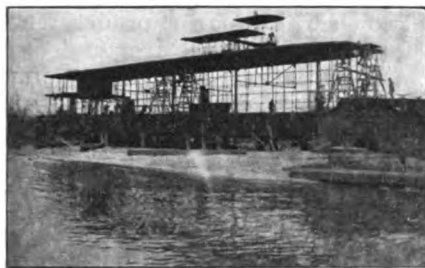
The consumption of anthracite coal, about $\frac{3}{8}$ to $\frac{1}{2}$ -inch in size, including the stand-over consumption at night, varies from 600 to 704 lb per 24 hours, when the boat is in operation 10 or 12 hours per day. The engine can be run dead slow or at any intermediate speed up to about 300 r.p.m. without any tendency to stop or without disengaging the clutch.

As a consequence of the results obtained with the Wolverine IV, the American Fruit & Steamship Company have added at least half a dozen producer gas propelled boats to their fleet during the past year.

What is probably the smallest producer gas towboat is the shallow-draught, tunnel-stern boat Wolverine I. The boat is 32 feet long and has a draught of about 18 inches. The producer and engine are of 18-h.p. Another shallow-draught, semi-tunnel-stern boat, although of somewhat larger size, is the Teddy. This boat is in



Wolverine IV



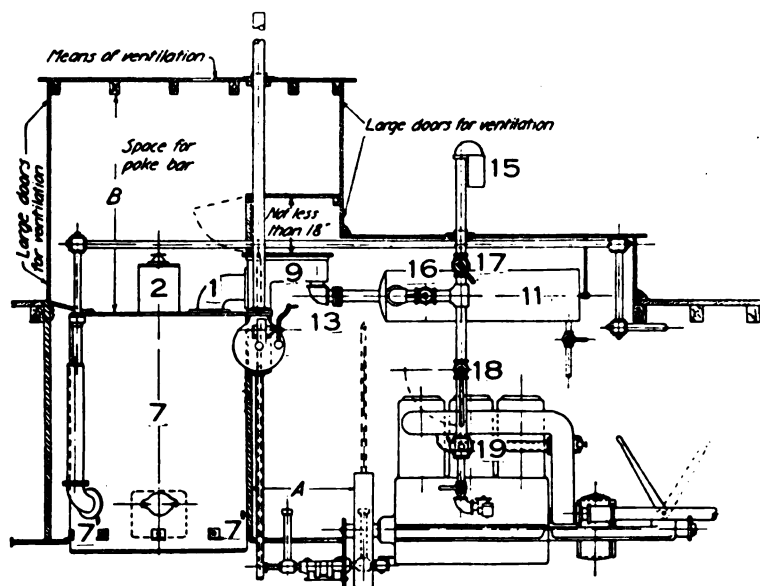
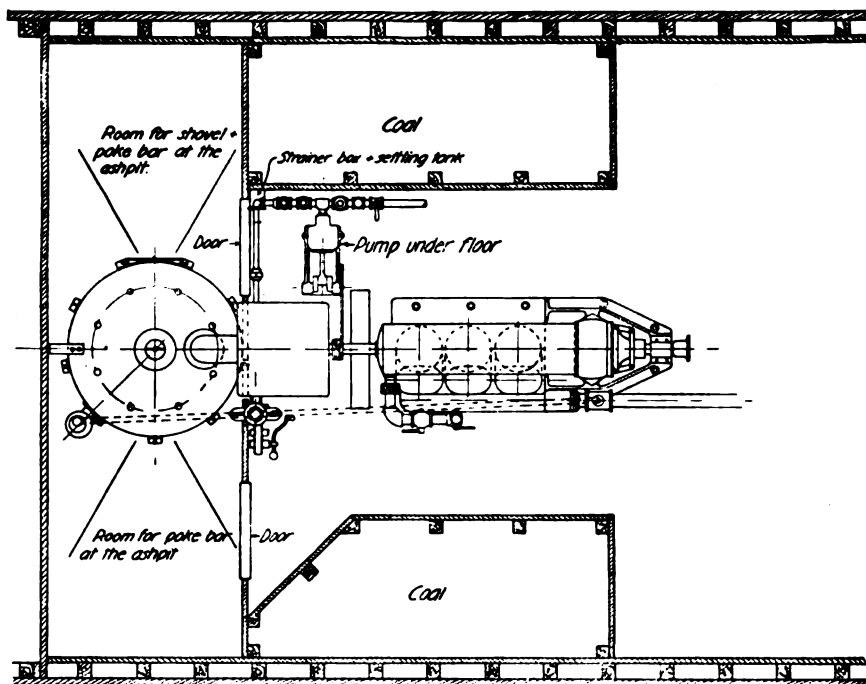
Producer Gas Passenger and Freight Vessel under Construction

use night and day and covers a course of several hundred miles each way. The 40-h.p. gas producer installed is in charge of Mexicans, half-Indian, and in operation consumes 39 lb of charcoal per hour. This fuel is said to give almost no ash and to produce an excellent grade of gas for the engine. Equally good results are obtained when using coal as fuel. The engineer furnishes the following information: "I run this on a long tow of 81 hours, without a stop. She uses on this trip 3,450 lb of anthracite coal, costing \$8 per ton, delivered in this part of Mexico. This is a cost of about \$14 for coal for 81 hours' operation. Now the same size and make of engine operating in a sister boat, on gasoline fuel, uses more than 400 gallons for the same length of trip. As gasoline costs 55 cents per gallon here, this means an expense of \$220 for gasoline to develop the same power that the gas producer on this boat gives from \$14 worth of coal."

(To be Continued)

PRODUCER GAS FOR MARINE POWER

[We have received the following letter in connection with the article on "Producer Gas for Marine Power," the first instalment of which was published in the June RUDDER and the second section in this issue. As no attempt whatever was made by us to belittle the valuable development done by American engineers, we venture to suggest that our correspondent has misconstrued the purport of our remarks. It is all the more glory for our engineers to have succeeded in doing what Britishers apparently have failed to accomplish. We are endorsed in what we say by the *English Motor Ship & Motor Boat*, who in their issue of 24th September last, refer to the comparative lack of progress made and again in the issue of 9th October, 1913, state that "although the suction gas plant has not made very satisfactory progress in England, it is more popular abroad." In our remarks, made last month, we also had in mind the cargo ship *Holzapfel I*, which was to have been followed by a vessel of 800-b.h.p. for the same owners.—EDITOR.]



Producer Gas Plant in Conjunction with a Wolverine Engine

To the user of commercial water craft, or indeed to any one directly or indirectly interested in sea or river navigation, such treatises as appeared in your June, 1915, number of THE RUDDER under the signature of Mr. A. L. Galusha, make a particularly attractive and welcome diversion from the type of article on speed boats and other pleasure vessels to which readers have grown so accustomed of late, containing, as they do, very useful information and hints for the bread earner.

Producer gas, as is rightly claimed by Mr. Galusha, has come very much to the front in America and in Continental Europe, and the writer is personally acquainted with numerous outfits that have done, are doing and no doubt will do for many years to come, excellent work in commercial service. It would indeed appear that where marine requirements have been thoroughly studied, marine practice followed and untiring experi-

ments carried out under actual working conditions on shipboard, it is gratifying to know that full success has been the reward. Of course, this was uphill work, entailing a large amount of time and expense.

Your editorial remark "Several important British engineering concerns have made attempts to build and run producer-gas-engined craft; even the Admiralty tried out an engine of 500-h.p., but none of the experiments proved successful," etc., is, therefore, very hard to comprehend, and the reader must be at a loss to understand its meaning. It affects me like a bucket of icy water, and prompts me to ask for some further explanation of its purpose. Is it to doubt the statements and claims made for producer gas?

It is true that a 500 or 600-h.p. plant was installed in an old gunboat (the Rattler, I think) by Wm. Beardmore & Co., of Dalmuir, Scotland. This is no doubt the experiment, made by the Admiralty, you have in mind. Other installations in England were carried out by Messrs. Thornycroft, but as far as I remember, the engines and producers were built by said British firms under license from Capitaine's Schiffs Gasmaschinenfabrik, a German concern. Are these the experiments referred to, or is it a certain canal barge equipped by Messrs. Crossley Bros. with a stationary type producer and vertical motor? A little enlightenment on this point might prove beneficial.

It is not the object of this letter to find out the reason for the British firms making a failure of their experiments, nor is it any concern of mine. I only venture to ask, have they gone into this question whole-heartedly and not given it up after the first fruitless trials? Persistence is the only way to success, and with this some people apparently are endowed more than others.

But let us leave the British Isles for a while and cross over to the Continent, where the marine motor has found a considerably larger acceptance and adaptation than in the British Isles. How refreshing it is to find there large numbers of freighters and tugs propelled by producer gas and gas engines of German, Dutch and last, but not least, American manufacture. It is, indeed, remarkable what a hold a certain American producer gas motor has found in France, Belgium, Holland, etc.!

I have personal knowledge of marine producer plants that have worked for years in canal, river and coastal service, trading from Rotterdam to Paris, from Germany to Holland, Belgium, etc. I know not one, but dozens, of the owners and bargees of such boats who formerly operated on oil and converted their plants to producer gas. You ask them and they will tell you that their preference is for producer gas, that for easy manipulation, it is the equal, yes, the superior, of the oil engine.

I could give you, Mr. Editor, the names of some dozens of successful marine producer gas outfits, largely using American engines in working boats of all types; they should be proof for the claims put forward for this class of propelling machinery. Are you aware that in the present European war, producer gas boats with American marine engines are doing useful work, that some of them are even employed by the Commission for Relief in Belgium?

Do not, therefore, let us detract from the merits of some of our foremost American and Continental designers simply because the British have made a failure.

I trust that you will allow these lines space in your valued paper to mitigate, to some extent at least, the probably unintentional wrong impression your editorial comments must have made upon numbers of your readers.

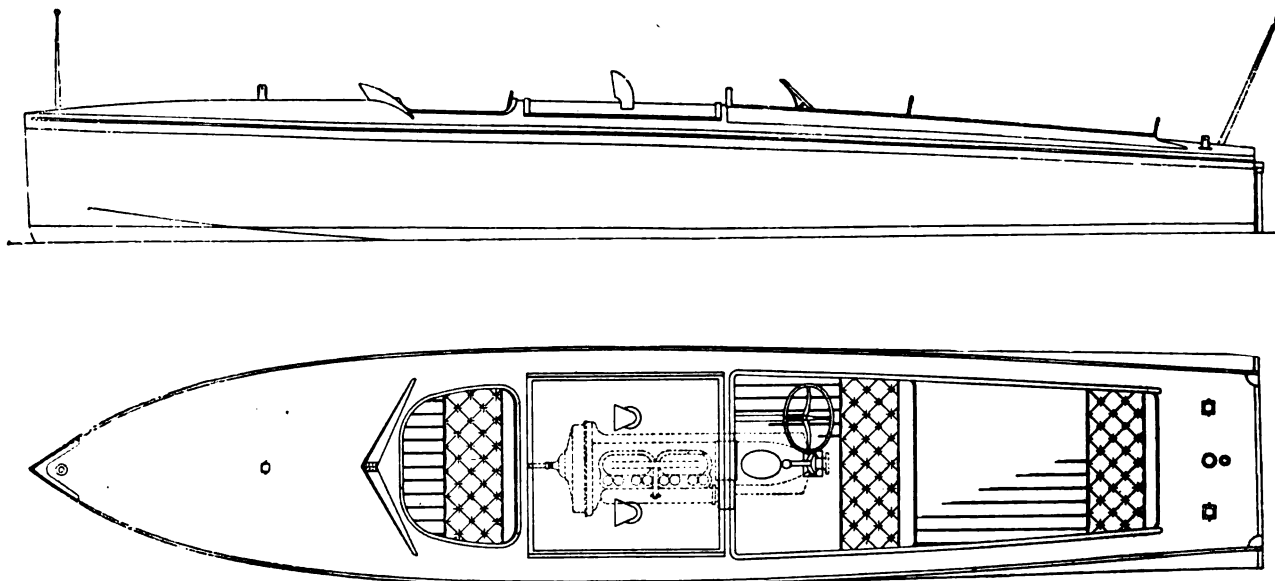
PRODUCER GAS.

New York, N. Y.

June 8, 1915.

AMERICA LEADS THE WORLD

"It is fairly safe to say that the most marked and distinctive innovations in the construction of petrol marine motors at the present time (and probably in the future) are coming from America. It might appear at first sight that this is something of a reflection upon British builders, but in reality such a deduction is not a sound one. This point can easily be demonstrated by bringing out the fact that while in America most of the marine motor firms specialize in petrol engines, in this country practically none at all is in this position."—*London Motor Ship & Motor Boat.*



A Hand V-Bottom Runabout Driven by a Four-Cylinder Scripps Motor. Her Owner is Mr. Crocker Perry, and a Speed of 15 Miles per Hour is Expected

A DINGHY CRUISE

FOR many years, yachtsmen on Lake Ontario, especially along the Southern shore, have made their cruises in sloops, schooners and yawls; they have enjoyed the comfort of a roomy cabin, with bunks, galley and lockers; on deck they have viewed the scenery from up forward, the cabin house amidships and from the cockpit aft; they have had all the way from 500 to 10,000 square feet of canvas to speed them on their travels; they have been able to jog along at the rate of from 50 to 150 miles a day with but little inconvenience from wind or wave. True, they have battled at times with storms and calms, but always with recourse to the shelter of the cabin and auxiliary sails, gear, etc. They have been afforded the luxury of a warm meal, even in times of stress, and a comfortable berth below when the body was worn out from fatigue and exposure.

To cruise in a little 12-foot dinghy, carrying less than 100 feet of sail, over a course of nearly 200 miles, and using the floor boards for a couch, however, is an entirely different matter, but such a trip can be made, has been made and serves to emphasize the fact that a small craft can be used just as well for cruising purposes as a 25-ton schooner spreading thousands of feet of canvas, with holystoned decks and well appointed quarters below. It is all in the viewpoint and depends mainly on your love of the game.

It was on the 22d of July that a party of four Rochesterians put their two dinghies aboard the steamer Caspian at Charlotte, and after a five hours' trip across Lake Ontario, disembarked at Brighton, where preparations were made for a two weeks' cruise through the Bay of Quinte and the Thousand Islands. Masts were stepped, canvas bent, duffel and stores stowed and the trip begun.

The boats were Rink, owned by F. H. (Doc) Low, and Mink, owned by J. E. (Ev) Emerson. They represented the Genesee Dinghy Club, of Rochester, and were the first small craft to undertake a cruise over waters usually haunted by the larger yachts.

The outfit of each dinghy consisted of a large double rubber blanket, two pairs woolen blankets, an assortment of canoe pillows, aluminum cooking utensils, hatchet, hunting knife, two fishing rods, a folding table, two folding camp chairs and an alcohol stove. A small khaki tent was also carried along in case camp should be pitched ashore, and, of course, a supply of extra clothing. By using a little judgment and care in the disposition of these necessaries, ample room was found under the decks forward and aft and everything was stowed securely and safely away from the prying elements of spray and rain. The larder was not heavily burdened, as it was figured that fresh supplies could be procured every day or so from the little towns along the route. Ham, bacon, eggs, potatoes, bread, butter, sugar, coffee, tea and a small assortment of canned goods were put aboard and a hearty meal could be prepared on short notice over the alcohol stove, which was set up alongside the centerboard trunk.

The boats were to travel in company, with no attempt at racing (although a brush was bound to spring up at times) and both were to be ready to stand by in case of

distress to either. Camp would be made ashore when suitable grounds could be found, although a good sleep aboard ship was assured in pleasant weather.

The first leg of the trip lay down through the Murray Canal, a waterway of some five miles, over which a wind broods, that never seems to be in sympathy with your plans. If you approach it from the East, a gentle breeze sweeps down from the West; if you are going down, the wind invariably blows from the East. It is like passing through a chain of locks; you always arrive just after the other fellow has gone through. Of course, beating down the Murray Canal against a head wind in a 12-foot dinghy is easy compared with the work cut out for a big sloop, but it is not supreme enjoyment to start at stones and a mud bank for five miles, stretched into a much longer distance by reason of a million or so tacks. Once clear of the canal, however, a favorable slant carried the butterflies through Nigger Narrows opposite the pretty Canadian city of Trenton and shortly afterward a started sheet enabled the cruisers to fetch Belleville late in the afternoon. Here a short stop was made while the voyagers strolled around Belleville's beautiful park which fronts on the Bay. The promenade served to straighten out the kinks occasioned by hours of hunched-up positions in the tiny yachts, but as no one cared to sleep anywhere near civilization, sail was again hoisted and a course set for Massassauga Point across the Bay. A stiff Sou'wester had sprung up which proved a little too much for Rink and Mink, but a reef was quickly tied in and the little hookers fairly boiled through crested seas, taking a good slap on the weather bow as they hurdled along. With all stores and supplies tightly packed and hemmed in with tarpaulin, and the two occupants of each boat snuggled under big rubber blankets, the constant screen of spray that flew over the rails gave the sailors little concern, but a white squall was making up and scooting for them at a rapid rate. The Point was not far away by this time, however, and plunk! went the noses of the dinghies on the beach just as the advance guard of the blow shivered the already turbulent waters. Despite the efforts of the wind to tear it to pieces, the tent was finally set up, a stack of soft evergreens cut and piled inside, over which were spread the blankets. The table, chairs and other articles necessary to a well-ordered household were installed, and attention was then given to the subject of a square meal. A folding iron stove such as canoe campers use, was driven into the ground, a fire made, which was shielded by a wind-break and shortly afterward a supper of fried ham and eggs, boiled potatoes, preserved peaches, tea, bread and butter was served in the tent to the entire satisfaction and regalement of the cruisers. A big Summer hotel at the Point, some distance up the beach, was visited during the evening, one of the party coming away with his heart dented on both sides with impressions of "Goldie," "Fatty" and a few others with similar *nombres de verano*. One day out on a long voyage and his affections all snarled up. Fine start!

Bay of Quinte mosquitoes are known to and thoroughly detested by every American yachtsman on Lake Ontario.

Canadians seem to treat them with disdain; rather ignore their presence, and it is one of the distinguishing items of difference between an American and his cousin over the border during mosquito time along the Bay of Quinte, to hear a man from the States swearing his head off, while the subject of King George sits calmly by and says: "What's amiss?" It was no exception that night in the tent. The little winged monsters made more trouble for the camping party in one hour than all the customs officials from Port Dalhousie to Quebec could make in an entire season. From biting, they (the mosquitoes) went to nibbling and from nibbling to eating the frenzied travellers, and it was well into the morning before the bloodthirsty horde left the camp and sleep became a possibility. Life in the open is a tonic, however, and sleep is only a side issue, so after a plunge in the bay and an anticipatory contemplation of the coffee pot and frying pan sending up their incense on the quiet morning air, the night hideous was soon forgotten and matters of real importance were under way.

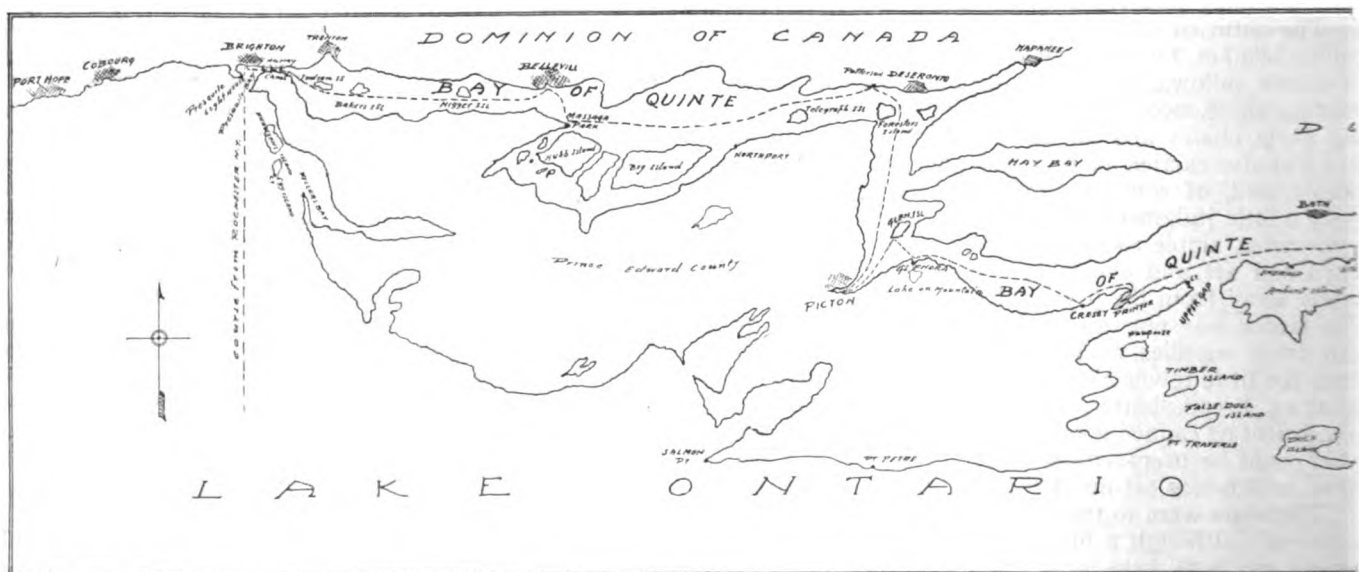
After breakfast, camp was broken and the boats made ready for a sail down the bay. A wholesail breeze was blowing out of the Northwest and with eased sheets Rink and Mink stepped along side by side, passing the little town of Northport, then edging by Telegraph Island with Paterson wharf showing in the distance. Suddenly the wind shifted and the booms quickly jibed from starboard to port without a moment's notice. All hands were squatted low and no damage was done, but a squall was bearing down from the Southwest and there was plenty of dirt in it. Hauled up a little, Rink and Mink headed straight for Paterson wharf, arriving in time to avoid a serious mix-up with the elements. There was nothing here much except an old-fashioned rambling farm house, and as the commissary was a little shy of milk and bread, it was decided to replenish these delicacies from the farm house. The decision was acted upon and the crews trooped up, pails swinging, hearts light, faces beaming. All around were cows, sheep, pigs, dogs, cats, horses, everything. Mr. Farmer, in response to the supplication for milk, said no. In answer to the cry for bread, he said no again. And there, in the midst of plenty, our heroes were starving. No amount of cajolery would make that son of Cincinnatus give over. He's a running mate for the man

that kept a lumber yard on the banks of a stream and saw a man drown.

The wind continuing all the afternoon, no attempt was made to put out, but after a hot supper cooked on the alcohol stoves, it was voted to sail all night, especially as the strong breeze of the day had given way to a gentle night air just suited to dinghy sailing. The lights of Deseronto looked alluring as the yachts bowled by, but the going was too good, the night too beautiful to be led away by any such Calypso, and so through Hay Bay swept the twin cats, leaving long converging wakes behind that blinked and sparkled in the moonlight. Lights ahead compelled a shift of the course and about 10:30 the port of Picton was abeam. The project of an all night's sail was here abandoned. A tie-up was made at the dock and shore leave granted for sightseeing. Everything was closed but a Chinese chop suey palace which was raided for a midnight lunch and then back to the dinghies for repose.

The next morning a Nor'easter was kicking up all kinds of a fuss on the bay and Skipper Doc said to Skipper Ev that he would dare him to buck their way to Glen Island, which dare was promptly accepted. As Picton goes to sleep at the good old-fashioned hour of nine o'clock every night, it naturally is awake early, and therefore little surprise was occasioned when the daring mariners put out amid the applause of half the population. The little yachts struggled bravely through the combers, although under double reefs they footed slowly. To avoid backwinding and luffing, the skippers split tacks and it was surprising when they converged how evenly matched they were and how equally they were being sailed. First Rink would cross her rival's bows and on the other tack Mink would be up to windward and this too, without altering the course. Allowing for miscalculations, overstanding, etc., Rink travelled faster on the port tack while Mink seemed to find the going better with the starboard tack aboard. It was a long job to the island with the wind dead in the eye, but it was real sailing and all hands agreed that it was the best day's sport so far when at last the boats were beached about three o'clock in the afternoon.

As yet the fishing rods had not even been jointed, so after camp was made and a warm meal enjoyed, Skipper Ev announced that he was going to row around to a



little cove he knew, where there was quiet water and come back with a boatload of fish. Skipper Doc, not caring especially for the fishing end of it, said he would manipulate the oars and Ev could do the casting. They worked around to a little bight where the anchor was dropped. Luck was with them and black bass were being piled up in the boat at regular intervals when the Norther finally smelled them out and Skipper Doc got orders to man the sweeps and pull away. Skipper Ev, sufficiently satisfied with his catch, lay back in the stern sheets and Doc pulled. Never looking at the shore and with powerful strokes he bent to the oars with the one desire in mind to get back to camp before the sea became too boisterous for easy sculling. Ev, calmly smoking his pipe, urged him on much as a coxswain encourages stroke to hit up the pace. Doc pulled harder. Ev soothed his efforts with praise. Doc was getting red and perspired drippingly, but he almost broke his back when Ev said they could make it with time to spare. Then Doc looked ashore and saw a peculiarly twisted tree that suspiciously resembled one that he had seen before that afternoon. Then he turned around and glanced up forward to see how the water was, and as he did so, a line hanging over the rail attracted his attention. The line was hitched around a cleat on the forward deck and the other end was fastened to a thirty-pound anchor embedded in Bay of Quinte mud. It would take all the asterisks and dashes in this font of type to accurately express what Doc said to Ev, but the latter did all the rowing henceforth.

The next morning a short sail was made to Glenora, a little port nestling at the foot of a very high hill, on the summit of which is located a small body of water called Lake-on-the-Mountain. There is an air of mystery about this lake which has never been explained. While it discharges into the Bay of Quinte, its inlet has never been discovered, but logs have been found floating on its surface bearing the mark of a Lake Huron lumberman, which has given rise to the theory that it is fed by some underground passage, many miles in extent.

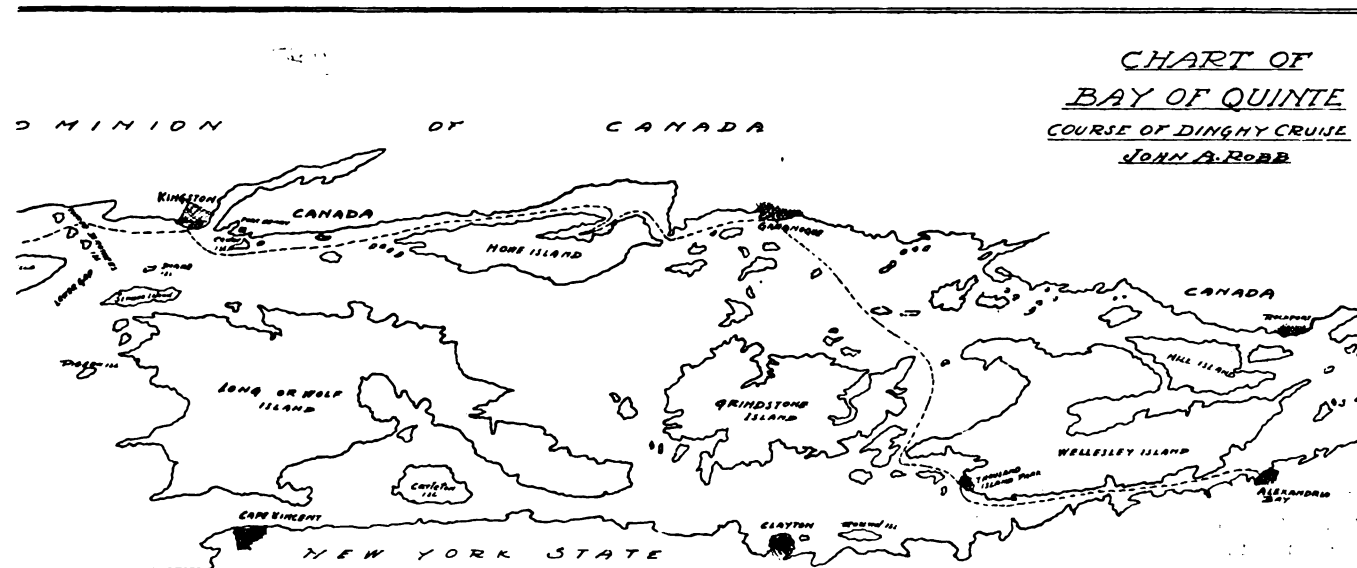
After a two days' camp on the island, advantage was taken of a soft, Southwest breeze Sunday morning for the next stage of the journey, which carried them for miles through a beautiful reach of the bay with entrancing scenery on either side; the magnificently wooded

Prince Edward Island, broken here and there by towering hills to starboard, and the low, undulating country of the Canadian mainland, dotted by picturesque farm houses on the port hand, making a delightful panorama as the Lilliputian flotilla bowled along.

A short stop was made at Gressy where fresh stores were put aboard and late in the afternoon the dinghies crept around a sharp point on a fast dying breeze and fetched up in the beautiful cove known as Prinyer's. The tent was pitched on a high knoll overlooking the cove and supper was served out in the open with music accompanying the meal. Ex-Commodore J. R. White's 65-foot schooner, flying the burgee of the Rochester Yacht Club, lay anchored not far off and the strains from her victrola carried well to the camp. Later in the evening the party paddled across the cove ostensibly for milk and eggs, but in reality for a visit to John Prinyer's old farm house, one of the most historic spots on the whole stretch of bay. The hospitality of the family is proverbial and nothing delighted the old man more than to surround himself with a party of cruising yachtsmen, mix up a rattling good punch and then go in for reminiscence. Born in 1819, he saw life in the rough and his narrative was vivid in the extreme. A simple question such as, "Were you afraid of the Indians, Mr. Prinyer?" would start the entertainment.

"Oh, no," he would reply; "you know the Indians used to get their blankets, provisions, etc., at Kingston, twenty miles below here, and on their way down in canoes, they almost always stopped here in the cove, sometimes for days. We have had at times between four and five hundred of them here, but we were never afraid of them.

"You see we had big stalwart men here in those days. The McDonalds, McGregors, Donaldsons, Rileys and the McNaughtons, any one of whom was worth twenty Indians and the Indians knew it. They'd steal chickens and farm stock, though. I remember one night I was over in the stockade with my uncle, Colonel McDonald, and there were perhaps five hundred Indians in the cove that night. One tribe had got some whiskey, but not enough to satisfy them, so the chief came up to get some more, saying his braves were sick. He knew my uncle had whiskey in the store room and the chief threatened to turn all his braves loose if he did not produce the fire-water and produce it at once. The chief was the only



one we saw until the argument got warm when three braves joined him. My uncle jumped to the door, slammed and locked it. Then the Indians set upon him. Just he and I in the room with the Indians and they half crazy with whiskey. I was too young to realize the danger, but my uncle knew what he was up against. We had no fire arms handy and would not have used them if we had had any, as, if we had shot one Indian there would have been a massacre immediately. The five of them—my uncle and the four Indians—rolled on the floor of the blockhouse together, all the while working over towards a window on the rear side. All at once I heard a crash of glass and saw an Indian go sailing through the sash. Then another one, and finally a fourth who had no more than gone through when my uncle slammed the iron shutters and locked them just in time to stop two or three good-sized stones from coming through the casing. Yes, sir, he cleaned up those Indians one after the other. That's the kind of men we had here as settlers. The Indians called him the iron man after that and never tackled him again."

"Were bears plentiful around here, Mr. Prinyer?" asked one of the group.

"You bet they were. I'll tell you a bear story that has been doubted by some, but it is as true as you are sitting there. Big Dan McNaughton, who stood over six feet, broad shouldered as an ox and almost as strong as one, who feared neither man nor devil, was going home one night when a bear tackled him. We had had a husking bee that afternoon and after our work was all done, we began to make merry with the whiskey and pipes. We drank and danced till after midnight. Big Dan lived over on the other side of the cove and had about four miles to walk through the woods, and at this time there was no road and hardly a beaten path. Dan was full of whiskey and singing like a good fellow when he left us. There was just a sprinkling of fresh snow on the ground as he started to stagger home. Just as he got down to the bridge he walked plump onto a bear and the bear showed fight. Dan got him down and punched him until he was quiet and then threw him across his shoulders and started to carry him home. He didn't get very far before the bear revived and began to claw at Dan. Dan got him down again and gave him another punching, picked him up and resumed his journey. Twice more the bear revived and twice more he got a punching from Big Dan. Well, Dan finally got home, tossed the bear into a corner and went to bed. The heat of the room again revived the bear and he went for Dan, the latter of course in bed. Dan got up and tussled with him in the dark, upsetting everything in the room. At last Dan threw him down with his head on the hearthstone and he just stood over Mr. Bear and beat his brains out with his fists. That's the kind of men the early settlers were here. The bear weighed 700 pounds and there is no reason to doubt the story for I was one of the six that found the marks of each fight in the snow the next day."

With assurances to Mr. Prinyer that his punch was of the rare old, fair old variety and wishing him a hearty good night, the visitors faded away in the darkness.

Prinyer's cove can always be depended on for a good catch of fish and the frying pan next morning sizzled musically with black bass a-plenty. Here was an ideal place for camping, sailing, fishing, and the temptation to remain was strong within the cruisers, but a longer jaunt

had been mapped out and with a feeling of reluctance sail was made about 11:30 a. m. and the boats worked slowly down by the little ports of Emerald and Stella on Amherst Island with Kingston as the objective. The air was very light and smelled of rain. Off Portsmouth, a few miles above Kingston, a flat calm was encountered. Canvas came down, the boom lashed and for four weary hours Rink and Mink idled around and did nothing but box the compass nine hundred and thirty-five times (unofficial count). Then a breeze came whistling in from the Northeast and they took it close-hauled in a fine run that put everybody in excellent spirits. Rounding to at the Kingston Yacht Club dock at 8:30 o'clock, it was unanimously agreed to sleep in a bed that night, so gathering up a few needful clothes that would make them look more like civilized gentry and less like vagabonds, they bluffed the clerk at the Frontenac and were soon ready for high life. The following day was spent in sightseeing, the itinerary including Portsmouth penitentiary, insane asylum, city jail, and other cheerful institutions. At six o'clock in the evening, fine weather promising, the boats were made ready for a moonlight sail down the bay and lines were cast off, not, however, without many protestations of gratitude to the Kingston yachtsmen who had shown every courtesy to the voyagers; indeed everywhere the boats had touched, with the exception of Old Stingy at Paterson wharf, the Canadians accorded the visitors a warm welcome and assisted them in a manner that was greatly appreciated.

Shortly after ten o'clock lights showed up in a little bay denting into Howe Island at the entrance to the St. Lawrence River, and standing in closer, the spot looked favorable for a lay-over. A big, comfortable houseboat was moored to the dock, whose captain promptly invited the party to spend the night aboard, a proffer that was gladly accepted as rain was imminent and no one was highly exhilarated over the prospect of making camp. In the morning it was decided to make a non-stop run to Thousand Island Park, a matter easily disposed of in the way of a decision, but not quite such a soft thing when you come to do it. In the first place a Northeast wind sprang up in time to head the yachts off; then all of the thousand islands kept getting in the way; fill her off on one tack and you are apt to ram an island before you can come about; take the other tack and you'll spear another island if you don't watch her closely. Negotiating a passage through these winding, twisting, tortuous channels with the wind ahead, abeam, on the quarter, aft and up and down the mast every two minutes and a half is work, mixed with heaps of worry. A freer course was found after leaving the Canadian port of Gananoque at 2:30 in the afternoon and with an eased sheet the run across to the Park was made in a couple of hours. Here, it was thought better to look respectable again, as many cottagers all ragged out in white duck and so forth flocked to the dock to inspect and be inspected, and especially as one of them, seeing the open boats and camping tackle, thought the occupants were undergoing a hardship, and offered them open sesame to her cottage. A compromise was effected by the acceptance of her boathouse, which, with its bungalow architecture, electric lights, cool sleeping apartments, shower bath and lounging room, was good enough for the marine wayfarers.

From Thousand Island Park the course lay down the St. Lawrence, and as the channel is wide, the dead muzzler that was blowing up-river the next morning did not

matter much. It was a case of thrashing to weather all the way down, but with long tacks, an excellent opportunity was afforded of viewing the beauty of the scenery and summer homes on both sides of the stream. Alexandria Bay was reached before midday and as this resort is the favorite stopping places of all islands tourists, and but a couple of days remained to round out the vacation, the masts were unstepped and the dinghies made ready for shipment by boat back to Charlotte.

With more time at hand, the return trip could have easily been made, cruising leisurely along the Southern shore of Lake Ontario, taking advantage of the harbors

at Chaumont Bay, Sacketts Harbor, Henderson Bay, Mexico Bay, Oswego, Fair Haven, Dodus Bay, Pultneyville, and Bear Creek.

The cruise demonstrated the feasibility of travelling almost anywhere one may want to go on inland waters in small sailing craft. By using a little judgment in the selection of his outfit and keeping an eye out for weather, a yachtsman can be as comfortable and safe in one of these little single stickers as he can be in a schooner yacht, and he has the added pleasure of camp life ashore in isolated spots where, so to speak, he can ride out the storm in perfect serenity.

CLUTE E. NOXON.



MADGE

THE illustration shown herewith is of Madge, a new day cruiser designed and built for Major W. H. Day, of Mamaroneck, N. Y., by the Gas Engine & Power Company and Charles L. Seabury & Co., Consolidated, of New York City. This boat will be used on Long Island Sound and adjacent waters, and will hail from the Larchmont Y. C., Larchmont, N. Y.

The design was especially worked out to meet the personal requirements of the owner, an "afternoon boat" for entertaining a party of eight to ten people, with all possible comfort. A large cockpit and a comfortable cabin with conveniences, give all and more of advantages of the modern touring car limousene combined.

The builder's guarantee for speed of the Madge was 17 miles per hour. In commission and with full equipment, the boat made 18½ miles per hour with seven people on board. The boat is powered with one six-cylinder, 60-80-h.p. Speedway medium engine, which runs at 600 to 800 r.p.m.

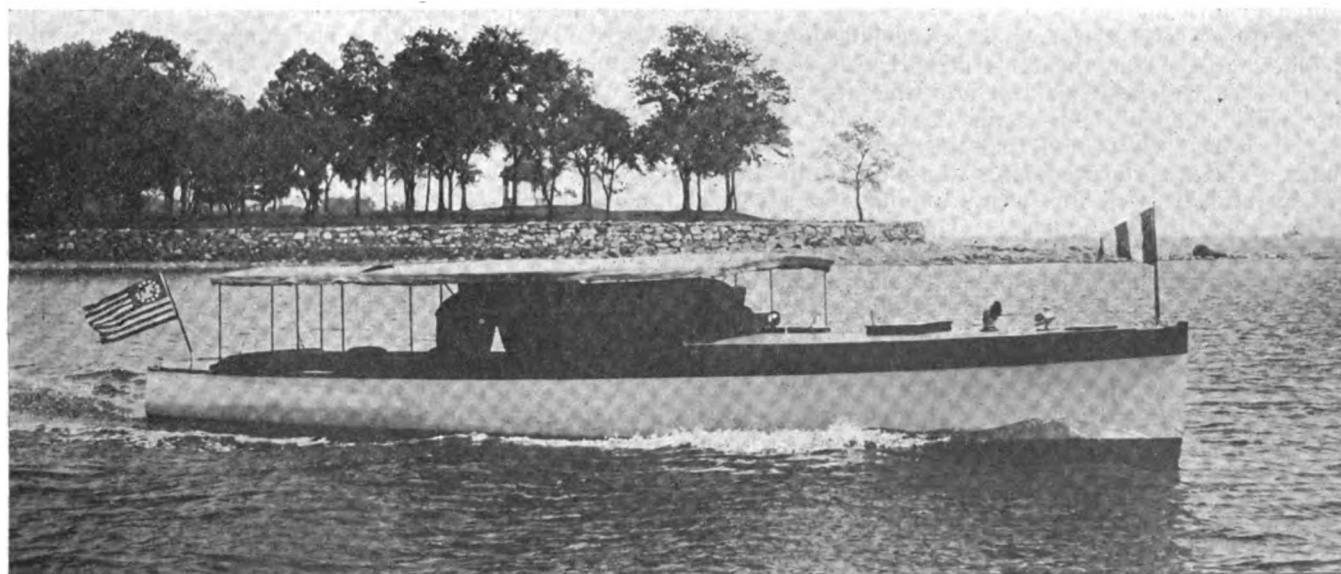
A somewhat different feature in this boat is the absolute separation between the owner's party and the crew. When the doors of the cabin are closed, the operator's cockpit is shut off, the only communication

being by an electric call bell from the cabin and after cockpit. This gives the captain undisturbed control of his boat and the owner's party absolute privacy. The average day cruiser of about the same length is arranged with fore-and-aft cockpits and cabin amidships. This necessarily divides the party, a rather objectionable arrangement, which is avoided in the Madge by the large unobstructed cockpit aft.

The usual awkward appearance of a glass cabin with full headroom in this type of boat has been avoided by using a decided crown in the roof. This crown is almost flat in the middle and runs well across until it breaks, thus giving a 6-foot 3-inch headroom where needed, and affording a good-sized window.

The awning extends from the operator's cockpit in a straight line aft, covering the owner's cockpit. Side curtains are arranged so as to protect both cockpits.

This boat is strictly a one-man boat. For entertaining, the owner carries his steward on board. A seat is provided for him in the operator's cockpit. The captain, who is essentially a combination captain and engineer, sleeps on the boat. A berth and toilet conveniences, etc., are arranged in the engine room for his use.



Madge. Designed and Built by the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., for Major W. H. Day, Larchmont Y. C.

The general arrangement of the boat is as follows: Chain locker forward, with engine room under the raised deck section. Crew's toilet, wash basin, bath, lockers, etc., arranged forward of the engine, with hatch from deck. Four port lights are located in the compartment to give light and ventilation.

Passage from engine room to the operator's cockpit is made by a door on the starboard side. The controls in this cockpit are located on the port side, with automobile steering wheel, engine controls, reverse lever, switches, gauges, etc. A folding seat is arranged so that the captain can operate the boat in either a standing or sitting position. A permanent seat with storage locker under, is located on the starboard side.

Entrance to the cabin is by doors amidships. The toilet compartment is on the port side, with toilet, wash basin, mirror, racks, locker, etc. On the starboard side,

a full-length clothes locker and ice-box are located, with racks for dishes, etc.

The door leading into the after section of the cabin has a full-length mirror on the after side. Two side seats are arranged here, with storage lockers under.

The after cockpit is reached by doors from the cabin. The thwartship seat aft is arranged with lockers under. A copper gasolene tank of 300-gallon capacity is carried under the after deck between watertight bulkheads. The boat is lighted by electricity throughout, a generator driven by the main engine with storage batteries in connection.

The principal dimensions are:

Length 52 feet 0 inches = 15.849 meters

Breadth 8 " 3 " = 2.514 "

Draught 3 " 0 " = 0.914 "



LAUNCH TRIP IN THE PACIFIC

THE motor-boat Jane, a raised deck towing boat, 24 feet over all, 7 feet 6 inches breadth, with little draught, and engine with a 12-h.p. Union engine, was due to leave Apia, Samoa, at 5 p. m. on Saturday, March 6, 1915, with mails, etc., for Pago Pago, the American Naval Station on the Island of Tutuila, a distance of 79 miles from Apia.

At the last minute I received orders to make the trip on business, and rushed to the wharf at 5 p. m. The skipper, well known in all parts of the Pacific as Captain Joe Stephney, L. Toleafoa, two native engineers, one seaman and myself were the only persons going, but a German resident of Tonga, Mr. Kiesenwetter, also made the trip with a view to catching a steamer for Tonga.

As usual, the time for sailing was postponed, and we eventually got away at 7 p. m., after withstanding a close scrutiny by our worthy Customs officer. The skipper, one could see, had been rather "busy" during the afternoon, and was already feeling "tired" and wanted to turn in.

Our course was to follow the coast line down about 25 miles to Aleipata, thence striking E.S.E. across the straits. We had been making fair time for almost an hour when suddenly the engine raced, and on being stopped, it was discovered that the reversing gear had broken. This was repaired, and after lolling in the moonlight in the lazy swell for twenty minutes, we advanced another stage of the journey. Things went smoothly for another half-hour, when all at once the engine raced and jumped alarmingly. The other shoulder of the clutch had broken off. There were now no hopes of using the lever and the gear was plugged so that the engine could go ahead only, and another start was made.

The boat seemed to make very slow time (the reason I discovered later on arrival at Pago—she had growth on her 4 inches long), but we hoped to get across without further mishap. A Jonah, however, was evidently aboard, and our troubles had only begun.

I now noticed a constant "missing" of the spark, and with a few kicks, the engine stopped. More benzine wanted? Thank heaven, we had ten cases!—but no luck. She also wanted more cells, and four new ones soon replaced the old. She now appeared to be right, but still

was very slow, and I reckoned the speed at 6 knots per, perhaps hardly that, even.

At 1 a. m. we were off Aleipata, the Southern end of Upolu. The skipper and Afoa were now snoring to some tune, and I had the tiller. The compass was not fixed and I placed it upon a box and dug up E.S.E. The Samoan seaman showed me a big star astern and one ahead, with the Milky Way running well to the starboard. Pointing, he showed me where Tutuila lay, and as the compass showed it E.S.E., we kept her at that, put the compass away and plugged away into the night.

We now struck a fresh Southerly breeze, which caught us on the starboard bow. The big swell made itself felt but we were making grand weather of it, though, being slightly top-heavy, she rolled a good deal.

By 2 a. m. Aleipata was well astern, and the moon had just risen—one of the prettiest sights I have seen, like a ball of fire with a black foreground. The weather continued fair, but at 3 a. m.—Bang! the engine jumped! Only the bolt on the forward starboard side of the plate at the foot of the cylinder had gone, and the nut fell off. Nothing could be done to repair this, so we kept on.

When daylight came, about 5:30 a. m., the South-eastern point of Tutuila could be seen, and the course had turned out to be correct. By 8:30 a. m. we were abreast of the point, and the big swell was sending up mountains of spray on a very rocky coast. The engine kept going all right, and by 9 a. m., we were off Leone, one of the biggest villages on Tutuila. We cut into the bay to wave to the London Missioner, Rev. Hough, and had just put up an old sail as an awning. This was too hot, and not satisfactory, and we decided to take it down. When passing it over his head, Mr. Kiesenwetter let it fall, and in two shakes, the shaft took it and wound it round and round like lightning. The boom on the deckhouse was whisked aft and struck Mr. Kiesenwetter on the forehead, making a nasty cut. The engine stopped, of course, and we were drifting towards the rocks thirty yards off, but we hauled her off a little with one oar we carried. The swell helped us a little and the sail was cut clear, and one more start was made.

We now had the dirtiest part of the trip, as we followed the coast, and off Stef's Point, a big swell and top

sea was churned into a nasty joggle. Things were not too comfortable, as she rolled like a dying horse. This point is peculiar, with a huge rock standing up the shape of a man, and it looks very weird. The coast now was a mass of foam, and blowholes every few yards were causing loud explosions like the boom of big guns. We rounded, and then headed for a point at the entrance of Pago. About midday the engine gave one big jump and quieted down. The plate at the foot of the cylinder had been too much strained by the missing bolt and had given away, cracked right across on the port side forward, so that the engine was now held to its bed by the two after bolts only. However, Billy managed to keep her going at a speed of a mile or so per hour, and like a dying duck, we crawled into Pago. The sight of two large interned steamers in the harbor seemed to liven things up a bit. They turned out to be the German steamer *Elsace*, a cargo boat of 12,000 tons, which at the outbreak of war, left Sydney without her clearance, and the *Solf*, a fine boat belonging to the German firm at Apia. The crew of the U. S. N. S. *Princeton* welcomed us, and after being granted pratique, we landed the mail, etc., and made for a place of rest after nineteen hours aboard.

After lunch we made arrangements for repairs, and then did the town. Pago is quite a fine little place, good harbor, electric lights, public shower baths, making things very comfortable, though it is quiet. The ship *Princeton* left for Manua, which island had been devastated by a recent gale, to take food, etc., and to bring back residents. This took away the best of the engineers in the place, but we had a good man in Ohlsson, who worked like a Trojan for four days with assistance from our own boys.

We took the opportunity of cleaning inside and out of the craft, with a coat of paint and a frame for awning. This work was completed by the boys before the engine was nearly ready, and we procured a sail and mast from the Naval Station, by which people we were treated as well as people could be. We had the run of their club-room, billiard table, bowling alley, etc., and had fine times. We also visited all the Government places, ice-works, buildings, etc. We had some excitement one morning when a fire broke out in a Government house, but with the assistance of the brigade and native soldiers, it was put under. We took part in the salvage of the furniture, etc., and enjoyed the fun. Luckily, no great damage was done.

The ship arrived from Manua on Wednesday, and the repairs proceeded much faster. A collar was made for the cylinder, reverse gear castings made, new exhaust muffler attended to, carbureter tightened up, etc., and by 4 p. m. Friday, we were ready to leave. A trial trip was made, and the engine pronounced right, although the clutch occasionally slipped out to center. The shaft had no cover, unluckily, and very dangerous it looked, but no more time could be spent, as the mail boat *Tofua* was due at Apia next morning and my business was to get busy with the mail, while the others had copra to attend to. We had also received several anxious wireless telegrams from Apia, who were naturally anxious at the delay in our return.

Saying goodbye to all the good friends we had met there took some time, but by 8:30 p. m. we were all aboard, and I must say it had been the best four days I have spent since leaving good old N. Z.

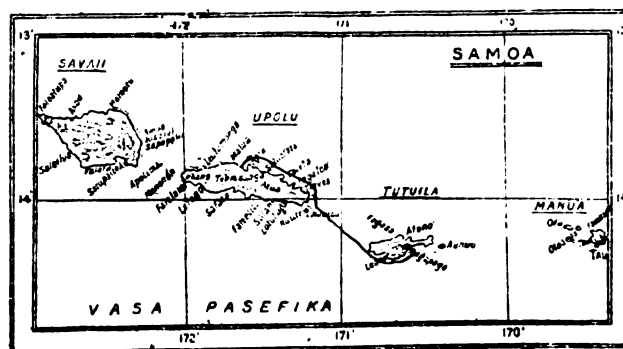
We were ten all told on the return journey, having four passengers—a lady from Germany, two Americans off the station ship, and Captain Young, a well-known resident of Manua. We had quite a large number to see us off, and at 9 p. m. we were underway. The boat was rolling even in calm water, the top frame being of 3 inches by 2 inches, making her worse, while benzine, luggage, etc., was all stacked on the cabin top.

We cleared the entrance and made for Stef's Point, and the sea coming down on the port quarter aft, with a fresh breeze, caused her to roll heavily, and also to take water aboard in the cockpit every few minutes.

Things might have been worse, however, and we kept on. We were towing a long boat with some stores to Leone, and had reached over halfway when our rudder went. The gudgeons came adrift, and we put out two oars by which to steer, but little good could be done in the sea running, and she charged inshore for the reef. She was steering like a pig, so we cut the long boat away and told the boys aboard her to hang around. She narrowly missed coming aboard, but we pushed her off. The oars we had were too short, and we were getting very close to the reef, when she got the better again and went straight for it. The boat was scarcely twenty-five yards off the reef and but for the graft of the Samoans in the bow, there would have been "a piece in the paper next day." Astern we tried several times, but could not get her around, but at last we managed to work the bow around and set her going hard. We had our boots off, but would have had no chance in the monster curling breakers on the reef, and would have been battered to pieces in less time than it takes to tell.

Things were only middling, as may be guessed, and the lady passenger was lying helplessly on the cockpit seat, but we finally managed to make Leone Bay. The village was aroused, and soon some long nails and a hammer fixed the rudder enough for us to proceed.

We left Leone about midnight, and after one of the worst rollings I have experienced, sighted Upolu at 8 a. m. The sea was just a little on our quarter aft, and as the boat lurched, water came in frequently over the cockpit side. She was also making water and the fly-wheel was sending a constant stream on to the cabin side and roof, the bailers were at it continuously, grease was on everything and we looked a very washed-out crew, indeed. The engine stopped several times through some reason unknown to me, but appeared to get clogged with the water; as the water lowered in the boat with the bailing, she would go again for three-quarters of an hour or so.



SAMOA

Including Islands of American Samoa—Tutuila and Manua.

These stops called forth rather funny remarks from the skipper, who was once again "sleepy." "Prime her with gin, Billy, prime the — with gin; we must get home today." Nothing in the world could get him excited, and he would just grin and say, "She will be right in a minute."

However, by fits and starts, we crept up the coast, rolling and lurching like a water-logged punt. We en-

tered Apia harbor at 3 p. m., and at 3:30 we were tied up and once again on terra firma. No one was sorry to land; no one wanted to go again in the Jane, and everyone wanted food, drink and sleep all together, if possible. We landed fifteen bags of mail and I made for home and a fresh-water swim and rest, being not sorry that one of the most sensational trips this island has known for many years was successfully negotiated.



SAILING IN HOLLAND

THERE surely is no country in the whole world divided by waterways to such an extent as Holland. Even right in the very center of the country there is a fairly big inland sea, called the Zuider Zee, on which every year thousands of fishermen and bargemen sailing for inland traffic find their daily bread. It needs no further comment that watersport in such a country is foremost among the favorites, and the abovementioned Zuider Zee offers the most excellent opportunities for cruising with a boat of any type.

Many cities along the coast of this inland sea remind one of times long since passed away and the glorious period which this country then experienced. For Holland at all times has been the nursery of the heroes and pioneers of the sea, and it is specially in the towns along the coast of this Zuider Zee that we are persistingly reminded of these great men of the past. This fact has always proved a not-to-be-resisted attraction to all foreigners, and a great many American people are found every year in the harbors which Dutch yachtsmen visit regularly during the season. Not far from Amsterdam the island Marken is situated in the Zuider Zee, which island is sufficiently known on account of its typical national dress and queer customs, and so many American and English people have in the last few years visited this island that almost every child there knows something of the English language, while some are undoubtedly well acquainted with it. Everything in these towns and on these islands is so quaint and interesting that even the Dutch people will regularly go there. Especially the arrival in these places will every time again give one a more beautiful and fascinating view of the country that is loved so well by its own people.

Many foreigners yearly make cruises on the Zuider Zee and all are always brought into extasies by these interesting and quaint sights. It is an immense pity that on account of the many shallow places this sea is not navigable for the big American yachts, which prevents owners of big boats from seeing in their own crafts all the places worth visiting. Were this only the case then surely no more beautiful and interesting water could be found anywhere in the whole world. It must not be thought that Holland is a country where everybody still wears clogs and where they also sail in clogs. Holland can boast of a fleet of the most beautiful and modern yachts, and some of the first-class English crafts are

found sailing here under the Dutch flag. To the great regret of their owners, however, these are of no use for sailing on the Zuider Zee. It will therefore be quite clear now why the flat-bottom boats have always remained so much in use here and are as a matter of fact being used more and more. And yet among these boats and yachts there are a great many which yearly visit England, Norway, Sweden, Germany, etc., and which the entire sailing season through are spending their time on the high seas. These craft are good sea-boats and for a prolonged stay on board possess so many charms that many foreigners, especially the English, are buying them for big yearly cruises to the Mediterranean and other distant places. These yachts, which have ample room, offer living accommodation to a good many guests.

A roomy cockpit provided with nice gratings and entirely finished in teak wood gives admittance to the inner part of the boat. Near the entrance we find a cabin with two sleeping berths. In front of this is the saloon with a cosy-corner bar, the lockers, wardrobe, etc. The entrance to the cabin is in the corridor, in which is also the lavatory. The other part is used for pantry, ice-box and kitchen. In front of this again is the forecabin for two men, or one man and a boy, which is on these boats quite sufficient crew to attend to all the wants of the owner.

That these boats are the favorites of the amateur sailor and that they have excellent sailing capacity is amply proved by the yearly races which are held here especially for this type of boat with an amateur crew. These races are held in ordinary fishermen's "botters," for each of which three amateur sailors are elected by drawing lots. It very often happens that as many as fifteen of these boats are entered for these races, for which splendid cups are always offered, which become the property of the steersman of the winning boat providing the same amateur steersman has won three successive years. A more interesting kind of race can hardly be imagined, for these "botters" are all so exactly alike in measure, etc., that no international rules could be fairer. For years these boats have been built by the same people in the same places and yards, and in these races it is certainly proved which amateur sailor is a good one and which is not. The amateur crew of the winning boat are presented by the sailing clubs with a gold anchor.

KERSKEN.

CRUISE OF THE SPINDRIFT

SPINDRIFT is a carvel-built, transom stern launch 24 feet long, 6 feet breadth of beam and with a draught of 22 inches. She was launched in September last and is the product of the Leader Launch Company, of Christchurch, who are also sole New Zealand agents for the Forth engines, and is owned by Messrs. Logan & Alleyway. The boat is fitted with a detachable cabin and has large lockers fore and aft, divided off by bulkheads. Two sails are carried for use as an auxiliary or in case of emergency.

The power plant consists of a 10-h.p. two-cylinder Forth engine and reverse gear mounted on an extension sub-base. Fuel is fed to the carbureter through a two-way cock connecting with gravity feed and pressure feed tanks, the former being in slings under the forward deck and the latter lying between the engine bearers, which run the full length of the cockpit. Ignition is by coil and accumulators and Bosch high-tension magneto, both systems being separate and complete in themselves. All valves are mechanically operated by a single cam-shaft.

After much preparation and laying in of stores, Spindrift left the Sumner Baths (Christchurch) at midnight on March 6th, with a crew of two, bound for the Marlborough Sounds.

A small compass was mounted on deck over the engine, and was relied on to steer by. The course had been marked off on the chart, and on clearing the Baths this course was set, but owing to the violent movements of the boat it was found that the needle was describing circles, without any prospect of ceasing. It was therefore deemed advisable to make for Lyttelton and wait for daylight.

No sooner had this decision been arrived at than the compass became docile, so the boat's nose was again set Northward and all made snug for the run. Owing to the previous erratic behavior of the compass, we were very anxious for daybreak, in order to verify our position, and as soon as land became visible the setting was tested and found to be correct. At 6 a. m., when the craft was five miles North of Motunau Island, a strong Nor'wester was encountered, which gradually increased in force, so the boat was headed in to the shelter of the cliffs, a run of six miles through short seas and clouds of spray. After getting closer in the wind was less violent and in a favorable direction, so the sails were hoisted and an easy run made up the coast, the sea becoming perceptibly calmer as we progressed. From Gore Bay to Kaikoura the weather was in marked contrast to our early morning experience, and the latter port was reached without further incident at 3 p. m., with a non-stop run to our credit. After mooring the boat up in the launch harbor we made our way up to the town, which we found in possession of a party of motorists who were taking part in a reliability trial from Christchurch. Having had no sleep on the previous night we lost no time in getting aboard again after tea and bunking down. We spent Saturday, March 8th, in

Kaikoura, and on Sunday morning at daybreak the mooring lines were taken in, and after threading our way out of the rock-strewn harbor, the course was set for Cape Campbell.

The early morning air was decidedly chilly and a heavy mist obscured the high lands, but as soon as the sun gained power we were recompensed by a magnificent panorama of high coast extending as far as the eye could see, broken by clean stretches of sandy beach. As there was deep water close in to shore advantage was taken of this to keep the boat well in, and greetings were exchanged with people on shore, who telegraphed the news of our progress Northwards.

We were not destined to have a surfeit of calm weather, however, for 15 miles South of the Cape we ran into a Nor'easter, which became so vigorous that we took temporary shelter in Wells' Anchorage and had lunch. After waiting here for half an hour we made another start for our destination, and as soon as we were well out the wind increased to a gale, bringing up mountainous seas for so small a boat. We were unable to take advantage of the shelter of the land as we had to stand three miles out to sea in order to clear the reefs which run out from the point. The sea gave us a very rough handling here but our staunch little craft behaved splendidly and forged ahead without a falter.

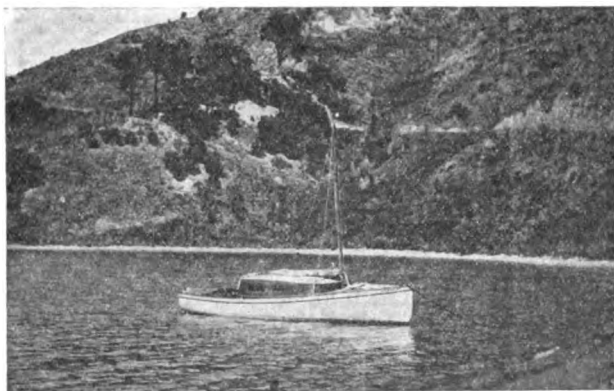
Clifford Bay was reached after a most strenuous fight, and although the water was not by any means calm here it was decidedly preferable to what we had come through. Two anchors were put out and we settled down on board for the night. By morning the sea had gone down considerably, so we made a landing and breakfasted with the lighthouse keeper, who afterwards took us over his small kingdom.

On returning to the beach we found that the boat had dragged her moorings and was stranded. It took the combined efforts of the three of us to get her off, our host wading in fully dressed to assist. No sooner had we got her safely off than one of the ropes got wound round the propeller, necessitating a trip overboard with a clasp knife to cut it adrift, and rocked in a very uncomfortable cradle all the time.

With the clearing of the propeller our troubles came to an end, and a good start was made for the run to the Wairau Bar, which was crossed at mid-day (March 10th) without further incident, and a 12-mile run up the Opawa River brought us to the town of Blenheim, where we stayed for three days.

On the 13th we completed our reprovisioning and dropped down the river, crossed the bar and shaped a course for Port Underwood, our party being augmented by the addition of two Blenheim boys, who completed our camping party. A fine run was put up across Cloudy Bay, bringing us to our first camping place, Tom Canes Bay, where the tent was erected and camp set for a three-days' stay.

Visits were paid to the neighboring bays, and with fishing and exploring, to which must be added a musical



Spindrift in Tom Cane Bay

evening with a party off a visiting yacht, Oyster, the time passed all too quickly.

On Sunday, the 15th, camp was struck and a start made for Tory Channel, at the entrance to Queen Charlotte Sound. A choppy sea was experienced on the run round, but our objective was reached well up to the time and a two-hours' run up the Sound brought us to Double Bay, where camp was pitched in beautiful surroundings.

This bay is situated six miles from Picton and is a scenic reserve, the native bush growing right down the hills to the water's edge. While camped here a party from Blenheim was entertained at dinner, for which demands were made upon the sea with great success.

On Thursday camp was moved to Ships Cove, another reserve, where a recently erected memorial marks the scene of Captain Cook's first landing. The time here was agreeably spent in fishing and exploring the bush, and on the 22d all equipment was stowed away and the boat headed for Cooks Straits, en route for Pelorous Sound.

Calm water was experienced till Cape Jackson was rounded, after which rough water was met with across Port Gore, necessitating a run for shelter under Cape Lambert. Later in the day we rounded the cape and running across Waitui Bay past Alligator Point and Guards Bay, reached Allens Channel without further incident. Continuing on our course we left Forsyth Bay and ran round to Richmond Bay, where the boat was moored for the night, while the crew went ashore to try and replenish the provision locker.

As soon as our wants were made known the settlers provided us with an abundant supply and made our short stay at the bay as pleasant as could be wished for. On Easter Sunday morning we parted with our friends and set out for Nydia Bay, in the heart of the South Island sawmilling industry. At noon a halt was called in a small bay, where all hands set to work to prepare a hot dinner. As soon as this cause for delay was disposed of the run was continued towards our destination. By some means we took the wrong turn and found ourselves at the head of Wet Inlet, so had to turn back again. However, we made the most of the opportunity, and ran round the bay, arriving at our intended landing place, Nydia Bay, well before dark.

Of course the only trouble to be faced was the ever-present meal question, so the whole party tumbled ashore barefooted and bareheaded to locate an accommodation house.

We had received an invitation to visit one of the

big sawmills and decided to do so on the following day, to which end we were early astir, and having partaken of coffee and biscuits, got aboard a timber truck drawn by two horses and were off by 6 a. m. through two miles of flat land covered by bush and pierced with a cart track. At the end of this stage we transferred to a cable tramway worked by a winch at the top of the hill, which rises to a height of 1,400 feet with a very steep gradient. We were told to sit tight and hang on, which advice we were compelled to comply with in order to keep on the truck. In order that we should have a spice of danger to mix with our appreciation of the view we were warned to be prepared to jump if anything gave way, and to give point to the warning were shown great baulks of timber driven into the hillside through the impetus with which they had come down and jumped the rails.

These cheerful possibilities did not prevent us from enjoying to the full the perfect panorama of wooded hills and valleys, with the occasional smoke of a deer stalker's camp-fire in the distance. On reaching the top we had a trip along the ridge. As our time was limited we were unable to avail ourselves of the offer of a trip down the opposite side, so returned on a truck load of timber to the level. On our arrival at Havelock we parted with one of our crew, who was returning to Blenheim overland, and having had dinner we took our departure for the Kenepuru Sounds, arriving at the "portage" at 5 p. m. After a short stay here the boat was headed for Waitaria Bay, where a pleasant evening was spent, the crew turning in at midnight after a long and memorable day.

The dawn of the next day marked the commencement of the homeward run, our first stop being in a little cove under Alligator Point. The following morning saw us well on our way to Picton. Cape Jackson was rounded in 'unusually calm weather for the locality, and Picton was made without incident about noon. As the weather seemed inclined to hold good we decided to push on to Blenheim and at 3 p. m. cast off and made for Te Awaite, at the mouth of Tory Channel, intending to make an early start on the following morning so as to catch the tide at the Wairau Bar. This program was successfully carried out, a start being made against a strong tide, but with the jib up the boat soon made short work of it. The water effects on the cliffs were very pretty, and a large blow-hole, through which the swell



Picton, New Zealand

rushed with great force, threw large jets of spray high into the air at intervals, forming a pleasing picture on that rugged shore. Blenheim was again reached after two and one-half weeks of pleasant cruising in some of the most charming waterways the Dominion has to offer. Here we parted with our other companion, and after spending two days ashore we ran down the river on Sunday afternoon to the Pilot Station, intending to cross the bar early on the following day.

However, we altered our plans, and as the night was clear, crossed the bar at 3:30 a. m. by moonlight and headed South again, passing Cape Campbell Light at 6:30 a. m. and arriving at Kaikoura at 3 p. m. after a fine run.

The next day was occupied in the run to Motunau Island, where we intended spending the night, hoping to make an easy run to Sumner next day and get the tide over the bar there.

Good anchorage was found on the South side in calm water, and everything made snug for a good night's rest, when another Nor'wester manifested itself. It was pitch dark by this time and the boat had to be got underway and headed for the shelter of the mainland by guesswork. Two anchors were put out close inshore and we settled down to wait for daylight. Sleep was out of the question, as the wind was howling in the rigging and the boat lurching and straining incessantly at her cables. We were glad to get underway again, and as the wind had dropped and the sea looked good we anticipated a pleasant run across Pegasus Bay and headed straight out. We were not destined to realize our sanguine expectations, for after an hour's run the wind freshened and gradually worked up a heavy following sea, which gave us a lively run home. Sumner was reached at 11 a. m., but as the tide was very low the boat was moored at the Baths, completing a month's running of 900 miles, the pleasures of which were much enhanced by the way both engine and boat behaved, both completing the trip without an adjustment of any kind. Altogether the cruise was one of the most enjoyable we have ever undertaken.



THE JUNCO MARION

THE Junco Marion was built by two amateurs at Riverside, Cal., 54 miles from the water, and on her completion, was loaded on a two-wheeled "trailer" and towed by automobile through two counties and by way of a long canyon road to the bay at East Newport, on the California Coast. This bay is about 8 miles long, almost entirely land-locked, and is situated on the Pacific Coast, about 60 miles South of Los Angeles.

In building the Marion, patterns were first cut for backbone, moulds, stem, rudder, centerboard, sternboard

and tiller—all patterns being made from very heavy manila drafting paper cut to exact dimensions, shown by Mr. Goeller's drawings. From these patterns, the parts were rough-sawed at the mill and then dressed by hand to exact dimensions. Backbone was put together on March 20th of this year. Heavy copper rivets were used for backbone and stem, and for fastening sides to frames. Heavy copper (No. 00—about one-third of an inch in diameter) wire was used for doweling together the two pieces composing the rudder and six dowels of the same wire were used in putting together the centerboard. These copper dowels run from top to bottom of the board and are riveted over copper washers at each end of each dowel. No iron was used in putting her together.

In all respects, we followed the dimensions and specifications laid down by Mr. Goeller, and the result is a very satisfactory boat. We obtained our copper wire from the "scrap" of an electric power company, which uses this heavy wire for its high-voltage transmission lines.

She made the trip by automobile in four hours from her birthplace to the bay, and was in the water within two hours after her arrival. She sails well, trims beautifully, and after a few "try-outs," we expect to tackle some of the so-called fliers, whose dimensions are the same within reasonable margin. Her sail was made by a local sailmaker, and is not just right—but we are hoping that the one sent by Commodore Oldman (in case we are fortunate enough to get it) will prove more satisfactory.

The Marion was launched on Saturday, June 5, 1915. She was built by Mr. A. J. Winters and Mr. I. B. Potter, of Riverside, and is owned by Mr. Potter. It is fair to say that the most skilful work was done by Mr. Winters.

Riverside, Cal.

I. B. POTTER.



21-FT. CLASS FOR NEW ZEALAND

IN the April RUDDER there are particulars of the proposed American 21-footer class, engine 251 cubic inches; the N. Z. Power Boat Association has set up a special committee to go into these restrictions and expect the restrictions as set forward in THE RUDDER will be adopted; that would enable you people to send out one and race here if you wished.

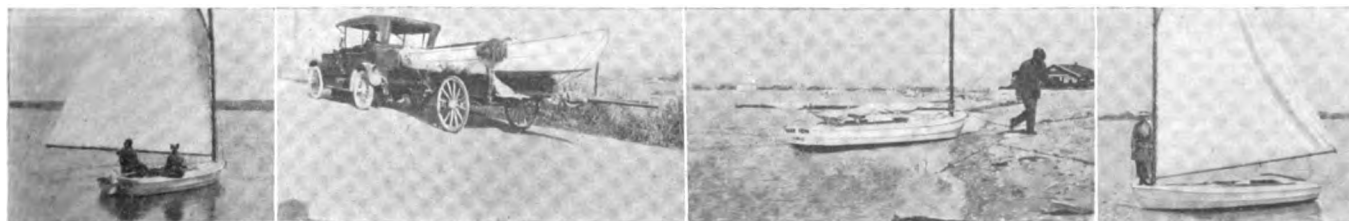
St. Marys Beach, Ponsonby,
Auckland, New Zealand.

J. COLLINGS.



22-FT. W. L. AUXILIARY YAWL

ON the following page is shown the sail plan of a 22-foot water-line auxiliary yawl, designed by Fred W. Goeller, Jr., for use on Long Island Sound.



The Junco Marion. Built by I. B. Potter and A. J. Winters at Riverside, California

THE RUDDER

The main object in view was to get the smallest boat possible to accommodate three or four people on a cruise, and to keep the draught within 4 feet to allow running up into some of the shallow harbors. This latter necessitated a small centerboard in the keel, but as it does not come above the cabin floor, the cabin is unobstructed, as it would be in an out-and-out centerboard boat.

The cockpit, 6 feet long by an average width of 6 feet, together with the wide decks, gives plenty of room for afternoon sailing.

The engine, a 6-h.p. one, is located under the bridge deck. The forward part and the flywheel extend into the cabin but are covered by the companionway steps, so that it does not interfere in any way with entering or leaving the cabin.

There are two 6-foot 6-inch bunks, one on either side; a toilet 29 inches wide on the starboard side forward of the bunk with a 20-inch clothes locker

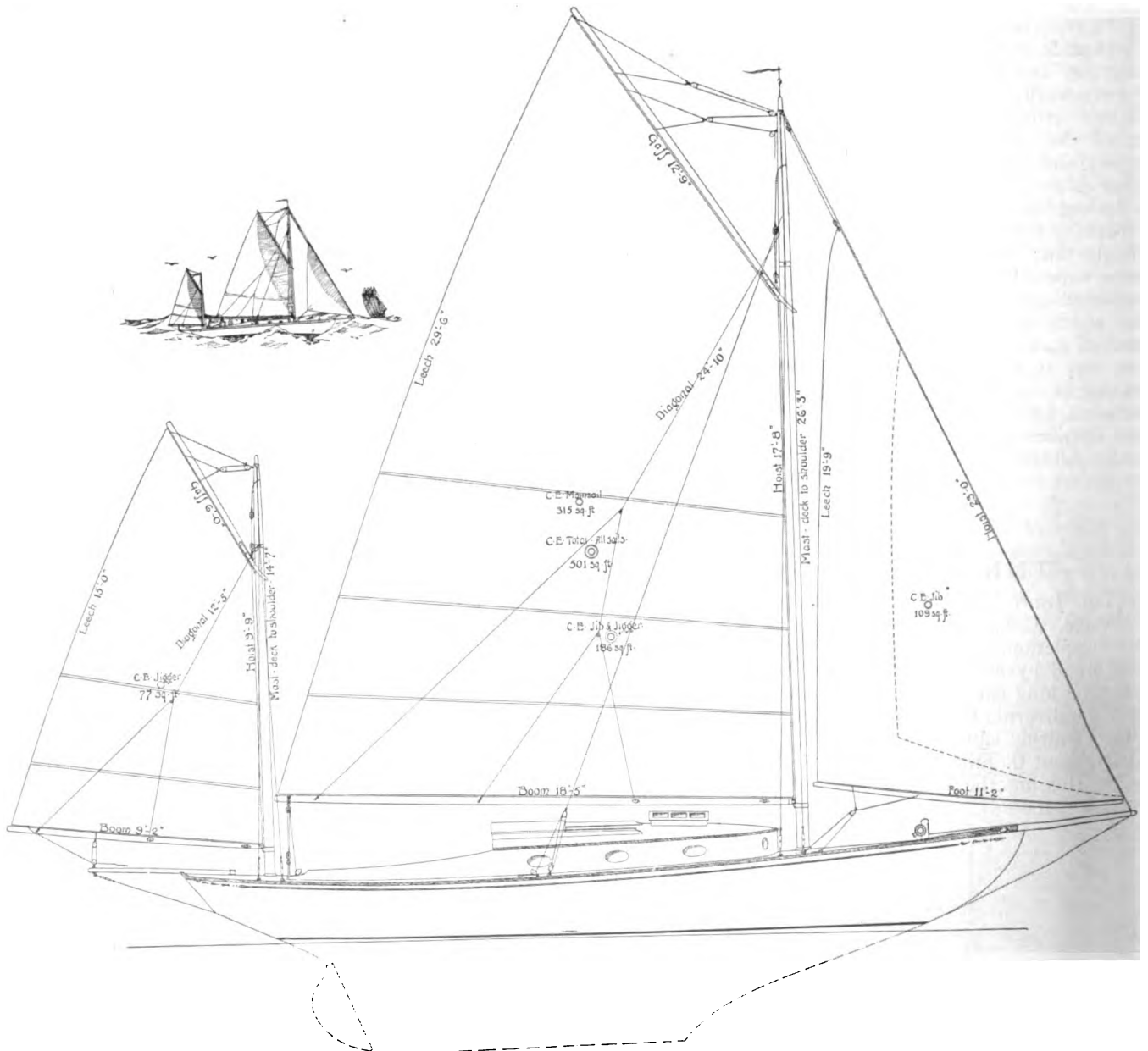
opposite. Forward of this is the galley, clear across the boat, with ice-box and locker on the starboard side and the stove, dish lockers, etc., on the port.

One of the main features of the boat is this cabin, which is 10 feet long and with a headroom of 5 feet 6 inches, rather unusual in a boat so small.

The sail plan is moderate, only 501 square feet, and like all yawls, can be easily handled under any combination of the sails.

The principal dimensions are:

Length o. a.	30 feet 0 inches	=	9.144 meters
Length l. w. l. . . .	22 " 0 "	=	6.705 "
Breadth extreme . . .	9 " 1 "	=	2.767 "
Draught, with- out board	4 " 0 "	=	1.219 "
Draught, with board	6 " 6 "	=	1.981 "
Sail area.	501 square feet	=	46.543 square meters



Sail Plan of Twenty-Two-Foot W. L. Yawl. Designed by Fred. W. Goeller, Jr.

CONDITIONS FOR THE POUGHKEEPSIE-BRIGHTWATERS RACE

BELOW are the Rules and Regulations governing the race from Poughkeepsie, N. Y., to Brightwaters, Long Island, which will be run on July 30th, under the auspices of the Poughkeepsie Y. C. and the Brightwaters Association:

It will be open to cruising cabin power boats of not less than 20 or more than 60 feet over all. Enrolled in any recognized yacht club situated on the Hudson River and Great South Bay. Boats must have permanent cabins, not glass, canvas or shelter cabins, and must be fully equipped to berth and feed their crews. No boat whose maximum speed exceeds 14 statute miles per hour will be admitted.

Power.—Boats must be propelled by explosive engines using either gasoline, kerosene or alcohol.

Fuel.—Fuel can be carried in tanks or in cans on deck. Engine, picric acid, ether or any other ingredient to increase power of fuel will not be allowed.

Equipment.—Each boat must carry two anchors and cables, regulation lights, lead-line, charts, compass, buckets, fog signals, and at least two fire extinguishers, and be fully equipped with life-saving devices according to the Government regulations. Must tow or carry a dinghy or life-raft.

Crew.—Must not be less than three in number. A paid engineer or deck hand may be carried, but the boat must be navigated and helmed by amateurs.

Measurement.—Under the 1915 rules of the A. P. B. Association.

Time Allowance.—Sixty per cent. of the full time allowance A. P. B. Association tables.

Prizes.—Three prizes will be given. First, second and third boat to finish, corrected time.

Certificates of Measurement.—Certificates by a measurer of a recognized club must be placed in the hands of the Committee not later than ten days before the start. No unmeasured boat will be allowed to start. Protests covering the rating of any starter must be made 24 hours before noon of the day of the race.

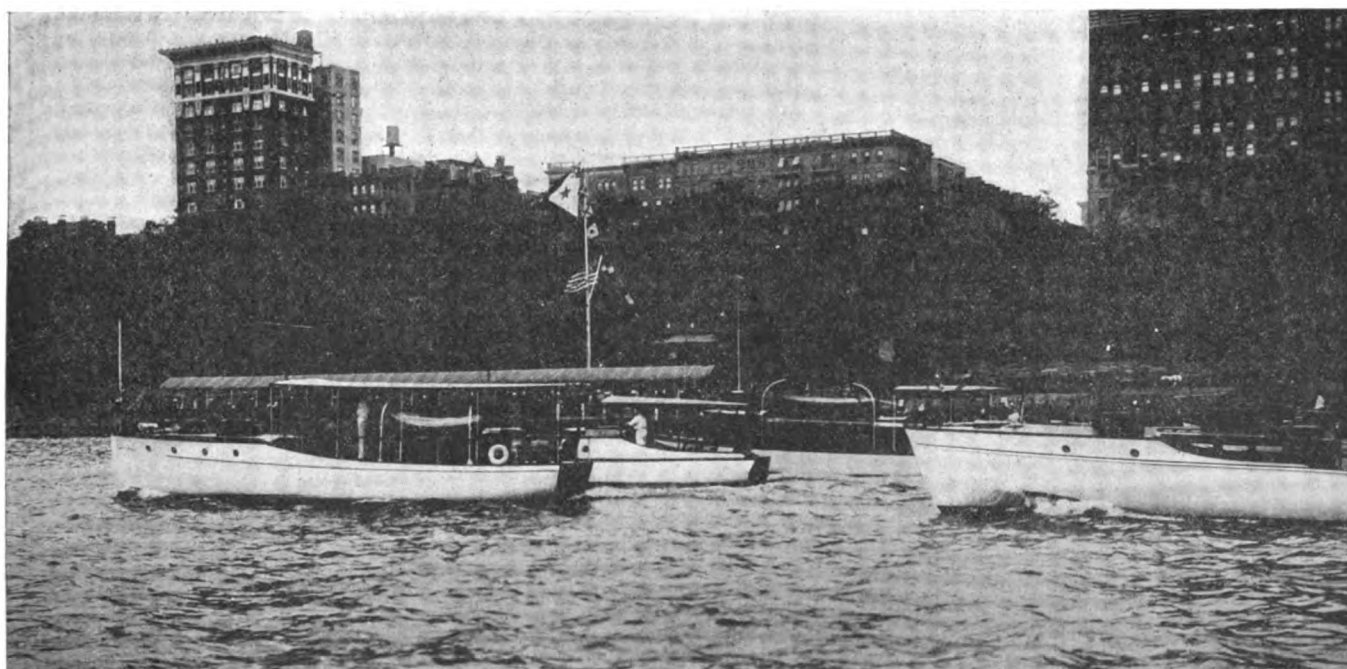
Protest.—Covering violation of the racing rules must be made within four hours after the last boat finishes.

Inspection.—Boats must report to the Committee at the Poughkeepsie Y. C. House for inspection not later than 10 a. m. of the day of the start.

Course.—From off the Poughkeepsie Y. C. at Poughkeepsie down the Hudson River to Nortons Point, Coney Island, thence to Rockaway Shoals outer buoy which must be left on the port hand, thence to a finish line off Fire Island Inlet. Distance, 125 statute miles.

Start.—At 6 p. m., Friday, July 30th. Charts and sailing directions will be furnished by the Committee the day of the start.

Entries.—Entries must be made in writing to the Chairman of the Regatta Committee, Poughkeepsie Y. C., on or before noon of the 20th of July. All entries must be accompanied by a certificate of measurement.



Racing on the Hudson River



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



HISTORY OF A SWALLOW

IN 1900 an amateur of New Rochelle built the Swallow Sora, a picture of which appears in the book I purchased from you ("How to Build a Racing Sloop"). I came across this picture and article one evening and was very much surprised to read about the boat, for I have owned and sailed this same boat for the past two seasons. It is not the least feared boat on the lake either! I have been figuring out the past history of this boat and have learned that it has passed through five hands before reaching me. Each owner has used the boat harshly and has not taken much trouble to keep the boat in "tip top" condition, but with a little labor, I fixed her up and have had excellent service from her, too. I consider this a pretty good period of service for a small racing boat. The only trouble with the Sora now is that she leaks a little and has a couple of weak timbers in her bow. My reason for sending this little story is that the other Swallow owners have bragged about their boats and I couldn't see old Sora outdone.

Elmira, N. Y.

M. HOLMES SHOEMAKER.

MIDDLETOWN Y. C. NEW HOUSE

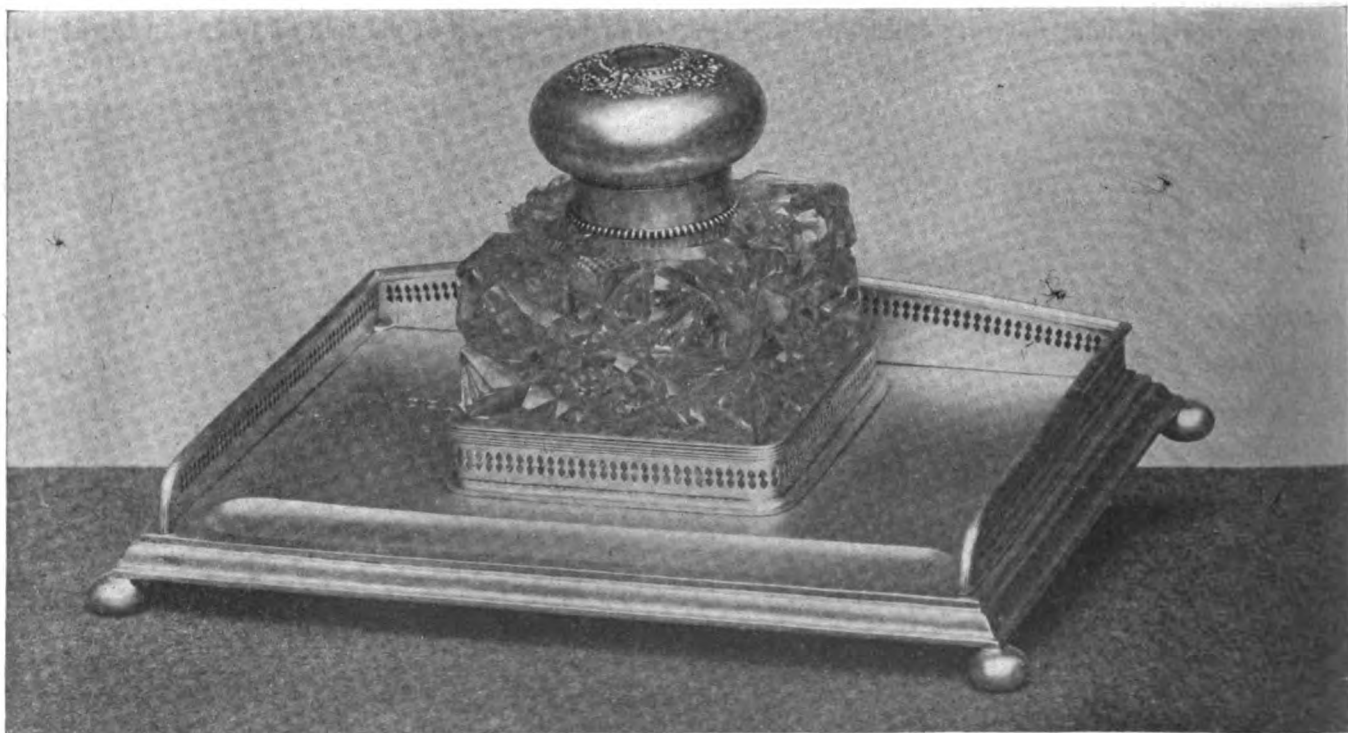
THE Middletown Y. C. are building a new house in place of the one lost recently. The new domicile will cost \$12,000 and most of the necessary funds are in the treasury. The club has a membership of 300 and over. The annual long-distance race started some years ago by the gift of a RUDDER Cup is still on the schedule and will be run this year to Greenport, Long Island.

PRESENTED TO THE OLDEST ADVERTISER

THE officers and directors of The Rudder Publishing Company had the pleasure of presenting Mr. John J. Amory, president of the Gas Engine & Power Company, with a beautiful cut-glass and silver inkstand, accompanied by the following letter:

My Dear Mr. Amory:

For twenty-five years the Gas Engine & Power Company, of which you have the honor to be president, has advertised continuously in THE RUDDER.



Inkstand Presented by The Rudder to Its Oldest Advertiser, Mr. J. J. Amory, President of the Gas Engine & Power Co.

As a slight acknowledgment of your liberal and constant support of the publication, The Rudder Publishing Company ask you to accept this token of its appreciation and regard for you and your Company. With best wishes for the future prosperity of your Company and for your own health and happiness, we are

THE RUDDER PUBLISHING COMPANY.

The inkstand, which was made by the Reed & Barton Company, bears the following inscription:

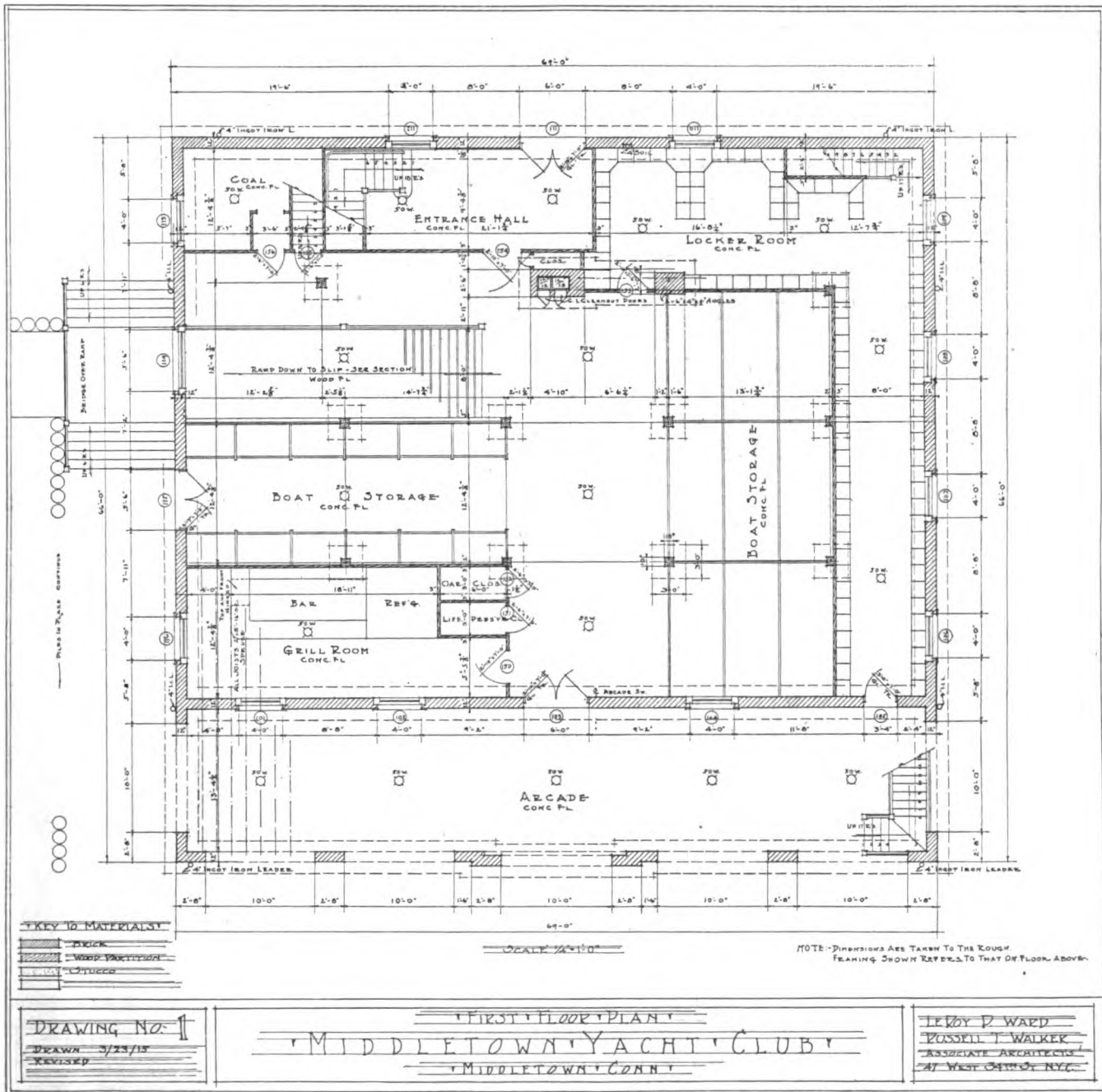
On the left-hand side—

“From THE RUDDER
to its Oldest Advertiser,
John J. Amory,
Gas Engine & Power Co.”

On the right-hand side—

“In token of twenty-five years
of friendship and co-operation
July, 1890
May, 1915.”

In front of the ink well, on the pen-rest was engraved:
“Old friends are best.”



First Floor Plan of Middletown Y. C.

NEVER JOKE WITH A SCOT

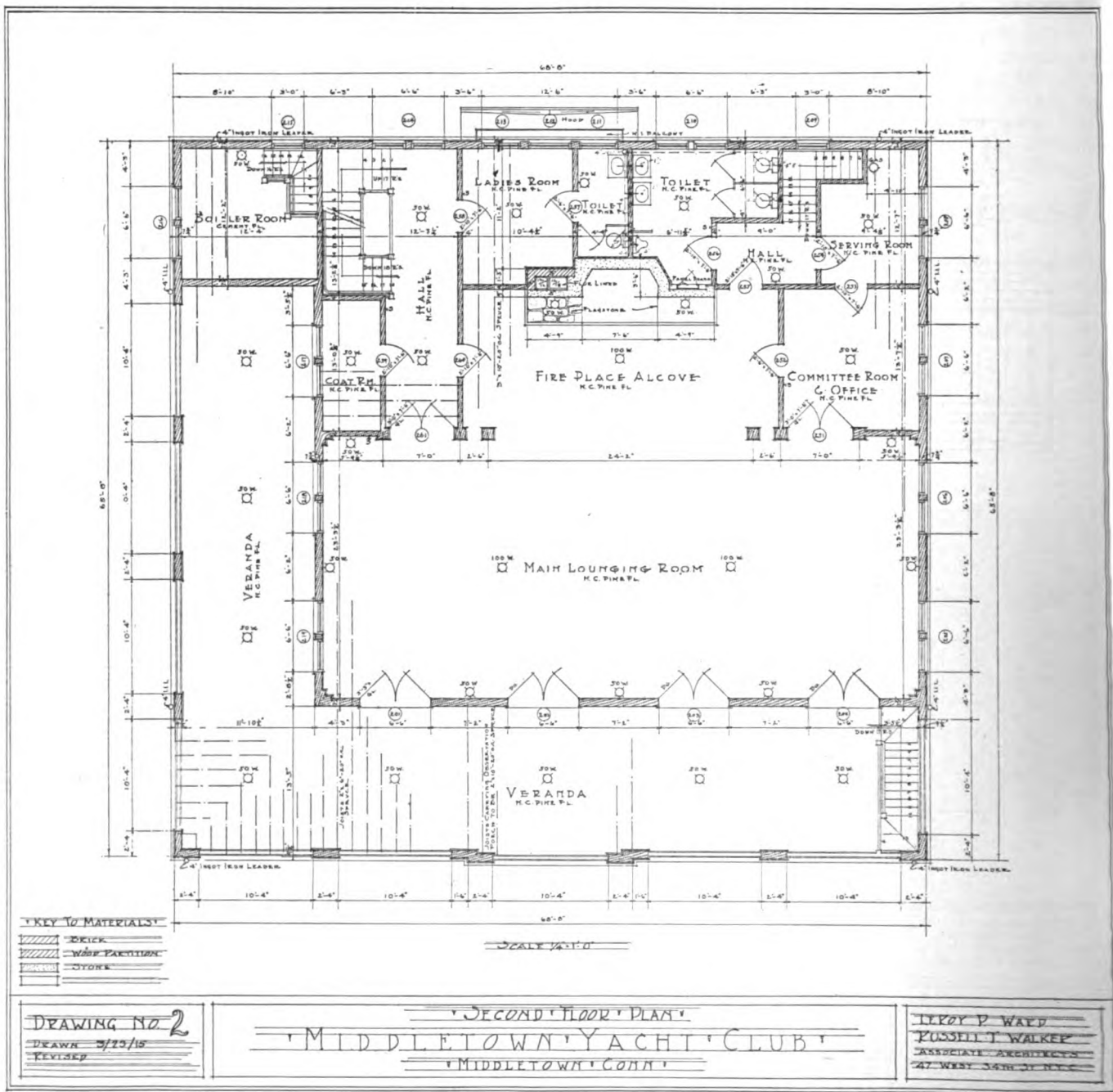
HAVE read with interest your always pleasing articles, "Around the Clubhouse Fire," in the April issue of THE RUDDER. I always admire these cheery, snappy articles, but I want to hand you one right from the shoulder.

In the very first paragraph you state that "your outdoor man is a jovial, brisk cuss, who tackles beefsteak and whiskey three times a day if you let him." Further down in the paragraph you advise men not to drink cold water and one gets the impression that you strongly recommend the "booze." You are continually hollering that yachting ought to be built up and we ought to get the youngsters into it. I maintain that the "booze" will kill anything and an "old salt" like you ought to realize

that. No self-respecting man would want to induce his son to associate with half of the fellows that hang around our yacht clubs, blowing in their money and eating up their stomachs with the stuff. Now, Oldman, take a little advice from a youngster and cut out handing any slurs to us fellows on the ice-water and don't advise the youngsters to fill up with that "booze" that causes more sorrow and pain and suffering than anything else in this wide world.

I, for one, don't have a bit of booze in the locker of my boat, and all hands that come aboard have just as enjoyable a time, if not more so, than they do aboard a lot of the boats moored in the same bay.

JOHN H. SCOTT.



Second Floor Plan of Middletown Y. C.

THE RUDDER

Vol. XXXI

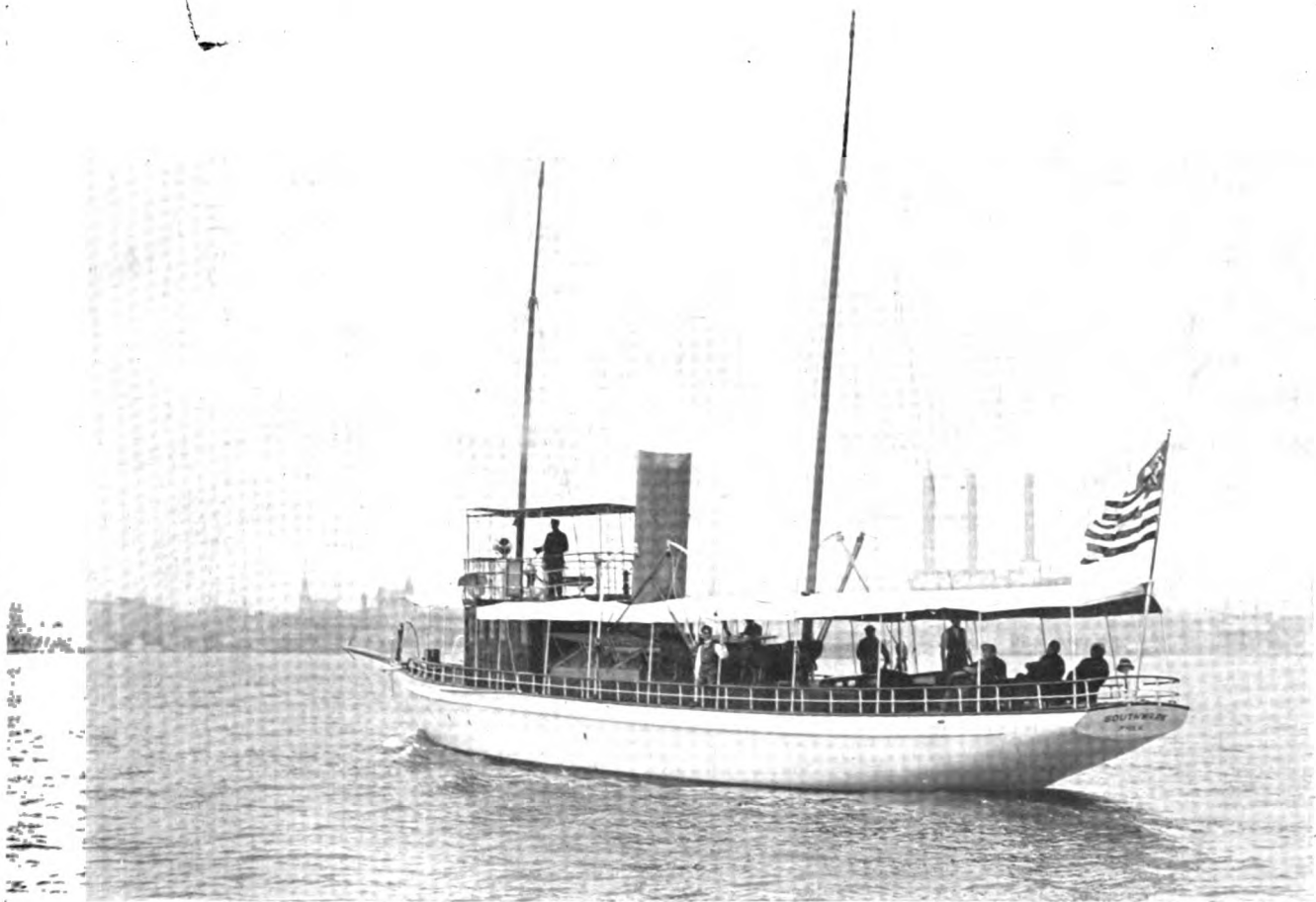
CENTRAL LIBRARY

AUG - 7 1915

UNIV. OF MICH.

AUGUST, 1915

No. 8



Yacht Southwark Mr. C. P. Vauclain, Owner

Equipped with Southwark-Harris Valveless Oil Engine, Burning Heavy Oils
Built by Southwark Foundry & Machine Company, 430 Washington Avenue, Philadelphia Pa
See Description of the Yacht and Engine on Page 356

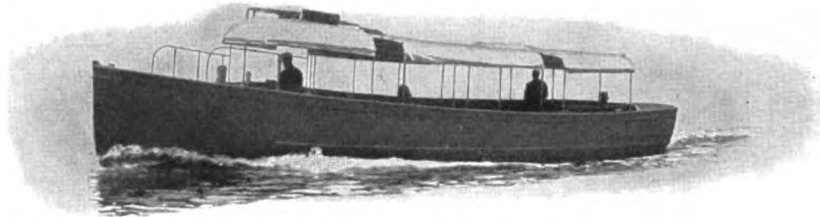
PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

Speedway

Launches and Motors

For the Service
that Excels

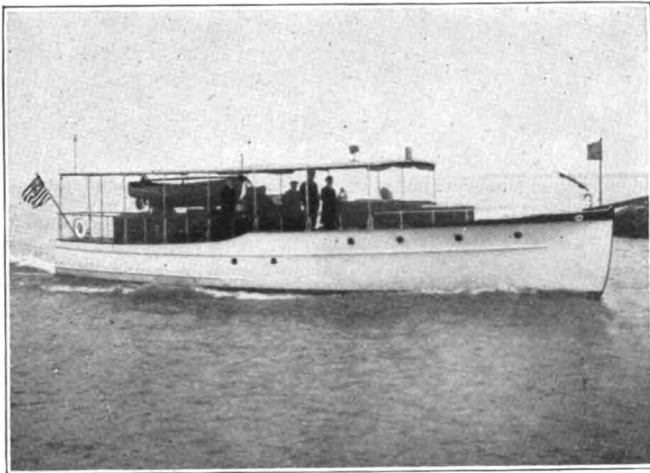


50-Ft. Despatch Launch "TaBoga" for the Panama Canal



Invariably the choice of the man who measures value by efficiency, and efficiency by reliability and economy. Perfect in design, material and construction—certain to give *the kind of service you want*. Send for our new catalog showing complete line.

GAS ENGINE & POWER CO. and CHARLES L. SEABURY CO., Cons.
Launch Dept. E. MORRIS HEIGHTS, NEW YORK CITY



55-Foot Florida cruiser, Jo-Lo. A shoal-draught cruiser which the owner states is a perfect sea-boat

Matthews cruisers have been perfected by years of study and experiment. Their construction and finish represent all that can be said for good construction and finish.

Eliminate chance of disappointment in quality or service.

Lighting plants for suburban and marine use.

Send your requirements to

THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio

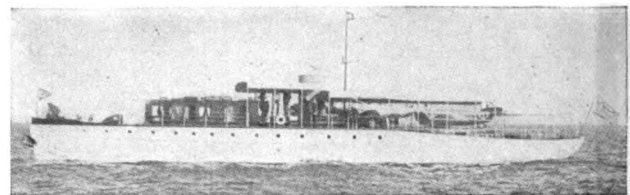
JAMES CRAIG Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

Designers and Builders of Craig Marine

Oil Engines (Diesel Type)
Gasolene Engines



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught
Two 4-Stroke, 6-Cylinder Craig "Diesels" 9 1/2 x 11

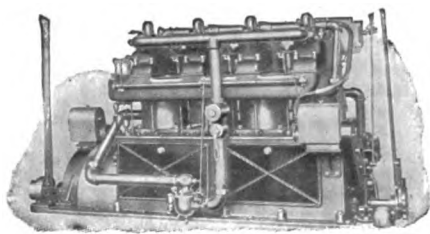
GASOLENE YACHTS AND ENGINES

Noted for Reliability

Tregurtha Water-Tube Boilers

Steam Engines

Electric Light Outfits



30-40-H.P. Special Engine Built for U. S. Govt.

MURRAY & TREGURTHA CO.

340 West First Street

South Boston, Mass.

The Rudder

Vol. XXXI

AUGUST, 1915

No. 8

SERMONS IN STONES

*And this our life
Finds books in the running brooks,
Sermons in stones, and good in everything.*



BEING responsible for the above, W. Shakespeare might almost be accused (with no apologies to Bacon) of having had a hand in naming the headlands, bays and other topographical features of this North Atlantic coast of ours. For the name "Drunkard's Ledge" is about as edifying a sermon as can be found in or out of a stone; and if Pull-and-be-damned Point' isn't a book in a running brook, what is it?

Lest my reader gets on his high horse at this first suggestion of a personal re- crimination, let me hasten to

assure him that if he follows Coast Pilot directions and leaves Drunkard Ledge spindle on the port hand when entering beautiful Fox Island Thoroughfare, Me., from the Westward, this bibulous landmark need have no fears for him. And unless he takes the Government chart's ridiculous word for it that Portsmouth Harbor, N. H., lies three miles up the Piscataqua River, Pull-and-be-damned Point holds no more terrors.

He may lie in the snug, tideless, newly dredged anchorage of Pepperell's Cove, on the Maine side of the entrance off Kittery Point, and gain no further acquaintance with the ebb that submerges the can buoy off the profane promontory. That is, unless he would quaff the New Hampshire brew that made violations of the Maine prohibitory law famous.

There is a whole lot of meaning in most coast nomenclature, but the Maine coast, with its countless serrations, is most replete with storied landmarks; Massachusetts a good second. If anything may be judged in this way Champlain, Pring, Gosnold and Smith lacked much of the imagination of the rugged fisher-folk who settled on these shores after the explorers had blazed the way, and to whom we are indebted for many of the illuminating coastwise cognomens.

At the entrance to York Harbor, Me., is Sweet Point, which spells six-knot current more concisely if not more elegantly than its neighbor before mentioned. There is

a Hell Gate in the Sasanoa River between Bath and Boothbay Harbor that makes you feel like calling the man who named New York's East River mouth a piker. It's only a few boats wide anyway, and we once met the Bath boat crawling up-stream right in the middle of it when we were churning down on a boiling ebb in regular shoot-the-chute fashion.

The Devil's Back in Broad Sound, Boston Harbor, has been the undoing of more luckless craft than could be anchored in President Roads. One of my great-grandfather's fleet, the Nancy L. Wasson, laid her bones on it thirty-odd years ago; while another, the Abby Wasson, ended her days on neighboring Nantasket Beach in the mid-eighties, perhaps within the diabolic influence.

Other portions of His Satanic Majesty's anatomy are strewn along the coast as promiscuously as though the Old Boy had been run over by the Car of Juggernaut. Doubtless all have good reasons for their sinister names, though Satan Rock in Salem Bay didn't harm Nathaniel Hawthorne when he ventured to land and picnic upon it, if his Note Books are to be believed. In Eggemoggin Reach, which separates Deer Isle from the—as it were—Maine-land, reposes the Devil's Head, while the unwary stranger further along the coast is likely to get a disastrous nudge from the Devil's Elbow. Nantucket Sound is responsible for the Devil's Bridge—imagine it the bridge of his nose if you care to carry out the organic suggestion.

Some of the similarly disreputable names in their neighborhood must be perennial thorns in the sides of the staid and proper denizens of cold roast Boston. Right under their aristocratic noses down the harbor are Thieves' Ledge, Hangman's Island and Toddy Rocks; there is a Cutthroat Rock in Salem Harbor, and a Splitting Knife at Plymouth.

Even the inoffensive appellation of the islet Nix's Mate is of gruesome memory. One legend says that Captain Nix was murdered on board his ship at sea and that his mate was hung in chains for the crime after her arrival in Boston. He protested his innocence, however, and prophesied that in proof of it the island would sink. Another tradition says that Nix was a pirate who sailed into Boston in 1680 with his booty; that he and his mate buried it on the island one night, and that then Nix, being an early exponent of the theory that dead men tell no tales, killed his accomplice. Believe which-

ever you choose; the fact remains that the island, which in 1700 was quite sizable, is now hardly of bigger area than the base of the octagonal wooden pyramid that tops it; though it must be confessed that it has washed away rather than sunk. Nix's Mate and Bird Island were both used afterwards for many years as places of execution for pirates, and strangely enough are the only two in the harbor which have dwindled to almost nothing.

Money Point and Yo-ho Cove serve as well to recall the days of Captain Kidd, but they are tucked away down on the Maine shore. Gin Bottle Rock, which by rights should be included in the Hub's villainous array, is in Lubec Narrows, between Maine and Canadian territory.

While the influence of lovely woman frequently makes itself felt in coast appellation, the names, unfortunately, are not altogether complimentary. The bare granite Cuckolds, with their little light and fog signal, stand a reproach to the sex at the entrance to pretty Boothbay Harbor; in Casco Bay The Hussey scolds unceasingly in rough weather, while the title Old Woman Ledge at Prospect Harbor, grates on the sensibilities of every true Sir Knight who visits those picturesque waters.

Far be it from me, though, to suggest that Pope's Folly Ledge in Lubec Narrows owes its name to the distracting allurements of the fair ones. It is probably due to some such mishap as befell Captain Condon of Brooksville, Me., some sixty years ago, when he drove his apple-bowed old coaster full tilt into the rocky coast of Cape Ann between Thatcher's Island and Eastern point, taking the slight indentation of Brace's Cove for Gloucester Harbor. The place has since been known as Condon's Mistake.

Bailey's Mistake Harbor on the mainland abreast Grand Manan, Morrissey's Mistake on wooded, 556-foot-high Isle au Haut, and the ruddy knob of Norman's Woe West of Gloucester, tell as eloquently of bad landfalls, while death and disaster are plainly expressed in such names as borne by the beacons off Cape Ann, exclusive Misery Island near Beverly, Jackknife Ledge near Seguin, Deadman's Ledge in Hurricane Sound, Me., Fatal Rock at New Bedford, Dread Ledge off Swampscott, and Dead Man's Shoal in Delaware Bay.

Stories of luckless christenings are also told in many obstructions to navigation which bear the names of the craft first striking them. One of the best known of these is Cultivator Shoal, one of the shallowest spots on Georges Bank. It lies 88 miles S. E. by E. $\frac{3}{4}$ E. from Highland Light and has but 18 feet of water over it. Naturally, when the 1580-ton New York ship Cultivator struck on it drawing over 22 feet, something happened. The shoal didn't get its baptism of misfortune till some time about the middle of the last century, but that is not surprising, for it was not till 1821 that the crew of a Gloucester schooner found that they could anchor on the Banks and not be run under by the strong tide.

Forty miles Southeast of Nantucket lies Phelps Bank, but the part of it known as Asia Rip had a much delayed christening. In February, 1898, the British ship Asia, bound from Manila to Boston, went to her doom on it in a terrific gale, Captain Dakin, his wife, daughter and the entire crew of 23 being lost.

John Currier Rock in the Merrimac River got its name when the clipper ship John Currier, built at Newburyport, hit it on her first trip, nearly fifty years ago. The inauspicious omen was a false alarm, however, for the Currier had a long and useful life and only recently

ended her career in Alaskan waters while engaged in the salmon trade. In the same way we have Ship John Shoal in Delaware Bay, dating back to Colonial days; Sea Flower Reef in Fisher's Island Sound, Brooklyn Rock and Henrietta Rock in Buzzard's Bay, Senator Shoal and Gazelle Rock in Nantucket Sound, Mary Ann Rock at Plymouth, Rising States Rock in Salem Harbor, Dictator Ledge in Fisherman's Island Passage off Boothbay and Nautilus Rock at Castine, Me.

Such names as Ship Bottom and Brigantine Shoals off the Jersey coast, Centerboard Shoal in Buzzard's Bay, Bulwark Shoal off Portland and Rudder Rock in Eggemoggin Reach also savor grimly of grinding wreckage, preferably pulverized beyond recognition. We learn that the ships of the United States Government have not confined their propensity for striking "uncharted rocks" to the present day, for there is a Man-o'-War Rock in the East River, Schoolship Rock in Nantucket Sound, Seventy-Four Bar in Boston Harbor, and Gunboat Shoal off Portsmouth.

What, unless it bore a sign "Keep off the Kelp," could be a more salutary warning than a ledge charted as Roaring Bull? There are at least a quartet of these North of Cape Ann; one near Mt. Desert Rock, another in Two-Bush Channel near Rockland, a third in Halibut Hole between Bar Harbor and Winter Harbor, and a fourth in Plum Island Sound, Ipswich Bay. No sane mariner, either, would venture a nip from Colby's Pup in York Narrows, East of Deer Isle; and there is a very natural tendency to fight shy of Hue and Cry Ledge off Portland. Thread-of-Life Passage, in the Damariscotta River, suggests that he who would enter have a steady eye and hand.

No thrills, however, are called up by Jordan's Delight Ledge in Narraguagus Bay, Me. The name hints only of a fat and genial idler in the stern of his "peapod," hooking up plump cod from the cool green depths in its lee of a summer's day; while Lazygut Ledge in Deer Isle Thoroughfare invokes a picture no more spirited, and Christmas Cove, Sabbath-Day Cove, Meeting-House Cove and Pulpit Harbor are more down-east adjuncts which belong in the same category.

Even matter-of-fact names like that of Avery's Ledge off Cape Ann have their own fateful significance. This one dates also from Colonial times. Parson Avery sailed from Newbury, Mass., late in the fall in the sloop Watch and Wait bound for Marblehead, where he had taken a pastorate. On board were his wife, eight children, a "hand," and all his household goods. A gale came on, and the sloop piled up on the ledge, being quickly smashed to kindling wood. Only the parson and his man gained the ledge amid the frightful welter of breakers, the family being lost. The heart-broken but still devout man of God then sang a hymn in the teeth of the tempest and prayed to be taken too. A great-grandfather of a comber soon answered his supplication, while the remaining man was saved next day by a passing vessel, more dead than alive. This sad episode is immortalized in the poet Whittier's "Swan Song of Parson Avery," while today a bell buoy marking the reef clangs a perpetual requiem for one of the most pathetic tragedies in coast annals.

The name of Boon Island, a barren rock directly in the coastwise commerce lane off Cape Neddick, Me., connotes another grim tale. On this sinister pinnacle rising from the ocean's depths, marked by the tallest light tower on the New England coast and well known to all

yachtsmen, the British ship Rockingham Galley stranded during a terrific December gale in 1710. She was bound from London to Boston, and for weeks had been running on dead reckoning during thick weather. By some miracle her half-frozen crew gained the island, only to endure torments which eclipsed their former trials. In the 24 days which elapsed before the wretched survivors were taken off by a vessel from Portsmouth they were actually driven to alleviate the tortures of starvation by cannibalism; perhaps the only instance in which this horrible alternative has been resorted to within gunshot of civilization. But two centuries ago the civilization on the mainland inshore was a meager one; puny signal fires ten miles at sea were unnoticed, and but for the pluck of a hardy pair who made shore on a flimsy raft the story would have had a worse ending. Incidentally, if this belated deliverance constituted the "boon," some of us might well take a lesson from those God-fearing salts.

Burnt Coat and Wooden Ball sound like names of saloons in a Colorado mining town, but they are only islands on the Maine coast. To tell the truth, however, an Old Sheriff stands guard at the mouth of Burnt Coat Harbor in most approved Western fashion. Other ancient sentinels are to be found along shore in the shape of an Old Bear in Delaware Bay, Old Silas in Long Island Sound, Old Prince off Cape Porpoise, Me., Old Proprietor in desolate Richmond Island Harbor, Me., Old Anthony off twin-lighted Cape Elizabeth, Old Man in the swiftly running St. George River, and an Old Duke at rock-ribbed Vinal Haven.

To furnish provender for these faithful guardians might be suggested the Sugar Loaves, twin isles in the Fox Island Thoroughfare, mossy and variegated *a la* Gay Head; barren little Junk o' Pork Island and Pound of Tea Ledge in Casco Bay, and Big and Little Biscuits in Gilkey's Harbor, Islesboro. Continuing the sprightly jest, let us purchase them along Merchant's Row, a group of islands between their big sisters Isle au Haut and Deer Isle. As a rule, though, the "merchants" are not hospitable. Our yacht was once "knocked down" thereabouts in a Nor'wester that later drove us into Deer Isle Thoroughfare for shelter, and glad to be there too.

Real or fancied resemblances play an important part in the naming of coast distinctions, though many of

them are pretty far-fetched. It might or might not take acute perception to see the likenesses in Hedge Fence, Stone Horse, Handkerchief, Squash Meadow, Shovelful, Half Moon, and Rose and Crown Shoals in Nantucket waters, Pancake Ground in Gloucester Harbor, Joe-Flogger Shoal in Delaware Bay, Stepping Stones in Long Island Sound and a multitude of others.

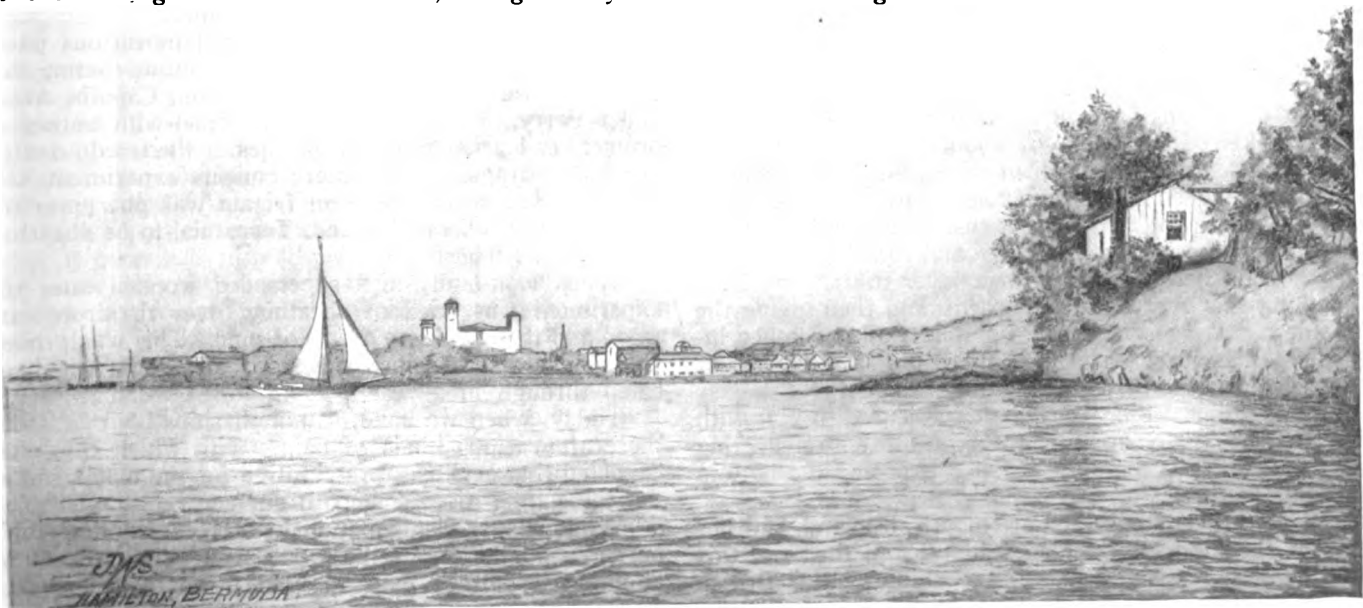
Various marks that seem absurdly named have been christened more for the sake of convenience than for actual similarity, as when an obstruction is flanked by smaller outlying ledges. Hence come Ship and Barges and the Cow and Calf in Bluehill Bay, Bishop and Clerks off Hyannis, Whale's Back and Whale's Tail at Portsmouth, and Sow and Pigs and Hen and Chickens Reefs in Vineyard Sound, the two latter meriting the distinction of wall-sided lightships.

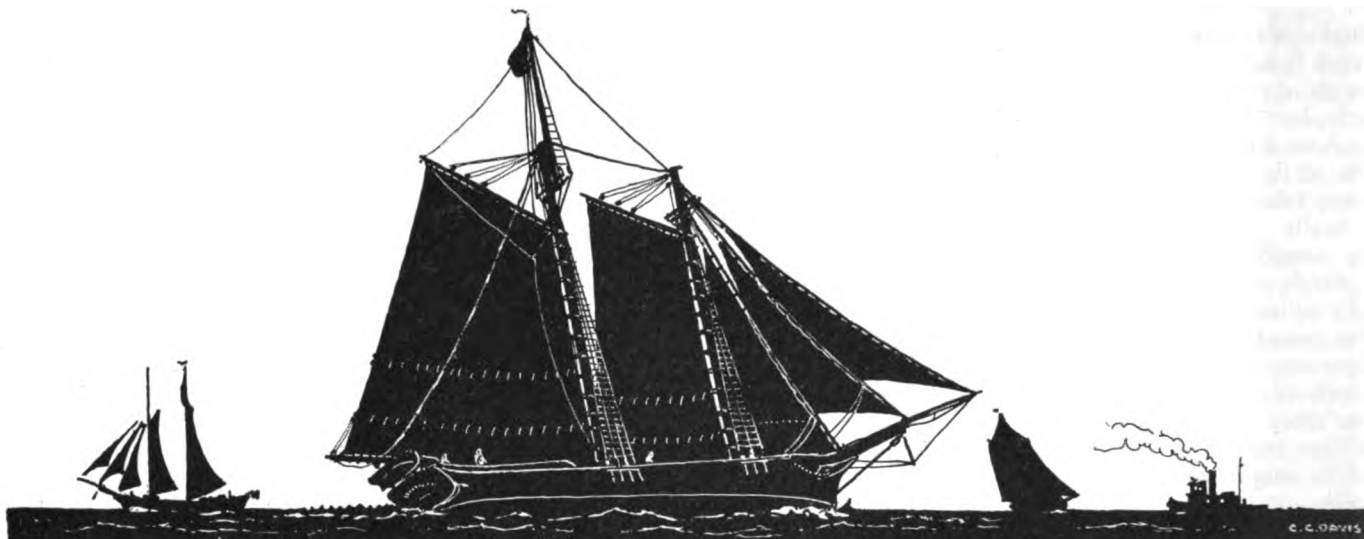
The Fox's Ears, a couple of ledges marked by a spindle in the Fox Island Thoroughfare near North Haven, were named more for consistency than anything else. Martin Pring named the islands for the abundance of silver gray foxes he found on them when he hit this coast in 1603. His name stuck in this case better than when he christened what is now Plymouth, Mass., St. John's Harbor. The French knew it as Port of Cape St. Louis after that, and the Dutch as Crane Bay. John Smith gave it its present name.

But this article touches only fleetingly on the orismology of the Northern coast. Undeniably there are landmarks galore just as worthy of commemoration as Norman's Woe, which Longfellow gave endless fame by writing "The Wreck of the Hesperus." One of my scrap-books contains an alleged poem, written by heaven knows whom, which begins

Oh let us all deeply deplore
The loss of the barque Isadore

and pictures in an appalling number of verses of fearful and wonderful meter the brief career of that unhappy craft. The Isadore sailed from Kennebunkport, Me., on her maiden trip in 1844, bound to New York in ballast. Next day she was lost with all her crew of 18 in a ripper of a Southeasterly gale on Bald Head Cliff, only ten miles to the Westward. A subject bigger than the experience of the Hesperus, truly; yet how many of us ever heard of it? And after reading it one somehow wishes there had been more Longfellows.





PROTECTING THE BOAT'S BOTTOM

C. G. Davis

YACHTSMEN of today have trouble enough keeping the bottom paint on their yachts and motor boats bright and clean even with the specially prepared paints put up expressly for that purpose.

But they should not complain, when one considers the advantages they have in this age over what was in use years ago. Think of sheathing a ship's bottom with lead, with leather or with India rubber to keep off the destructive teredo!

As far back as 37-41 A. D. Caligula's galleys on Lake of Nemi, as investigations carried on by divers in 1895 show, were built of larch with bronze nails; this was sheathed with sheet lead, over a lining of woolen cloth, fastened on by bronze studs.

Away back in those days shipwrights knew better than to use iron nails to hold the lead on, and yet in the time of King Edward VI, 1547 to 1553, when the sheathing of ships with lead was revived, although it was then considered a new invention, they used iron nails to hold the sheets of lead on, and galvanic action soon ate up the iron. This practice was also in use on the Spanish ships of that day. The carrack Santa Anna, the property of the Knights of St. John, of about 1,700 tons, built at Nice about 1530, was sheathed with lead.

During Queen Elizabeth's reign, 1461 to 1492, ships' bottoms were protected after a custom that had been introduced by the famous Hawkins, and consisted of covering the hull below water with a layer of tar and hair, sheathing this over with elm boards, and then giving the outside a coating composed of sulphur, oil and other ingredients which were supposed to keep off the growth of barnacles and the more destructive teredo.

Ships sailing on long voyages experienced trouble with this method due to the boards ripping off not only acting as a drag to stop the ship but also exposing the bottom planking to the action of marine growth.

In 1670 the Phoenix at Portsmouth, England, had her bottom sheathed with milled lead. From then on, this method was employed on all the ships of the British

Navy. Some critics rightly pointed out the corrosive action that would eat up the rudder irons and other exposed metal parts of the ship, but it was not until 1682 that the Navy Board discarded this sheathing. Yet away back in 47 A. D. they knew better than to use iron in conjunction with lead.

It was nearly a hundred years later, in 1761, that the experiment was tried on the 43-gun frigate Alarm of the British Navy of coating the ship's bottom with thin sheets of copper. This was found to be a success and has survived to the present day on wooden vessels.

It not only protected the planking and stayed clean of marine growth for a longer period of time, but it made a far smoother surface and increased the ship's speed as well.

By 1780 all the ships of the British Navy were stripped of their lead sheathing and covered with the copper, laid on over sheets of stout paper.

Queer experiments have been tried in various parts of the world to obtain an enduring bottom coating for ships. In 1825 the whale ship Kingston, Captain Alexander Perry, of Nantucket, was sheathed with leather to protect her bottom from the ravages of the teredo during her long voyages; a still more curious experiment was tried in 1829, when a 47-gun frigate was put upon the stocks at Van Dieman's Land, Tasmania, to be sheathed with India rubber.

When iron-built ships superseded wooden ones the experiment was tried of sheathing over the iron with wood and then applying a skin of zinc. This was proven unsatisfactory; a $\frac{1}{8}$ -inch sheathing of zinc having been eaten through in a year.

Today, when we have mammoth ships built of steel, there are various kinds of paints with which this steel is coated that acts as a preservative for the metal and at the same time gives a smooth surface.

While copper plates may make a large, wooden ship's bottom smoother than the wood itself, the process of studding it full of nails to hold it on makes such a

bottom a very rough one for a small yacht. The heads of the nails bedded into the copper and the edges of the sheets—they are generally 4 feet long by 14 inches in width—drag considerable water.

Small yachts, to make the copper slippery, had the metal polished occasionally to remove scum and any slight corrosion due to oxidization along the water-line producing verdigris.

Various compounds were used in England and America to make the copper slippery. Some advocated the oiling of the copper, but this was found to have just the opposite effect. Air bubbles were found to adhere to it and refuse, floating on the water, lodged against and became stuck to the copper.

Some time ago a large schooner yacht was having her copper polished at the yard of Henry Piepgras on City Island, and as the ship-carpenters were eating their noon-day meal the subject of keeping copper clean came up in the conversation. One carpenter took a piece of chalk and rubbed it over a plate, chalking the whole plate thoroughly, and was laughed at for his pains.

Great was the astonishment of the others when, about two months later, this yacht was again hauled out, to find the plate that had been chalked was as bright and clean as the day it left the yard, while the rest all had a tarnish or light scum upon it. The chalk had not preserved it, but had acted as a cleanser and removed every particle of oil, leaving the plate in a better condition to resist the deposit of scum that always precedes the growth of weeds and other marine deposits.

Many compounds have been tried by those who like to experiment on the subject of bottom paints, and there are today several first-class bottom paints on the market. Some are preservatives, some expensive racing paints to give the smoothest possible bottom to a yacht.

Captain Tom Webber tells me he once saw men on the Hudson River shore coating a boat's bottom with a mixture of beeswax, rosin and tallow. He remarked to them at the time that it was a better mixture to use in tree grafting than on a boat's bottom, and by using it for the former proved the truth of his words.

Another experimenter coated his boat's bottom with vaseline, which turned into a thick gum in the water and most effectually killed the speed of his boat. To remove it they had to scrape down to the bare wood with boat scrapers.

I have often seen the old sandbaggers coated with a mixture of flake graphite (pot-lead, as it is called)—stove-polish, in other words—mixed with stale beer and when set the surface polished with old newspapers. Others put on the finest pulverized graphite they can buy (Black Silk, as it is called) mixed with spirits and varnish, or with shellac.

Such a pot-leaded bottom is one of the best for speed since it gives a hard-polished, metallic surface to which the water does not adhere; but a boat so treated should be hauled out over-night and rubbed down again for the next day's race. Pot-lead becomes mushy it left any length of time in the water.

The same sort of bottom is obtained by coating it with some of the prepared bottom paints that contain a lot of bronze powder, which will take a fine polish and has the advantage of staying clean longer, due to the chemical in it which acts as a poison to marine growth.

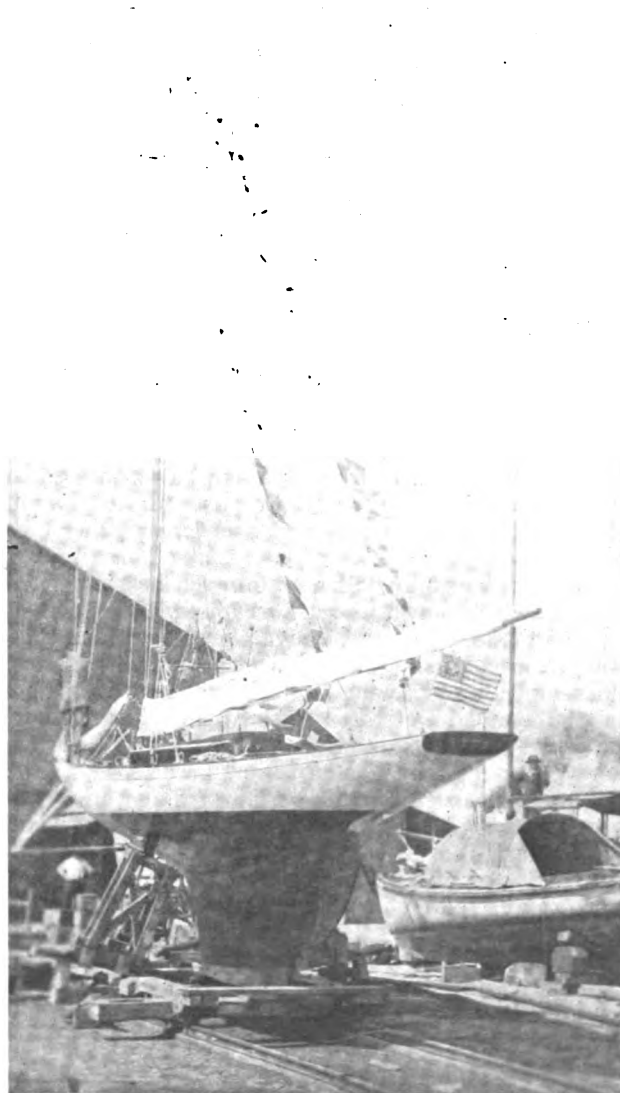
One very good antifouling paint is made by mixing 2 lb of calomel and 8 lb of white lead with boiled oil, coloring with any desired tint and thinning with turpen-

tine. Another green bottom paint is made by mixing 5 lb of emerald green, 10 lb verdigris and 4 lb of corrosive sublimate.

Never put fresh paint on a boat just before a race if you want to give your craft every possible advantage. Paint between races and polish before races—is a good motto to follow.

Dixie IV had a most wonderful racing bottom. She was coated with shellac one coat over another and well rubbed down between each application, so she was, as you might say, coated with glass. Shellac dries almost instantly, is light in weight, almost transparent and gives a smooth surface.

In preparing the Genesee for the Canada's Cup trial races, sailed off Chicago in 1899, I let her dry out in the dry-dock all morning and waited until the Josephine and the Prairie were partly painted, then set all my crew to work with very fine sandpaper, just lightly polishing the three coats of white lead paint that had been put on her some time before. This paint took a polish just like a china cup, not a brush mark being left visible, and I have yet to see a finer racing bottom on a boat than she had when we floated her out of the dry-dock that night.



Vite, a Modern Class Q Boat Hauled Out to Have the Underbody Polished Preparatory to a Race

THE CRUISE OF THE PO DO WITH A TRUTHFUL ACCOUNT OF A SEA SERPENT

J. Norman Henry

THE yacht Po Do is a 40-foot, V-bottom gasoline cruiser of comfortable and easy accommodations. A good sea-boat for her draught of but 3 feet, and of moderate speed as might be expected from her 20-h.p. engine. She was built at Bath, Maine, and was launched all equipped for cruising in mid-Summer '13.

Her interior arrangement had been a matter of several years' planning by her owner and seemed to afford a greater amount of deck room and cabin space than any other plan that could meet a *sine qua non* of two separate compartments in so small a boat, so that an engineer could be carried forward without in any way interfering with the privacy of the after cabin. However, it is not the object of this little sketch to discuss the relative merits of the Po Do's interior, but rather to tell of her performances on the high seas, and to relate the vicissitudes and adventures that befell her owner and his wife on her maiden cruise from Bath to Osterville, on the Southern side of Cape Cod.

Having shipped an engineer, started the engine, and got up our anchor, we waved good-bye to our host, the builder, and headed down the beautiful Kennebec River for the sea. While undoubtedly our shortest distance would have been to have laid the course from the mouth of the Kennebec for Provincetown at the end of Cape Cod, both our pleasure and a certain amount of caution—which we must confess to having—led us to take the pleasanter and safer plan of cruising along the coast, making harbor each night, until we reached Gloucester, and then standing out to sea for the comparatively short run of 42 miles to the tip of Cape Cod. The caution which dictated this more conservative plan was something for which later on we were to be truly grateful, and the lesson learned thereby we gladly pass on: to try out a new engine in many small flights before putting out to sea.

We had been told that a certain pin bearing had become heated on several occasions on the few trials that had been made before our arrival, but this was put down to the presence of sand in the base casting, which had not been removed, and as the engineer proceeded to dig out all that remained we started off with the feeling that all was as well as could be and that no unpropitious cloud dimmed our horizon. Before our cruise was ended, however, we learned the unwisdom of taking any chances on a new engine that was admittedly not working smoothly, and registered a vow to arrange for the future in the event of ever acquiring a new engine to contract that a representative of the engine builders should go along on the trial trip. However, I am anticipating with an almost legal dissertation my story, which, as it unfolds itself, will, I am sure, point a moral if not adorn a tale. The trip down the beautiful Kennebec to the sea seemed all too short, the twelve miles being soon reeled off, and we were out in the real ocean shaping a course for Portland. On our way down the river we saw several seals swimming about, and were much interested in their manœuvres, or should they be called flipœuvres?

Once outside we encountered a considerable roll which was interesting as a test of our as yet untried craft. We soon felt that in respect of staunchness, at least, we had nothing to fear, but our sense of security was rudely shaken soon after getting well out to sea as the engine, by numerous squeaking noises and penetrating odors, gave unmistakable evidences of carrying one or more hot bearings. Investigation showed such to be the case, and we forthwith stopped the motor, poured oil on the troubled joints, and went overboard for a little cooling off on our own account. Those who know the Maine coast will readily believe that we got the cooling the moment we struck the water, and that our standing near the heated engine after coming out soon put it in condition to go on its way again, which it then proceeded to do. By dint of careful nursing of the heated bearings we were enabled to get along slowly until finally after dark, Portland was reached, a good supper was obtained on shore, and we turned in on board at an early hour. Shortly before reaching Portland, however, one of our chief adventures, or rather, visions, befell. Just before sunset while the light was still strong and the sea like glass, there twice arose from the water a short distance from the boat, a huge coil as of a serpent which then disappeared and was seen no more. If there are no sea serpents I well know now why some believe in them, for we one and all were at a loss, and still are, to classify this weird vision of the sea.

Leaving Portland early, we made a good run with but little trouble from our baulky steed, the engine, as long as the engineer kept the base plates out and saturated the pin bearings the moment they threatened trouble, which was pretty often. We got a trifle snarled up off Thatcher's Island, just before reaching Gloucester, and for the first time the accuracy of the compass fell under suspicion, and the question of its being influenced by the clutch lever arose; a suspicion that was turned to a certainty at the finish of the trip, when a gross inaccuracy was traced to the proximity of the afore-mentioned lever.

A night at Gloucester, and a few hours in the morning for laying in supplies of food, gas and oil, and at 11 a. m. we turned our course for Provincetown, as we supposed, though as subsequent events proved we were more nearly pointing for Madrid. The sea was none too smooth at the start and as time went on it became rougher and rougher though the sky overhead was clear. We eagerly looked for the Great Pilgrim monument at Cape Cod's tip, and when 5 bells had struck, and no land of any kind was visible, we began to have some anxiety as to our whereabouts, though we felt reassured when we stopped to consider that after all we had the whole United States to the East of us. Several sharks were almost run into as they lazily swam across our bows, and a school of small whale or blackfish distracted our minds from our growing anxieties for a while at least as we had to turn a little from our course to avoid being in the midst of them. 3:30 p. m. and the course was

changed to due South, and an hour later as nothing of the monument was visible, a Southwest path was taken. Somewhere about 5 p. m. as the sun was getting low, a long slender spindle appeared on the horizon which we felt reasonably sure could be naught but the long desired beacon. As night finally fell, the monument was still so far away as to keep us slightly uncertain as to its identity, but as later the lights flashed out, we were able to make more sure of our position by diagnosing the great highland, or as it is also called, the Cape Cod light.

Nauset, and then Race Point lights soon were lit, and were all plainly visible to us, and barring a really high sea and the anxiety as to the continued good behavior of the engine, our troubles bore but lightly. Soon, however, while below, carefully conning a chart, my recently acquired mental poise was rudely upset by a statement from the engineer who was at the wheel, that the supposed Race Point light had disappeared, and that in his opinion we had simply been pursuing a faster vessel, which had drawn away from us and whose stern light we had mistaken for the light of Race Point. He suggested changing our course to bear directly toward the light we had supposed to be the highland. Fortunately an explanation was suggested by another perusal of that wonderful guide and friend—the chart, *i. e.*, that the disappearance of the light might well be due to the conformation of the land, and that beyond all doubt the good beacon was shining its friendly warning behind a sand dune. Such a theory was adopted, and the same course accordingly held, until in another half-hour or so, the re-appearance of the light, and the first appearance of land, confirmed our view as correct. Our feeling of anxiety through this rather trying time was somewhat aggravated by the sudden appearances of great ghost-like schooners, which occasionally crossed our bows or ranged near us without so much as showing a single light. As long, of course, as our lights showed it may be argued that we were in no danger, but the rules of the sea that require lights at night were surely meant for all, and not alone for the other fellow.

Through the Race Point rip we were laid fair on our beam ends, and the sturdy little craft had all she could do to keep her headway for some hours of hard pounding; then the next anxiety was to successfully avoid the three huge cans strung out in a line of a mile's length, to mark a course for the speeding of torpedo boats. This we managed, and were soon safe in Provincetown harbor by 11 p. m. in comparative smooth water, though in a Southwest blow that same harbor is no place for those who have a tendency to seasickness.

Here we lay for a couple of days stormbound, advised by the marine observer at the highland light station of the telegraphic warning of the Government against attempting to go around the cape until further notice.

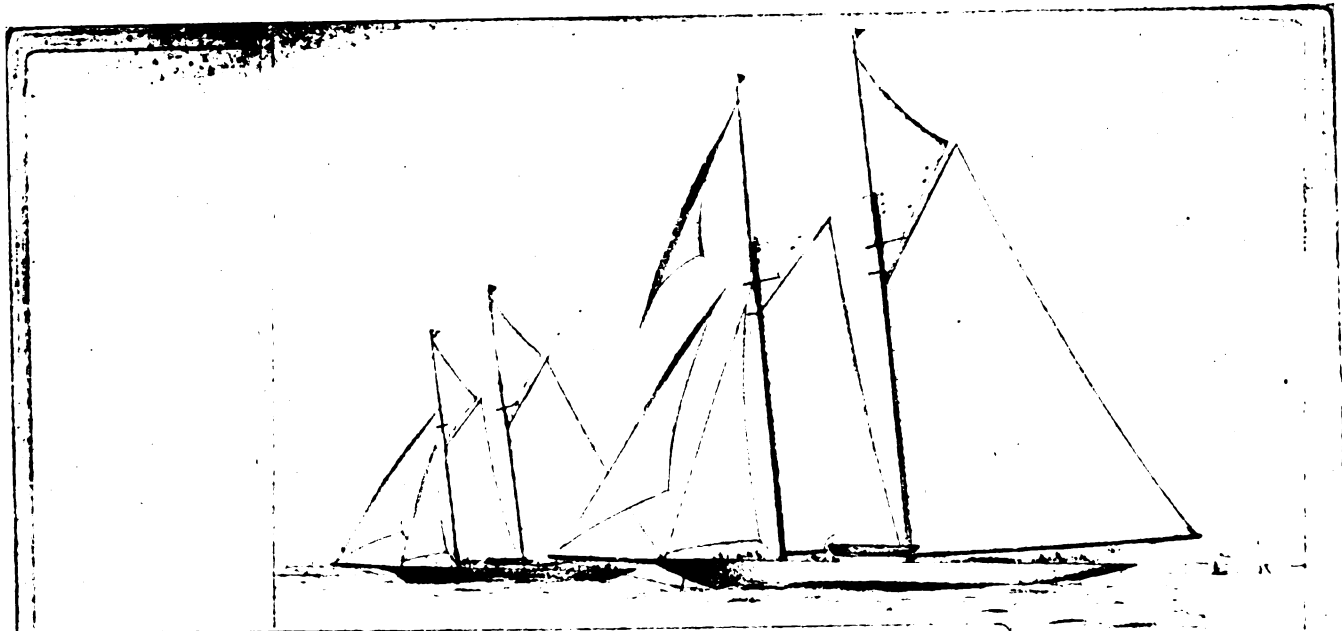
Finally on the third morning at 2 o'clock we got up anchor, slipped in to a private dock, awoke the Portuguese proprietor of a supply house, took aboard gas, and a lot of advice as to how to negotiate the southern ex-

tremity of the cape, a matter which was giving us a little concern, and were off for our final leg. The directions were as explicit as bold. To lay a course from Chatham buoy direct for Monomoy light, and to fear nothing in the way of breakers or apparent shoals, but to persist in the course and skirt the shore three wave lengths out, until the end of the point was reached, and then to turn (West) and pass so close to Monomoy as to "scare the birds off the beach"; and finally not to be "afraid of any damned thing" as it was colloquially put.

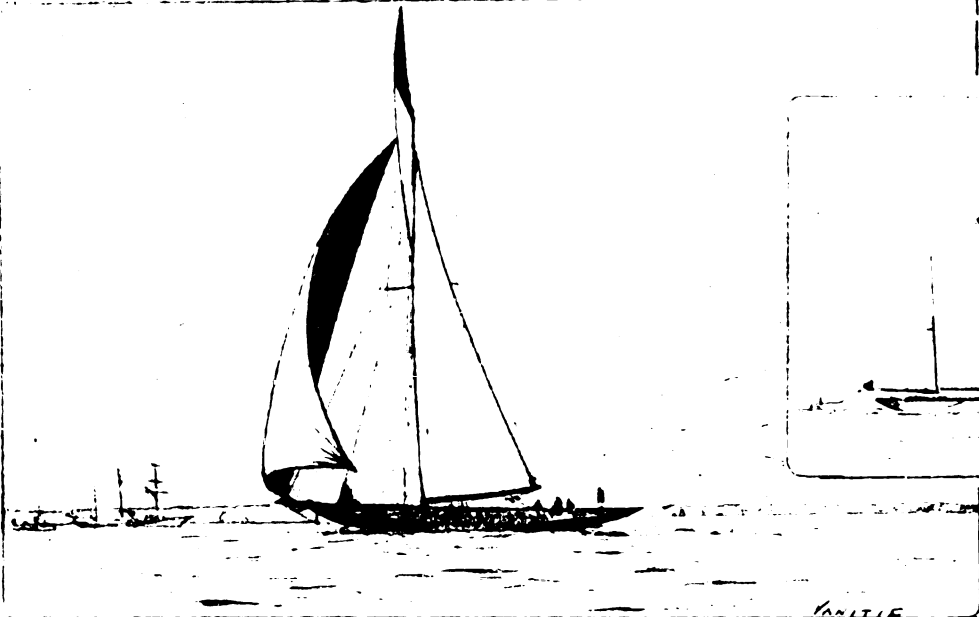
Well, we did it all except to follow the last bit of advice, and there I failed, for as we became more and more involved in the whirling currents and so-called blind waves of the Chatham bar, the Pollock rip and Shovelful shoal, we had many qualms and many fears that we would at any moment be cast up by some monster wave and wrecked on the beach. However, the Portuguese's advice was good, though bold, and we came safely around the perilous passage, and late in the afternoon with whistle tooting and flags flying the good little craft ran through a welcoming crowd of boats into the home harbor of West Bay, and dropped anchor in front of her owner's cottage. And so ended a really delightful cruise, though the pleasure was tempered by the constant worry about the engine, the trouble finally turning out to be a result of a piece of business dishonor on the part of the firm with whom my engine builders had contracted for supplying bearings of a certain composition. The said firm seeing fit in this instance to supply something different which was cheaper for them, but which might have been very costly for us, even to the price of our lives. We told the sea serpent story at Osterville, but gained no believers until this Winter, when the Dean of the boat-builders at West Bay wrote me that he began to think there was something in the story after all, and enclosed a clipping from a newspaper detailing the apparition of our sea serpent swimming the length of Hull Beach with two and one-half feet of head (whatever that may mean) showing above water! We gained from this experience of an almost purely amateur cruise a more alive sympathy for those who have to do with the sea than ever before, a lasting gratitude for lighthouses and Government charts, and a vivid mental picture of the awesome end of the cape, crowned as it is with the great Highland light, looking down from its huge sand dune over the ocean, and sending its warning rays alas too often to no purpose as the wreck-strewn coast can testify.

It was the master, Dickens, more than any other writer, who gave to inanimate objects personalities almost as real as those of his wonderfully portrayed characters, and so, a little in the spirit of the great writer, we learned to regard the friendly eye of the lighthouse, the gruff, though kindly voice of the fog-horn, the taper fingers of the spar buoys and the comfortable figures of the can buoys—matronly indeed except in the case of the nuns—as just so much of real persons who were voluntarily taking their stands on land and water to help poor devils out of some pretty tight holes.

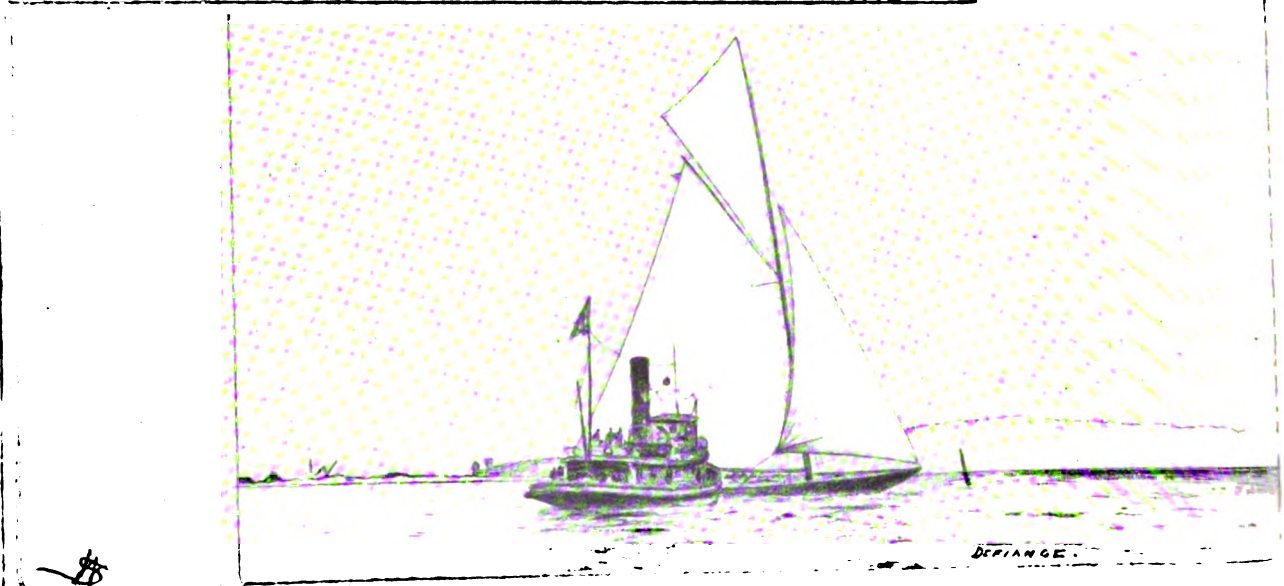
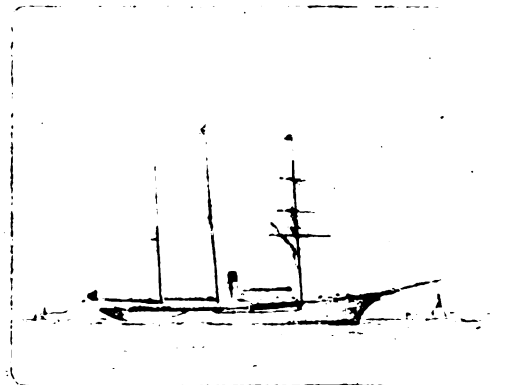




KATOURA
JUNE 1871



PAULIE



DEFIANCE

MODERN MARINE MOTORS



by T. ORCHARD LISLE, A.M.I.MAR.E

BOATS

FALLACY OF ONE-DESIGN CLASSES

THE DUTY OF THE A. P. B. A.

We suggest that it is the bounden duty of the American Power Boat Association to make the International 21-Foot Restricted Class official in the United States, and further, to send out strong recommendations to its various affiliated clubs to form sections of the class, thus promoting interstate and international racing, for the rules as they stand could hardly be bettered. If the A. P. B. A. does not soon do something along these lines it should no longer be regarded by clubs as a "recognized authority" on motor boat racing, for the future of the sport depends upon it being done.

WHEN a motor boating club is considering class racing, rules that bind boats down to exactly the same features for all should be avoided if success be desired. Up to the present time there has been no successful one-design class, yet to render racing popular it is very necessary for every club or association to have one, or more, classes, the units of which must be as nearly alike as is consistent with the development of modern hulls and motors. Therefore the rules should always allow a certain latitude, so that changes, within limits, can be made from time to time by individual owners, which means that a class can improve yearly, in speed, design and numbers, instead of becoming practically obsolete before the year is over.

One-design motor boats, while in theory are highly desirable (because of the low production costs, and because of the close racing that should be made) certainly are not successful in actual practice, as past experience has demonstrated. First of all, by the time the club officers settle upon the design and by the time that the boats are completed, they are almost obsolete—so rapid is the development of hull and engine design, and in under two seasons no man would think of building a boat to the same design, because he could then get a much faster boat for the same money. Secondly, it does not seem possible to build two boats of exactly the same speed to the same design. Thirdly, very few yachtsmen are willing to build such a boat because they usually like to incorporate their own ideas into the hull or machinery. Fourthly, there is no incentive among builders to develop the design, because the production of the class must necessarily be in the hands of one concern.

To take a case in point, the M. B. C. of America recently formed a one-design class of motor boats. Although a fast and even remarkable job has been produced for the money, only three have been built to date, and this after nearly a dozen promises were given. Today these three boats are probably the fastest displacement craft obtainable for their market price. This non-general adoption bears out our remarks on the popularity of one-designers. At the same time, we might incidentally remark that one result of this particular class has been

to make obtainable today to the ordinary pleasure motor-boatist a fast and seaworthy little general runabout at a very low price, which does not seem to be appreciated or realized.

Now we come to the racing side. As just mentioned, although a number of boats can be built from the same plans, no two will be exactly alike in speed, while to take sufficient care in constructing the boats and engines to produce a very close speed would result in a craft far too costly to meet the requirements of a low-priced racing class. To take the case in point, namely, the first three units of the M. B. C. of America's new one-design class, the trial speeds were as follows: No. 1, 23.71 m.p.h.; No. 2, 24.14 m.p.h.; No. 3, 25.50 m.p.h.

Now, agreeing that more closer results may be obtained when the craft are tuned-up, the difference is certain to be great enough to cause dissatisfaction, or lack of the necessary interest, among the owners, unless good handicapping is to be adopted. If handicapping be adopted one of the main features of a one-design class is at once lost.

What are really wanted and what all clubs should at once study are restricted classes, in which any designs of boats and engines are allowed, provided they come within certain measurements, made by the clubs; these rules, of course, being drawn up so as to provide for strength, speed, comfort and seaworthiness, and to eliminate anything pertaining to "speed shells" or freaks. Such a class is perpetual, because owners that get beaten one season will build more and better boats the following year in order to beat their fellow club members, whereas with one-design craft they would refrain from racing the following season. Builders and designers also will keenly endeavor to regularly produce better boats because of the natural rivalry and because of the fact that the construction is not in the hands of one firm.

At present no rules meet a restricted class better than do the International 21-Foot Class, in which the handicapping rules are so splendidly arranged that the most consistent boat wins the most prizes and not necessarily the fastest of the fleet, so that all have the same chances of winning prizes. We have frequently advocated this

class for adoption in the United States, and the only opposition that we have met is that "suitable engines within the 151-cubic-inch capacity restriction are not obtainable in America."

Upon raising this question with the engine manufacturers we are told that there has been no demand. Therefore it is obvious that the matter has not properly been gone into by motor-boating clubs. The engines could be built here and at less cost than they are abroad. We are confident that if a dozen clubs guaranteed not less than three boats each to start, at least six responsible engine builders would have a suitable high-speed motor on the market in three or four months. At present, no one seems willing to start on what they must know is highly desired all over the United States and it is quite time for several influential clubs to get together over the matter and make a move in the right direction.

We suggest that it is the bounden duty of the American Power Boat Association to make the International Class official in the United States, and further, to send out a strong recommendation to its various affiliated clubs to endeavor to form sections of the class for next season and thus promote interstate and international racing, for the rules as they stand could hardly be bettered. If the A. P. B. A. does not soon do something along these lines it should no longer be regarded by clubs as a "recognized authority" on motor boat racing, for the future of the sport depends upon it. When developed this class will provide the most exciting and keenest racing ever known in America.

Finally we would add that the valuable work done by the designer of the M. B. C. A.'s \$999 21-footers should not be overlooked, for, with minor changes, these boats could be included in the International Class.



AMERICA'S THIRD DIESEL YACHT

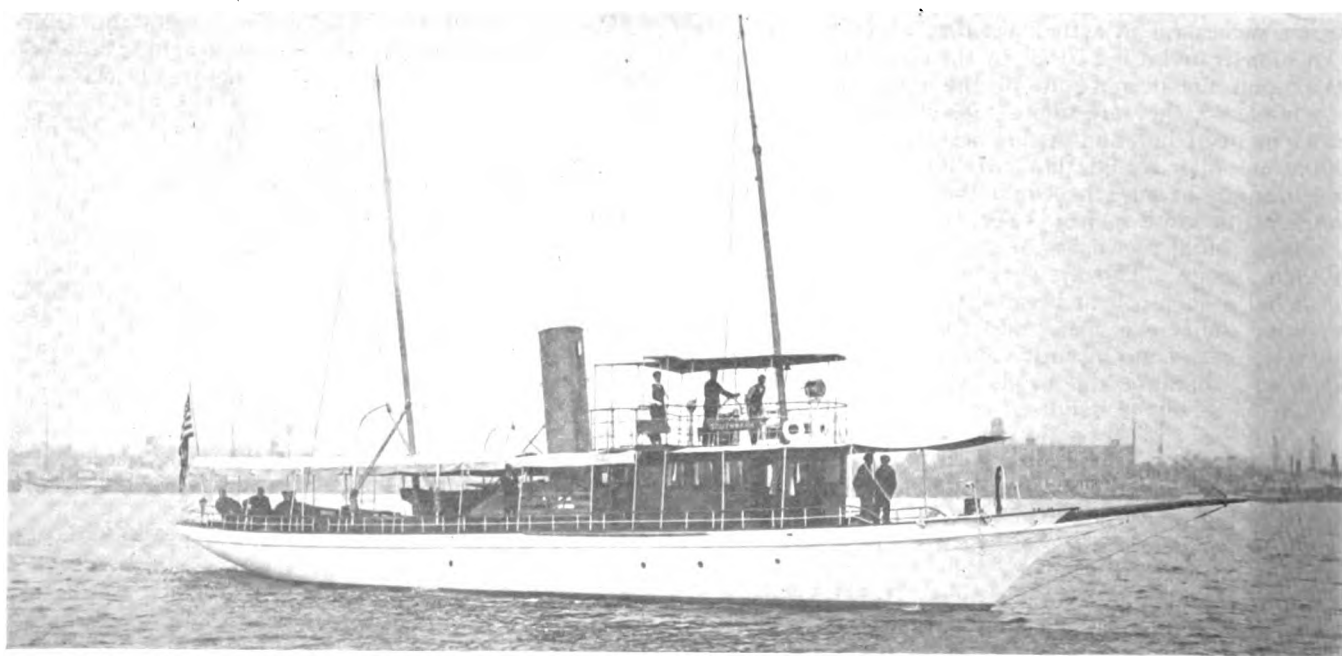
PROBABLE COMPETITOR IN THE NEW YORK-FRISCO RACE

ADDED interest in the New York-San Francisco motor-yacht race will now be taken because of the announcement that Mr. C. P. Vauclain's newly-engined 98-footer is likely to be a competitor. Southwark, as the yacht is named, is particularly noteworthy by reason of her being equipped with a Southwark-Harris valveless engine, that operates on the two-cycle Diesel principle, and because she is the third American-built Diesel-driven yacht. Should she compete, the race will form an excellent test of reliability of the new power plant. The owner is the son of the vice-president of the Baldwin Locomotive Company.

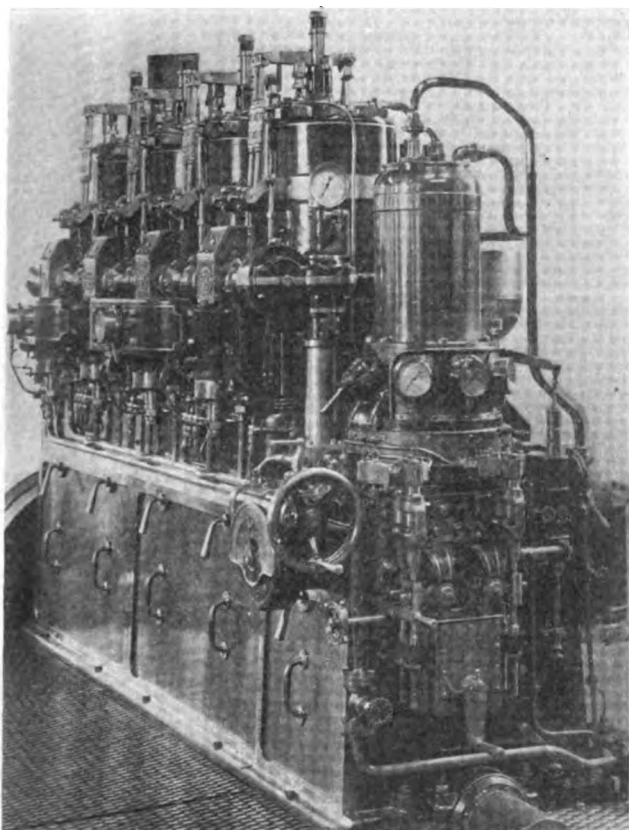
The Southwark is a clipper-stem, counter-stern type of boat, 98 feet long by 16 feet breadth and 7 feet draught. Originally she was the steam yacht Rambler, owned by Mr. W. Dixon Ellis, but some time ago was

converted to gasolene power. The latter engine, however, was recently removed and the Harris Diesel-type motor installed, thus doubling her cruising radius and lessening the danger of fire or explosion. In fact, the following figures are given us by the makers of the engine—the Southwark Foundry & Machine Company, of Philadelphia:

Speed, 12 miles per hour;
 Fuel used, 7½ gallons per hour;
 Fuel cost, 18¾ cents per hour;
 Capacity of fuel tanks, 1,400 gallons;
 Cost for one filling of fuel tanks at 2½ cents per gallon, \$35;
 Cruising radius, one filling of fuel tanks, 2,200 miles;
 Capacity of air bottles, 39 cubic feet;
 Fifty manœuvres with one filling of air bottles;



Southwark on a Trial Run



The Southwark's Engine

Propeller: diameter, 50 inches; pitch, 56 inches; 300 r.p.m.

The actual engine of this yacht was very fully described and illustrated in the September (1914) *RUDDER*; in fact, this was the first description to be published by any journal, the machine then being on the test-bed. But for the benefit of new readers, we will redescribe a few of the leading features of the design.

There are four-cylinders, 9 inches by 13 inches, developing 150-b.h.p. (240-i.h.p.) at 300 r.p.m. on a weight, including flywheel, of 24,000 lb. On the trial cruise on the Delaware recently, at which we were present, the

fuel used was Mexican heavy oil, known as Texaco navy fuel, having a gravity of between 23 and 27 degrees and costing 2½ cents per gallon.

The two-stroke-cycle with double, or stepped pistons has been adopted with the Southwark-Harris engine, but instead of the lower piston of each cylinder being used solely for scavenging, as with other motors of similar design, it is also used as an air motor for starting and manœuvring, which means that no ice-cold air is admitted to the combustion chamber, with the idea of avoiding cracking of the cylinder head by sudden changes of temperature, as the low-pressure scavenging-air tends to be more warm than cold. There is only one valve—the fuel injector—in the cylinder head, except, of course, the little automatic safety valve, for scavenging is carried out entirely by ports. No. 1 piston scavenges No. 2 cylinder; No. 2 piston, No. 1 cylinder; No. 3 piston, No. 4 cylinder, and No. 4 piston scavenges No. 3 cylinder. The order of admission of fuel, yclept firing, to the upper cylinders is 1, 3, 2, 4.

The cylinders are carried on a cast-iron frame, which is supported on both sides by steel columns direct to the bed-plate, and additionally strengthened by 7 frames on the port side, the studs that hold the cylinders passing down into the columns. By unscrewing the nuts the columns on the starboard side can be removed, allowing the crank shaft to be taken out sideways without disturbing other parts of the engine. This in itself is a very valuable feature of accessibility, and will be specially felt where the motor is installed in an engine room of limited length, and where the bulkheads prevent the crank shaft being drawn out endwise. It is not exclusive to this engine, but motors so designed are well in the minority. Furthermore, any bearing can be removed and replaced without taking out the crank shaft. The crank pit is covered by two steel doors on the starboard side, which can be removed in as many seconds. The illustration shows these doors removed.

Not only does a single hand-wheel control the fuel and air supply for manœuvring, but it also automatically converts the lower pistons from scavenging pumps into air motors for starting and reversing purposes and changes them back to their proper duties when running under load. For more detailed description of the design and operation our previous article should be read.



Paragon. Mr. Chas. J. Davol's New 120-Ft., T. B. D.-Type Motor Yacht. She is Driven by a Six-Cylinder, 9 In. by 14 In. Winton Gasolene Engine



Goeduck, a 59-Ft. by 9-Ft. Cruiser, Owned by Mr. Wm. G. Norris, of Seattle, Who Uses Her on Puget Sound. The Engine is an Eight-Cylinder 100-H.P. Sterling, Which Drives the Little Vessel at 20 M.P.H. When All-Out. At 12½ M.P.H. the Fuel Consumption is 4 Gallons of Distillate Oil

A STURDY CRUISER POWER PLANT

THE TWENTIETH CENTURY 40-50-H.P. MOTOR

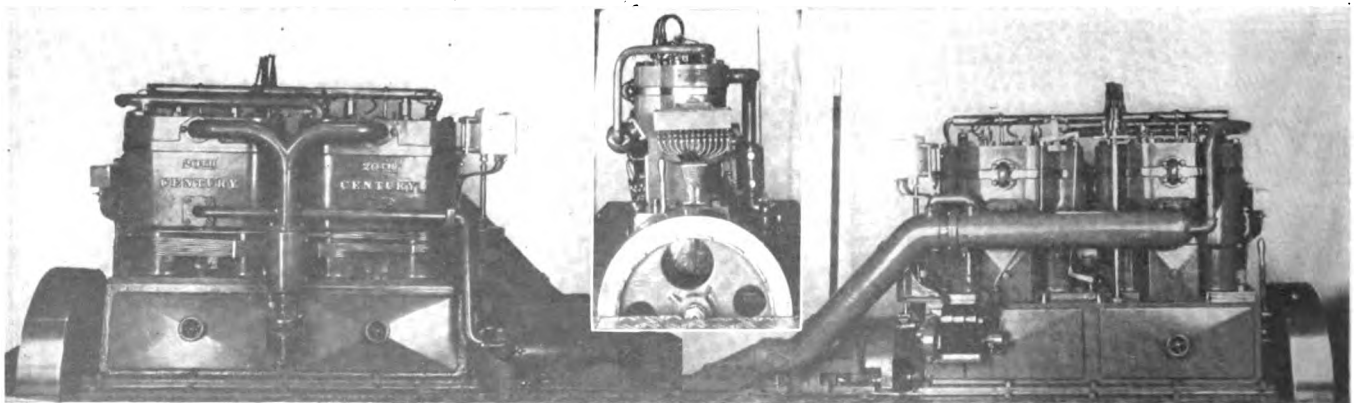
IN these days of high-speed engines and reduction gears there are still many firms wisely holding to the low-speed, heavy-duty type of power plants for ordinary cabin cruisers and yachts. Among these may be numbered the New York Yacht, Launch & Engine Company, whose 1915 model we propose to describe herewith. The equipments turned out by this Morris Heights concern are known as the 20th Century engines. It will be remembered that their large plant was recently destroyed by fire, since when the works have been rebuilt and the construction of engines and boats is now in full swing, and quite good deliveries can be given. We recently inspected the yard and were agreeably surprised to note the progress that had been made, and the large number of orders on hand, both for yachts and motors.

As will be realized from the illustrations, the four-cylinder, 6½-inch bore by 8½-inch stroke model is quite a sturdy and robust looking job, with which accessibility is by no means the least important feature, for the designers have taken every care to make all parts of the engine get-at-able.

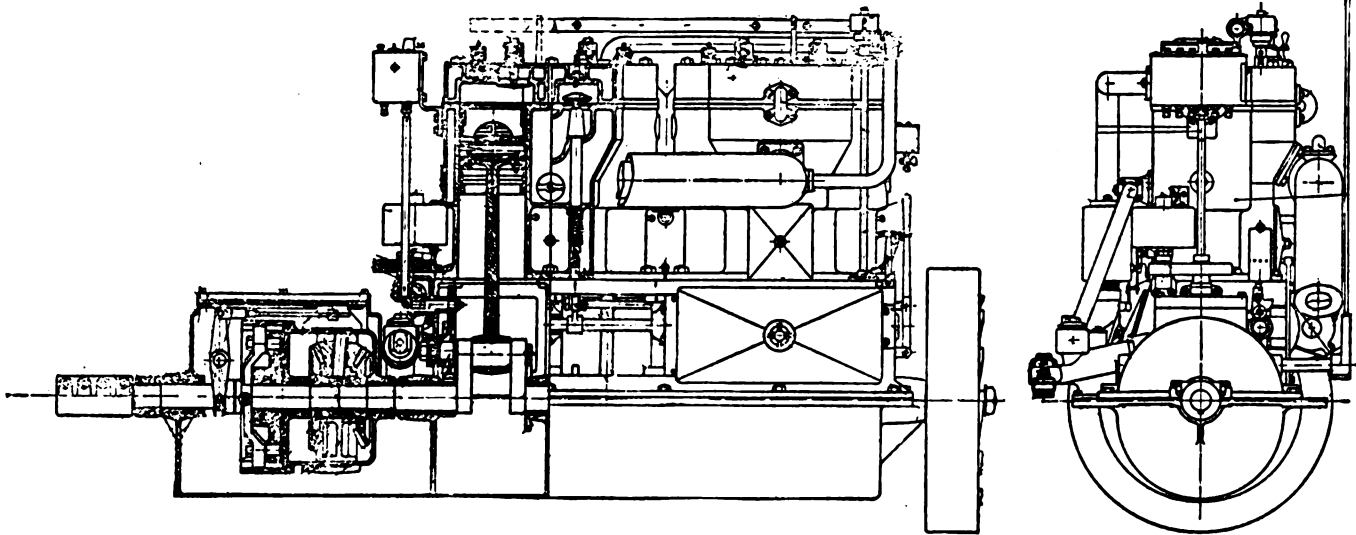
Of the L-headed type, the cylinders are cast in pairs. The general revolution speed is 400 per minute, or a little

under, at which 45-b.h.p. is developed, on a weight of 2,600 lb. The maximum power is developed at a little higher speed. The cam shaft, on the starboard side, is carried in removable bearings, so that the shaft can be removed broadside, which is a great advantage over a cam shaft that has to be withdrawn endwise, especially in instances where the engine room is bulkheaded. Fitted over the valve tappets are easily detachable covers for silencing purposes.

A feature of earlier days of marine motors that has been retained is automatic inlet valves, although the exhaust valves naturally are mechanically operated, and the makers find that this system gives every satisfaction, even after years of service. The crank case is fitted with amply large inspection doors on both sides and the base is extended to carry the reverse-gear and to facilitate alignment. At the after end of the motor is fitted a fly-ball type of governor, to which the throttle is connected. Nearby is the plunger-type circulating water pump, and a little air pump for the whistle. Lubrication of the cylinders and thrust bearing is by a multi-pump, while the remainder of the working parts are lubricated by wick feeds.



Port, Forward and Starboard Views of the Twentieth Century Engine



General Arrangements of the Twentieth Century Engine

PRODUCTIONS OF FAY & BOWEN

A SERIES OF MEDIUM HIGH-SPEED MOTORS

B EING boat builders as well as engine manufacturers, the Fay & Bowen Company, of Geneva, N. Y., have been afforded many opportunities to deeply study the installation question, with the result that they have been able to develop minor details of design which facilitate the work of fitting an engine and reverse gear into a hull, and also assist the operation of the machinery in service. Their line consists of a series of medium high-speed motors suitable for runabouts, fast cruisers, etc., as follows:

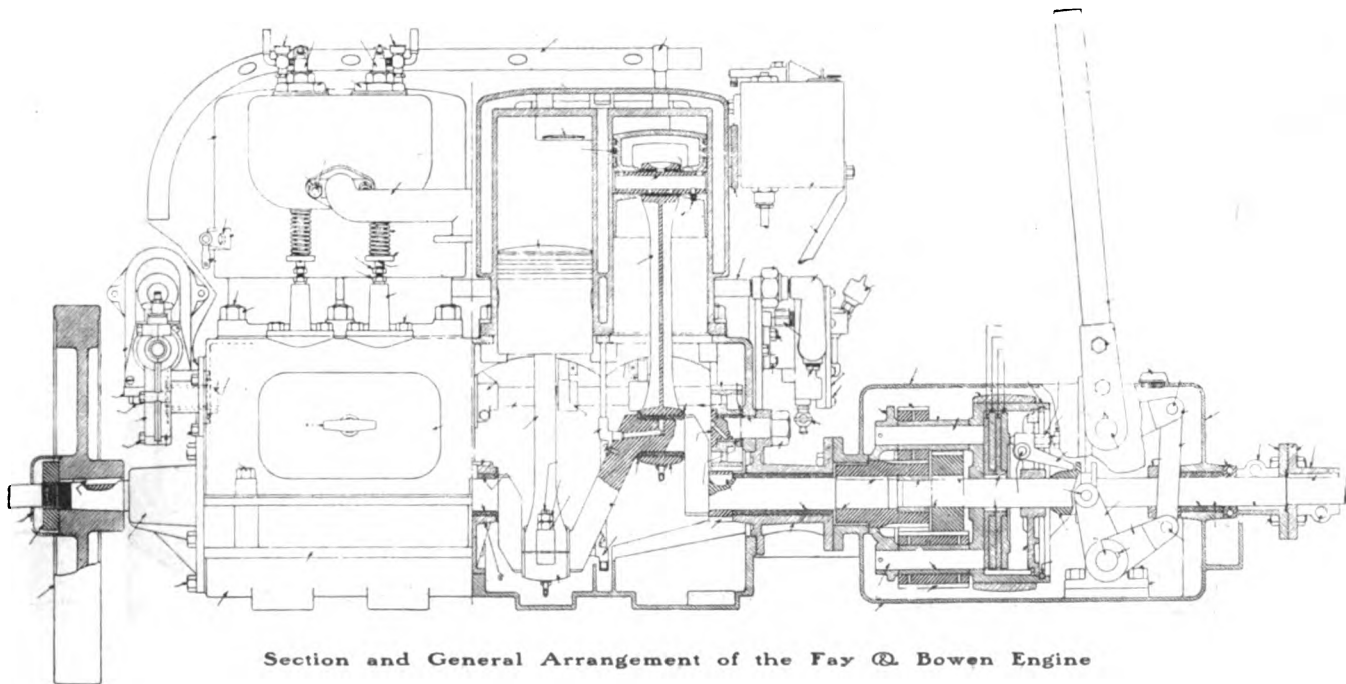
In general appearance, these engines more or less resemble the 1914 models which were fully described in THE RUDDER for September last. It is the little details in which improvements have been made, and these are not very apparent to the casual observer, but when a more observant study is made such will be realized.

Differing from most motors, the metal used for the cylinders is "semi-steel," and the latter are cast with the heads integral. The T-head design has been adopted with the valves on opposite sides, which, besides giving a well-balanced appearance, allows of room for good-sized valves, without encroaching upon the thickness of the walls of the water-jackets and valve chambers; furthermore, allows of efficient cooling of the exhaust valve without calling upon a complicated casting.

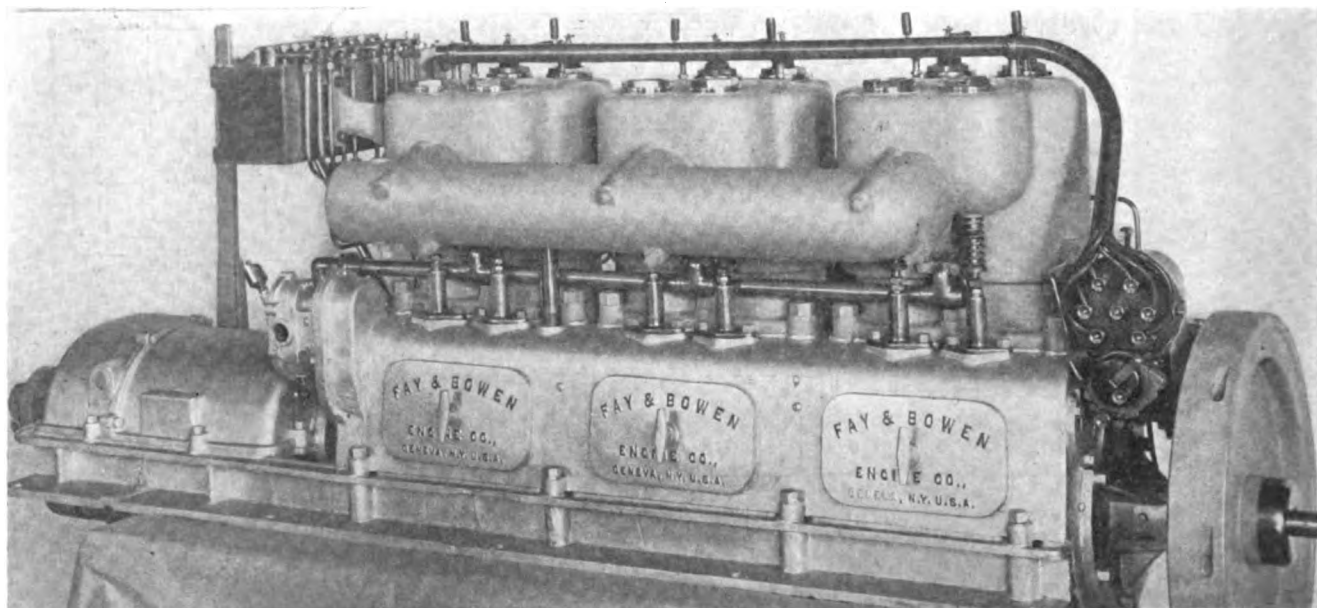
The carbureter and inlet valves are on the port side, with the exhaust manifold to the starboard, while the usual arrangement is to have the magneto at the forward

Rated Power	No. of Cyls.	Bore Ins.	Stroke Ins.	Speed B.H.P. R.P.M.	Speed B.H.P. R.P.M.	Lbs.*
10-18	4	3½	5	10 at 600	22 at 1,200	480
15-28	4	4	5¼	15 at 600	28 at 1,000	600
20-35	4	4½	5½	20 at 600	35 at 1,000	700
30-45	4	5½	6	30 at 600	45 at 1,000	800
30-50	6	4½	5½	30 at 600	50 at 1,000	925
50-75	6	5½	6	50 at 600	75 at 1,000	1,150

*Weight complete with aluminum crank cases, etc.



Section and General Arrangement of the Fay & Bowen Engine



One of the Six-Cylinder Fay & Bowen Marine Power Plants

end of the engine between the crank case and flywheel, where it is driven off the port cam shaft by means of enclosed gearing. Against the end of the after cylinder is mounted the lubricator.

Aluminum is the metal generally adopted for the crank case, and, instead of being made with separate upper and lower sections, it is built in one piece; the rigid casting thus obtained causes the downward strains to be supported by the entire crank case. It is fitted with side and end plates, the former being for inspection purposes, while the latter carries the two end main bearings. When cast-iron is used for the base, etc., the weights are a little heavier.

The crank case rests on a sub-base, also of aluminum, which gives the engine a broad and rigid foundation, and as the reverse gear is carried on it as well, it facilitates installation, for it allows of the gear being arranged in alignment before the equipment leaves the Fay & Bowen works. This arrangement saves quite a lot of time and trouble when the plant is being installed in the boat.

With regard to the valve plunger and tappet construction it may be mentioned that the push-rod is of steel with a cylindrical body, light yet stiff, the lower end

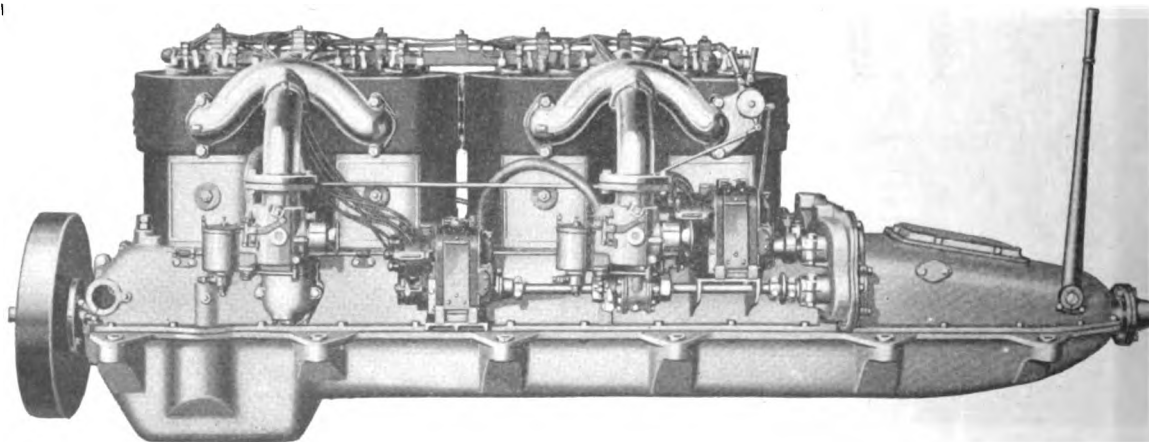
which carries the roller being rectangular in section and gives a broad flat surface to take the thrust of the cam against the roller. The entire rod operates in a hard cast bronze guide recessed at its upper end to prevent oil working up out of the crank case. Both the roller and the axle upon which it turns are of hardened and ground steel. Accurate adjustment is provided by means of a fine thread hexagon-headed and fibre-tipped screw.

GOLD CUP RACES POSTPONED

THE series of races for the Gold Challenge Cup has been postponed by the Motor Boat Club of America to August 14th, 16th, 17th and 18th.

DUTCH 21-FT. RUNABOUT

A 21-foot by 5-foot 3-inch V-bottom runabout has recently been built from Hand designs by a boat yard on the River Maas, Holland, and the engine installed is American-built, being a 10-h.p., two-cycle type Roberts, which gave the boat a speed of $9\frac{1}{2}$ knots. In an early issue we intend giving details of a Dutch 21-footer that is powered with a 30-h.p. Loew-Victor engine.



The Latest Design of Van Blerck High-Speed Marine Motor

CONVERSION OF NOTABLE SAILING YACHTS

WINDWARD, VAGRANT AND KATOURA EQUIPPED WITH AUXILIARY MOTOR POWER

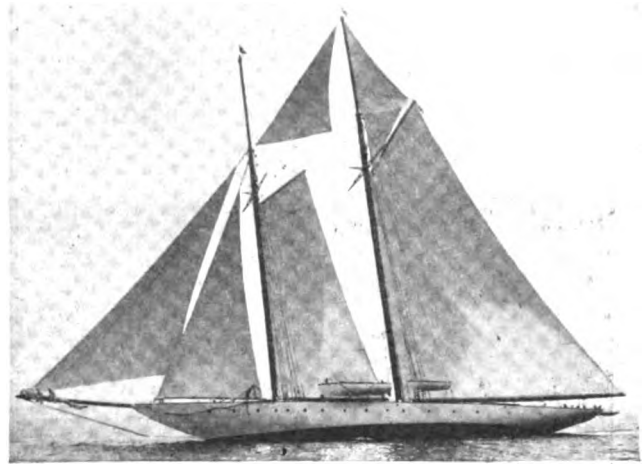
THERE is no need to discuss here the advantages of auxiliary motor power for sailing yachts, both large and small, as the yachtsman who does much sail cruising frequently gets into situations where he fully realizes how valuable it would be if there was an engine installed in his craft. Thus it is not surprising to learn of the conversion of the famous yachts Windward, Vagrant, and Katoura.

Mr. Robt. E. Tod's Katoura is a Herreshoff schooner yacht 115 feet long on the water-line, 162 feet over all, with 30 feet breadth and 18 feet draught. The method of installing the motor is of interest. The engine is installed on deck, while the propeller is driven by a silent-chain-drive reduction gear. Her engine is a 35-55-h.p. four-cylinder Sterling of 5½ inches bore by 6¾ inches stroke. It is equipped with rear-starting device, which is attached to the forward end of motor, and with a U. S. governor. Use is also made of this engine for hoisting the sails.

The Windward, owned by Mr. Henry D. Whiton, of New York, was designed by Mr. Henry J. Gielow and built by Robert Jacob, of City Island, N. Y. This beautiful schooner is 64 feet on the water-line, 93 feet over all, 19 feet 6 inches breadth and 10 feet 6 inches draught. The auxiliary plant just installed in Windward consists of a Sterling four-cylinder, 6½-inch by 9-inch machine, which develops 45-h.p. at 400 r.p.m. The engine turns a propeller of 37-inch diameter and 31-inch pitch 420 r.p.m., driving the yacht under power along the smooth waters at the rate of 7½ statute miles an hour. The designing of the alterations that have been made and

of the installation was carried out by Messrs. Cox & Stevens, of New York.

The Vagrant, Mr. Harold S. Vanderbilt, owner, is 80 feet long on the water-line, 109 feet over all, 24 feet



Katoura

10 inches breadth and 14 feet draught. She is equipped with a six-cylinder, 5½-inch by 6-inch Sterling engine, with a detachable propeller, so her sailing will not be interfered with.



EFFECT OF BEAM ON SPEED

MR. LINTON HOPE, by his paper on "The Effect of Beam on the Speed of Hydroplanes," published in the June number of THE RUDDER, has done a great deal to further the development of the hydroplane.

To be of real use, formulæ for speed must be derived from reliable trial results of a great many different boats and Mr. Hope had access to more authentic data than most designers can hope to have.

Success in hydroplane design is attained only after much expensive experimenting, and naturally, the successful designer tries to keep his information from possible competitors. Mr. Hope is to be congratulated on his sportsmanlike conduct in making such valuable information public.

Incidentally, I would point out what seems to me to be mistakes in the printing. On page 285 the formula

for speed is given as follows: $V \text{ (kts.)} = \frac{\sqrt[2.4]{P \cdot C \cdot L^7}}{W}$

whereas I think it ought to read $V \text{ (kts.)} = \frac{\sqrt[2.4]{P \cdot C \cdot L^{0.7}}}{W}$

and later "60,000 $\frac{B}{L}$ to 138950 $\frac{L}{B}$ " should read "66,000

$\frac{B}{L}$ to 138950 $\frac{B}{L}$."

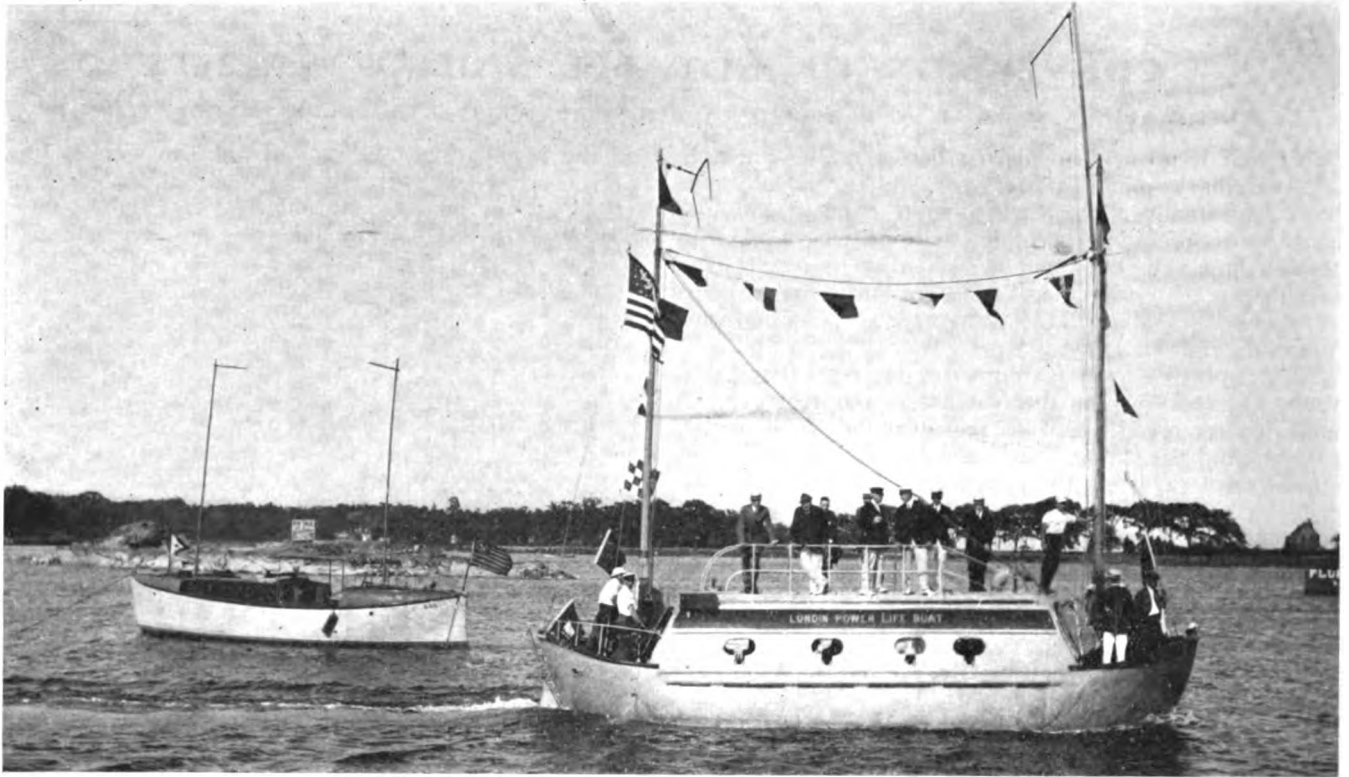
Eastern Yacht Agency,
Bath, Me.

WM. LAMBIE.

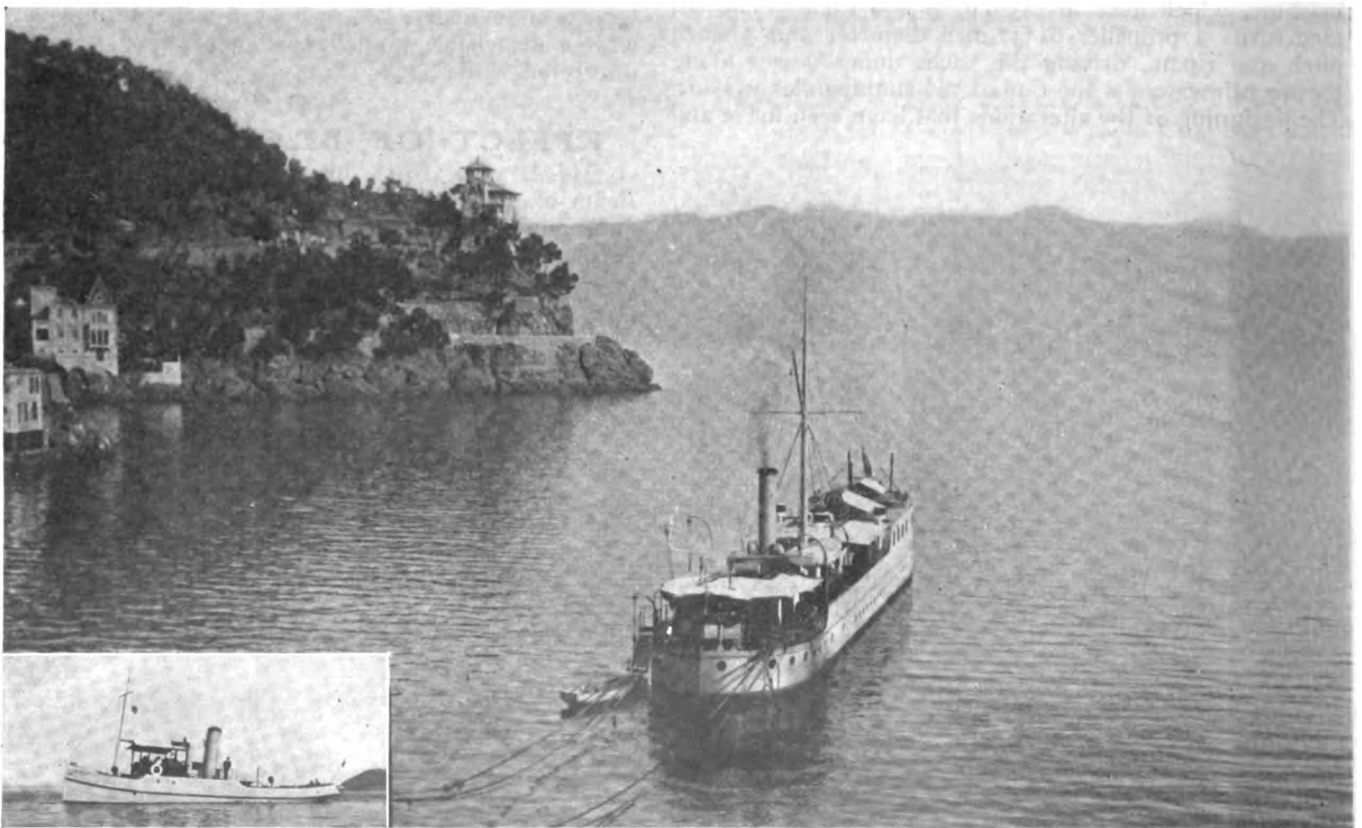


Windward

BOATS AT HOME AND ABROAD



Two Types of American Motor Lifeboats, the Holmes and the Welin



Baron Barreto's 309-Ton Houseboat Yacht Sea King. She is Shown on a Beautiful Austrian River. Inset is the 57-Ton Tug-Yacht Sea Queen, Which Acts as Tender to the Sea King

PRODUCER GAS FOR MARINE POWER

A FORM OF POWER THAT IS RAPIDLY DEVELOPING IN THE UNITED STATES BY REASON OF ITS LOW FUEL COSTS

A. L. Galusha

PART III—(Concluded)

THE towboat Dawn, which is owned by Locke-Moore & Co., Ltd., is 65 feet long, 14 feet breadth and 6 feet deep, equipped with a 100-h.p. gas producer plant. The boat is engaged in towing logs down the Calcasieu River, a distance of about 35 miles. Forty hours are required to make the trip, bringing down an average load of 2,000 logs. According to the owners, the consumption of coal is 100 lb per hour, or 4,000 pounds for the trip, costing \$16.50, or 44¼ cents per hour. If the engine is run on gasolene, instead of producer gas, it burns 20 gallons of gasolene per hour, or 800 gallons on the same trip, costing \$96 for the trip, or \$2.40 an hour. Boats of the same power engaged in the same work, equipped with a steam plant burning wood as fuel, cost about 75 cents an hour for fuel, in spite of the fact that wood is the cheapest fuel to be had in that locality. In other words, the steam tug fuel bill is 80% greater than that of the pro-



The Dawn

ducer gas tug. In addition to this, the steam tugs are obliged to have an additional man on board as fireman, costing \$2 per day.

A good number of freighters, tugs, yachts, etc., equipped with American-built engines and gas producers, have been operating on the waterways of Europe for a number of years, and have previously been dealt with in THE RUDDER.

About two years ago, the Clooney Construction & Towing Company, of Westlake, La., fitted out their towboat Dart with a 50-h.p. producer; one year later, they bought a 100-h.p. producer on the strength of the other's performance, this second plant going into their Dawn, used for towing lumber. We learn that results have resulted in another order for a 100-h.p. producer for a duplicate of the Dawn.

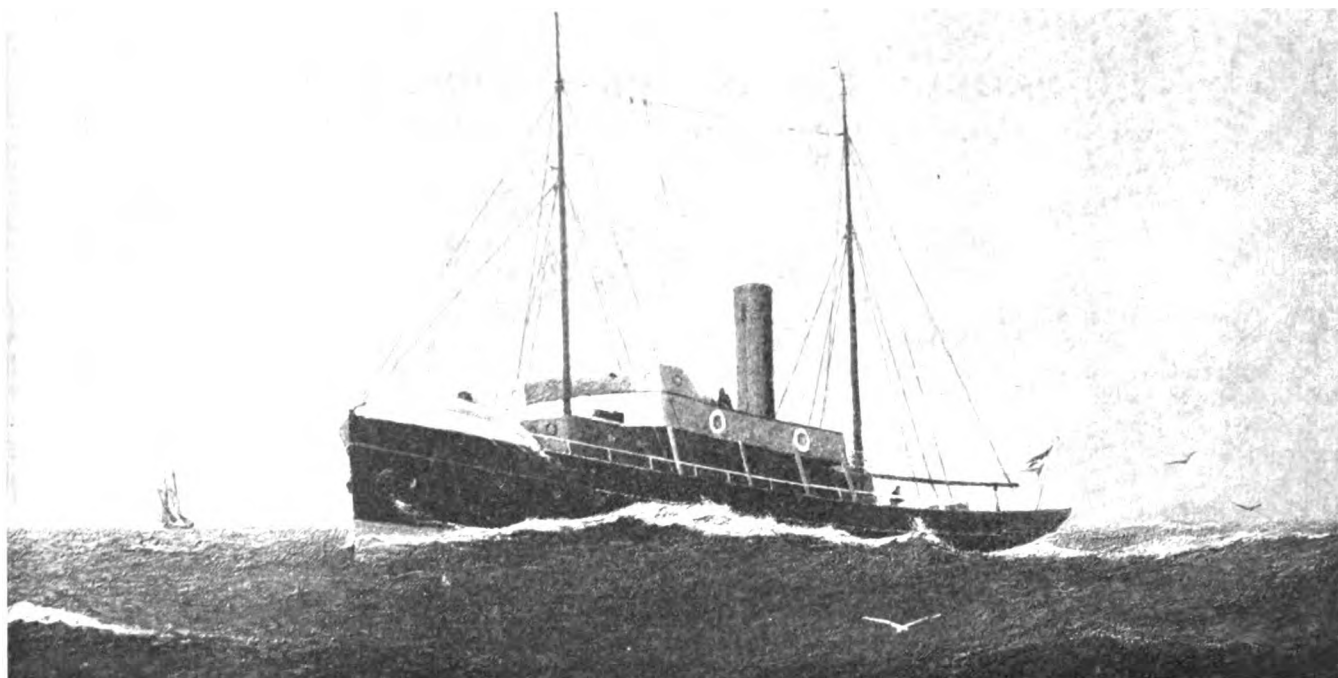
The vessel burns approximately 50 lb of coal per hour and on gasolene, approximately 15 gallons. Coal costs the owners \$8.25 per ton and gasolene 12 cents per gallon. Thus it will be seen that to run the boat one hour on producer gas costs, in round figures, 25 cents, whereas the run of one hour on gasolene means a fuel cost of \$1.80. A striking illustration of the difference in fuel cost was made by this tug in towing barges to Port Arthur, Texas, from the owner's plant at Westlake, on the Calcasieu River, which in part is an open sea tow. Before the installation of the producer gas machine in this boat, they made the tow of one barge, 130 feet by 30 feet by 9 feet, light. It took 20 hours to make the trip of 90 miles, and 300 gallons of gasolene were used, for which, at the time, they were paying 15 cents per gallon, or a total fuel cost of \$45. Immediately after the return of the Dart, they placed the producer gas plant in her (the same engine being used) and three weeks after the first tow they made the same tow exactly, taking over a duplicate of the first barge. It took them 21 hours to make the run. They burned 1,050 lb of coal, which at \$8.25 per ton, means a total fuel cost of \$4.33, a difference in favor of the coal and the gas producer over gasolene as fuel of \$40.67 in a 20-hour run.

The private yacht of F. W. Benjamin is a fair example of the application of producer gas to this type of craft. Safety, with insurance rates but half as great as is the case where gasolene is used, is very desirable. It is found that coal, coke, or charcoal can usually be procured even in out of the way places, where one can not procure gasolene and other oils.

To sum up: Marine producer gas power plants, built by experienced American marine producer people, are giving excellent results in freight boats, passenger boats, fish boats, towboats, auxiliary sailing boats, yachts, and shallow draught barges. Operation is just as satisfactory in stormy weather at Cape Hatteras or along the dangerous coasts of the Gulf of Mexico as it is on the perfectly calm waters of our inland waters and on the canals of Europe. The producer meets well the demands of 24-hour full power service and the constantly changing demands of the towboat, which is manipulating in the midst of crowded shipping. It, at present, should be carefully looked up by any one requiring power in units of from 25 or 50-h.p. up to 500-h.p.

(Conclusion)

[It would greatly add to the interest of the above if Mr. Galusha would mention what troubles (if any) have been met with in actual service, and how they have been overcome, also the cost of repairs, for all power ships naturally suffer at times from break-downs. Our pages are open to letters from readers who have had personal experience with this type of machinery.—EDITOR.]



From a Painting by the Daughter of the Owner

A SEAGOING MOTOR YACHT

D. G. Dzn

[The following contribution is from the pen of a well-known Dutch yachtsman and personal friend of the Oldman. The author, who covers his identity by the pseudonym of D. G. Dzn, deals with a boat modeled on seagoing-tug lines, with which he has had considerable experience, both in yachting and mercantile work. Such a craft can remain at sea under conditions that the ordinary yacht could not stand.—EDITOR.]

MANY a so-called seagoing boat is not fit to go to sea, but my design means a ship able to stay outside in practically any weather. What is wanted to fulfill this condition? A reasonable proportion between length, breadth, draught and freeboard, a good shape and a deck that can be made absolutely watertight. The accommodation must be so that the crew can live on board in bad as well as in fine weather. It is therefore necessary to have the machinery not more forward than half the ship's length. No engineer can stand a watch in an engine room in the fore part of the ship, and designers of small ships, who put the engine in the forecabin, had better go for a trip as engineers and they will be cured from that idea.

My next boat will have the following dimensions: Length 82 feet, breadth 17 feet 1 inch, draught 7 feet 3 inches and lowest freeboard about 2 feet 10 inches; displacement about 90 tons. A two-cylinder, heavy-oil motor of 140-h.p. at 225 r.p.m. will give this boat a speed of about 10½ knots.

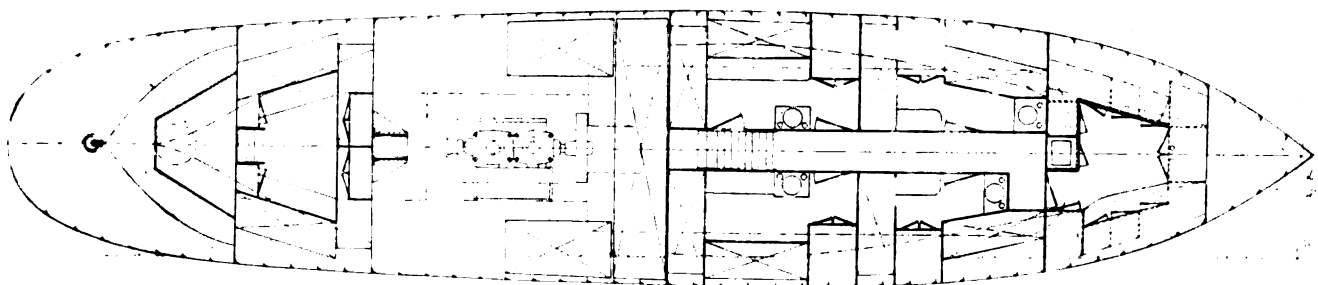
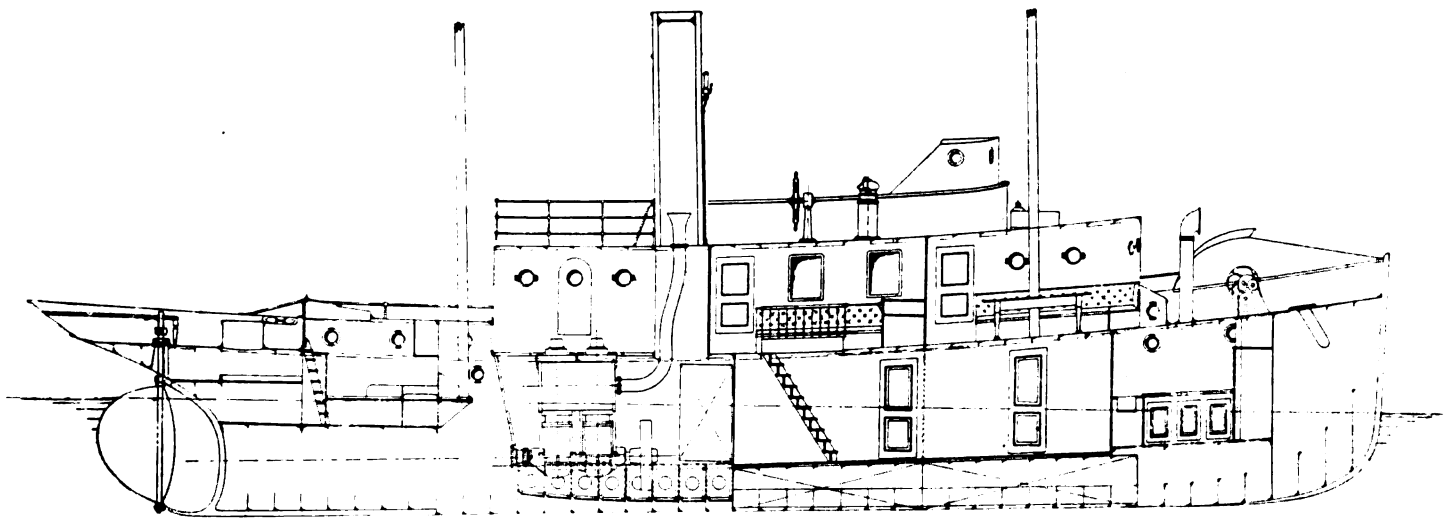
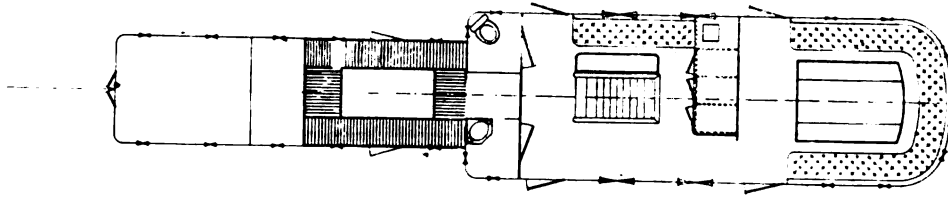
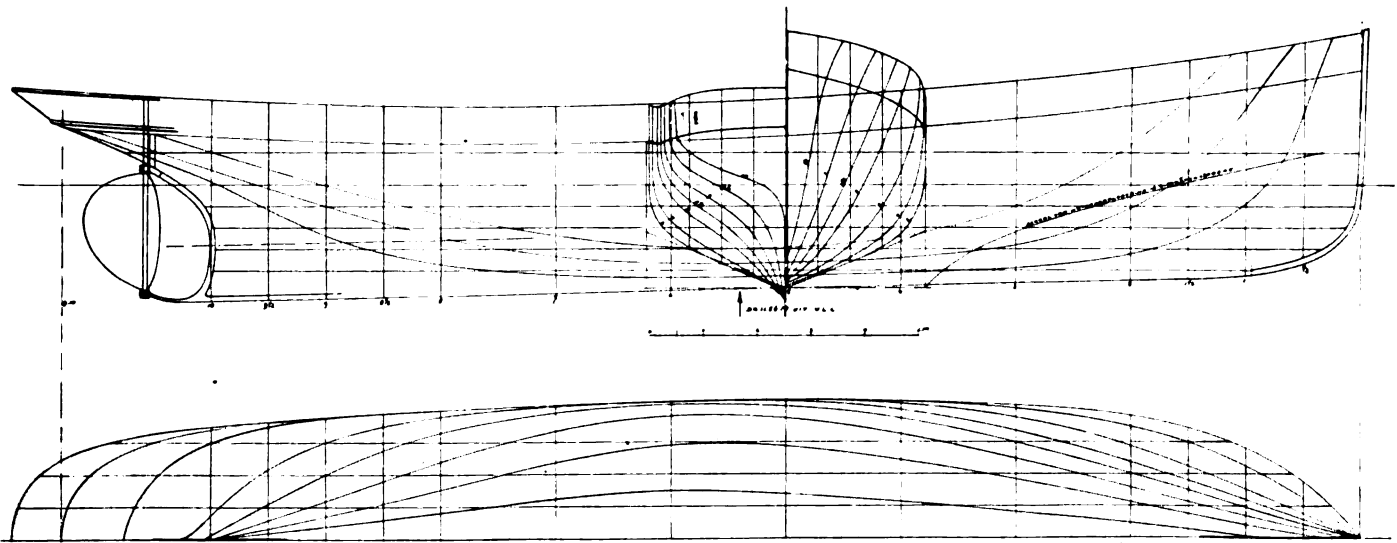
Accommodation.—The Oldman will blame me at once in having the galley in the forecabin, and I know I deserve it, but could not find a better place without having to enlarge the ship or doing away with other arrangements. If Captain Day was here, he would explain to me that in bad weather cooking is impossible right forward, and I would say "yes," but tell him that under such circumstances my regular crew of amateurs do not care

much for proper dinners, and some hot stuff prepared on a Primus stove in the crew quarters aft will do, so perhaps the Oldman would be satisfied.

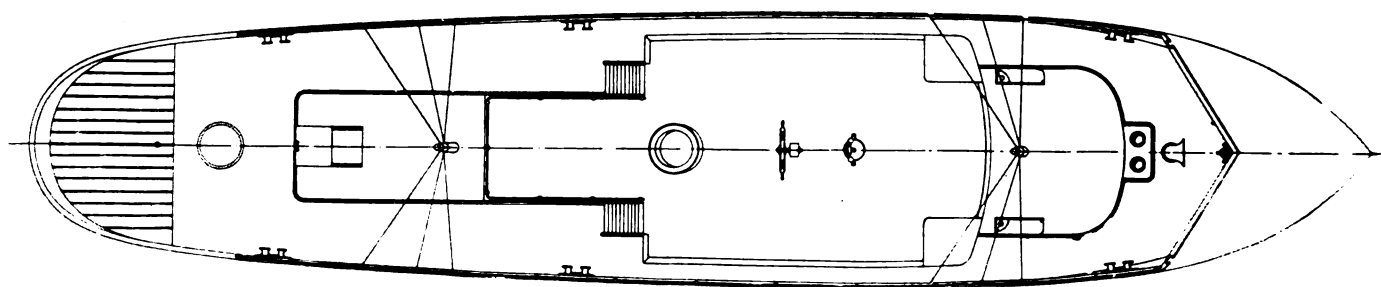
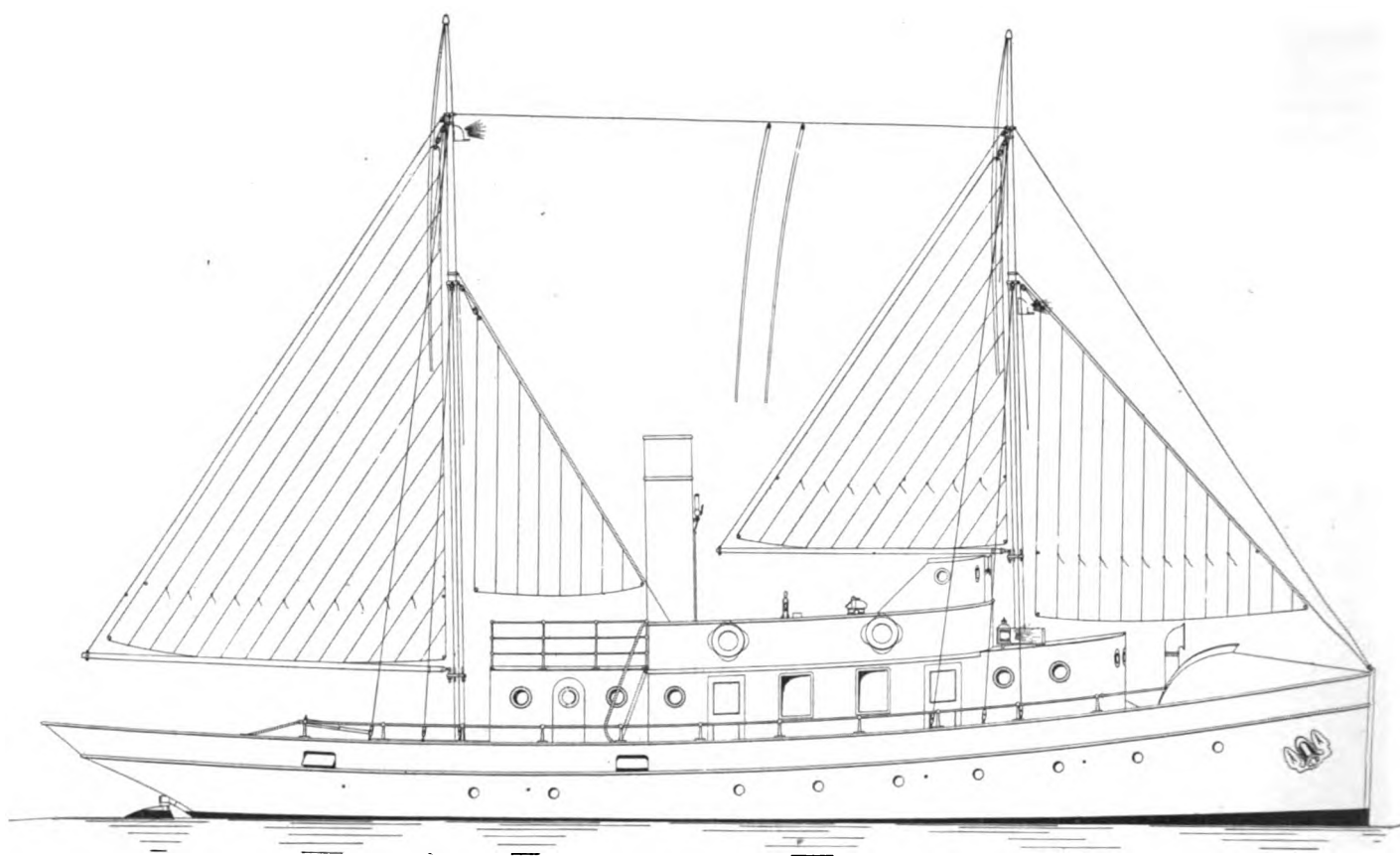
Aft of the galley are four cabins, each having two berths. Engine room between watertight bulkheads and three tanks for fuel for some 3,000 miles; toilet for crew in engine room. On deck a turtle deck over anchor winch. The deckhouse divided in dining room forward and chart and smoking room aft. In bad weather, it does not matter much where the dining room is situated, for you can take your food practically wherever you like or can. But experience taught me that in those circumstances a chart room quite forward would not do, and therefore I placed the chart room aft of the saloon.

The navigation bridge, the part of the ship where owner and friends are most of the time, is long and extending nearly over the whole width of the ship. A double bottom for 10 tons of fresh water is projected underneath the cabins. The sails are sufficient to increase the speed in fair weather or to steady against rolling.

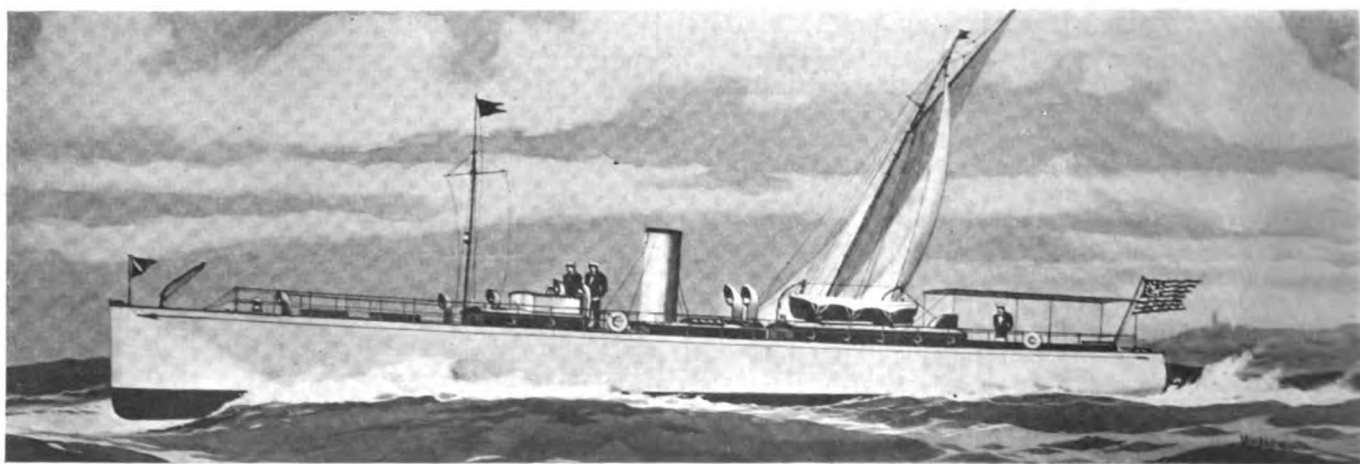
I intend to fit a reversible propeller, having found that heaving-to is impossible with a solid one, on account of the propeller blades giving too much resistance aft and thus preventing the ship from heading to windward. Moreover, a motor-driven solid propeller cannot be sufficiently slowed down in a bad head sea. The illustration of the ship is from an oil painting made by my daughter, who, for most of the time, was one of the crew.



Lines and General Arrangements of the Dutch Tug-Yacht Described on the Previous Page



Profile and Deck Plan of Dutch Yacht



Conejo, Mr. Roy E. Rainey's New 600-H.P. Express Cruiser. She is 91½ Ft. Long and is Powered with Two Eight-Cylinder, 6½ x 9 In. Sterling Gasolene Motors

ANKLE DEEP TOO

Charles G. Davis

ANKLE DEEP TOO, built for Count Casimir S. Mankowski by Wood & McClure, of City Island, N. Y., from designs by Fred Chase, of the firm of Tams, Lemoine & Crane, is quite a novelty, so as a racing motor boat is of unusual interest. The nearest thing I can liken her to is Miranda IV, sister boat to the Zigorrella, the latter being one of the team of English motor boats that raced with the Maple Leaf at Huntington, L. I., in the International or Harmsworth Trophy Race in 1912.

Like her, Ankle Deep Too is a double-ended, or canoe-shaped hull, 26 feet long by 7½ feet wide, a very full-bodied canoe it is true, about 4 feet deep amidships and 3½ feet deep at bow and stern. Her sides have quite a decided round, a very hard bilge and that peculiar double concave bottom, similar to the old Ankle Deep and Dixie IV; the ridge at the keel being about 7 inches below the chime or bilge. Her bow looks like a Skipjack's, so pronounced is the knuckle-line where bow and side meet, particularly at the bilge forward, where it forms a decided knuckle where the bow begins.

Her bottom, or buttock lines, amidships are quite flat, just where the wedge-shaped chimes are attached to the hull, like fore-and-aft runners, on which the big, polished bronze plate forming her plane is bolted and screwed; no less than 365 through-bolts being used to hold this plate from being ripped off by the water. The after edge of this plane ends just amidships with a width of about 7 feet. On the sides, the plate extends forward about 2 feet, but is wedge-shaped, so at the keel it is about 5 feet long.

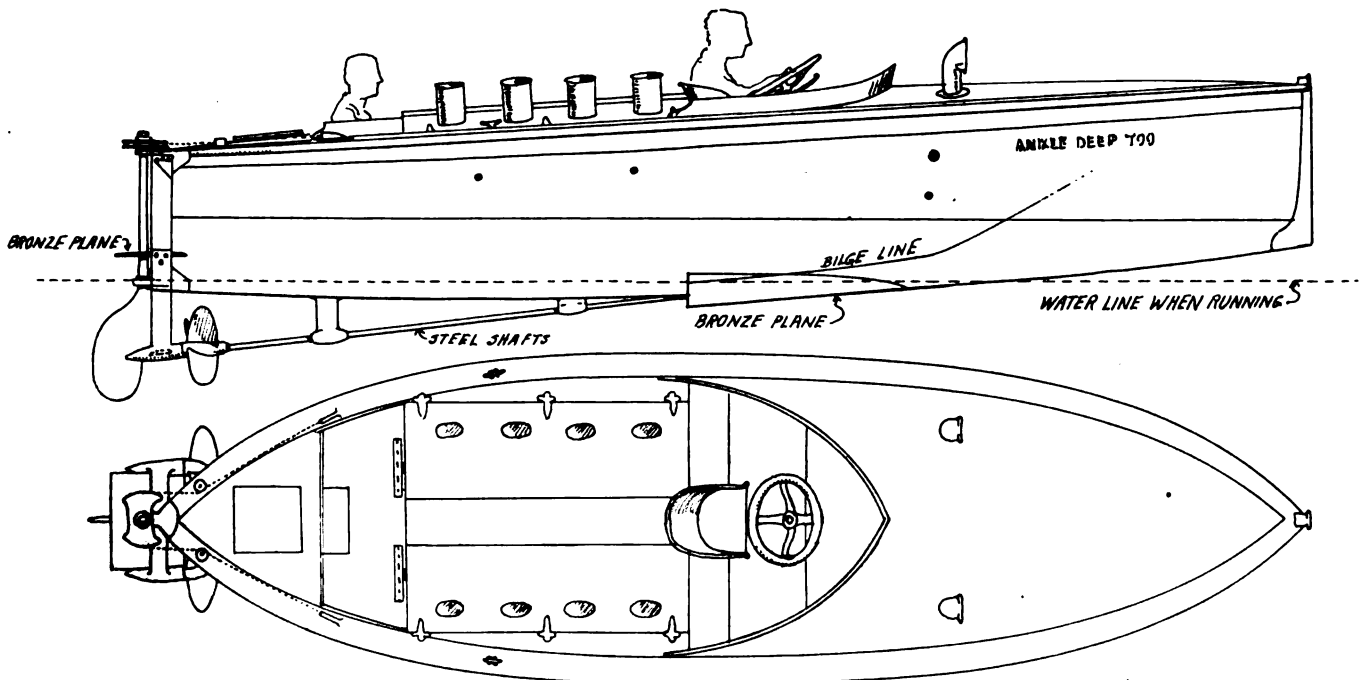
The bottom retains its concave shape clear aft until it disappears where the end sharpens up into a canoe stern. In style of finish she will very much resemble the old Ankle Deep, with dark-stained red mahogany planking above her water-line, topped with a light varnished spruce sheer-strake and chafing molding, spruce covering boards around the deck edge, salmon-colored painted canvas decks and mahogany engine-hatch covers and cockpit coamings.

From her brass-shod stem with funnel-shaped fairlead for tow-line or anchor rope, she shows a clean forward deck for about 9 feet, broken only by two copper cowls that admit air in around the big seamless steel gasoline tank, held in chocks under this deck. This tank measures 20 inches in diameter by about 4 feet in length.

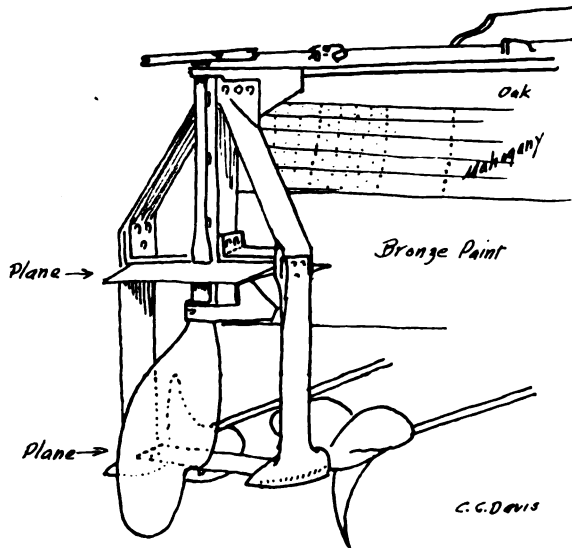
The steering cockpit just aft of this deck has a V-shaped coaming on deck, an aluminum auto bucket seat on a wide thwart that is braced to the frames a foot or so below the plank-sheer and an auto steering wheel with spark and throttle controls, clutch levers, etc., just like an auto.

To starboard, within easy reach of the Count, who steers his own boats, is a small brass petcock in the copper air-pipeline which, upon being opened quickly, reduces the pressure that would otherwise send the gasoline squirting about the boat in case of accident or fire. This was a lesson the Count learned by experience when the old Ankle Deep caught fire and the air pressure in the tank continued to spray gasoline because there was no way to reduce it.

Aft of the helmsman comes the engine hatches, with



C. G. Davis' Impression of Ankle Deep Too



*Big bronze brackets and planes
To help her lift when starting
"ANKLE DEEP TOO"*

four short copper oval-shaped funnels over the exhaust pipes of the T-head, eight-cylinder, 250-h.p. Sterling motors installed, one on each side, beneath them. The flywheels of these motors are aft just clear of the hatch in the short engineer's cockpit and then comes a short after deck, under which is another small gasolene tank.

There is room between the motors for the engineer to walk and a narrow hinged flap in the center of the engine hatches can be opened without opening up the main hatches every time the engineer wants to go forward and talk to the helmsman. At the forward end of each motor there is a clutch, the tail shafts extending forward to gear boxes, water-cooled by scoops under the boat, the steel propeller shafts coming aft out between the hull and after edge of the plane. Two struts support each

shaft between this point and the after bearing in the big dagger struts at the stern.

Here is the most peculiar part of the whole boat. Two big bronze struts bolted at deck to the sternpost head slant out Λ -shaped to a point about 6 inches above the keel, where they are braced and held apart about 28 inches, the distance between the propeller shafts, by a flat metal plane about 9 or 10 inches wide fitted here to help her plane in starting up. From here these struts drop vertical with a pointed propeller boss which houses the shaft ends of the two 22-inch diameter by 51-inch pitch, three-bladed propellers just forward of them. Between these two bosses a narrower plane acts also as a brace between the two struts. These struts are bolted to a brass casting which encases the sternpost and forms bearings for a solid, cast-bronze, dagger rudder, its lowest pintle being in the lower plane or brace.

Flexible steel wire tiller ropes from the double quadrant on the top of the rudder post lead forward to two flat deck sheaves, then spread out and go below the deck through brass fairleads and slant down so they lead in a straight line to the sheaves opposite the rack and pinion on the lower end of the steering post.

Ankle Deep Too is a beautiful piece of boat building, her topsides being a total thickness of only 5/16-inch in two layers, the inner being cedar, the outer mahogany; copper riveted to heavy frames of 3/4-inch by 1/2-inch oak, with intermediate frames of 1/2-inch square oak. The bottom is similarly constructed but is 3/8-inch thick. Between frames the plank seams are held by thousands of small copper tacks.

She is a novelty that will be interesting to watch in actual operation and if model tank experiments prove of any value one that should come close to the mile-a-minute boat. The only question that wise ones can raise is that of stability, and this tests alone will prove out.

* * *

[Since the above was written Ankle Deep Too went out on her first trials, during which she capsized and sank, but has since been raised.—EDITOR.]



MISSISSIPPI VALLEY POWER BOAT ASSOCIATION'S REGATTA

Edw. H. Van Patten (Admiral of the M. V. P. B. A.)



Club and the Hannibal Commercial Club. The second day's receipts put the promoters on "easy street," and on the third day the grounds and grandstand were thrown

open to the public, free of charge. Perfect weather helped to bring the greatest jam of people ever seen in Hannibal. Hotel accommodations were out of the question for late comers so private citizens threw open their homes to the visiting boatmen. It is estimated there were 25,000 strangers in Hannibal on July 5th, including the visiting boatmen and the crowds from the surrounding territory. On the 6th, the number of visitors did not fall below 10,000, and on the third and final day, the crowd was nearly as great. Twice daily—in the afternoon for the races, and in the evening for the fireworks—the grandstand, with a seating capacity of 4,000, was filled to the last seat. The levee, inside the paid inclosure, was filled, and hundreds of people witnessed the racing from the tops of buildings and the adjacent hillsides.

Hannibal put on the most elaborate civic celebration ever held in connection with a "Valley" regatta. Fireworks each evening held the crowds. The naval parade on the morning of July 7th was participated in by nearly three hundred boats of every description, from the small



An Exciting Moment—Buffalo Courier, Buffalo Enquirer and Barnacle in the Webb Cup Race

runabout to the large cruiser. A special attraction among the visiting boats was the torpedo boat Sommers, a wicked-looking little war vessel captured during the Spanish-American War and now used as a training ship for the Illinois Naval Reserves, at Quincy, Ill. With quick firers mounted fore-and-aft, the Sommers gave a decidedly naval atmosphere to the scene. A half dozen of the largest excursion steamers on the Mississippi carried the crowds out on the course, where the races could be witnessed to advantage. Although Hannibal is a city of only 25,000 inhabitants, the regatta arrangements were more nearly perfect than any city has provided in the past and, viewed from all angles, the classic was perhaps the most satisfactory in every way that has ever been held before by the association.

A field of forty-three racing boats was on hand for the opening day, but hard luck put some of them out of the running. There was very little competition in the larger classes, which accounts for the lack of speed. The class races, however, furnished thrills that the others lacked and the close finishes in these events proved the advantage of the Valley Association's system of classifications by piston displacement.

In the Webb \$1,000 Cup Race and the Free-for-All, no one had any chance against the two boats entered by Commodore Wm. J. Conners, of Buffalo, the Buffalo Enquirer and the Buffalo Courier. They were able to dance around the 2½-mile course at their own speed, for after the Mark Twain, of St. Louis, went down in their wash during the first round of the free-for-all, the only competition they had was gone. The Buffalo boats are of the "Baby Reliance" family, built by Chris Smith, of Algonac, and each powered with one of the new eight-cylinder, 225-250-h.p. racing Sterlings. In appearance

they are counterparts of Baby Speed Demon III and Baby Reliance V. They were handled by the same teams, Jay Smith and Jack Beebe, Bernard Smith and Ed Eagles. William J. Conners, Jr., son of the owner, drove the Courier in several heats, and will be seen at the wheel in the Eastern events later in the season. Bursts of speed in front of the grandstand indicated either one of these boats is capable of better than 50 miles an hour, but the best time recorded at Hannibal was in the second heat of the free-for-all, when an average speed of 39.2 miles was recorded for the 20 miles. The Mark Twain is a 20-foot hydroplane designed by Walter Beauvais, and entered by President Judson H. Boughton, of the St. Louis Yacht & Boat Company. Before misfortune befell her she had developed the fastest time made on the course up to that time, averaging 37 miles an hour in the Admiral's Trophy Race and easily winning the first heat from P. D. Q. V and Ugly Duckling IV, her nearest rivals.

At the time of the accident, in the free-for-all, Buffalo Enquirer was leading at the upper turn with Mark Twain second and Buffalo Courier third. When Walter Beauvais, driver, and George Gaston, mechanic, were thrown into the water, the Enquirer turned and rescued Beauvais and continued the race with him on board. Courier rescued Gaston and delivered him to a rescuing boat which had put out from shore, before continuing. The time, because of this, was necessarily slow. In the first heat of the free-for-all, Enquirer's time for the 20 miles was 36:49, Courier 36:52, Dodger IV 37:48, Ugly Duckling IV 38:58. In the second and deciding heat Enquirer's time was 30:39 and Courier's 30:41. There were no other contestants in the second heat.

The story of the free-for-all was repeated in the Webb



The Van Blerck-Powered Pegasus Which Won the Cruiser Race on the Wednesday

Trophy Cup Race, Enquirer winning the 25-mile event in 41:21 $\frac{3}{4}$ for the first heat and 42:27 for the second. Courier was second in 41:22 $\frac{1}{4}$ and 42:30. Dodger IV, owned by Padgett and Evers, of Quincy, was third in 51:59 in the first heat. Dodger withdrew in the eighth round of the second heat, but was awarded third place.

For the first time since the organization of the association, cash prizes were withdrawn in the free-for-all this year, upon agreement with the entrants. Commodore Conners will be awarded two trophies, for first and second, valued at \$500 and \$150 respectively, and Dodger IV will be given a trophy worth \$50 for third position. A movement is underway to discard cash prizes in the larger events in the future and substitute trophies, so that the big Eastern boats may enter the Mississippi Valley Race meets without jeopardizing their amateur standing in the Gold Cup and other Eastern events. It is likely this plan will be followed at Minneapolis next year.

The class races provided the real racing of the regatta. Ugly Duckling IV, built and owned by Harry Godley, of Davenport, and powered with a twelve-cylinder Pierce-Budd, P. D. Q. V, a Hacker 20-foot hydro, owned by Dr. A. C. Strong, of Burlington, and carrying a four-cylinder Johnson V-type, and Dodger IV, powered with a six-cylinder Van Blerck, furnished the competition. Billikin, owned by W. T. Warren, of Chicago, Baby Wisconsin, owned by C. H. John, Milwaukee, Barnacle, owned by Chas. N. Steele, Chicago, Hummer III, owned by Peter Lange, Hannibal, Hazel, entered by W. J. Woepling, of Burlington and Ugly Duckling III, owned by Godley, were plucky, but were outclassed by the other three.

Ugly Duckling IV won the 15-mile Class D Race first heat in 24:48 $\frac{1}{4}$, or at the rate of 36.25 miles. This time was as fast as was shown in the Webb Trophy event or in the first heat of the free-for-all. Dodger IV finished second in the first heat in 26:07 with P. D. Q. V third in 28:03. Billikin caught fire and was withdrawn. In the second heat Dodger IV won in 27:09 with P. D. Q. V second in 27:38. Ugly Duckling IV, winner of the first heat, got a late start and did not finish, so that first place went to Dodger IV.

First in Class C was won in straight heats by Ugly Duckling IV in 16:31 $\frac{3}{4}$ and 18:38 for the ten miles. P. D. Q. V finished the first heat second in 18:23 $\frac{3}{4}$, with Ugly Duckling III third. In the second heat Hazel finished second in 24:50 $\frac{3}{4}$, Baby Wisconsin third in 26:15, Hummer III fourth in 27:23, and P. D. Q. V fifth in 27:54, after starting 8 minutes and 17 seconds late.

The Class B Race went to P. D. Q. V in straight heats. Her time for the first heat of ten miles was 9:09 $\frac{3}{4}$, and for the second 9:10. Baby Wisconsin and Ugly Duckling III each won a second and in the deciding heat Baby Wisconsin won, taking second place.

Panama, owned by E. D. Scofield, of St. Paul, and powered with a Model H Capitol motor, carried off both heats in Class A, her time for the 5-mile heats being 13:28 and 13:38. Mummer III was second in 13:42 and 13:49.

A new event, staged this year for the first time, was the Admiral's Trophy Race, for the fastest boats in the forty-five clubs affiliated with the association, one boat from each club being eligible. The first heat, 10 miles, was easily won by Mark Twain, before her accident, in 16:27, or at the rate of 37.0 miles. Ugly Duckling IV was second in 16:57 $\frac{3}{4}$, Dodger IV third in 17:40 $\frac{3}{4}$,

P. D. Q. V fourth in 23:52 and Ugly Duckling III fifth in 24:06. In the second heat, with Mark Twain out of it, Dodger IV won in 19:41, with Hummer III second in 29:13. Ugly Duckling and P. D. Q. V were withdrawn.

The cruiser race furnished a surprise when Pegasus, a new Van Blerck-engined cruiser, built by the St. Louis Yacht & Boat Company, lapped the three other contestants, finishing the 10 miles in 38:30, at a speed of 15.55 miles. Norwill, St. Louis, was awarded second in 58:25, with Mildred Marie II a close third in 58:35. Meteor was disqualified as failing to meet the cruiser rules, which require a cruiser must be equipped to accommodate at least two people on a cruise, with living and sleeping accommodations, toilet and lavatory as permanent fixtures. Meteor had everything but the built-in lavatory.

The final awards of the judges show the following results:

Webb \$1,000 Trophy Cup.—Won by Buffalo Enquirer; Buffalo Courier, second; Dodger IV, third.

Free-for-All.—Buffalo Enquirer, first, \$500 trophy; Buffalo Courier, second, \$150 trophy; Dodger IV, third, \$50 trophy.

Class D.—Dodger IV, first, \$150 cash; Ugly Duckling IV second, \$75 cash; P. D. Q. V, third, \$35 cash.

Class C.—Ugly Duckling IV, first, \$125 cash; P. D. Q. V and Hazel, split second, \$60 cash; Hummer III, third, \$30 cash.

Class B.—P. D. Q. V, first, \$100 cash; Baby Wisconsin, second, \$50 cash; Ugly Duckling III, third, \$25 cash.

Class A.—Panama, first, \$60 cash; Hummer III, second, \$30 cash.

Admiral's Trophy Race.—Dodger IV, first.

Cruiser Race.—Pegasus, first, Bishop Trophy; Norwill, second; Mildred Marie II, third.

The Judges were: "Rear Admiral" F. C. Smith, Keokuk; J. W. Sackrider, Chicago; Judge J. E. Guinotte, Kansas City; W. V. Kidder, La Crosse, and "Admiral" Chas. P. Hanley, Muscatine, Ia. Starter, "Admiral" J. W. Dixon, Burlington. Timers, C. F. Chapman, New York; George Bristol, Chicago, and "Admiral" E. H. Van Patten, Davenport.

At the annual convention of the Mississippi Valley Association, July 6th, Vice-Admiral Edw. H. Van Patten was elected admiral to succeed Chas. P. Hanley; Rear-Admiral F. C. Smith was elected vice-admiral and A. L. Gibson, of Red Wing, rear-admiral. Secretary W. V. Kidder and treasurer R. A. Maples were re-elected. The new executive committee is composed of Chas. P. Hanley, J. W. Sackrider, J. C. Shadegg, Minneapolis; H. J. Klecker, of Chicago, and J. W. Dixon.

On the final day of the meet the heaviest rain of years delayed the racing for more than an hour. The water in a creek used as a harbor by many of the visiting boats rose five feet, carrying small craft against a bridge and sinking four of them, including the race boat Hazel and the cruiser of Commodore Harold W. Schmalz, of Hannibal. Several other boats were badly damaged.



ASTORIA REGATTA POSTPONED

OWING to the fact that the dates conflicted with racing and cruising dates of other clubs, the Astoria Motor Boat Club asked the approval of the P. I. P. B. A. and was granted permission to postpone the Pacific Coast Championship races from July 1st, 2d and 3d to some time in August.

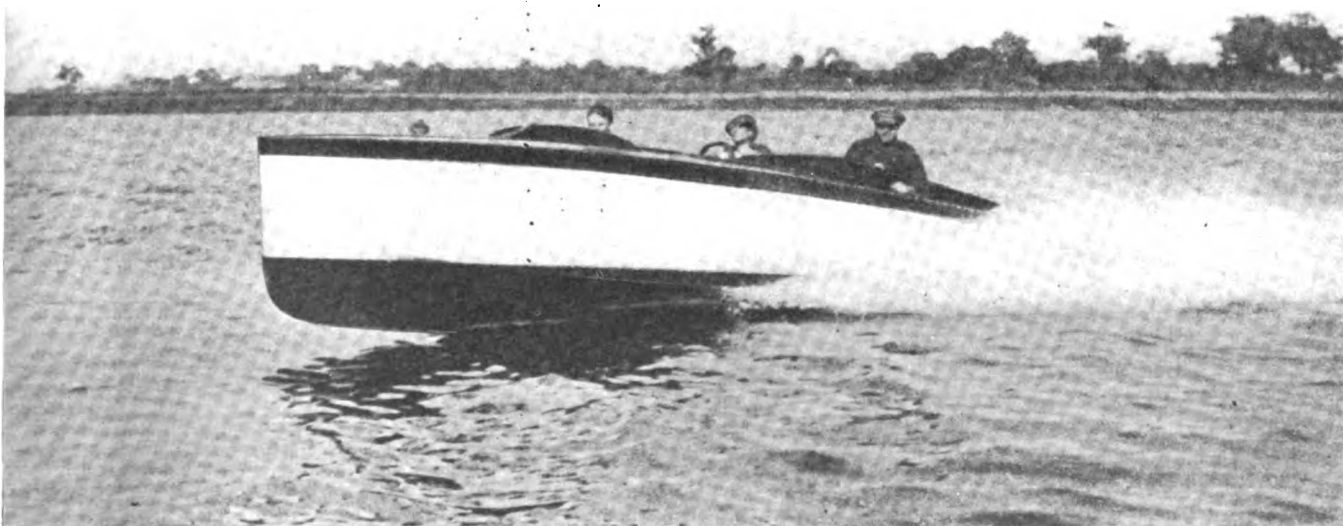
WHAT IS THE MATTER WITH THE BOATING BUSINESS?

J. Walter Scott

THERE is something the matter with the sport and it sure is not the fault of the marine journals. In general they are attractive in appearance and well edited. That there is something radically wrong is evidenced by the fact that these journals are not carrying the advertising they should. As this condition is not the fault of either the editorial or business staff of these journals, we must look further. The editor of one fine publication blames it all to the motor car. There is no question but that the marvelous growth of the motor-car industry is responsible for some of the defection, but not all, by any manner of means, and the makers of marine engines and marine accessories are responsible for quite a bit of this defection. I will explain in logical sequence.

The women are responsible for most of the defection. Many women prefer a car, because with a car they can put a better front. They can drive or be driven over the beautiful boulevards, being admired or envied, as they think—and either gives them a lot of satisfaction; more when they can drive past the home of some social rival who hasn't a car. It is too bad human nature is so, but it is so, and no chance to combat such conditions. But there are thousands of women who realize and appreciate the advantages of boating, the pure air and freedom from dust, the restful relaxation in steering a boat as compared with the tense attention required to handle a car in congested traffic. But they are timid and every bit of trouble is magnified and they imagine what might happen if this trouble occurred in a real storm. They know that in case of a breakdown there is

no chance to 'phone someone to tow you in, as you can with a car. The makers of cars, even with the advantage of a breakdown being just an annoying incident, have made more headway towards absolute reliability in five years than marine manufacturers have in fifteen. The cheapest automobile made will run continuously for twenty-four hours with no attention whatever beyond giving it fuel. Some of the best of marine engines will not run an hour without having to turn up a grease cup *or something*. Marine engines should be made more accessible and without a grease cup any place; with an oiling system that would take care of the engine for forty-eight hours' continuous running. But they do not do this; they continue to put grease cups on the main journal bearings, etc. Is it any wonder that the timid wife, when she notices that the husband and owner has to go below every hour to turn up a grease cup, gets to wondering just what would happen if they were caught out in a storm where he could not leave the wheel for maybe ten hours, and decides she is done with boating? If she will not go with him, what does he do? Sells the boat and quits the sport even if he loves it. The makers of equipment on cars have improved and improved until all the owner of a *car* has to do is to climb into the seat and touch a button, the motor starts and runs until he stops it. He does not have to leave the seat to switch on the electric lights, or even light his cigar from an electric lighter. Everything for his convenience is there and ready to work *and it always works*. I have been using cars for fourteen years and have owned fourteen



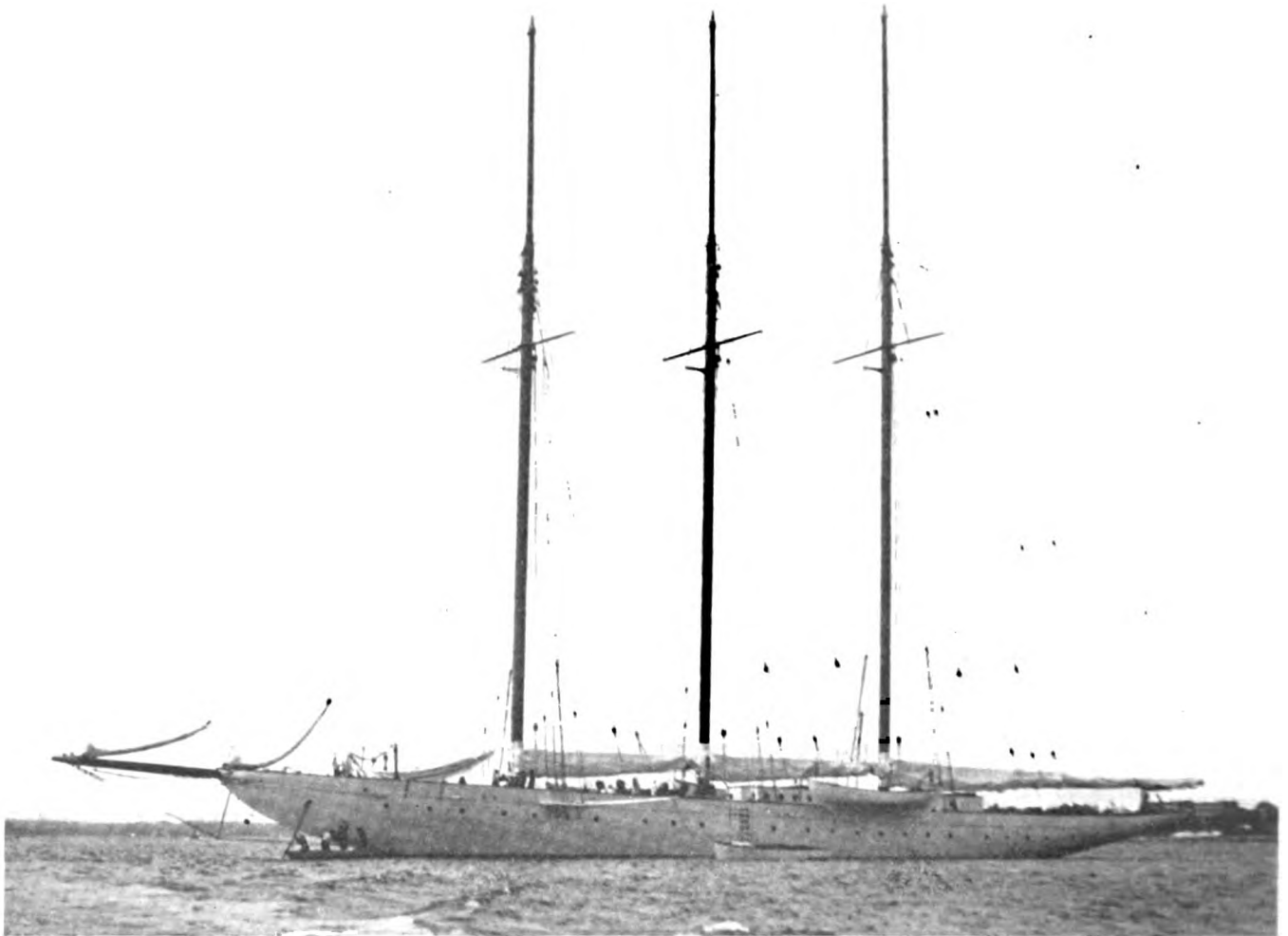
Virginian, Hand V-Bottom Runabout, Owned by Dustin Farnum. Speed 35 Miles per Hour. (Plans and Description, Page 245, May, 1915, Issue)

cars in that time. I have used a boat almost as long, having had six of them. So I should be in a position to compare intelligently, and as I love cruising and am not particularly fond of touring (keeping a car on my wife's account), I surely will not give the makers of marine engines and accessories the worst of it.

I have written and talked with many makers of marine engines and suggested little improvements in detail that would make them more accessible and more reliable and less trouble to care for, but have found but few that seemed to care to leave the old way and try a new. Even the pointing out of such absurdities as equipping a heavy-duty engine that would never be used any place excepting in a cruiser with a reverse lever designed for an open launch, met with no response. One prominent maker of marine toilet fittings has all handles to pumps fitted with just a plain bolt and nut. If you set up the nut tight so it will stay, the pump handle binds. If you leave it loose, the nut works off from vibration of engine and you find it in the bilge if you are lucky enough to find it at all.

I suggested the thread on the bolt be cut with a shoulder so the nut could not bind, and the thread long enough to permit the use of two nuts with a spring washer

between and the last nut a *blind nut*. This would give a neat finished job and one that would never give any trouble, and would not cost over twenty-five cents more, and although they get over \$25 for any outfit and over \$200 for some, did they adopt my suggestion? They did not. I made the same suggestion to several others, but they still continue to make the same old way they have made for forty years. It is the same way with makers of marine stoves. They work well until they have to be cleaned and then the cleaning device is on the wrong end, so you cannot use it unless you take the stove off the shelf. Most men in America make their own money. It is not given to them. It takes some strenuous effort and some time to accumulate it, and by the time they have enough that they feel they can own even a small cruiser, they have passed the point in life that they desire to work hard. Well, after you have bought and paid for a new cruiser, whether it cost \$1,000 or \$5,000, you have to spend about four weeks getting the kinks out, due to engine and equipment not being what it should. *This means your vacation is spoiled.* You are disgusted and your wife is more so when she sees you laboring all the time; and then, too, she is worried still more over what might happen if some of



Sea Call. Power 8-Cylinder 4-Cycle 8 In. x 12½ In. Sloane-Daniel Engine. L. O. A. 214 Ft., L. W. L. 150 Ft., Extreme Breadth 33 Ft. 9 In., Draught 18 Ft. 3 In. Sail Area 18,000 Sq. Ft. Alexander S. Cochran, Owner. Wm. Gardner & Co., Designers. Built by Geo. Lawley & Son, Corp

Photo by International News Service

this equipment should go wrong in a seaway. Of course, personally, cruising has been a hobby with me for so many years that I can take the best I can buy in way of equipment and "fix it" when it is installed, or devise something to take its place that will be satisfactory, but I am the exception; at that, believe me, if I were not so in love with the sport I should have given it up long ago.

If naval architects will teach prospective owners that a trifle more speed is a sacrifice of *all* comfort, and *doubles the expense*, and design roomy, stable types of hulls, that will make the owner's wife feel more comfortable and also more safe; if the makers of engines and

accessories will put a little brain work on making articles that will be handy to use and also reliable; if more attention is paid to proper screening from flies and mosquitoes; if power-boat clubs will pay more attention to having good docks than to dancing, and to having adequate facilities for pulling boats out for minor repairs, and to having a marine garage as well equipped with tools and as competent repairmen as the motor-car garages,—and the latter are bad enough, *God knows*; when all these things happen, or some of them do, then and then only will boating and cruising come to its own, as *the sport of kings*.



THE 1915 BLOCK ISLAND RACES

EIGHTH ANNUAL BLOCK ISLAND POWER-BOAT RACE

At 5 p. m. six power boats started. Three of these were high-speed boats, making in the neighborhood of 20 miles an hour.

In the final result, however, as in previous years, the race did not go to the fastest boat, for although the Flyaway III set a new record for the course, after time allowances had been deducted, Cero carried off first prize.

In a special match race with the Houp-la, which belongs in the express cruiser class, and was therefore not eligible for the regular prize, and the Romany, Flyaway III easily carried off the honors.

The summary and winners follow:

START, 5 P. M., JUNE 26, 1915

Boat and Owner	Rating	Allowance H. M. S.	Finish H. M. S.	Elapsed H. M. S.	Corr'd H. M. S.
Romany H. S. Duell	75.02		0:00:15	7:00:15	7:00:15
Flyaway III R. L. Upjohn	71.73	0:15:21	10:40:20	5:40:20	5:24:59
Satsun Thos. Farmer, Jr.	32.66	7:11:02	5:47:10	12:47:10	5:36:08
Cero W. P. Frost	32.15	7:22:58	5:07:00	12:07:00	4:44:02
Intrepid H. F. Rudinger	32.	7:27:55	5:46:00	12:46:00	5:18:05

SPECIAL MATCH RACE

Houp-la H. Wesson	93.08	+1:04:31	1:00:30	8:00:30	9:05:01
Romany H. S. Duell	75.02		0:00:15	7:00:15	7:00:15
Flyaway III R. L. Upjohn	71.73	0:15:21	10:40:20	5:40:20	5:24:59

Block Island Race.—First, Cero; second, Intrepid. Time Prize, Flyaway III.

Special Match Race.—First, Flyaway III.

Lipton Cup.—No entries.

TWELFTH ANNUAL BLOCK ISLAND SAILING RACE

On June 26th ten sailboats started in the Twelfth Annual Block Island Race. Unlike last year, when a heavy Notheaster prevailed, this year's race was sailed in flat calms, head light airs, mixed with thunder-storms all the way.

In fact, the conditions encountered by the leading boats were—

SATURDAY, JUNE 26TH

- 11:40 a. m.—Start. Light Southwest winds.
- 12:55 p. m.—Off Matinacock Point. Wind shifted to South. Carrying light sails.
- 1:35 p. m.—Passing Oak Neck.
- 4:10 p. m.—Passing Etons Neck.
- 5:20 p. m.—Passing Cranes Neck; hit by a nasty Northwest squall.
- 10:00 p. m.—To the Eastward of Mount Misery; a very light Northeast breeze. Fine, clear, moonlight night.

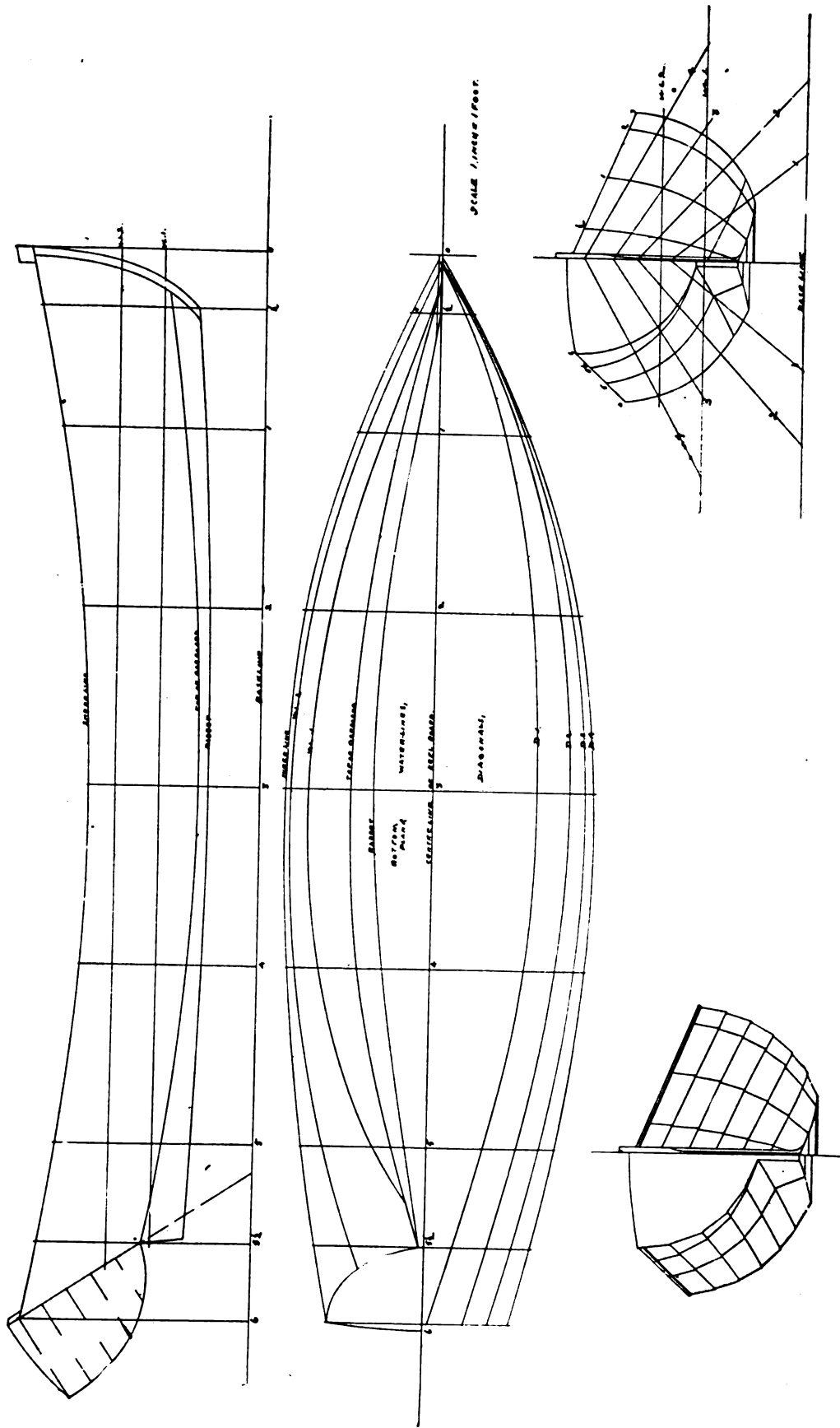
SUNDAY, JUNE 27TH

- 1:30 a. m.—Heavy fog coming up; beating down the middle of the Sound. Wind shifting from East to North.
- 3:00 a. m.—Fog lifting; conditions otherwise the same.
- 6:00 a. m.—Hortons Light abeam. Light Easterly wind and strong head tide.
- 9:00 a. m.—Drifted West from Hortons Light. Northerly wind setting in. Carrying balloon jib.
- 10:00 a. m.—Still off Hortons Light. Breeze under the shore.
- 12:00 Noon.—Passing through the Gut. Tide starting to run ebb. Squalls making up on each side. Wind shifted all over the compass.
- 4:00 p. m.—Good Northeast breeze sets in, carrying the boats along for a couple of hours, softening toward night fall.

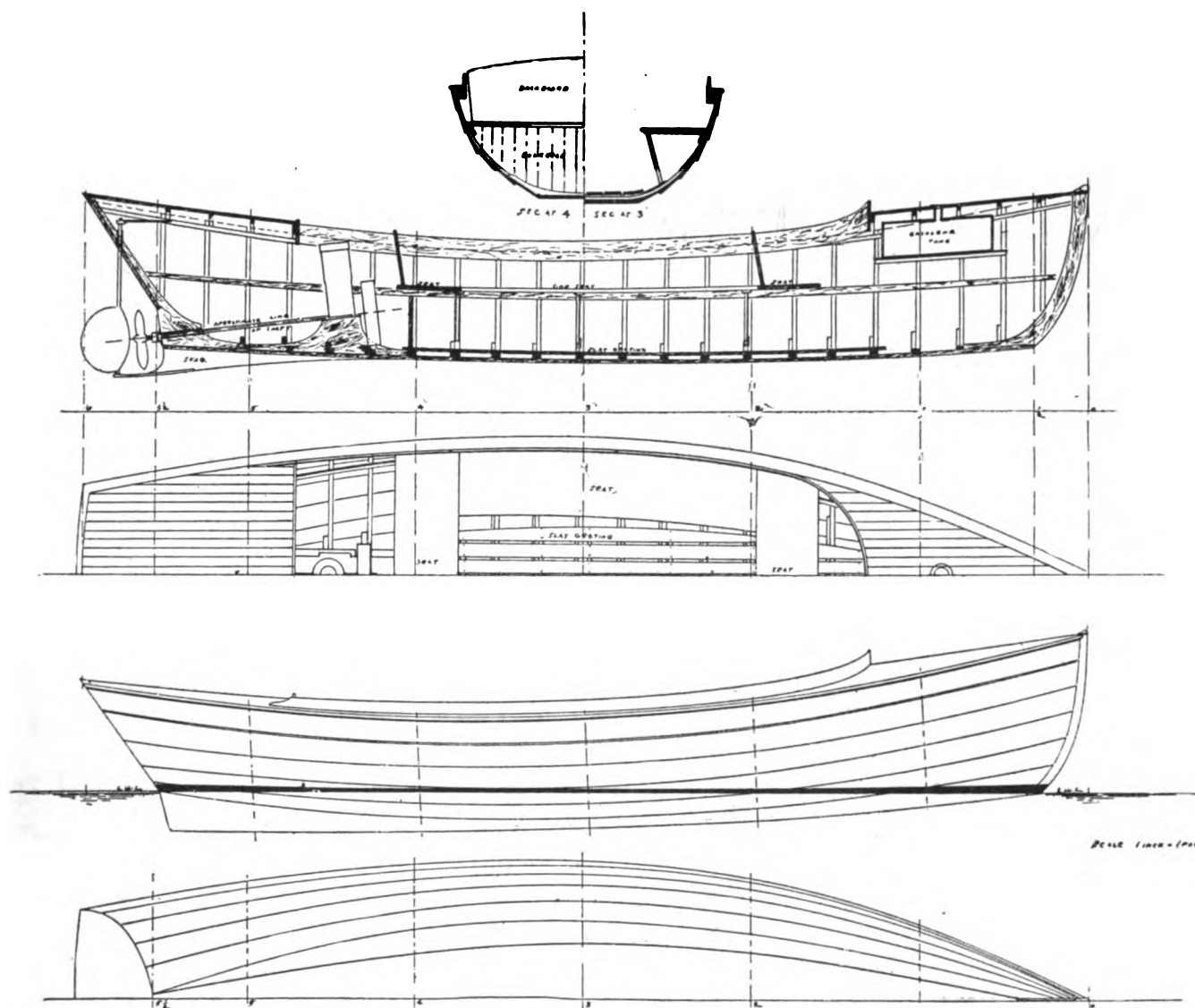
The summary and winners follow:

Boat and Rig	Owner	Length Ft.	All'e H. M.	Elap'd H. M.	Corre'd H. M.
Pontiac (Sloop)	W. H. Bowes	49.	0:45	30:45	30:00
Senora (Sloop)	W. H. Farrell	49.	0:45	33:18	32:33
Evelyn (Sloop)	E. H. Potter	47.	1:05	34:45	33:40
Solita (Yawl)	Daniel Bacon	37.6	2:40	36:52	34:12
Ogeemah (Sloop)	A. J. Dealy	29.	4:05	38:53	34:48
Careless (Sloop)	C. V. Byram	30.6	3:50	39:35	35:45
Insurgent (Aux. Sl.)	U. D. Cutting	33.6	3:20	Did not finish	
Mahdeena (Aux. Yl.)	W. R. Laidlaw	34.6	3:10	" "	" "
Olwyn (Yawl)	A. Seymour, Jr.	34.6	3:10	" "	" "
Wanderer (Sloop)	W. Friedlander	32.	3:35	" "	" "

PRIZES.—1st, Pontiac; 2d, Senora; 3d, Evelyn; 4th, Solita; 5th, Ogeemah. Time Prize, Pontiac. Handicap Class Prize, Solita.



Lines of New Jersey or Seabright Ship



Construction Plan and Outboard Profile of New Jersey or Seabright Skiff

SEABRIGHT SKIFF

ALL along the coast of New Jersey, with a few on the Long Island shore, and others extending well down the Atlantic Coast where landings have been made on the sandy beaches, may be found the New Jersey or Seabright skiff. It is a boat better adapted to the use of fishermen in those particular localities than the dory or even the Norwegian fram, which it somewhat resembles. Their usual length is from 18 to 30 feet, with a flat floor slightly curving. Before the advent of the gasoline engine, they were equipped with single sprit sails or with a sail and small jib, and with a centerboard pretty well forward, would work to windward in very rough water and half a gale. In landing on the beach with fares of fish in a heavy swell, it is an unusual thing for a boat to get away from the willing hands of those who rush down into the surf to haul her out above the wash or reach of the next swell. Being very full aft they are burdensome and lift with a sea.

In no class of working boats has the gasoline engine been received so willingly as in New Jersey skiffs. As usually installed, the flywheel is protected by a circular

casing and the engine itself is covered by a removable hatch. The shaft runs low, a two-bladed wheel is used and so fastened that the blades are athwartship when the engine is on the low center. When landing on the beach the wheel is protected by being out of the way as much as possible. Engines of $2\frac{1}{2}$ -h.p. are used for the smaller sizes and for the larger rarely over $5\frac{1}{2}$ or 6-h.p.

These lines were taken from some skiffs building by Huff Bros., Pleasure Bay, Long Branch, N. J., by Mr. Roger M. Haddock.

TWENTY-SIX-FOOT ONE-DESIGN SLOOPS

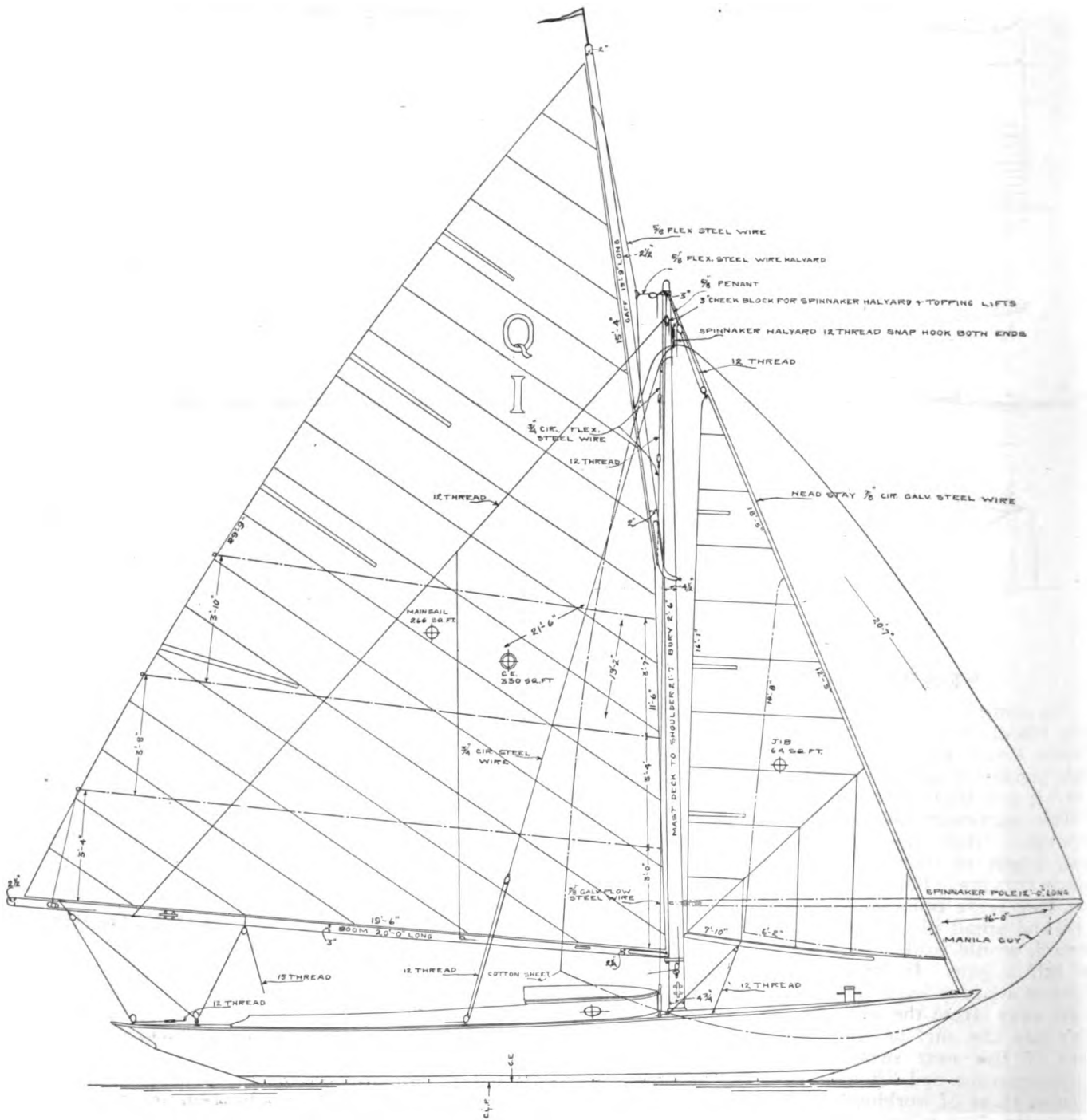
ONE-DESIGN classes seem to be at the height of their popularity just now, and Buzzards Bay yachtsmen are among those that had a new class last Summer. These little boats, the plans of which we publish herewith, are from designs by Swasey, Raymond & Page, Inc. They are 26 feet $1\frac{1}{2}$ inches over all, 16 feet $7\frac{1}{2}$ inches water-line, have a breadth of 7 feet 5 inches, and draw 4 feet 6 inches, with a total sail area of 330 square feet. They are fine, able little boats, with good

THE RUDDER

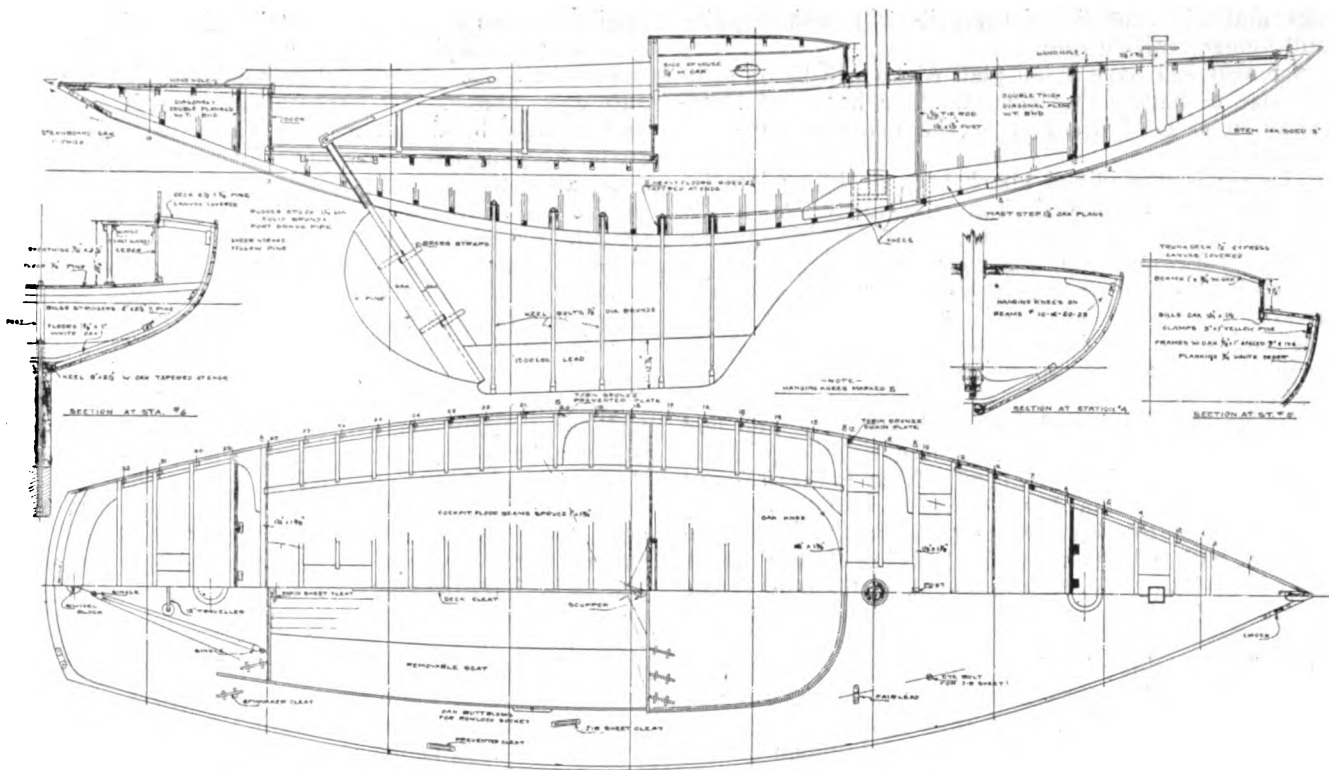
freeboard, moderate ends, sharp entrances and easy run. They are keel boats and have 1,500 lb of lead ballast bolted on the keel with $\frac{7}{8}$ -inch bronze bolts.

The cockpit is ceiled and is large enough to seat a fairly large party comfortably. There is a small cabinhouse forward, forming a sort of cuddy, in which to keep sails, oilers, etc., though two sleeping transoms could be built there if desired. There are water-tight bulkheads fore and aft, which, in addition to the ceiled cockpit, make the boat practically unsinkable. The decks and top of cabinhouses are canvas-covered.

The rig follows the conventional knockabout style, with jib running to stem-head, bottom extending but very little over the counter, and a high-peaked main-sail. There were five of these little boats built, for Messrs. H. W. Harris, of Boston; E. S. Webster, of Boston; D. L. Whittemore, of Newton, Mass.; H. L. Pratt, of New York, and A. C. Harrison, of Philadelphia. Tryouts have demonstrated that they are extremely able, and the design is eminently suited to the high winds and high, choppy seas which are prevalent in the Southern part of Buzzards Bay.



Sail Plan of Twenty-Six-Foot One-Design Sloops. Designed by Swasey, Raymond & Page



Construction Plan of Twenty-Six-Foot One-Design Sloop. Designed by Swasey, Raymond & Page

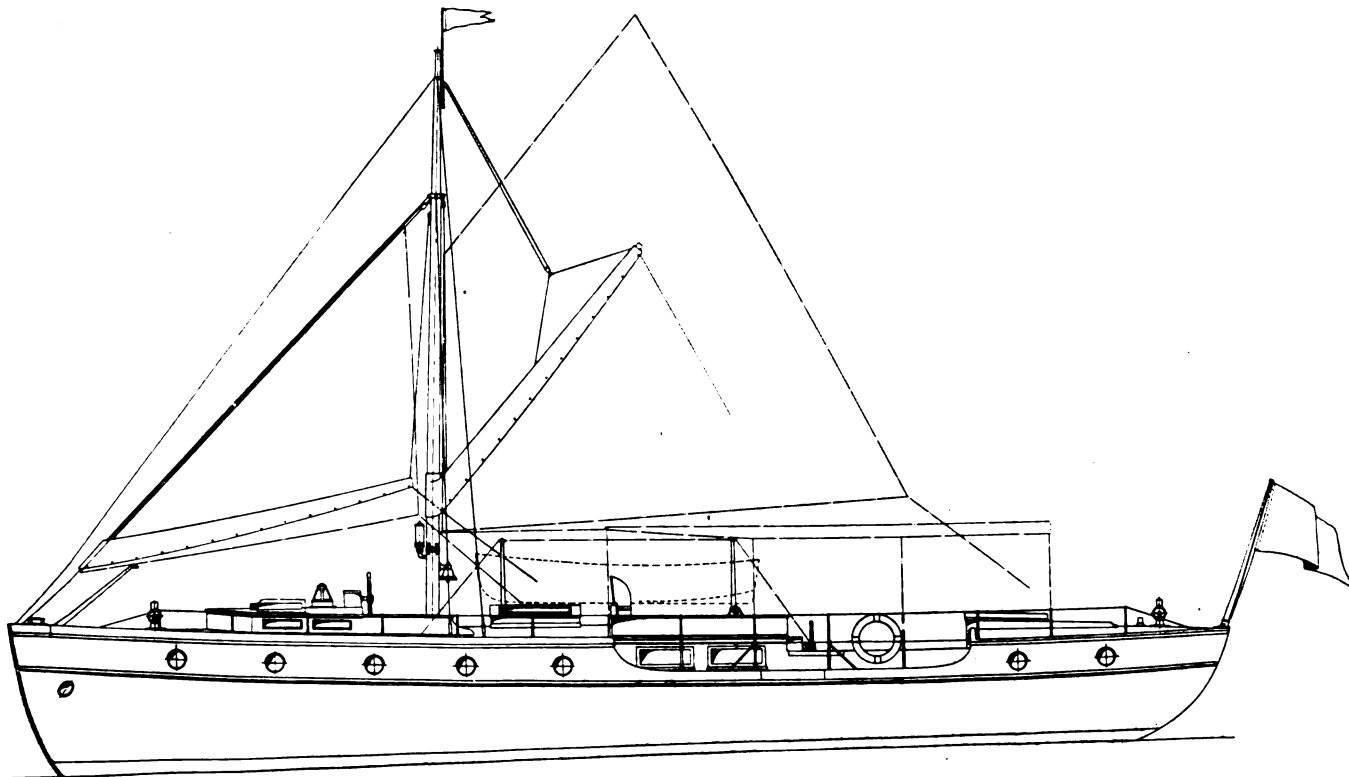
47-FT. AUXILIARY POWER CRUISER

The accompanying plans are of a 47-foot raised deck auxiliary seagoing power cruiser.

She was designed by Messrs. Swasey, Raymond & Page, Inc., for Mr. H. W. Geromanos, Esq., of Roslin-

dale, Mass., who required a small, rough-water cruiser of more than ordinary ability for seaworthiness, and accommodations.

The fuel capacity had to be enough to give her a cruising radius of about 500 miles, on one filling of the



Outboard Profile of Forty-Seven-Foot Auxiliary Power Cruiser. Designed by Swasey, Raymond & Page

tanks, and with the aid of the sails will probably give a still longer cruising radius.

She also will have a sail plan which will be of sufficient size to handle the boat and give her good steerage-way in case of accident to the machinery or fuel installation.

The rig is a modified knockabout or jib and mainsail. She was developed from the Early Dawn IV, which the designers planned last year for Mr. Joseph Doherty of Boston, and is a considerable improvement on that boat. The boat has high freeboard aft and forward, the ends being of the raised deck type, while amidships she is cut down to the lower sheer, a trunk cabin and cockpit being in the break between the sheers.

Her accommodations below deck are very well laid out. Commencing in the bow, there is a large chain locker, after which is a bulkhead. Next is the forward stateroom, which has a double berth and single transom with bureau at the forward end, and clothes closet in after end, with a large space for hanging clothes on the sides of the boat. There is a 90-gal. water tank in the forward part of the stateroom under the berth and bureau.

On the port side aft of the stateroom is a good-sized toilet room, which opens into both the stateroom and the cabin. The main cabin is fitted with two clothes closets, two transoms, dining table, two Pullman berths, alcove lockers, and book lockers. Next aft comes the combined galley and engine room, which is fitted with a work bench, stove stand and lockers, sink and dresser, food locker and refrigerator.

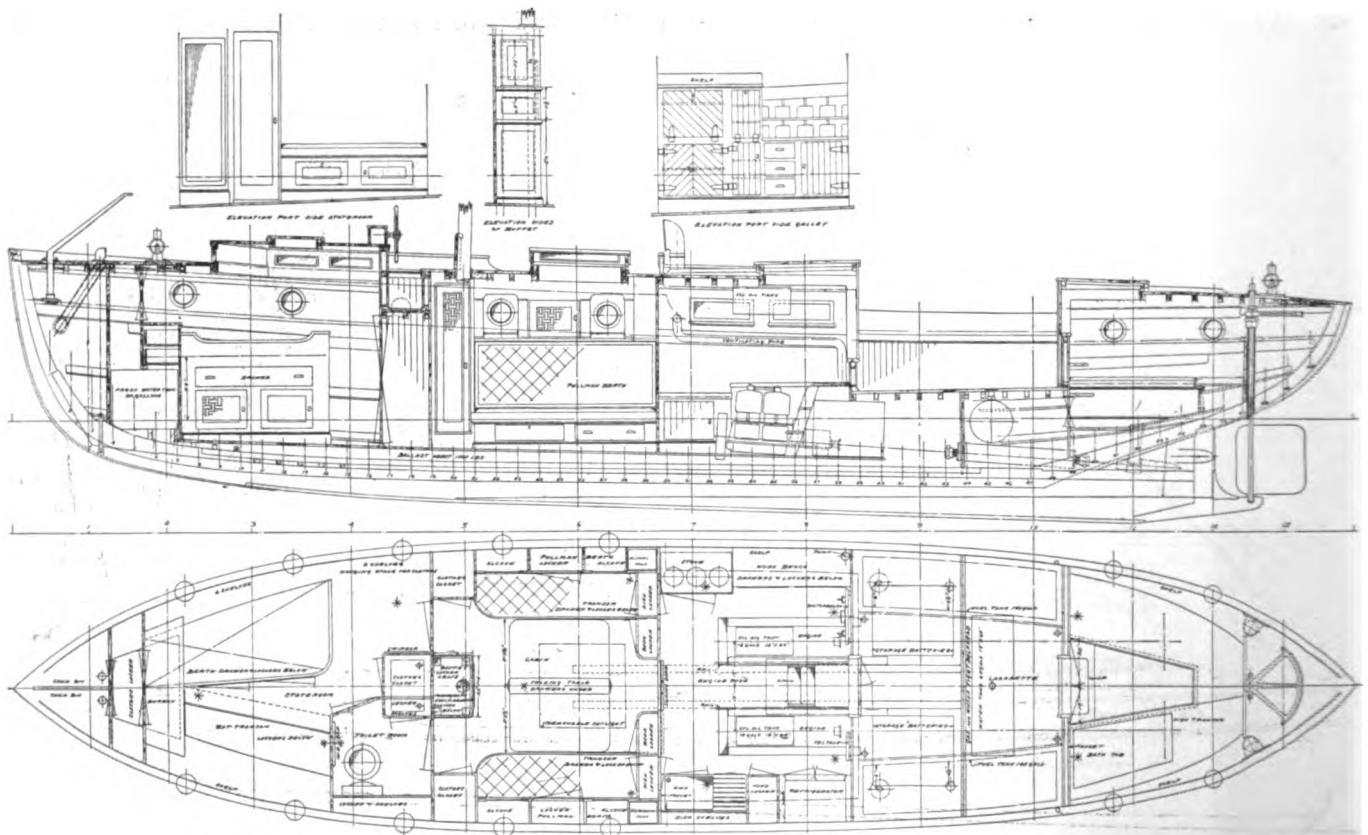
She is twin-screw and in the engine room are two 20-h.p., four-cylinder, four-stroke, $4\frac{3}{8}$ by $5\frac{1}{2}$ -inch gas

engines. Also a complete electric light outfit. Next aft is a large cockpit with gasolene tanks on either side under the seats. The gasolene tanks have a capacity of 140 gals. apiece. Underneath the cockpit is a water and gastight bulkhead, which divides the boat into two parts, keeping any gases out of the after part of the boat, also strengthening this part, which is the weakest of the boat. In the after part, under the cockpit, is a 65-gal. pressure water tank, compressed air being supplied to the water tank so there will be running water in all parts of the boat. In the stern is a large stateroom which will be used either for carrying an extra guest or a paid hand. Under the port transom is a built-in bathtub.

Great consideration was given to the factor of safety, and her construction will be very heavy. She is practically a flush deck boat, having full headroom without the use of skylights, etc., but to give better ventilation below and more protection from boarding seas on the deck, there has been fitted low trunks, skylights, breakwaters, etc., very strongly constructed, giving a large and light interior effect of more room in addition to the extra ventilation.

A special system of artificial ventilation and heating is to be installed, consisting of ventilation pipes going in the bottom of the boat, the whole length, with openings in each room and an electric heater connected with a fan, which will be made so warm and fresh air may be forced into the boat, or the fan used to exhaust any impure air or gases.

On the deck the arrangements are quite unusual. Forward is the windlass and an anchor handling gear with hawse pipes, etc., aft of which is a low trunk, giving light and access to the stateroom. Aft of this



Arrangement Plan and Inboard Profile of Forty-Seven-Footer. Designed by Swasey, Raymond & Page

stateroom is a very small sunken cockpit at the forward end of which will be the steering wheel. Amidships, over the trunk house there is a large breakwater, which will protect the helmsman and give a large deck area for charts, binnacle, etc. She will have also another steering wheel in the cockpit, and on the after deck is another windlass to be used in case of grounding, so that the boat may be hauled off.

A high wire rail, extending the full length of the boat, will give good protection when walking about the decks.

The engine controls will lead to the wheels in both forward and after cockpits.

While somewhat similar to the regular type of raised deck double cabin cruiser, she has many new and interesting features.

The galley is so placed that it will be convenient to serve when either eating in the cockpit under the awning in pleasant weather, or in the cabin.

The principal dimensions are:

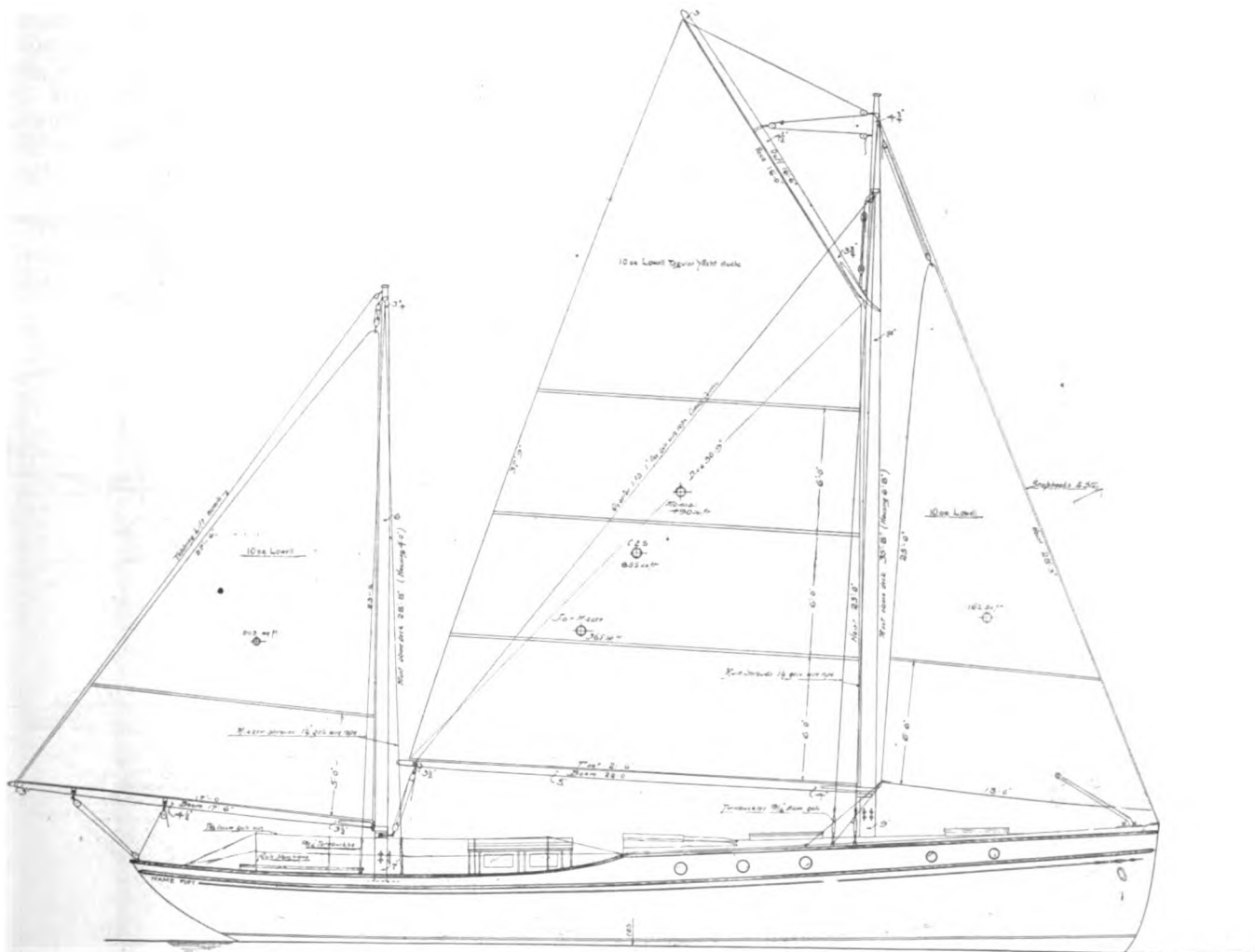
Length o. a.	47 feet 1 inch	= 14.350 meters
Length w. l.	41 " 9 "	= 12.725 "
Breadth	10 " 5 "	= 3.200 "
Draught	3 " 9 "	= 1.143 "

ONIMA, A SEAGOING CRUISER

THE accompanying plans show an interesting sea-going auxiliary cruiser designed by Bowes & Mower for Mr. M. A. Sheridan, of Washington, D. C. She is a departure from the usual type, as she has a sail plan large enough to make her handle under any conditions entirely independent of the engine. This will prove of great service on long cruises in the saving in gasoline bills, as well as giving the owner the greater pleasure of being under sail under favorable conditions. The engine is large enough to give her a speed of about 8 knots, so that she has all the advantages of a power cruiser in addition to her sail.

The arrangement shows the cabin accommodations all forward and cut off from the engine compartment by a double, watertight bulkhead. The engine is a four-cylinder, 5¾ inches by 7¼ inches, 20th Century motor.

The owner states that in a tryout in a 25-mile breeze and a heavy short sea she behaved most satisfactorily under double-reefed mainsail with full jib and mizzen, and the engine turning at moderate speed. When the power was shut off under these conditions, she handled well and went out to windward in a most surprising manner. Mr. Sheridan writes: "To say that I am pleased with her in every particular is putting it mildly; as well



Onima, Forty-Nine-Foot Seagoing Cruiser. Designed by Bowes & Mower

as being a steady and able sea-boat, she is a good looker at anchor, especially to the critical eye of the old-timer who has been there and knows. I have been at this game for twenty-five years—been aboard nearly every type of boat—and I want to suggest that when you find a good sensible man who wants a good, all-around, able cruiser with plenty of room and comfort below, stick close to this design.”

The boat was built by James E. Tull, of Pocomoke City, Md., and is of the following dimensions:

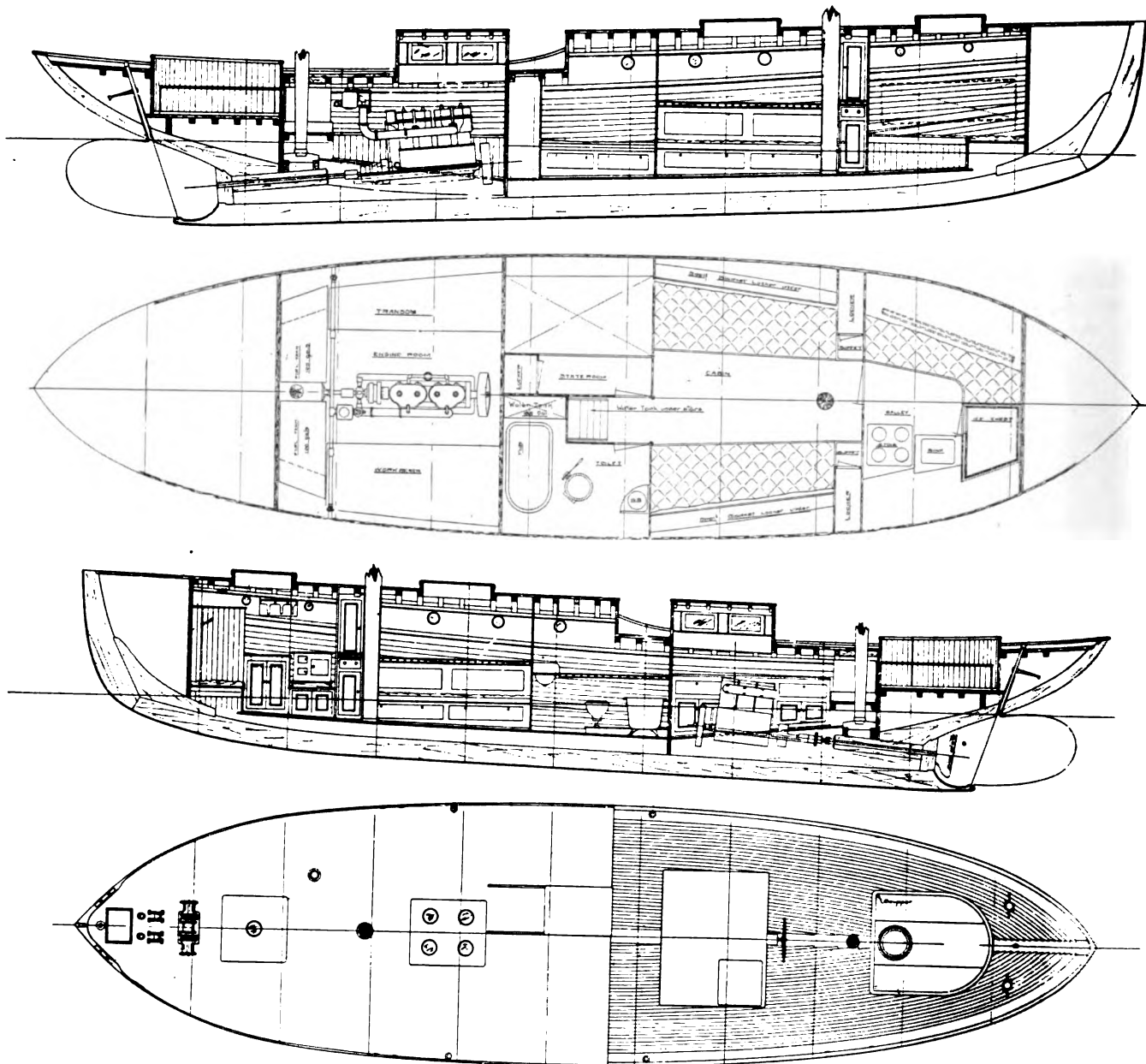
Length o. a.	49 feet 3 inches	= 15.011 meters
Length w. l.	42 " 6 "	= 12.954 "
Breadth, extreme. .	12 " 6 "	= 3.810 "
Draught, extreme. .	3 " 8 "	= 1.115 "

65-FT. AUXILIARY SCHOONER

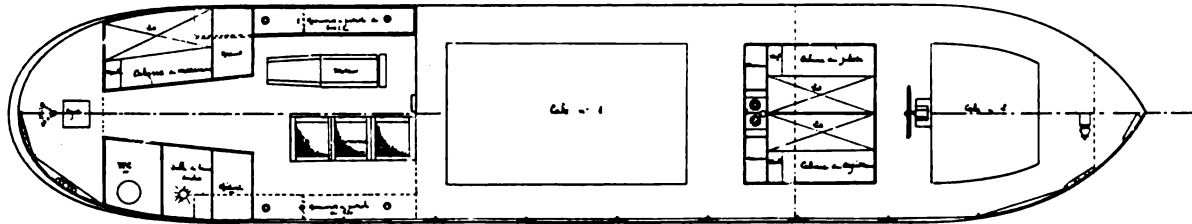
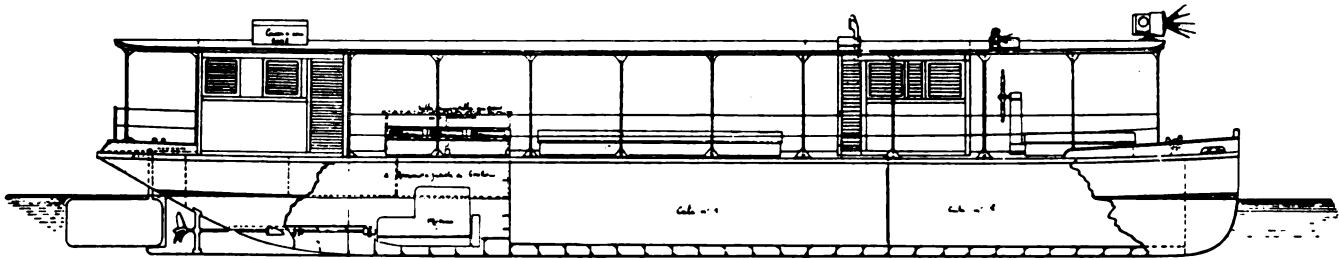
THE designs shown are for a 65-foot auxiliary schooner designed for Mr. C. R. Cates, a Southern Cali-

fornia yachtsman, by the Fellows Company, of Los Angeles and Wilmington, and it is the intention of the owner to enter this boat in the Honolulu race in 1915.

The keel and deadwood will be of clear Oregon pine; oak stem and frames, frames being 3 by 3 inches at head and 3 by 4 inches at heel; bilge stringers and frames 4 by 8 inches. Planking to be of 1½ inch vertical grain clear Oregon pine in full lengths. Deck beams 3 by 4-inch Oregon pine; deck 1½ by 2-inch clear cedar filled and finished bright. House, cockpit and outside finish teak, inside white enamel with mahogany trimmings. The main cabin will be paneled in Peruvian Jenisero; state-rooms white enamel and mahogany; galley and crew's quarters white enamel and French grey. The bathroom will have rubber tiling on the floor and woodstone sides. Galley will be equipped with six-burner range with three-burner alcohol stove for light lunches. The usual ice-box and pantry will be supplied. Spars will be spruce with bronze rigging.



Arrangement and Deck Plan of Onima. Designed by Bowes & Mower



Fifty-Ton Cargo Boat. Designed and Built by G. de Coninck & Co.

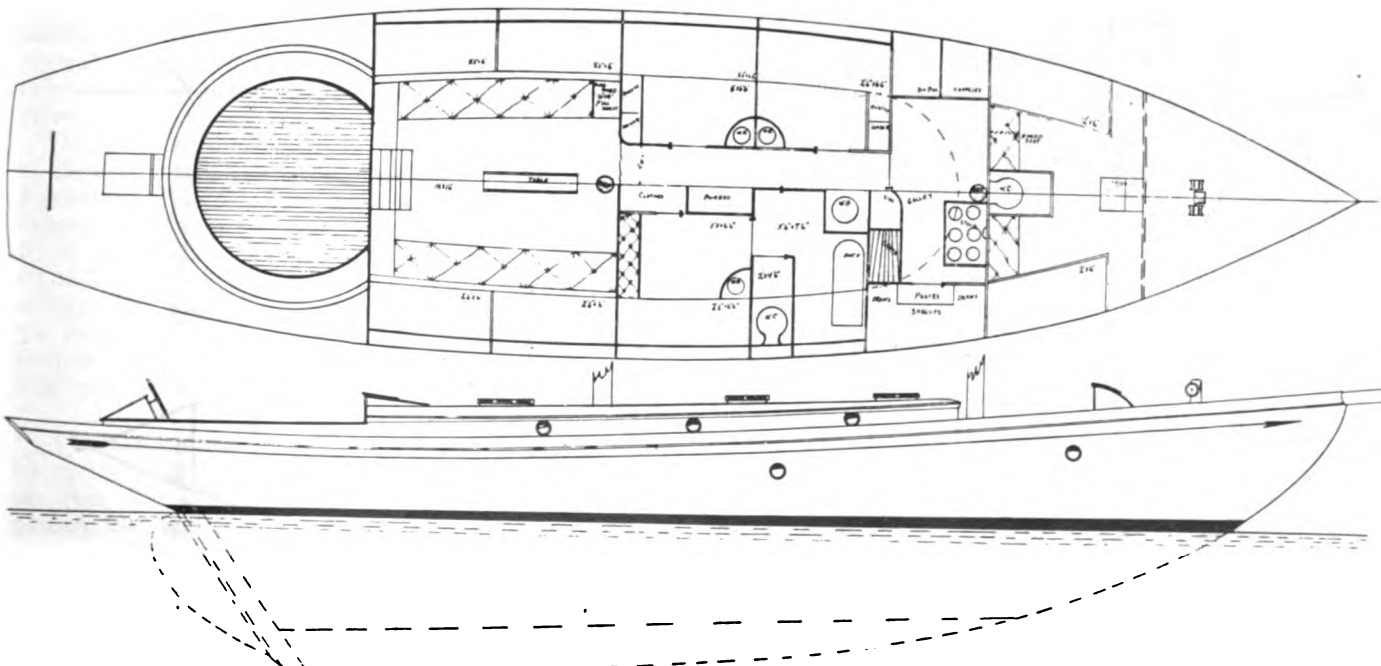
There will be six tons of lead in the keel, fastened with 1½-inch bronze bolts staggered. The transom will be teak with the name engraved and filled with gold leaf.

It is the intention of the owner to install a 12-15-h.p. Sterling heavy-duty, having Dayton lighting outfit, being driven by silent chain with sliding gears. All staterooms and main cabin will be equipped with 6-volt Dayton fans and the plans call for No. 2 Trimount pump driven off engine, to be used in washing down decks and pumping bilge. Bulkhead will be erected in front of engine, making a watertight compartment. Two fans will be installed in engine compartment so as to drive all gases out through ventilators.

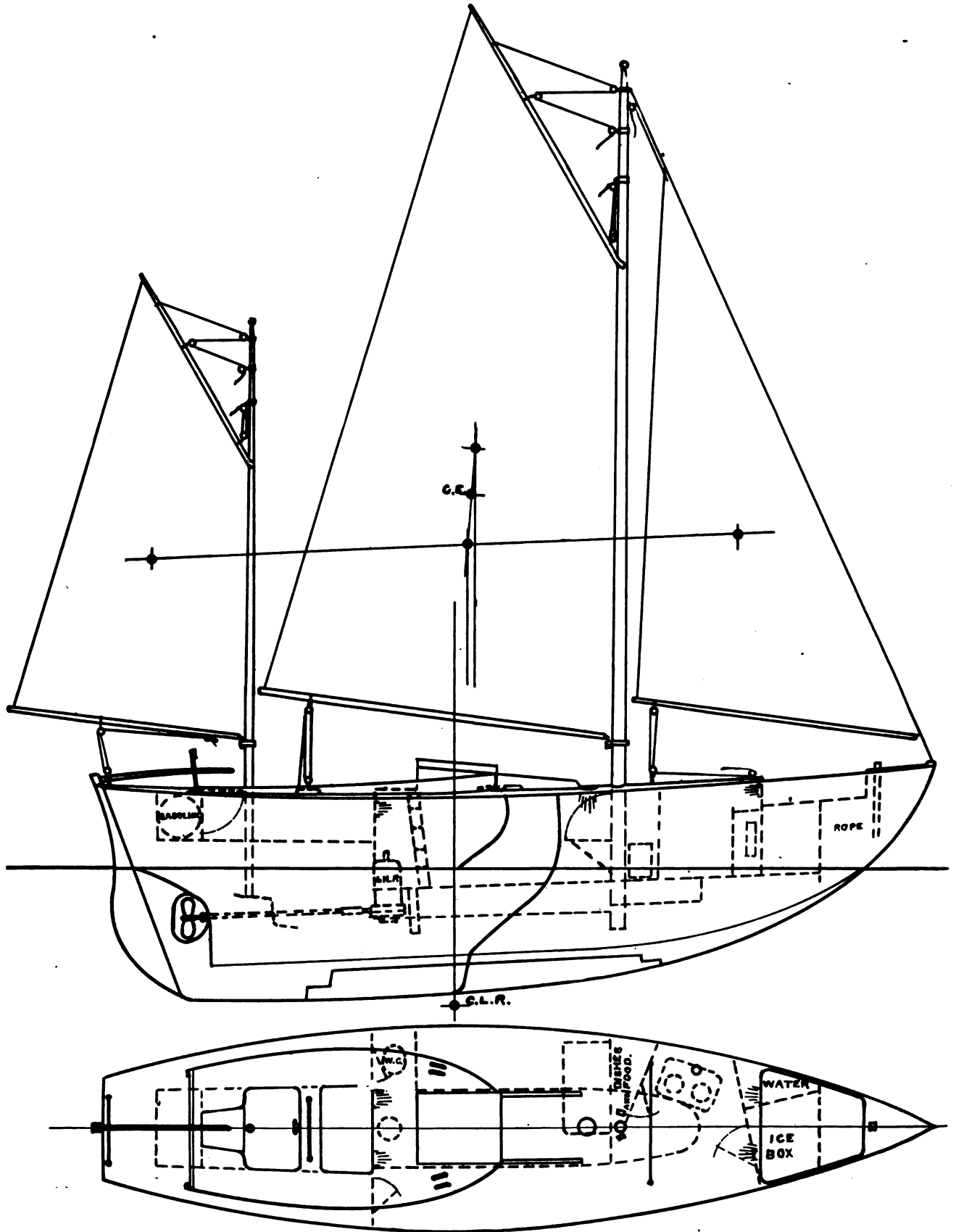
less persons, two on the starboard transom and one on the port transom, room for the fourth person being provided by making an extension berth of the latter transom. The headroom in cabin is 4 feet, which gives ample room to sit up straight, and in this type of boat the deck line does not come at one's neck, leaving the back unsupported. A canvas over the boom and hooked to deck serves in wet weather. Ample stowage room is provided under standing room seats. The sunken deck forward, with bulkheads, is for convenience in handling and stowing anchor and rope. The section of seat under the tiller swings down to allow the steersman to face athwartship when the boat is heeled in sailing. This design is the result of Mr. Titcomb's experience in cruising in small boats during the past thirty years. The principal dimensions are: Length o. a. 28 ft., length l. w. l. 24 ft. 6 in., extreme breadth 7 ft., extreme draught 4 ft. 6 in.

TWENTY-EIGHT-FOOT KETCH

SHOWN herewith is a sketch of a 28-foot over-all, auxiliary ketch arranged below decks to sleep four or



Plans of Sixty-Five-Foot Auxiliary Schooner. Designed and Built by the Joe Fellows Co., of Los Angeles



Twenty-Eight-Foot Cruising Ketch. Designed by Mr. Titcomb



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



POWER-BOAT RACING

You have been kind enough to lend me a helping hand on one or two other occasions, and I am going to impose upon you further and see if you can help me out again.

I am a member of the Regatta Committee of the Muskoka Lakes Association, which is an Association made up mostly of the Summer residents of the Muskoka Lakes districts, of which you have probably heard, as it is the most famous Summer resort district in this country.

The Association, among its other activities, runs a large regatta on the first Monday in August and has had a very successful one for the past three years. It is only lately, however, that motor boat racing has been added to the program of aquatic events, which formerly consisted of a morning of sailing races of various classes of boats and an afternoon made up of a varied program of canoeing, rowing, swimming and other water sports. When we first tried motor boat races, we used the A. P. B. A. measurement system, but with poor results. We next tried using a three or four-mile course and handicapping the boats on their time over one lap, which the competitors themselves took and turned in to the Committee. This, of course, resulted in a number of entries loafing and with the result that the competitive element was lacking and interest fell to zero. Under the circumstances it seems wise to use the "bang-and-go-back" system and as I am anxious that no mistakes should be made the first year we are trying these rules, I thought I would ask you if you could let me have either a set of rules, or any suggestions as to the handling of these races, which your experience has shown are desirable.

May I take this opportunity to add a word of praise to those which I have seen published in your magazine recently? While I have not been a subscriber for the twenty-five years of your existence, I have been since 1902, and perhaps the manner in which I can best show what I think of your magazine is to say that while I subscribe to four other marine publications, at the end of the year THE RUDDER is the one which I have bound up to add to my library, giving the others away to anyone who may want them.

A. J. H.

* * *

[It is the same story everywhere. You cannot keep up an interest in power boat racing except where they are run over long distances. None of the formulas are of any use, and the "bang-and-go-back," unless you disqualify the boats making the home leg in shorter time than the out leg are a failure. The only satisfactory method I have discovered is to take the boat away from the owner, run it over a measured mile, add 10% to ascertain speed and use this speed as a basis for handicapping.—EDITOR.]

WANTS A DINGHY

I WRITE to ask if you can refer me to some source of information as to a good safe dinghy. I may state that I have had a Wee Pup built, but it is too risky to carry ladies in, so discarded it and had a clinker built with sharp bow so as to tow better—8½ feet long—but that is also too sensitive and cannot carry more than three. I want one that I can safely carry either one, two, three or four passengers and will set well on the waters with either number without feeling if you wink your eye you may dump into the drink. I don't want one too large but about 8 or 9 feet long. Hoping you can give me the lines of one.

A. H.

* * *

[You will find Pollywog, page 126, March, 1915, just what you want.—EDITOR.]



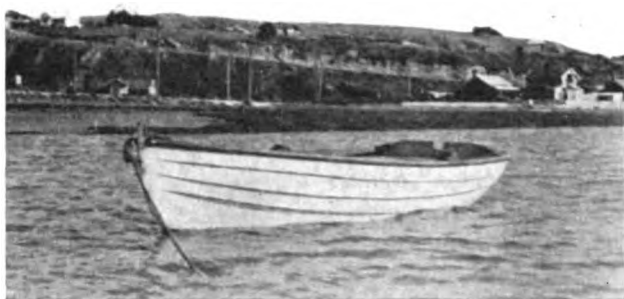
Sea Bird. Building at Christchurch, N. Z., by Mr. J. F. Day

A POLLYWOG AND SEA BIRD

ENCLOSED you will find pictures of Pollywog and Sea Bird. Pollywog (which is just one year old) I built exactly to dimensions as published in March, 1912, RUDDER, and can only say she is well worth the time and money spent in making her. Sea Bird, which two friends and myself are now building, is the 25-foot centerboard model, also being built exactly to plans, no "improvements" being added, except making the cockpit smaller as you advised in a back number of THE RUDDER. The picture shows her partly framed up with the moulds still in. I could not get far enough away to get a good picture of her broadside, but hope to send you some better photos when she is launched. Wishing THE RUDDER every success.

Christchurch, New Zealand.

J. F. DAY.



Pollywog Built by Mr. J. F. Day, at Christchurch, N. Z.

A SHORT CUT

THE snappy, snorting sounds that issued from all six motor boats, as our little fleet cut through the channel, filled us with keenest delight, for it was the first time during our two-day cruise that all engines were running smoothly.

Mine seemed to be in particularly good condition. As her long white hull shot out from the fleet and sturdily ploughed her way through the waves, a feeling of pride thrilled me. I forgot in a moment how her kicking engine had caused not only myself but almost every member of the party considerable trouble during the whole trip.

However, occasions upon which the engine worked properly were rare, and I was too happy to wish to remember anything save that she was now leaving the fleet behind. I could not withstand the temptation to turn and wave goodbye.

"Lost anything?" I shouted back, gracelessly.

"Yes, a couple of kicks from your engine. Go ahead. You'll find them again yourself," was the reply.

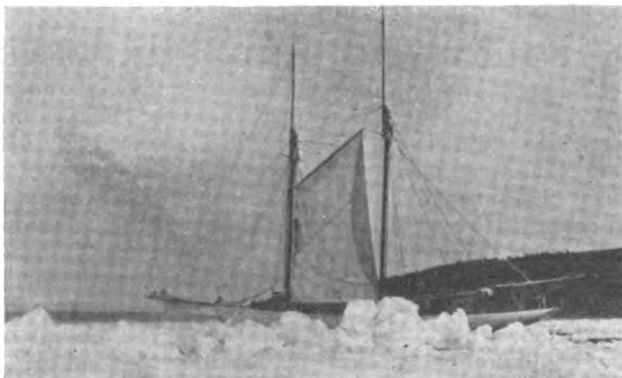
"Guess not," I laughed, pointing to the fine waves curling in our wake. We kept the lead.

"I say, skipper, let's take a short cut," called my companion, nodding toward the Statue of Liberty.

"Good!" I cried, and reckless in my enthusiasm, I put on another notch for speed as I swung from mid-stream.

"We'll give them a surprise," I remarked, cosily puffing my pipe. "Guess we're going some."

A crashing, grinding blow hurled us against the railing, to which we clung until we could kick free of the



138-Ft. Schooner Yacht Florgyn. Sailed from Chicago, Ill., April 21, 1915. Bound for the San Francisco Exposition via the Panama Canal. Photo Taken at North Canso, May 21, 1915. Capt. Colfleet is in Command

splintering glass which gleamed in the moonlight. My pipe slipped from my lips. It emitted a faint sizzle as its fire was quenched by intruding water.

"We've struck hard," I gasped, recollecting too late that we had cut across the graveyard, a shallow resting-place for sunken barges.

We were forced to the pumps before we could even locate the rip.

A welcome "Halloa there! What were you looking for in the graveyard?" came through a megaphone from our commodore's boat.

"Short cut," I growled.

"You've got it, all right," came back drily, as the little fleet moved cautiously to the rescue.

I. DE REICHMANN-WOESS.



A Close View of an Old Friend—Monhegan Light

SAFETY FIRST

YOUR republication in the March, 1915, RUDDER of the Pollywog plans recalls the March, 1912, number, which I ran across last Summer and embodied in my boat, Safety First. I am sending you under separate cover a couple of photos of the craft in my back yard, taken last month and with the boat painted up for the season.

I and my friends use the boat on Lake Michigan, off Jackson Park, but my mother (who is also a friend of mine) is a poor sailor and declines to enter my boat except on shore, despite its reassuring title.



The Pollywog Safety First of Chicago

The boat is made with $\frac{3}{8}$ -inch cypress planks and $\frac{1}{2}$ -inch bottom, oak keel and keelson, oak clamp and rubbing strip, elm ribs, yellow pine stem, and white pine sternboard and seats. Fastened throughout with clinched copper nails and galvanized screws except the bottom, which is nailed with galvanized nails. On the top edge of the sternboard is a strip of hard maple to take the abuse due to being dragged around on the beach, etc. Seven-foot ash oars and elbow grease furnish the motive power. An ideal boat to use while out swimming these hot days.

I have your Sea Bird Book and have ambitions toward building the little ship.

Chicago, Ill.

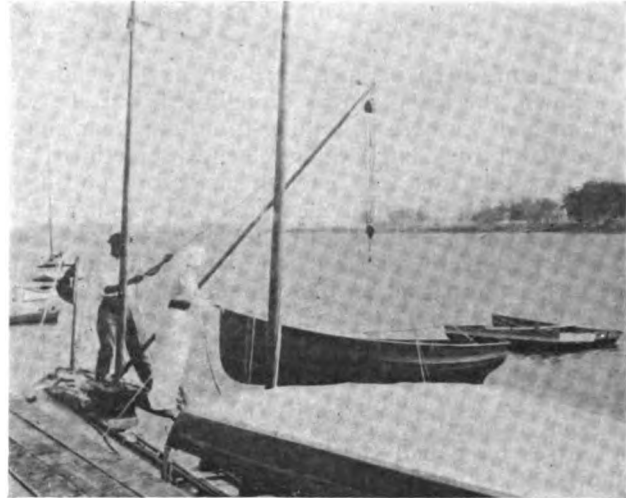
H. S. THAYER.



SMALL TENDER

We are sending you two photographs of the 9-foot tender that we supplied for our 36-foot power boat Turtle. The way the owner launches the boat, using the boom as a derrick pole, is rather interesting.

LUDERS MARINE CONSTRUCTION COMPANY.



Nine-Foot Tender Being Launched



**Sea Bird Nailed on the Beach, Ready for Spars
Auckland, N. Z.**



Nine-Foot Tender Under Sail



**13½-Foot Keel Dinghy. Owned by Mr. E. K. Butler.
Designed by Burgess**

SOME CAHOONG

THE helm's been jammed hard down, the head sheets flown, the after canvas brought aft, but she won't come around, so there is nothing to do but wear ship. I hate to get in irons, but it can't be helped sometimes. The cause is not having way enough on before putting the helm alee. What cheer, my hearties! "How's her head?" is the question the Oldman used to spring just as soon as his head got level with the hatch of the companion. No time to get the packet on the course before you grunted back, "West by Sou', sir." She might be off a half-point or so, for you don't mind such trifles when nobody but yourself is watching the card. But with the Oldman peering over your shoulder, how you do sweat to keep the point marked W. by S. geeing on the lubber line. My curses on a bad steering ship, one that yaws and wallows, pokes her head down and her tail up. Did you ever try to lead a refractory cow to pasture? A bad steering ship and a wild cow, the ship has the advantage of a wide, unfenced roadway, and she don't insist upon stopping to browse. Often wonder how those ancient mariners ever made their passages, what with a hard-helming vessel and a sluggish compass. Imagine what the track of one of those old wagons would have looked like if drawn out on paper. Many of them must have covered every mile of the voyage at least twice over.

* * *

Another good yachtsman has gone; slipped his mooring for the last time. Tom Clapham, a man whom everybody in the sport knew some years ago, is no more, and we have lost one of the oldest and best hands in the watch. Clapham, who lived at Roslyn, Long Island, took an early and earnest interest in the shallow centerboard type of boat, and to his efforts the large and useful development of this type is due more than to any other man. Many years ago he brought out the Roslyn sharpie, a fast, seaworthy type especially adapted to use in shallow Southern waters. Clapham's greatest hit was when about 1892 he designed Bouncer, a boat that won hands down and completely revolutionized the ideas of the world as to the shape of fast sailing craft. From the Bouncer sprang the modern scow racers, the fastest type of craft that ever carried canvas. Clapham was from boyhood interested in yachting and not only sailed but built his own boats. He made a practice of sailing single-handed, and for this reason his rigs were all simplified, and everything he devised was extremely practical. He wrote much for the yachting papers and delighted in a controversy, especially ably defending his own particular type of boat.

* * *

We have had a number of growls lately from men handling racing sail craft of the interfering of people running motor boats and I have been asked to ride these lubbers down. One man flies the blue and white barred flag, which is supposed to qualify the displayer to have a few brains. This gentleman has been particularly marked for persistently getting in the way of small racing sailboats and doing as much harm as possible. He seems to have an idea that his boat is shadow, not substance. It is not likely that this interfering is done purposely, being the result of ignorance and want of thought. The trouble is, men handling motor craft have never sailed in races and have no idea what little things will kill the chances of small sail craft in light weather. It is nothing extraordinary to see half-a-dozen power boats

cauvorting around a fleet of racers at full speed while their sapheaded owners are trying to get snapshots of the white wings. If you protest against this fancy frolicking, they appear much hurt, seemingly having an idea that throwing a swell helps the game. One of these fellows the other day ran full speed into the middle of a bunch of one-raters so his friend could get a snappy picture.

* * *

Some years ago, during the Cup scramble, I called the attention of the steamboat men to the injury they were doing the racing craft by lying around the weather mark and shooting hot air into the above from their funnels. This, I pointed out, killed the light wind; and so does the blowing of steam whistles. They laughed at the accusation, being entirely ignorant of sail craft and the ways of the wind, and not caring a darn if they did kill the last boat's chances so long as they had a good view of the turn. Many a race has been lost by a steamboat swell hitting a boat on the beam or under the bows. If you are in power-driven craft, don't go close to racing sailboats; don't run past them at full speed, unless you are a mile away; don't hang around the line or to windward of the turning marks. Act like a sailor and a gentleman, not like a steamboater and saphead. Go out in a sailboat in a race and learn something about what hurts and does not hurt their chances, and then you will be capable of being allowed to navigate waters when other people are using the same space.

* * *

Years ago, when my trousers carried a slab reef, I was greatly astonished when a woman, at whose house I happened to be visiting, asked me to show her how to set the table, as she intended to entertain some high-toned folk. It had never occurred to me that people existed to whom table-setting was an unknown art, and that you had to be taught the proper manner in which to place knives, forks, spoons and plates. So it is with the use of flags. Constantly letters come in asking for information on flag flying. Some of the questions asked seem childish and almost absurd. So here are a few "nevers" that may help to stop the inquiries:

Never fly one national flag over another. This is common practice on the Canadian border. To fly one national flag over another is considered an insult.

Never fly two burgees on one staff.

Never fly a private signal if you have a flag-officer's flag flying. If you are commodore of the Muddy Creek Club, fly the club burgee and your commodore pennant. People are supposed to know you and your boat as the flagship of the club, and not as a private vessel.

Never fly a lot of flags when underway or at anchor, unless you have dressed ship. The ensign, private signal, and club burgee are all that are necessary or allowable.

Never carry flags on the shrouds or forestay, unless they are signals. A lot of bunting hanging about a boat is the sure sign of a lubber.

* * *

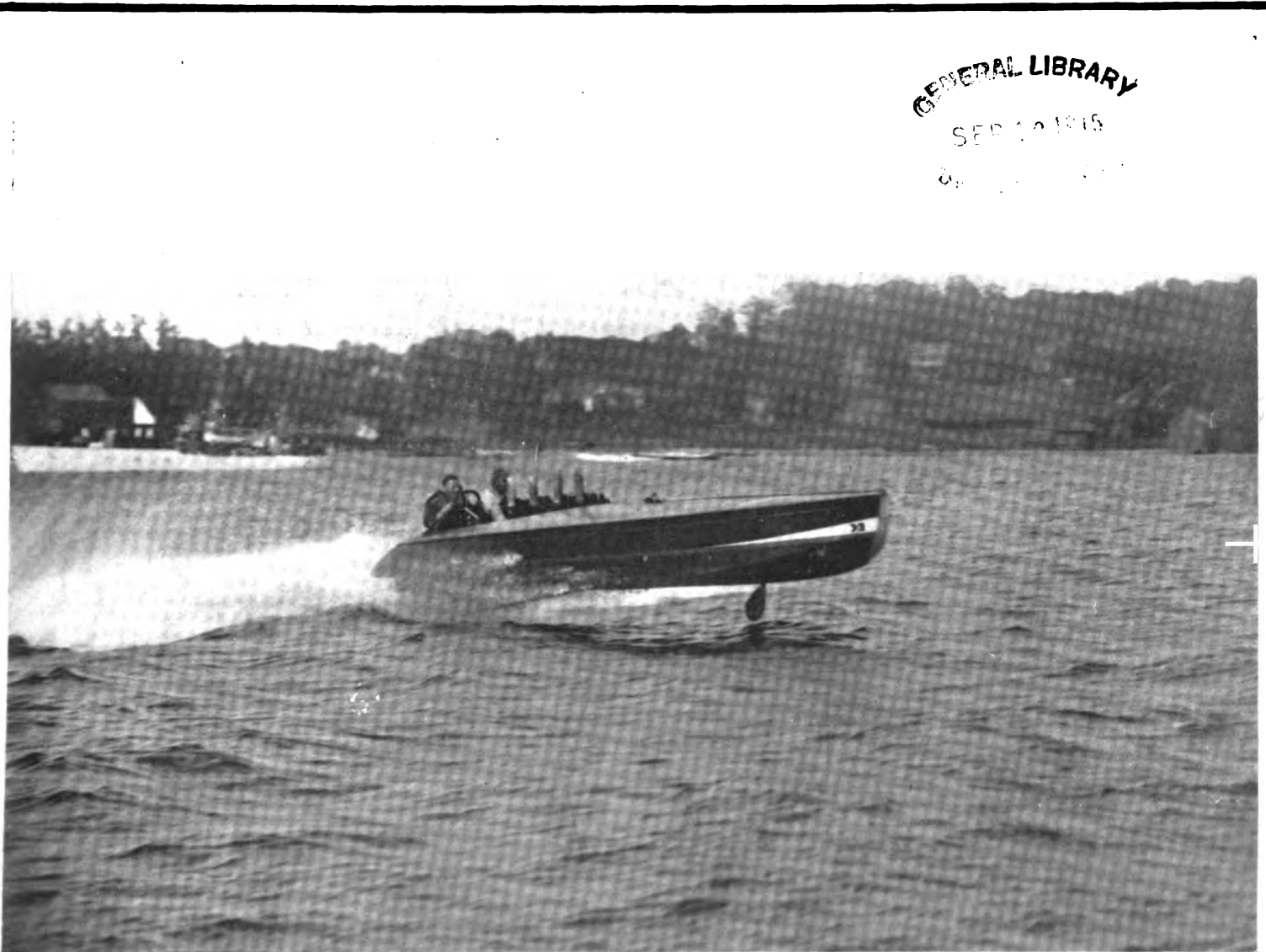
Before turning in for the night I want to thank the officers and members of the Harlem Y. C. for an honorary membership. The Harlem is an old and all-alive club and one that it is indeed an honor to be enrolled in, and I greatly value being taken into its company. This makes six memberships added to my list this year and helps along towards my coveted century.

THE RUDDER

SEPTEMBER, 1915

Vol. XXXI

No. 9



Copyright 1915, M. Rosenfeld

Miss Detroit, Winner of the Gold Challenge Cup, in the Mile Trials

PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

When you plan for the Florida season

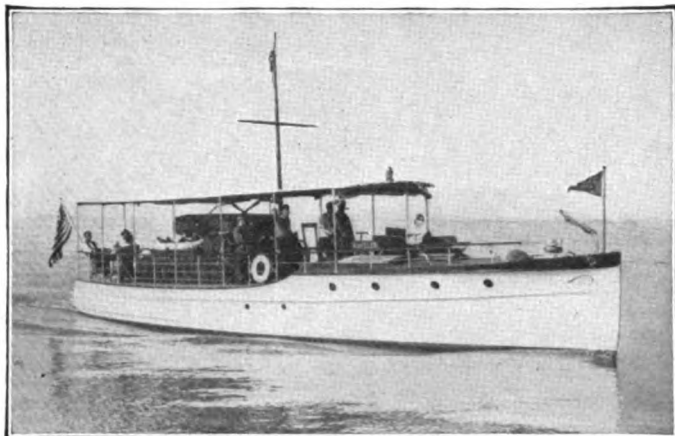
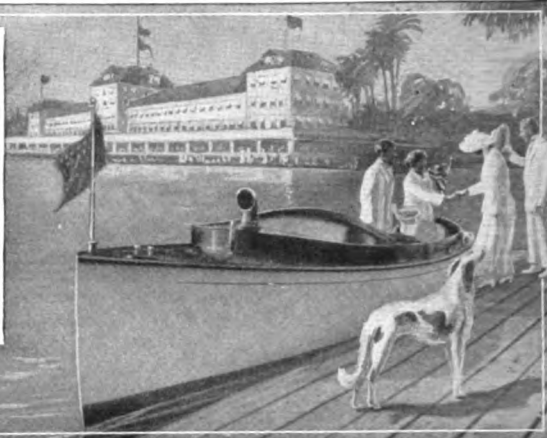
—include a SPEEDWAY. A true aristocrat in appearance, its all-around usefulness, moderate cost, ease of operation and economy of upkeep make it ideal for Florida service. *Place your reservation now.*

Familiarity with Florida conditions has enabled us also to produce fishing boats that more than satisfy every requirement.

A SPEEDWAY engine in the boat you now own will mean better service and a continual saving in upkeep costs. Write for particulars of the new designs.

Gas Engine & Power Co., and Charles L. Seabury Co., Consolidated
Launch Dept. E., Morris Heights, N.Y. C.

Speedway MOTOR BOATS
and ENGINES



50 x 10 x 8-Foot Cruiser TRAVELER, Owned by J. D. Myers

THE TRAVELER has just returned from a 6,000-mile trip in southern waters. Has done considerable outside cruising under all weather conditions.

The owner states the boat has never taken solid water over the forward deck and has given perfect satisfaction in every way. He is leaving the Matthews Yards for a southern trip by way of the western route.

The new Matthews Lighting Plant has been installed. Photographs and plans furnished to interested buyers.

The Matthews Boat Co., Port Clinton, Ohio, U. S. A.

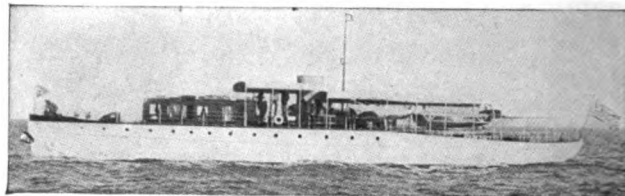
JAMES CRAIG
Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

Designers and Builders of Craig Marine

Oil Engines (Diesel Type)
Gasolene Engines

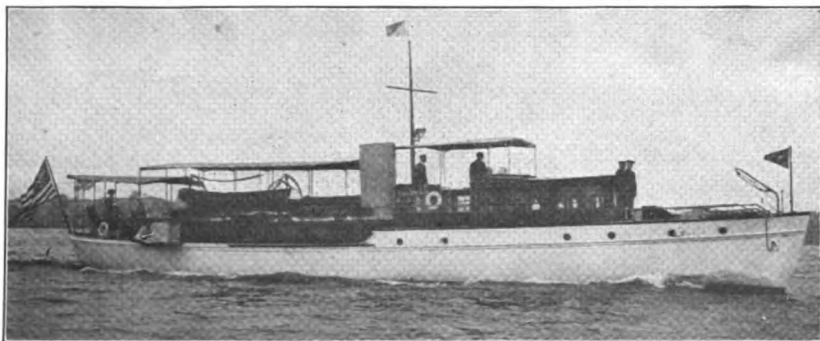


AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9 1/2 x 11

Gasolene Yachts and Engines



Noted for Reliability

Tregurtha Water-Tube Boilers,
Steam Engines, Electric
Light Outfits

MURRAY & TREGURTHA CO.

340 West First St. South Boston, Mass.

The Rudder

Vol. XXXI

SEPTEMBER, 1915

No. 9

AN ANCIENT CRUISE

Journal kept on board the frigate named the Zee-hond, Captain Cornelis Evertsen, sailing with the Commissioners, Councilor Cornelis Steenwyck, Captain Charles Epen Steyn and Lieutenant Charles Quirynsen, from New Orange to the East end of Long Island, 1673.

WE sailed on the 31st October, being Tuesday, about noon, with a Southerly wind, and were thrown ashore by the current near Corlears Hook—but, throwing out the anchor, we warped afloat, and sailed to the farthest point of the Hellgate, where we met the flood, so that we were compelled to return and anchor near Barents Island, where a short while after, the sloop Eendragt, Luycas Andriessen, skipper, arriving from Boston, passed us. We dispatched our boat to inquire if there were any letters for us. Coming on board, we received several letters for the Hon. Steenwyck and were informed that Maestricht had been taken by the French.

1st Nov.—The wind blew very hard from the East, so that we were compelled to remain at anchor; and in the meanwhile rowed the Commissioners to Barents Island. On their return they touched a rock near the Pot, when the boat was nearly upset by the stream, so that they were indeed in imminent danger.

2d Nov.—The wind, as before, with rain and violent gusts; about breakfast, broke our rope, but somewhat nearer its bight; exerted all our endeavors to recover our anchor, but could not find it. The Commissioners rowed in the meanwhile to N. Haerlem, and returned on board towards evening.

3d Nov.—The wind N.N.W.; we again weighed anchor, and sailed against the tide through the Hellgate; towards noon the wind veered again to the East, and as the tide was against us, we could not proceed further than the White Stone, where we cast anchor; then went in the boat ashore to procure water. Towards evening we were favored with a Northerly breeze—got under sail, and when we arrived near Minnewits Island, the wind again veered to the N.E., so that we were obliged to cast anchor there.

4th Nov.—We sailed at daybreak, the wind N.W.; towards noon, the wind blowing very fresh, we lowered our topsail; towards evening took in all sail with two reefs in our mainsail, and were about South of New-haven, the wind very cold, the waves riding and the night dark. About three o'clock in the morning saw Falcons Island about a pistol shot to leeward; we intended to avoid it, but could not succeed, through the violence of the wind, so that we tacked quite close to the rocks, with

great good luck. Night approaching, the storm sensibly increased, and about daybreak it was a complete hurricane.

5th Nov.—The wind as before, but somewhat more Westerly, we ran on with a reef in our foresail; about eight o'clock our boat broke adrift, which compelled us to return; we recovered it with great difficulty after three hours, and when we had her on board, saw that nearly all the stauncheons were torn to pieces—a short while after the wind increased in violence, so that once more we were compelled to run to leeward, and about four in the afternoon cast anchor near the riff of Little Gatt—our boat full of water and utterly unfit for use—so that we abandoned her to the deep.

6th Nov.—Lying at anchor. In the morning at daybreak, in Pluyngat, the wind N.W. and W., weighed anchor again, and discovered a sail to leeward; we pursued with our courses set, and hoisted English colors; we supposed him to be a West Indiaman; hoisted our topsail. The tide turning against him, he anchored near Silvester Island in 8 or 10 feet water; we then lowered the English colors and hoisted those of the Prince, whereupon they instantly struck their colors. Commanding them to come on board, the skipper arriving with two men, reported that they came from New London, and that Captain Winthrop and Mr. Willis were in his ship, being commissioned by those of Connecticut. Sent the boat for them; and when on board, they said they would show us their commission, to take a copy of it. They farther stated, that those of Connecticut dispatched a letter to the Governor-General A. Colve, of which a copy should be shown to us; whereupon we showed them our commission, together with the article penned by those of the East end of the island, and in consequence of it, their nomination, and subsequent election, &c.; the answer thereto was exhibited, to wit: That the 9th article had not been consented to, and consequently all the other articles, together with their subsequent nomination and their actual submission to their High Mightinesses, had been rendered null & void. We then, after having treated them to the best in our power, permitted them to go on shore in the ship of Lieut. Quirynsen. Towards evening we again hoisted sail and anchored before Silves-

ters; towards evening, at a signal, Silvester sent his son with a boat on board, to carry the Commissioners on shore, who stayed that night with him.

7th Nov.—In the morning, the Commissioners of Connecticut delivered us a copy of their commission, as follows:

“Whereas on divers Reports & Informations wee are given to Understand that there are some forces Expected spedily from New Yorke at the Eastern End of Long Island to force and Constrain the People there to take the oath of Obedience to the States generall & Prince of Orange; Wee have thought it Expedient to desire & Empower you Samuel Willis Esq & Captn John Winthrop or Either of you to take such necessary attendance as you Judge meet & forthwith to goe over to the said Island or Shelter Island & treat with such forces as there you shall meet & doe your Endeavor to divert them from using any hostility against the said People & from Imposing upon them letting them know if they do proceed notwithstanding it will provoke us to a due Consideration what we are Nextly obliged to doe. Dated at Hartford Octobr 22th, 1673.

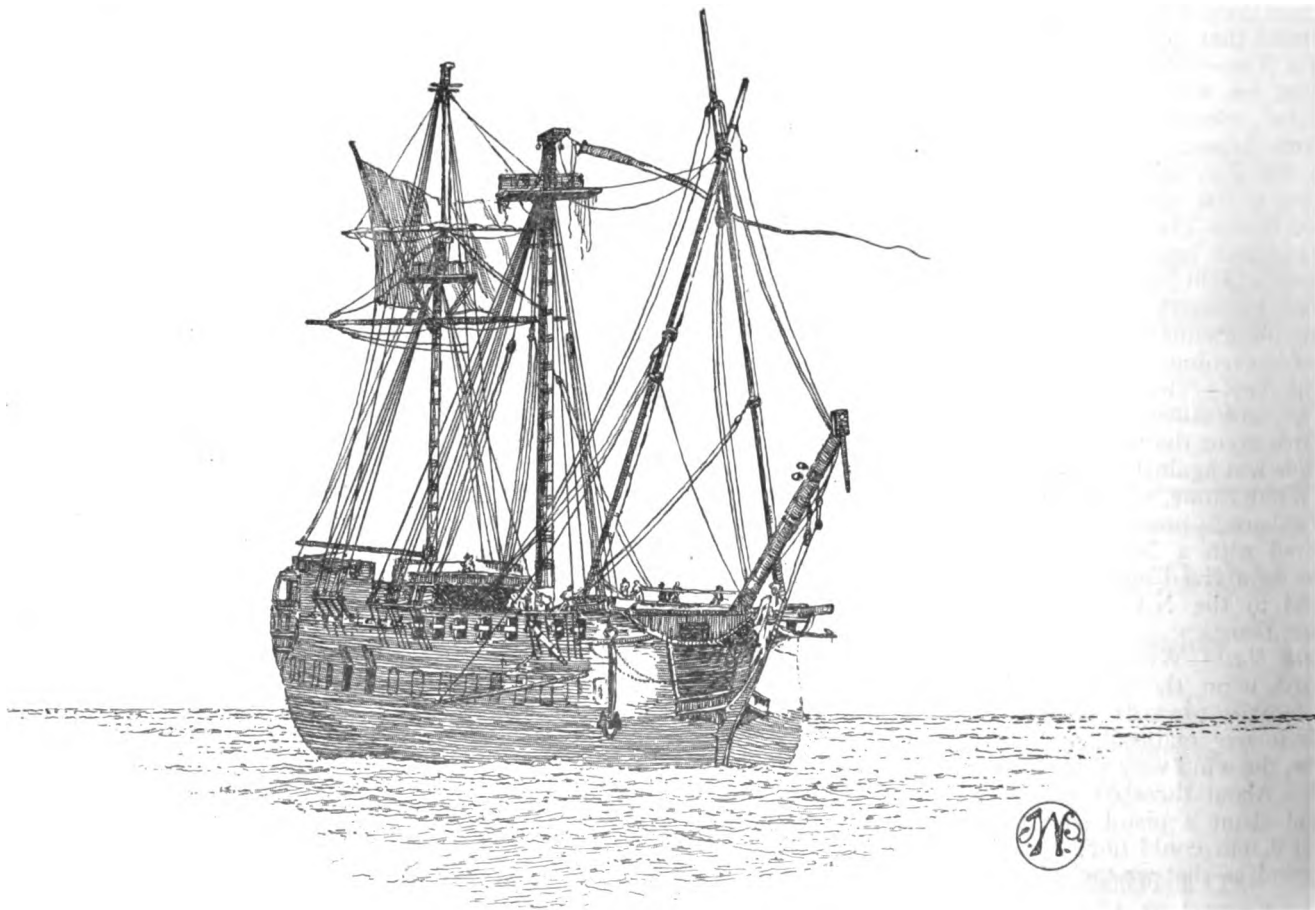
“(Signed:)

“And signed pr order of the Gouvernor & Magistrates—pr me John Allyn Secrety.”

And further delivered us a copy of the letter which was sent by the Court of Connecticut to the Governor, Anthony Colve, and requested that we should abandon our voyage and not proceed further in persuading the English of Easthampton, Southold or Southampton to

take the oath, whereunto we answered that we were in duty bound to execute our commission and so departed from Silvesters Island. In the meanwhile, those of Connecticut hoisted the King's Jack at their mainmast which was permitted them as they were Commissioners.

About 10 o'clock the Connecticut gentlemen rowed up towards Southall in the boat belonging to Silvester's ship, with the King's Jack in the stern, when the Commissioners immediately followed in a boat they had borrowed from Captain Silvester, with the Prince's flag also in the stern; arrived at 2 o'clock in the afternoon about Southold, when they heard the drum beat and the trumpet sounded, and saw a salute with muskets whenever the Connecticut gentlemen passed by. Meanwhile the water being low and the tide on the turn, the boat being slowly dragged along by the sailors, the Commissioners were obliged to land. Approaching somewhat nearer, they discovered a troop of cavalry riding backward and forward, four of whom advanced toward us, and when they reached the Commissioners, offered them their horses, on which these mounted, ascended the heights where they met Captain Winthrop and Esquire Wyles with a troop of 26 or 28 men on horseback, and so they rode on together towards the village, on reaching which they found a company of about 60 foot men in arms. After tarrying a few moments, they marched into the village to the house of one Mr. Moore, where dismounting from their horses, they were invited to enter. After having been a little while in the house, Mr. Steenwyck requested that the inhabitants of the village might be convoked to communicate to them the cause of their arrival, also the commission of the Governor, to which those of Connecticut answered, that the inhabitants of that village of



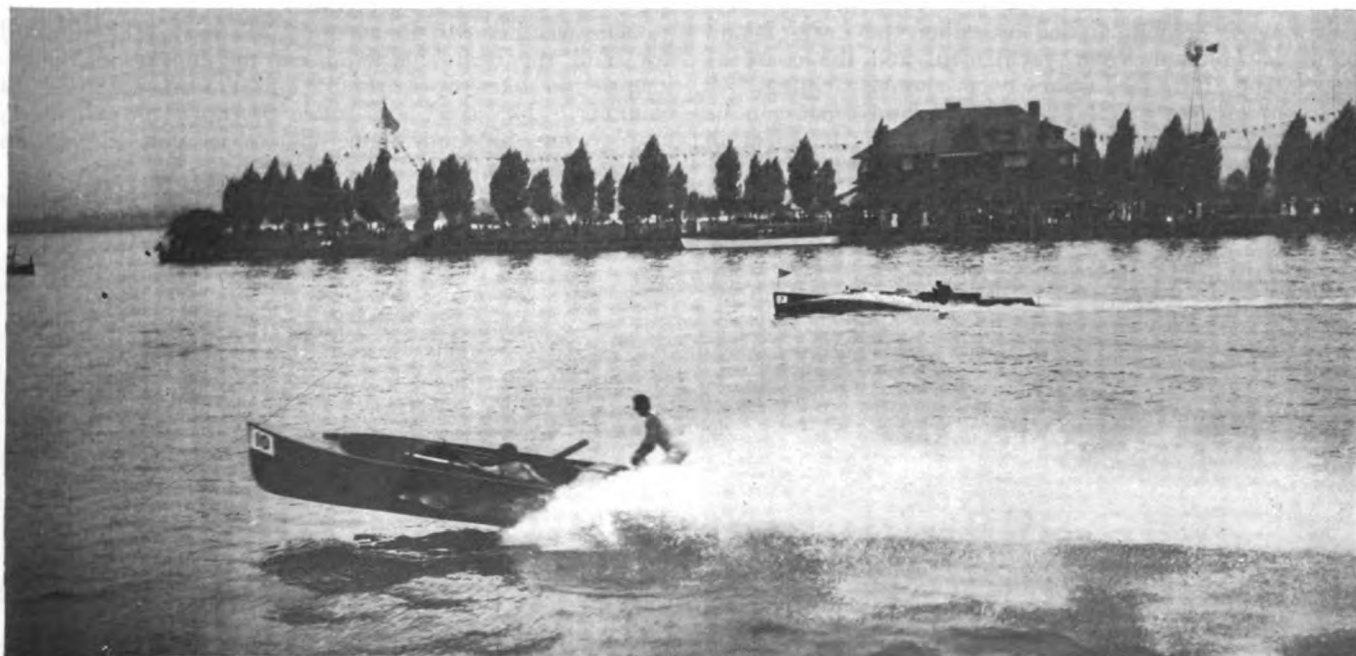
Southold, being subjects of his Majesty of England, had nothing to do with any orders or commission of the Dutch, and then said to the inhabitants, "Whosoever among you will not remain faithful to his Majesty of England, your lawful Lord and King, let him now speak," to which not one of the inhabitants made answer. Mr. Steenwyck replied thereupon, that they were subjects of their High Mightinesses the States-General and his Highness the Prince of Orange, as appeared by their colors and constable's staff, by the nomination of their Magistrates, presented by them to the Governor, and by the election subsequent thereon; he further requested that these elected persons might be called, of whom Thomas Moore appeared, but Thomas Hudsingsen absented himself, and could not be found. When the election of Governor Colve was communicated to said Moore, he would not accept it, saying that he had nothing to do with it; then Isack Aernouts, who had been already sworn in as sheriff of the five Easterly villages on Long Island, was asked, who declared that he had already resigned his office as Sheriff, because it was not in his power to execute that office, having been already threatened by the inhabitants that they would plunder his house. Mr. Steenwyck again asked the people, most of whom were present, if they would remain faithful to their High Mightinesses and take the oath? But not one person answered; signifying plainly enough by their silence that they would not. Then orders were given to read to them the commission of the Governor, which being perceived by the Committee from Hartford, they said, as before, that the inhabitants of that place, being subjects of his Majesty of England, had nothing to do with a commission of the Dutch. So that after many discussions pro and con, we took up our commission and papers after having entered due protest and resolved to depart out the village. On leaving the place, some inhabitants of Southampton were present, among the rest one John Couper, who told Mr. Steenwyck to take care and not appear with that thing at Southampton, which he more than once repeated; for the Commissioners, agreeably to

their commission, had intended to go thither next morning; whereupon Mr. Steenwyck asked what he meant by that word "Thing," to which John Couper replied, the Prince's Flag; then Mr. Steenwyck inquired of John Couper, if he said so of himself, or on the authority of the inhabitants of Southampton. He answered, "Rest satisfied that I warn you, and take care that you come not with that Flag within range of shot of our village." When taking leave of the Connecticut gentlemen they asked us to what village we intended to go first tomorrow morning, and they assured us that they should be there, as they intended to be present at every place the Commissioners should visit. Entered the boat and rowed again toward Schelster Island, and resolved not to visit the other two villages, as we clearly perceived that we should be unable to effect anything, and rather do more harm than good. Arrived about ten in the evening at Sylvesters Island, where we passed the night.

8th, Wednesday.—The wind being S.E., we set sail again about 12 at noon, with the ebb, towards New Orange. When the sun being yet about an hour high, passed Plum-gut with a spanking breeze. Saw two sails; spoke one, belonging to Aghter Kol, they who passed N. Orange a day after us.

9th.—In the morning at daybreak, we had Onkeway on our beam; about North of us, espied a mizzen sail ahead, near the White Stone, when it became very calm, so that we were compelled to row, and arrived by dark at Deutel Bay, whence the Commissioners traveled by land to New Orange, and arrived about eight in the evening at Fort William Henry, delivering a report of their transactions to Governor A. Colve. The ship the Zeehond anchored in the harbor about midnight.

[NOTE.—The inhabitants of the East end of Long Island in 1673 refused to take the oath of allegiance to the Dutch. Governor Calve appointed Cornelis Steenwyck, Captain Carel Epestejn and Lieutenant Carel Quiryssen, commissioners and instructed them to proceed to the East end of Long Island in the Snow Zeehont.]



How Styles Change. Speed Boats of a Few Years Back

THE POUGHKEEPSIE-BRIGHTWATERS RACE

POWER-BOAT racing this year has been almost a complete failure. In the races that have been run there have been but few entries, and in several events the contests were called off as no boats could be induced to start. The only successful race of the season was the one held under the flag of the Poughkeepsie Y. C., and run over a course of 125 miles from Poughkeepsie on the Hudson River, to Brightwaters, in Great South Bay. What has caused this decline of interest in power-boat racing is a question which has been answered in several ways, but though we disagree as to the cause, all hands will admit that the sport is as nearly dead as any sport can be without actual burying. There is no question but what next season will see a revival of interest in this long racing and that it will again become a popular side of the sport, such as it has been for the last ten years.

The race from Poughkeepsie to Great South Bay attracted entries through its novelty, the course taking the rivermen out on salt water across a stretch of ocean and giving them a chance to see some new country. The average yachtsman haunts persistently his local waters. Summer after Summer, he voyages to the same spots, and all outside of a few miles around his club is unknown sea. That is why these long races have done so much for the sport. They have taken men into strange waters and done away with that fear of distant localities. The more you broaden the average yachter's cruising radius, the more you broaden his knowledge and the more you broaden the sport.

It seems strange but it is no less true, that Great South Bay, lying within four or five hours of New York Bay, is seldom visited by either the Long Island Sound or Hudson River yachtsmen, and the coast of Long Island, East of Rockaway, is almost yachtless. A run from Gravesend Bay to Fire Island Inlet can be easily made any Saturday afternoon, a day be spent in

the Bay and the boat back again in New York Harbor Sunday evening. Fire Island Inlet, contrary to the popular belief, is not at all difficult of entrance, except at night or in bad weather. It is well buoyed and has sufficient depth over the bar for any power boat or small sailing yacht. Unlike the inlets at Atlantic City and Barnegat, it does not enter at right angles to the beach, the channel going in on a line with the beach and being protected by a sand bar that prevents the direct roll of the sea from shooting into the channel.

The arrangements for the race were made last Spring, the management of the start being undertaken by the Poughkeepsie Y. C. and the finish by the Brightwaters Association. Three prizes were donated. The first, a beautiful sterling silver coffee service, valued at \$125, was given by the Brightwaters Association; the second prize, a sterling silver cup, was offered by the Poughkeepsie Y. C., and the third prize, a sterling pitcher and tray, given by Mr. T. Benton Ackerson, of Brightwaters. The race was confined to boats between 20 and 60 feet, and in order to exclude the fake cruisers and sure winners no craft with a maximum speed of over 14 miles was allowed to enter. It is allowing the entry of such boats that has done much to destroy the racing.

It was decided to use only 60% of the time allowance, for when the full allowance is given the large boats have absolutely no show of winning. As it was, using the 60% the largest boat finishing won, whereas, had the full allowance been given she would have been beaten by one of the smaller craft. It is impossible by any set formula to equalize chances between boats whose ratings are so far apart as shown in this list of contestants.

The weather for the race was all that could be asked for, and the boats gathered off the house at Poughkeepsie on one of the finest and hottest days of the Summer. The start was made promptly as scheduled, at 6 p. m., this hour being chosen so that the fastest



The Contesting Yachts of the Poughkeepsie-Brightwaters Race in the Harbor at Brightwaters

RACE FROM POUGHKEEPSIE, N. Y. TO BRIGHTWATERS, L. I.

FRIDAY, JULY 30TH, 1915

One Gun Start, 6:00 P. M. Time Allowance 60% of A. P. B. A. Table. Distance 125 Statute Miles

Boat	Owner	Club	L.W.L.	Rating	Finish H. M. S.	Elap'd Time H. M. S.	Allow. Time H. M. S.	Time Cor'ted H. M. S.	Remarks
Arcadia . . .	Jno. K. Sague . . .	Poughkeepsie . . .	53.0	57.6	Did not finish		Scratch		
Acko	C. F. Ackerson . . .	Bayshore	32.6	53.8	2:00:00	20:00:00	0:23:03	19:36:57	
Clara	W. H. Frank	Poughkeepsie . . .	51.5	44.3	5:25:50	11:25:50	1:37:46	9:48:04	First
Aloha	G. Saltford	"	32.2	41.9	8:07:15	14:07:15	2:02:00	12:05:15	Third
Vondy	H. von der Linden . .	"	37.9	41.0	7:12:50	13:12:50	2:11:55	11:00:55	Second
Albert T . . .	A. Traver	"	38.4	40.9	8:24:00	14:24:00	2:12:56	12:11:04	
Sea Bird . . .	Thos. F. Day	Point O' Woods	20.8	26.5	2:05:27	20:05:27	6:22:00	13:43:27	

would arrive off Fire Island Inlet during daylight. All hands broke the line within a minute of the gun and were off down the river at full speed.

Clara took the lead with Vondy second and Acko, last over the line, rapidly closing up. Coming along well in the rear was the little Sea Bird, making 6 miles to the other boats' 10 and 11. Off Newburgh, Clara, Vondy and Acko were leading with Albert T and Aloha next and Arcadia, the scratch boat, behind. After darkness set in the river mist came on and although the moon rose at 10, made it difficult to navigate at some points. The start was made with an ebb tide, which helped the boats along considerably. In Haverstraw Bay the mist was very thick, at times none of the shore lights being visible.

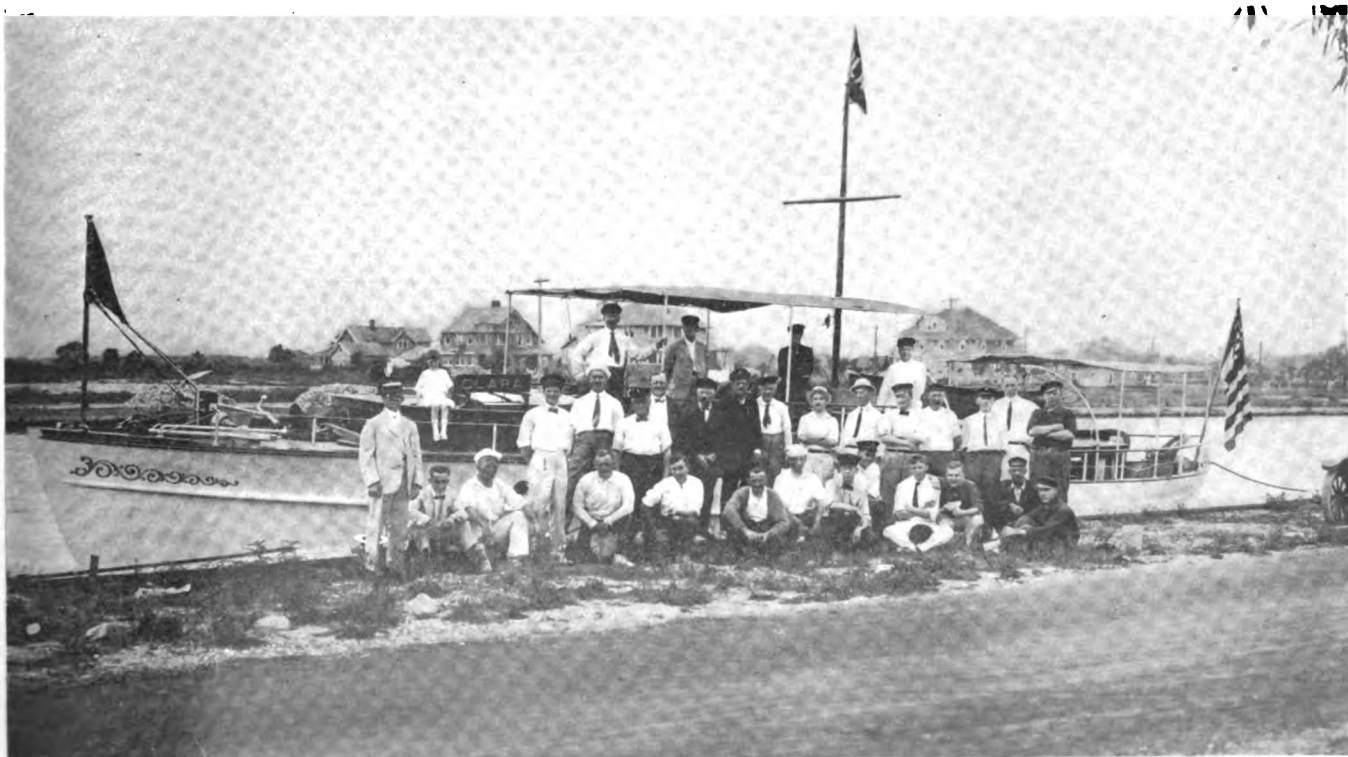
The fastest boats ran into a squall in New York Bay, Clara passing the Battery about midnight and Nortons Point at 2 a. m. She finished off Fire Island Light at 5:30, some time before any boat was expected by the finish timers. Her speed averaged very close to 12 miles.

The second boat to finish was Vondy, she making the inlet at 7:12, 1 hour and 47 seconds after Clara, but not quite fast enough to get first place, but she was an easy second. Aloha and Albert T came in next, shortly after eight o'clock.

Acko, a fast craft and one picked by many as the winner, had a breakdown when off Peekskill, and was delayed for three hours. She had another mishap off Brooklyn, and was then completely out of it. Arcadia, the scratch boat, also met with an accident, and was obliged to withdraw. Sea Bird, plugging steadily along, had no engine trouble, and made the inlet at 2:05, having voyaged the 125 miles in 20 hours, a speed of about six and a quarter.

On their arrival at the inlet, pilots were put aboard and the yachts taken across the bay to a mooring in the canal at Brightwaters. During the afternoon the crews were entertained by the Association and the Bayshore Y. C., being taken around the town and shown the sights. That evening the Brightwaters Association tendered the visitors a shore dinner at the Brightwaters Pavilion, at which nearly one hundred sat down.

The prizes were presented, the first going to Commodore W. H. Frank, the second to Captain H. Von der Linden, and the third to Secretary G. Saltford. Mr. H. C. Mackenzie, on behalf of the Association, welcomed the visitors from up the river, and Commodore Frank replied. Mr. T. B. Ackerson also joined in welcoming the men from his old home town and expressed the hope that this would be the first of many races, and the next



Crews of the Various Contestants. Clara, the Winner Behind Them



View of the Boats and the Upper End of the \$250,000 Harbor at Brightwaters

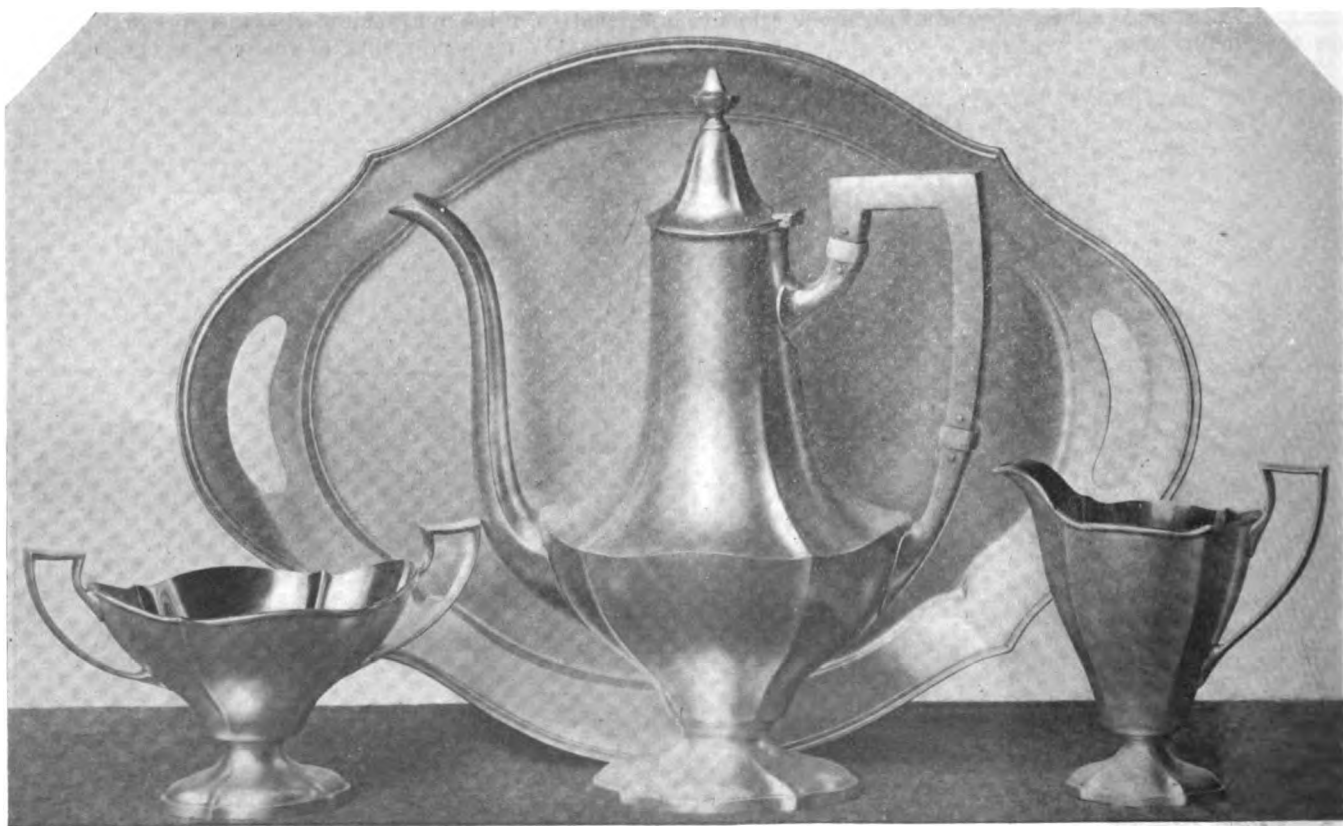
year a large fleet would come down to test the hospitality of the South Side. Mr. Arnold, one of the crew, replied with a few witty remarks and then the dinner closed with singing half a dozen cruising songs, and many assertions on the part of the visitors that would surely come again. The next day the fleet sailed for home, except Clara, she going for a long cruise on the Sound.

It is intended to make this race an annual event and every effort will be made next year to induce a large

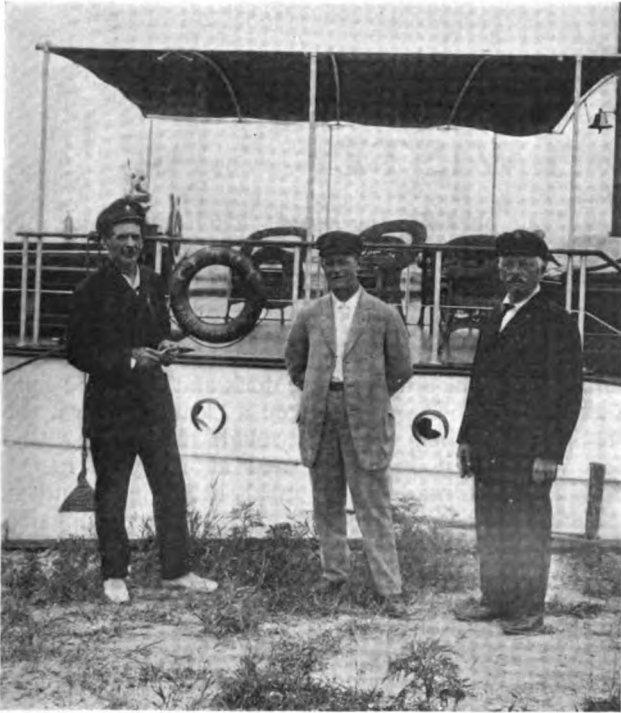
fleet of boats to face the short sea voyage of 40 miles and visit the Great South Bay.

THE BOATS

Vondy, owner, Mr. and Mrs. Von der Linden, of Poughkeepsie. She is a useful little cruiser of the raised deck type, with a trunk cabin aft the deck, this being so arranged that there is clear walking space all round, thus cramping is avoided on such long trips as



First Prize



The Regatta Committee—Left to Right: Capt. Thomas Fleming Day, Charles F. Ackerson and Ex-Mayor Wm. H. Frank, Commodore of the Poughkeepsie Yacht Club and Owner of Clara, the Winner

the race in question. Her length is 40 feet 8 inches by 10 feet breadth and 4 feet draught. Her engine also is of interest because it, too, was built by the owner, not for business purposes, but just for the Vondy. With four-cycle type engines one rarely comes across a three-cylinder plant, but this is the case with the motor of this boat, and the results may be judged by the manner in which Vondy plugged ahead throughout the race. The three cylinders each have a bore of 6 inches by 7½ inches and 22-h.p. is developed at 370 r.p.m., giving a speed of 10 m.p.h. Crew: Wm. Seaman, T. R. Kilbourne and H. Von der Linden.

Clara, owner, Mr. Wm. H. Frank, Sr., ex-Mayor of Poughkeepsie. This was the largest boat of the competitors that finished, being 60 feet long by 12 feet breadth and 4½ feet draught, and is a very handsome boat of the raised deck class, the raised deck being carried to about 'midships, and then falling away gently to the stern, this giving an easy and graceful effect. There is also a bridge deck whence the steering wheel and controls are arranged. She was built by Geo. Buckhout, of Poughkeepsie, her home port, and is driven by a six-cylinder Standard of 55-60-h.p., at 600 r.p.m. Of late years the Standard Motor Construction Company have abandoned the racing game, but their regular stock models frequently drive boats to victory, even though in the hands of private owners, as in the present instance. Taken as a whole, Clara is a big, roomy boat, seaworthy enough to cross the Atlantic and well deserved her victory. Crew: W. H. Frank, Sr., W. H. Frank, Jr., Captain M. Collier, Geo. H. Card, W. H. Irish, F. Wohlfahrt, C. W. Noll, G. L. Booth, E. Traver.

Aloha, owner, Mr. Geo. C. Saltford, of Poughkeepsie, a small raised deck cruiser with glass cabin extension, her topsides being varnished, instead of being painted white, as is her hull, and this makes her quite a smart-looking

craft, particularly as it accentuates the sheer line. Aloha is 35 feet in length, with 8 feet breadth and 2½ feet draught. Her engine is a four-cylinder Niagara of 18-h.p. at 360 r.p.m. Crew: Geo. C. Saltford, Harry Arnold, Russel B. Baker.

Alfred T, owner, Mr. Alfred Travers, of Poughkeepsie, a husky raised deck cruiser, having very fine headroom without giving a top-heavy appearance. Her length is 40 feet by 11 feet breadth and 3 feet draught. Her engine room is particularly interesting, as it contains the only motor of its make ever built. It is a four-cylinder, 5-inch by 5-inch, four-cycle type Muntz, turning at 500 r.p.m., and rated at 21-h.p. under the A. P. B. A. rules. She is quite a substantial craft—in fact, is a boat to be proud of. Crew: Alfred Travers, Geo. Buckhout, Javey Acker, Andrew Witt.

Seabird, owner, Captain Thos. Fleming Day, of New York, the smallest and lowest-powered boat in the race. This is the famous little auxiliary that crossed the Atlantic several years ago, under the command of her owner. She is of the V-bottom type, but 27 feet 6 inches long, with 8 feet breadth and 3 feet 8 inches draught. Her present engine is a single-cylinder, 5¼-inch by 5-inch, two-cycle type Bridgeport, of 4-h.p. at 500 r.p.m. Although sails were at no time used during the race, the Seabird averaged just over 6 miles an hour, which may be considered an excellent performance and had the full A. P. B. A. allowance been used instead of 60%, she would have been a winner. As regards seaworthiness, she is one of the dryest and safest boats afloat, regardless of size. Crew: Thos. F. Day, T. Orchard Lisle, Wm. Schmidt.

Acko, owner, Mr. C. F. Ackerson, of Brightwaters, a V-bottom day cruiser from Hand designs, and is a sleek-running craft, pleasing in appearance. Her length is 32 feet and she is powered with a four-cylinder, 5-inch by 6-inch Peerless, which is rated under the A. P. B. A. rules at 27-h.p. Her cabin is under the raised deck forward and aft of the raised deck, which extends three-parts of her length, is a cockpit covered by a permanent awning. As a matter of fact, she is not unlike the Flyaway, and is characteristic of Mr. Hand's work. Crew: C. F. Ackerson, Wm. Hitzelberg, Chester Harper.



Third Prize

VOYAGE OF TWISTER



IN May, 1915, I bought the well-known Cape cat Twister from Winfield M. Thompson, of THE RUDDER staff. I had heard she was a sturdy boat, and in taking her from Boston to her new home in Fall River I proved it.

We left Borden's Yard, Dorchester, at 7:30, on a night in early June. The weather was unsettled, and we were in a hurry to get South of the Cape, as I wanted to get home to see a new mate shipped in my absence.

We looked about for the gasolene boat that lies in the bay off South Boston, but could not find it, as it displayed no lights, so put in at South Boston Y. C. anchorage and lay to anchor for the night.

Next morning filled the water tank at the boat livery near Recreation Pier and went to a restaurant for supper. Got tender at Boston Y. C. and turned in.

We left Boston at 6 o'clock Sunday morning under sail with little wind and took on 14 gallons of juice at the gas boat. We had to clean out our tank, as it had filled when Twister sank on ways because an exhaust plug was left off by mistake. Also had to work quite a while, possibly two hours, drying out our engine. We got it started just as we rounded the gas buoy in to the Narrows, although she still kicked poorly and did so all day, even though we had put in a new igniter point.

We started a fire in stove to make breakfast, but on trying to get water from tank, we found it empty. I guess there was a hole rusted in it somewhere. We put in near Allerton and got some water, in pails, milk can, bottles, etc., and had a gallon jug given to us by one of the residents of the cottage colony there, for which we were thankful.

On leaving there, the wind picked up, and we ran up against a Southeaster all the way to Plymouth, where we put in at 7 p. m. We were afraid of the small harbors at Cohasset and Scituate, as they looked bad to us.

We had full sail, and were wet all afternoon, but from spray only. We were used well at the Plymouth Y. C. After putting in more gas and stretching the spring on the igniter, we left Plymouth at 7 a. m. in a fog. Only went outside the Gurnet Lights, where we anchored

for an hour until the fog lifted. Then on, before a light Northeast breeze, to the Cape Cod Canal. We met the Corsair, Pierpont Morgan's yacht, at the gas buoy at the breakwater, just coming out of the canal.

Dropped sail and ran in to the dolphins inside the canal and snubbed behind a mudscow. The launch Traffic soon came out from the dock and I did the signing up and paid my \$5. Was given a clearance card, timed 11:45 a. m. Then started through the canal with the tide favorable, it having turned at 10:40 a. m. Got through the railroad bridge in about an hour and gave my clearance card to canal officer, who came alongside in his launch, the Iona.

After leaving him, we went through channel between dolphins, for about a mile; but it was blowing a young gale from the Southwest and we rounded up, put in two reefs and started to beat down Buzzards Bay. Some nasty place, with the wind clear from Cuttyhunk.

We put in at the New Bedford Power Boat Club at 6:15 p. m. and I rushed for a car to go home to see how wife and baby were. Came back on last car and turned in.

Left New Bedford in fog at 8 a. m. It picked up some, but not very clear. This was the first time we used sail alone, as our gas was getting low. We started our engine off Two-Mile Reef, as the fog was coming in behind us, and ran into Sekonnet River before it dropped on us.

Our gas ran out at Old Bull Reef in the river and we went along with a light breeze up the river and through the stone bridge at Tiverton. We tied up at a dock there and put in some gas. Then we were home in about an hour and a quarter.

After getting in we put my new mooring over—35 feet of $\frac{1}{4}$ -inch chain in three links, with $2\frac{3}{4}$ -inch rings 4-inch diameter, a 12-inch by $1\frac{1}{4}$ -inch eyebolt and a 9-inch washer and a huge nut with a $\frac{3}{4}$ -inch shackle and 30 feet of $1\frac{1}{4}$ -inch line spliced over a thimble at the upper end. I had then to put on a 14-foot cedar pole and splice on this rope. I had two $\frac{5}{8}$ -inch straps for the pole, of Norway iron, with two 10-inch by $\frac{3}{4}$ -inch bolts to go through the pole and a 1-inch bolt to go through the straps to connect with the chain. Some rig, that!

When asked what he thought of Twister, by a member of the club, my sailing master, Commodore Mills, of our club, said: "Well, if she had not been a good boat, we would not have been here," so you see the weather we had was some heavy.

Fall River, Mass.

J. A. PICKERING.
Secretary, King Philip Boat Club.



MODERN MARINE MOTORS

AND *by* T. ORCHARD LISLE, A.M.I.MAR.E

BOATS

MODEL POWER BOATS

SUGGESTED AMATEUR ASSOCIATION

DOUBTLESS much interest will be evinced in the details and illustrations of the amateur-built model speed boat described on other pages of this issue. While there has been a certain amount of model yacht racing in the United States, very little has been done in the construction and racing of model power boats, but in the British Isles quite a lot has been done in connection with this interesting sport. In fact, there are not far short of a dozen clubs, each with a large membership.

Model power boat construction and racing should not be regarded as being childish, for it is a most serious and fascinating subject if entered upon with the proper spirit. Those who are apt to jeer at gray-headed men "playing" with model craft beside the ponds and lakes in the parks of our cities should remember that every new type of warship is first tried out in the testing tank at Washington and that the famous Fauber, Thornycroft and Ricochet hydroplanes were the outcome of exhaustive experiments with models made by their designers, as are many of the hydroplanes in this year's Gold Cup Races. If more model hull work and testing were carried out in this country, we would not see so many of those extraordinary freak boats that are to be found in every one of our harbors, lakes and rivers.

With the idea of forming a model power boat association we should be glad if those willing to assist in this connection or to become active members and officers will communicate with us, and all suggestions are welcome. We suggest that an association with headquarters in New York or some other great city and with branches in other

towns, is what is required, and if we get sufficient applications, a meeting will be arranged in New York for the purpose of forming the necessary articles of association, rules, electing the officers and other initial work.

There has been great difficulty for those who have been model makers in getting suitable castings for the machinery, also completed steam and internal-combustion engines for model power boats, but we understand that a well-known English firm of model makers are considering either opening up works here or establishing an agency in the United States. Were sufficient support forthcoming, we have no doubt but what they would do this, so an American Model Power Boat Association would not fail for lack of materials, and later developments may result in an International Association.

As mentioned in a recent issue of THE RUDDER it must not be thought that these British clubs have merely a "boy" membership, as they are composed mostly of serious-minded men, who have taken up the hobby from a scientific aspect. Some of the model hydroplanes have attained a speed as high as 22.77 miles an hour, and are splendid examples of miniature boat and engine construction. Naval architects and boat owners who go in for model racing can obtain much valuable information and experience. At the same time, once such an association is formed and in working order, the younger generation would be eligible for membership and made welcome and thus train their minds in a practical manner. The next step towards material results now must be made by our readers.



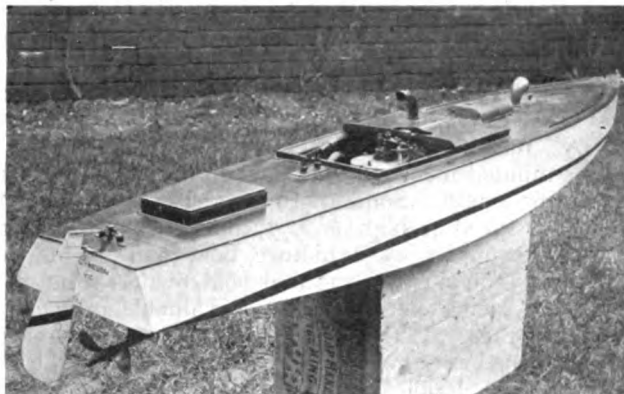
**Moneeka, a 64-Ft. by 11½-Ft. Bridge-Deck Cruiser, Owned by Mr. F. H. Wells, of Burlington, Va.
Her Engine is a 50-H.P. Sterling**

AN INTERESTING MODEL SPEED BOAT

[The work of designing, building and racing model speed boats and cruisers is most fascinating, apart from its great usefulness in assisting the development of hull design, and the following article by Mr. Claude S. Penny is most interesting. From time to time we hope to give details of other model power craft, and we trust that those readers who have had success in this direction will send us full details.—EDITOR.]

THE accompanying plans and photos show to what a fine art model racing has attained in the British Isles. The models seen at various race meetings are on the whole far from perfect, not only in appearance but in seaworthiness and how often one reads something like this: "After a fine spurt, So and So dived her bow under and sank." Some very fine installations are seen, but there is not sufficient attention given to the hull, many being mere boxes fitted with engines. There are, of course, quite a number of nice hulls about, but speaking generally, the impression is that the owners are engineers before they are naval architects.

There is no doubt that power is the chief item, but it is not the only one. Now in model power boat designing we have a great asset in the study of present day displacement motor boats and hydroplanes, there not being so very much difference (necessarily) as is the case with sailing models, for though these latter are so very differ-



The Finished Model

ent in design to modern racing yachts, there is only one reason why model power boats cannot be absolute replicas of, say, the International 21-foot class. This reason is, however, quite some setback. Whereas the hulls of model power boats can be built as equally light (in proportion) as modern racing motor boats, the motive power cannot, whether it be steam, electric or gasoline motor, consequently the displacement of a model racer is all out of proportion with that of her big sister. It is in this that model designers have their trouble, i. e., getting sufficient buoyancy to carry their machinery.

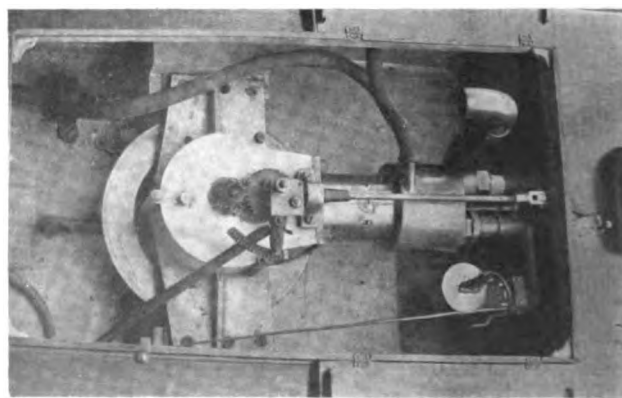
In this matter they are not encouraged to produce a sensible hull by the Model Yacht Racing Association, whose rules laid down in the classes which they recommend to model clubs, namely, classes A and B, state that breadth shall not exceed 20% of length over all. Thus a model cannot be made much of a skimmer without very light machinery, indeed, as naturally the draught is exces-

sive for the length. This rule is, however, no excuse for the lack of freeboard which is noticeably fashionable with models, or for the absence of decking. Although accessibility is essential in a model, this can be obtained with a little thoughtful planning out. Absence of deck or watertight compartments is folly and the cause of many foundering. Given ample freeboard, a boat can be decked in almost entirely, provided hatches or portable parts are arranged, but with low freeboard, the engine stands up above the deck and is therefore difficult to cover in.

The plans published herewith are of a model designed, built and owned by Claude S. Penny, of Southampton, who has made a study of model boats in all their eccentricities. She is 5 feet 6 inches long by 12 inches and is for racing in the unrestricted class. With the photos and plans, little description is necessary, but the following may be of interest.

The hull is of the hydroplane type with a single step of about $\frac{1}{4}$ -inch deep, the forward section below the chime being of a hollowed out V-form, the midsection is a rectangle and from here to the transom the boat is flat-bottomed, the tumble-home gradually increasing as it goes aft. The stern, it will be seen, is almost as wide as the midsection at the bottom, as all the bearing surface is aft when traveling at full speed, the bottom of the model being clear of the water in the bows as far aft as amidships and the transom immersed about $\frac{1}{2}$ -inch. This broad, flat stern prevents the sucking down aft which will otherwise take place and if allowed, becomes a drag on the boat and lessens her speed. Indeed, the writer has seen many models where when going fast, the decks were awash aft.

The breadth of this model is, by the way, just within the 20% limit, as owing to the length of the boat, the weights can be better arranged. Had she been, say,



The Installation

2 feet shorter, the weight carried could not have been many pounds less, the coil and accumulator would have been the same, and the motor would not have been much lighter. It will thus be seen that, whereas 20% is ample for the longer models, it is insufficient for the shorter classes, which are the more popular. Breadth is also a factor to be considered in another direction, i. e., heeling through torque of propeller. A broad flat stern prevents this, though with the type of motor fitted in the plant shown, where the flywheel acts as a gyroscope and steadies the boat wonderfully, this is not so necessary. The writer has seen high-powered steamboats that have low freeboards running with considerable list, taking water in over the side and sinking, through getting into slightly broken water.

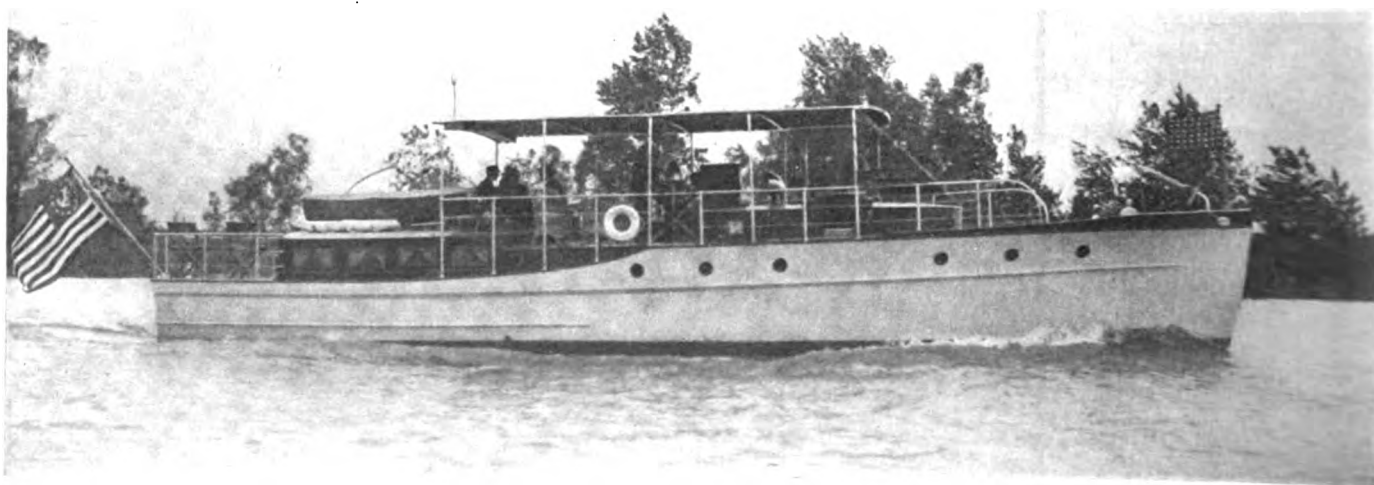
But to return to the model in question. It will be noticed that splendid protection is given to all parts, there being hinged flaps over the motor itself, while the coil and accumulator are in a separate watertight compartment aft. The fuel tank (of copper) is just big enough for about two runs of 100 yards each, it not being desirable to carry more weight than necessary and extra gasolene can be carried in one's pocket.

The carbureter, of the float-feed type, was supplied by Basset-Lowke, Ltd. She was first tried with a surface carbureter, but this, while working fairly well in warm weather, always gave trouble in starting, and did not give gas quick enough. In cold weather, it was altogether useless, no more than half a dozen explosions being obtained. The throttle lever, it will be noticed, is arranged so as to be easily manipulated, so also is the switch, this being the owner's make. The ignition is of the low-tension coil make-and-break type, and always has proved very efficient.

The water circulation is good: a $\frac{1}{4}$ -inch bore rotary pump is belt-driven off the propeller shaft, the suction

being through the boat's bottom, and the connections to the cylinder are of rubber tube. When running at full speed, a jet of water $\frac{1}{4}$ -inch diameter is thrown out at the side about 6 inches, which shows its efficiency. The motor develops just under $\frac{1}{2}$ -h.p. when running at 1,500 r.p.m., and drives through bevel wheels at engine speed, a two-bladed propeller 4 inches diameter. The heel of crank shaft below the bevel wheel runs in a ball-bearing, but does not take the weight of the motor, this being taken on the bearers. The crank case is an aluminum casting, and the cylinder is of special steel tube, with a water-jacket of brass. The exhaust is carried into the air through a $\frac{3}{8}$ -inch bore copper pipe, the bend which jams in position, being of exact radius to enable the flap of the cover to be opened without removing the pipe. Other details the plan shows.

After a series of trials, this boat can be now set to run a perfectly straight course, a larger rudder being fitted than at first. The propeller bracket, being long, also helps in this respect. The steering of power models is a delicate problem in itself, the courses taken by some boats being very erratic. Some frequently come back to the starter or crash into the bank and damage themselves. This is most common with the small craft which have no length of bearing and would be improved by fitting a shallow, fin keel. The Shem-el-Nessim, as this model boat is named (being sweet smelling?), has attained a speed of 15 miles per hour, but this was with the old surface carbureter, with engine running at half-speed. Connected with a water tap, since the new carbureter has been fitted, the motor has run up to its proper revolutions, and when the next trial takes place she must do 23 miles and will do so, or even more, as her planing will be so much better. She is certainly a great advance in design and will run in rough water, where other boats would be swamped.



Cresceus. Mr. Geo. Ketcham's New Matthews Cruiser. Length 55 Ft., Breadth 13 Ft., Draught 4 Ft. 6 In. Engine 60-H.P. Sterling. Description and Plans were Published in The Rudder for January, 1915

NEW SCRIPPS SIX

FEATURES OF A MODERN 32-H.P. HIGH-SPEED POWER PLANT

QUITE a large number of the most recent developments in the design of the high-speed marine motor has been incorporated in the latest Scripps engine, with the result that not only is the general design one that conforms with the requirements of that particular modern school of marine engineering, but it has resulted in one of the neatest looking power plants that we have yet had before us. Unfortunately we have not had the pleasure of personally inspecting or testing one of these engines, so our description naturally will be brief, and we confine ourselves to general technicalities.

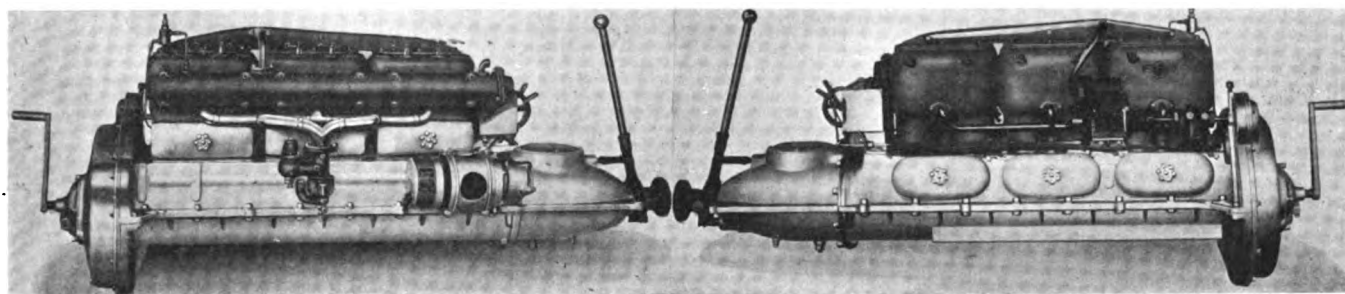
A comprehensible idea of the leading features of the design can be obtained from the two illustrations of engine, and we may add that there are six cylinders, $4\frac{1}{2}$ inches bore by 5 inches stroke, and 32-b.h.p. is developed at 600 r.p.m., and 54-b.h.p. at 1,400 r.p.m. In order to cover two or more classes of boats, the crank case is built in either aluminum or cast-iron, the former weight being 895 lb and the latter 1,015 lb. In the case of a small express cruiser, or fast runabout, the lighter metal would, of course, be used.

When studying the illustrations particular attention should be placed upon the manner of enclosing all the

maker has considered advisable to place under cover, although we have an idea that this will be done in the near future, and there would appear to be no real reason why they should not be enclosed. At the same time, it would slightly increase the constructional cost, without offering any material advantage.

In order to avoid any "slapping" tendency at high speeds, the pistons are made somewhat longer than is usual with an engine of this power. The crank shaft is drop-forged from 40 to 50-point carbon steel, double heat-treated and in accordance with modern practices, is hung from the upper crank case on "Bronshell," babbitt-lined, removable bearings between the cylinders. The cam shaft is a one-piece drop-forging, and is removable from the front end of the motor, while the connecting rods are of I-section drop-forged steel.

Helical-cut gears are another distinguishing feature, and help to eliminate unnecessary noise. All the gears are accessible by the removal of the flywheel housing. Ignition is the well-known, and much-used, Bosch Duplex outfit, with the magneto set high to clear all bilge water. Lubrication is by the maker's design regulated splash, supplemented by a Detroit mechanical force-feed



Port and Starboard Views of Scripps Engine

working parts, even the flywheel running in a housing. When the engine is installed in a cabin, this feature is particularly desirable, as apart from the absence of danger, it avoids the dirtying of the clothes of visitors by the revolving flywheel when passing from one cabin to another, as frequently occurs. At the same time, the enclosing the various parts by no means affects their accessibility. For instance, the valve tappet covers are quickly removable, as are the large inspection doors in the upper section of the crank case, also the door to the reverse gear.

The cylinders are of the inverted L-headed type, cast in pairs, and the circulating water connection on the cylinder heads is in one complete casting, thus dispensing with the usual small brass fittings and short rubber tubes, which are often a source of annoyance and needless trouble. Furthermore, the detaching of the water fitting as adopted with the Scripps design at once exposes the interior of the cylinder jackets for the purpose of cleaning out any deposit.

The only working parts not enclosed are the magneto and the water pump, which as yet we do not think any

oilier, positively driven from the cam shaft by enclosed bevel gears, which system assures positive lubrication under all conditions of operation. The reverse gear is a Paragon, planetary type, completely enclosed, with central control locking in all positions. It may also be noticed that a specially designed Leece-Neville single-unit starting motor with direct drive to the crank shaft through enclosed silent chain, is furnished as regular equipment on this model.

NEW BRITISH MOTOR YACHT

ONE of the most notable large motor yachts recently built in the British Isles is now completing at the Ailsa Shipbuilding Company's yard, this being the Thornycroft-engined Patricia, which is 90 feet in length and 19 feet breadth, with a net registered tonnage of 117. She is in many ways an interesting craft, having accommodation for fourteen people besides a crew of eight. It is pleasing to note that the work of constructing pleasure motor craft is still continuing despite the war and restricted motor boating.

LARGEST V-BOTTOMED POWER BOAT

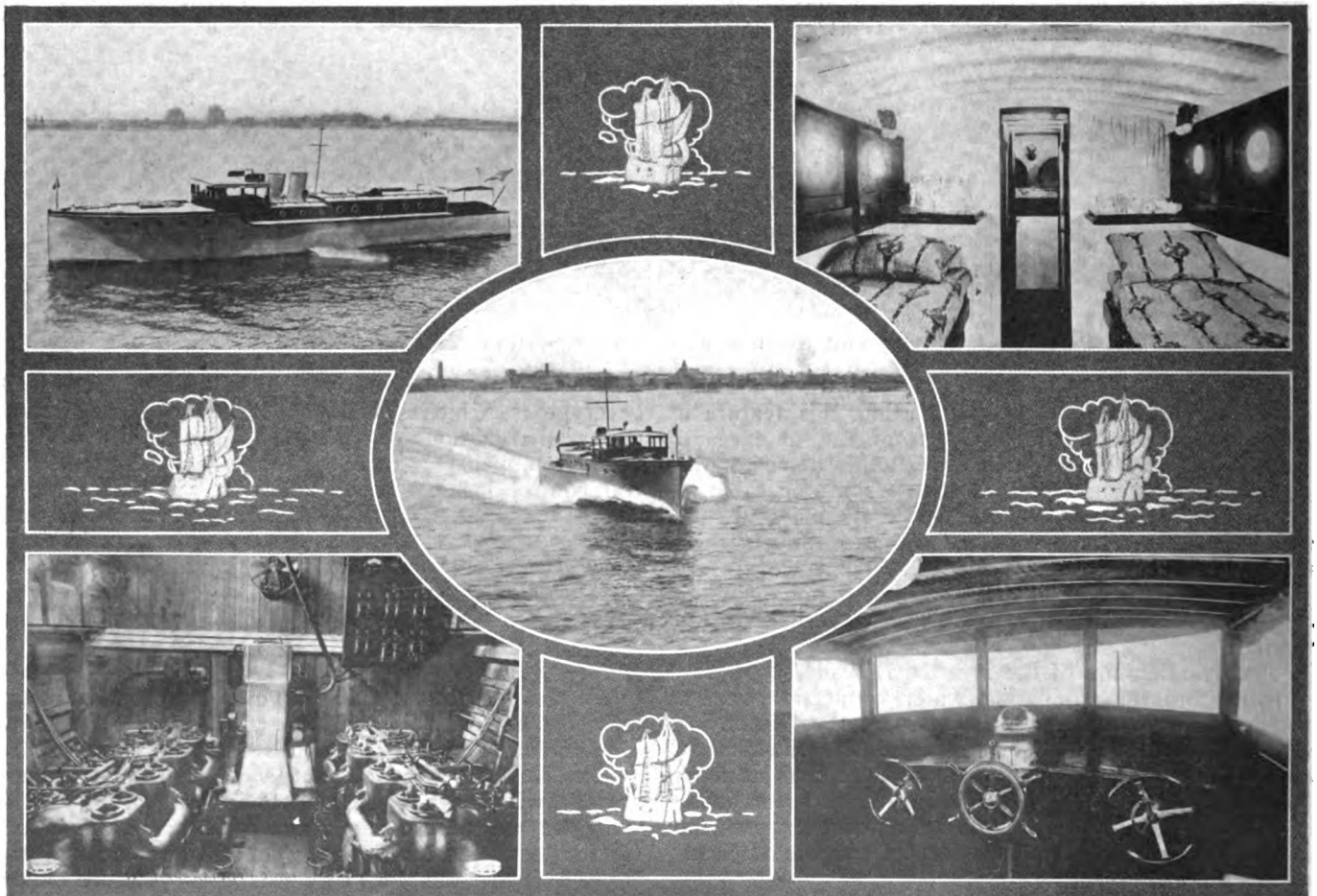
CHARMIAN II, A TWIN-SCREW 300-H.P. EXPRESS CRUISER

DURING the past twelve months, the number of V-bottomed pleasure power boats has increased to quite an important extent, showing that the qualities of this particular type of hull have been fully appreciated. At present, the development seems to be restricted to America, in Europe the reverse-curve type of design apparently being preferred, as there it is regarded as an improvement on both the V-bottom and round-bottom types for certain classes of boats, although very little has been done on the other side of the "herring pond" with express cruiser work, particularly since the war started; in fact, pleasure motor boating and yachting are very much restricted.

To the Charmian II, owned by Mr. C. Hughes Manly, of Baltimore, belongs the distinction of being the largest V-bottomed cruiser yet built, and evidently her performances have well warranted her construction. She gives an impression of power, as well as speed, as she flashes by. When the accompanying central illustration was

made, the long gray boat was traveling at a speed of about 28 miles an hour into the teeth of a 20-mile breeze through a lumpy sea, yet she moved almost silently, splitting the waves into two plumes of feathered white that swept away from her sides.

Whether one likes the model or not, there are many interesting features about her. She is 59 feet over all, by 11 feet breadth, and probably will be followed by other craft of even greater dimensions. The addition of this boat to the fleet of the Baltimore Y. C., and Maryland Motor Boat Club—for Mr. Manly is a member of both clubs—gives to Baltimore the peculiar distinction of turning out on the initial trial what we believe is the fastest cruiser of her class in the country. Her owner has made several runs with her in the Chesapeake, which have proven her ability both in speed and seaworthiness. On one of these runs, which lasted two hours and fifteen minutes, the distance covered was over 64 sea miles. No official speed has as yet been claimed for the boat, as the



Charmian II at Rest, at Speed and Some Interior Views

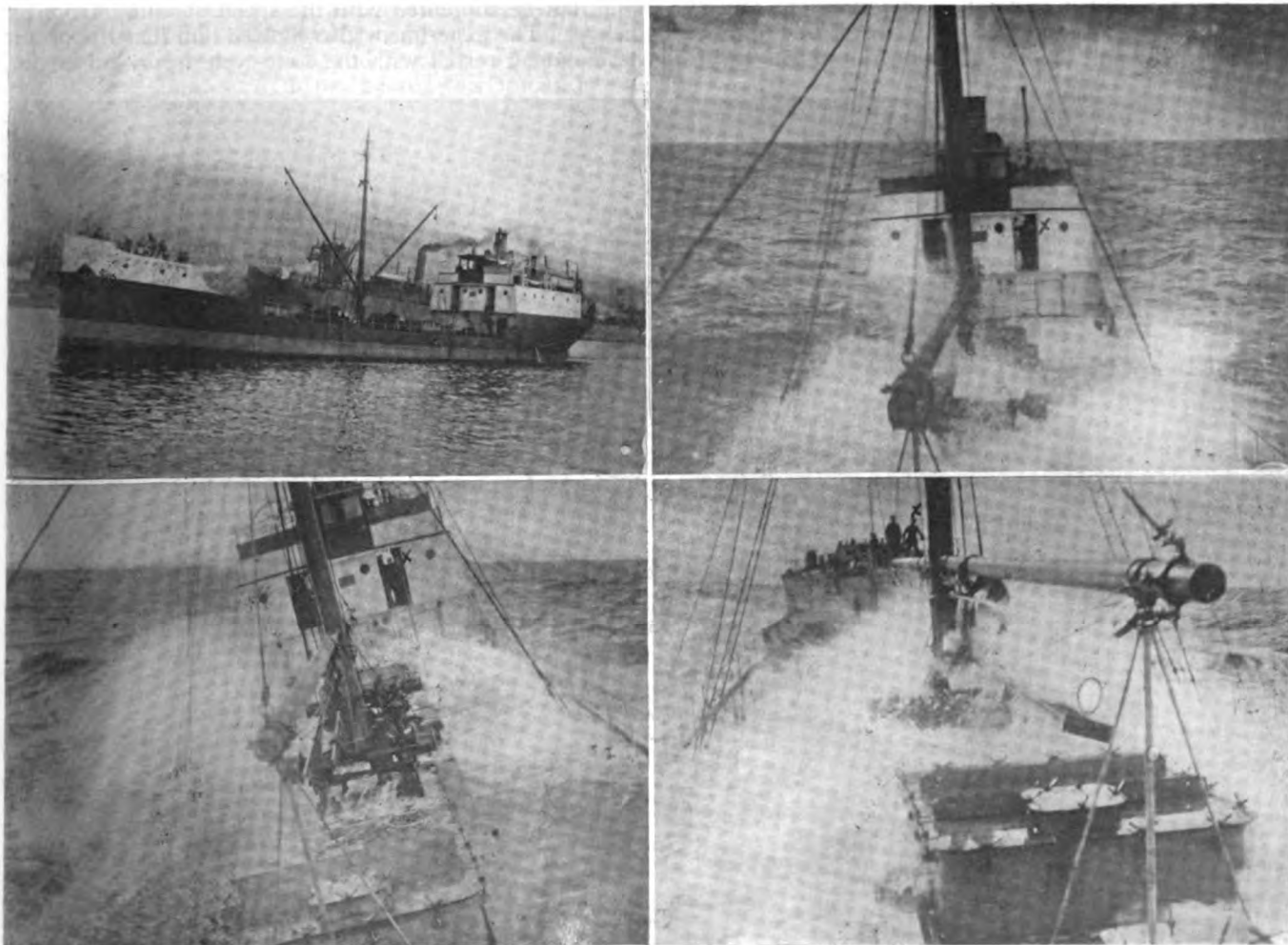
owner thinks it best to leave that to the decisions of the regatta committees, but there is reason to believe that she will average 28 knots in the races she enters.

One of the peculiar features of this boat is the amount of comfort which is to be found in her design, as she will accommodate five people for an extended cruise. The interior layout is as follows: In the extreme bow is a chain locker, followed by a toilet and double stateroom; aft of this stateroom is the bridge deck, with storage spaces underneath. Next is the engine room, 13 feet long; a single stateroom; followed by a toilet and galley, with main saloon 9 feet long, containing two transom berths, and finally in the stern a self-bailing cockpit, which gives ample deck room for those on board. Her interior finish throughout is mahogany and white enamel, with bronze electric fixtures. The galley, though small, is very complete, being fitted with Pullman type steel range, burning denatured alcohol, and in addition, several electric cooking devices. This, with a capacious ice-box, allows a cruising range independent of local markets.

Several new features will be found on her bridge deck; the most striking of which is the arrangement of the two Kranier gears which control her twin engines as simply as the average automobile. In front of the

trunnion head binnacle is a twin electric tachometer, which indicates to the helmsman any slight variation of the speed of her two engines.

The engine room is somewhat unusual for a boat of this size, due to its roominess and the accessibility of the motors. The machinery consists of two 150-h.p. Sterling gasoline engines. Aft of the motors and between them is the electric-lighting plant, of the Waterman-Uni type, a product of the well-known outboard motor concern, and alongside of it on the bulkhead is a switchboard controlling the outfit. One of the most noticeable things about the engine room is the absence of bell cranks, heterogeneous rods and mass of wire, which is due to the carefully worked out installation of her controls. This feature allows freedom about the engines for examination while the boat is underway, with no thought of derangement of her vital controls. Everything about the boat, from her big searchlight down, has been carefully thought out both for comfortable cruising and speedy racing under any weather conditions. Captain Lewis R. Baker, of Baltimore, is responsible for the general design and the underbody of this boat, while the hull was built by the Chance Marine Construction Company, of Annapolis.



A REAL BLOW

The Illustrations Depict the 500-H.P. Werkspoor-Engined Motor Ship Poseldon Weathering a Severe Storm in the Bay of Biscay. This Vessel Has a Non-Reversing Engine Driving a Reversible Propeller

THE COMING

A RUSSIAN EXPRESS MOTOR YACHT

RUSSIA, until the great conflict started, was one of the countries in which yachting in all its branches, particularly motor yachting and motor boating, was making steady strides ahead, and many American-built marine power plants found a home there, although, of course, as is the case with all European countries, pleasure cruising is very much restricted in extent at present. But no doubt after the war is over, yachting in Russia will resume its old vigor in this direction, provided she is not hit too hard financially by the enormous campaign that she is making. The importation of American motors into Russia has lately increased, but, alas, they are not for the pleasure or commercial benefit of man.

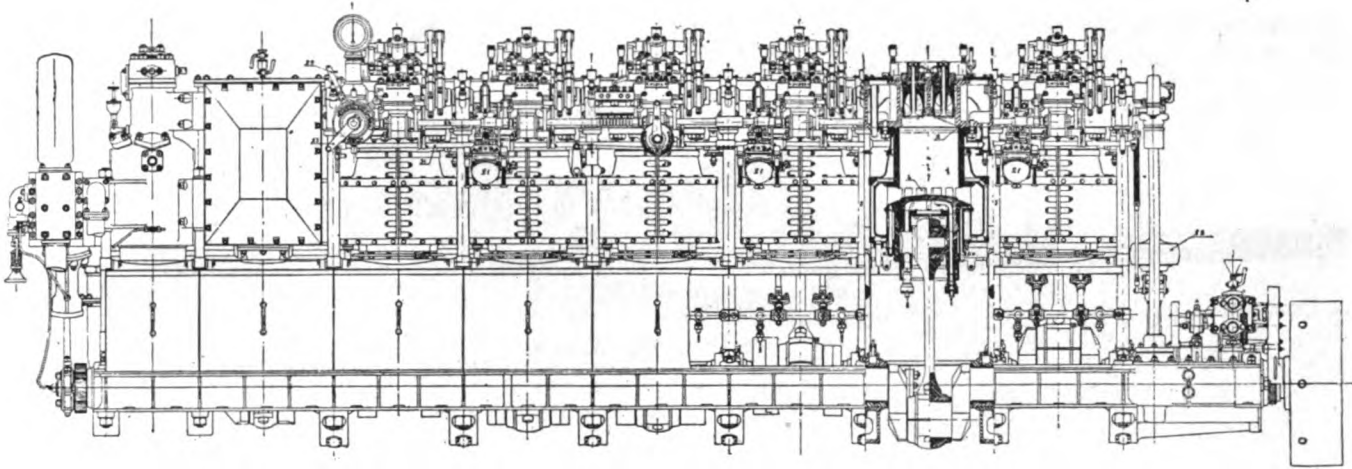
The yacht which we illustrate is *The Coming*, a 120-footer, owned by Mr. Ludwig Nobel, of Petrograd, brother of the head of the great Russian oil concern of that name, and is of particular interest by reason of the fact that although the original intention was to have one motor, she was designed to be a twin-screw vessel with a speed of about 20 knots under ordinary cruising conditions. Why she did not attain that speed and why only one power unit was fitted is also interesting.

Mr. Nobel, the owner, is a clever engineer and is very enthusiastic on the heavy-oil motor question, which type of engine he has been building for nearly sixteen years. Incidentally, we may mention that he fitted eleven 1,000-h.p. warships with heavy-oil internal-combustion engines several years ago. Some considerable time before the war started Mr. Nobel advised the writer that he had received an order for a very large number of 1,200-h.p. submarine engines (if I remember rightly, it was twenty-two sets), which would indicate that Russia is now much better off in this respect than is generally thought. Now all these engines and many others were of the four-cycle type, but for his new yacht, he decided to construct a pair of 360-b.h.p. two-cycle motors with the idea of saving weight and thus increase the yacht's speed, believing that his extensive experience with heavy-oil engines would enable him to build such machines successfully. However, after one engine had been completed and tried out, the results were such that he decided not to build the second engine, but be contented with the speed obtained from the one set. The experiment also showed him that the proper development rested with the four-cycle heavy-oil engine.



The Coming

*Lo! when the sun was half dropt in the West,
As wing-weary sea birds seeking their night rest
They drilled in upon the harbor's breast.—Thos. Fleming Day*



General Arrangement and Section of Nobel Heavy-Oil Engine of the Yacht, The Coming

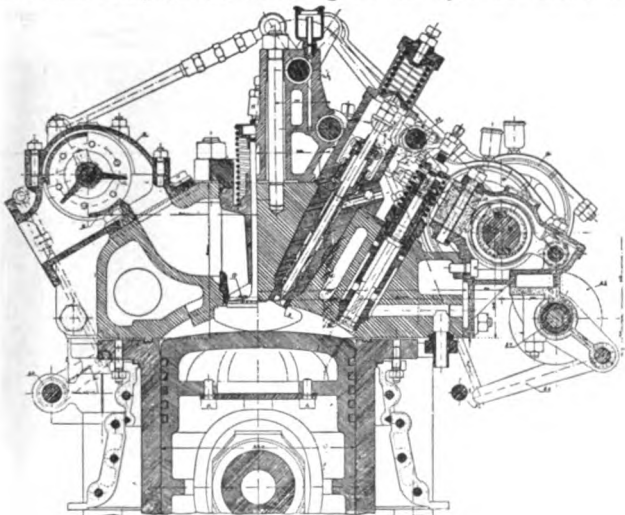
The Coming is a narrow, rakish-looking craft, built mainly for speed, her owner using her as an express on the Neva between his residence and his works in Petrograd, so on the 120 feet length her breadth is but 13 feet with $3\frac{1}{2}$ feet draught. With such a breadth and draught it will be understood that the machinery must be of light weight, and so the engine was built as lightly as perhaps is possible with a two-cycle heavy-oil engine; in fact, the total weight of the engine, including scavenging pumps, air compressors and circulating pump, was nine tons, or about $57\frac{1}{2}$ lb per b.h.p.—this for an engine developing 350-h.p. at 450 r.p.m., which is about the same as the heavy-oil engines to be used in the new U. S. N. submarines. In course of various experiments, however, Mr. Nobel evidently found that a four-cycle type high-speed heavy-oil engine could be built lighter per b.h.p. than a similar two-cycle motor, for he completed a successful six-cylinder plant of 180-b.h.p. that weighed but 2 tons 13 cwt., or 33 lb per b.h.p., and another of 150-b.h.p. at 500 r.p.m. that weighed but 2 tons, or 30 lb per b.h.p., which two cases are records for this class of engine.

As will be seen from the illustration, the engine is of the open crankpit type, with six cylinders, and somewhat resembles in cold illustration the high-powered gasoline engines built some time ago by the Standard Motor Construction Company, of Jersey City, N. J., and shipped to the Russian Navy, but, of course, in actual design is quite different, as the drawing of the cylinder head will

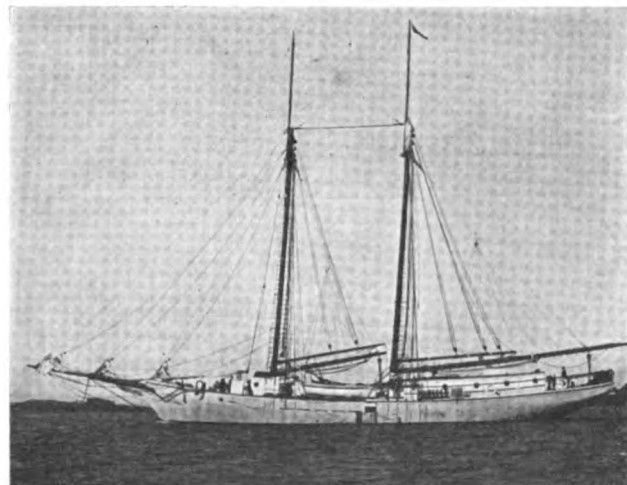
clearly show. It is directly reversible, and the scavenging pump, air compressors and water circulating pump are arranged at the forward end of the engine in line with the working cylinders. Light steel plate covers are fitted to the steel columns that carry the cylinders and so avoid the splashing of lubricating oil about the engine room, forced lubrication being fitted.

Scavenging air is admitted to the cylinders through valves in the cylinder heads, where are also arranged the air-starting valves, fuel valves, and blow-off valves, and it will be realized that the arrangement leaves very little cooling water space between the valve cages, and such small spaces are very apt to become choked with deposit, resulting in the development of cracks, although cast-steel is used for this part in the case in question. It was necessary to cool the pistons, even with such moderate power, which a four-cycle engine would not require, and this is done with oil, the delivery and discharge of which being arranged through the rocking-gear.

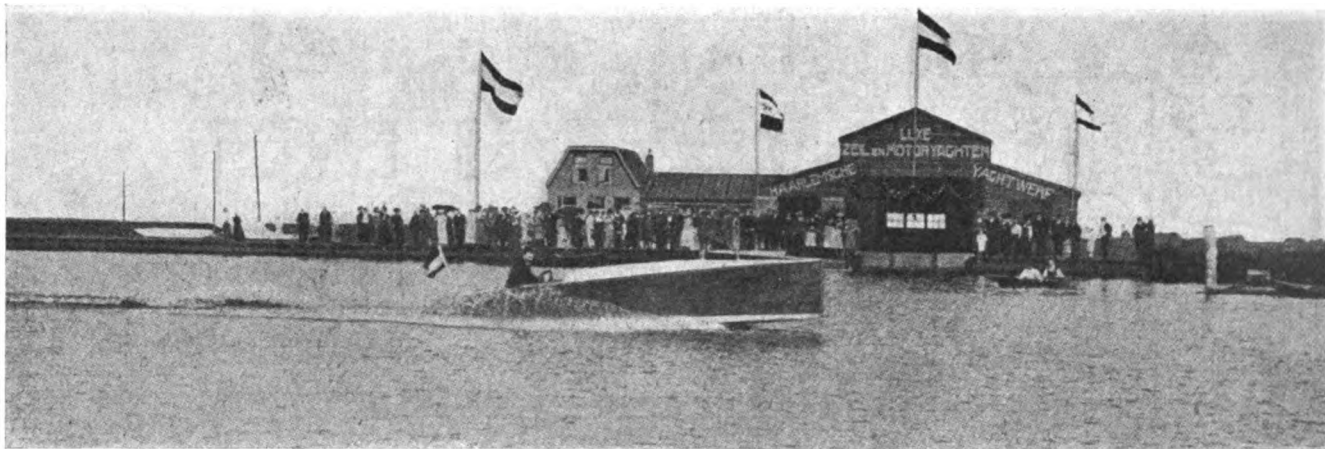
The general design of the Coming shows her to be a very fine-bodied craft of the raised deck class, with a straight stem and canoe-type stern. Partly aft of the raised deck and partly built into it is a pilothouse, the top of which is only a few feet above deck. Aft of this pilothouse the deck is unbroken except for skylights, so she has rather a peculiar appearance. For the illustrations we are indebted to *The Rulevoy*.



Section of Cylinder Head and Valve Operating Mechanism



A 110-Ft. Schooner Built by Charles Bailey, of Auckland, N. Z., and Equipped with a Loew-Victor Engine as Auxiliary Power



The Gollywog

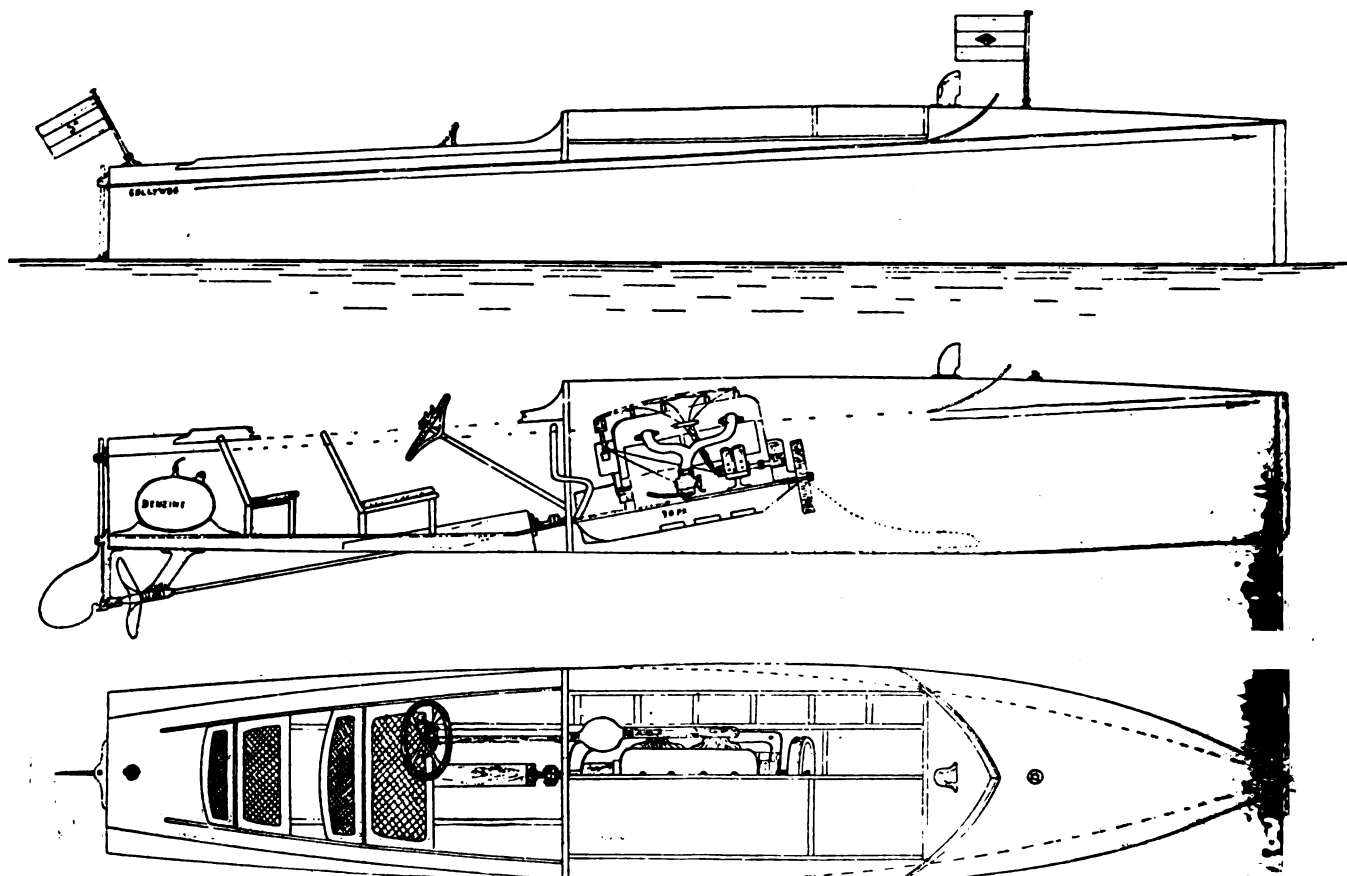
DUTCH TWENTY-ONE-FOOTER

IN view of the success of the bow-wave-collecting, or reverse-curve type of hull, it is somewhat curious that a Dutch designer should revert to the flat-bottomed type of skimmer, although the result seems to have met a fair amount of success, so far as speed is concerned, but upon the efficiency it would not be wise to place much reliance without data regarding her weight, which is not available. Also no details regarding her seaworthy qualities are to hand.

The boat in question, the Gollywog, is of special interest, as she is installed with an engine of American

make, namely, the 30-h.p. Loew-Victor, which only goes to show that, if home manufacturers set to and built a reliable motor that would develop about 40 to 50-h.p. at 2,000 to 2,800 r.p.m., on a cylinder capacity of 151 cubic inches, there would be a big demand abroad, as well as domestic, as also was shown in *THE RUDDER* recently, where a New Zealand builder endeavored without success to obtain such an engine here.

However, the Loew-Victor engine in Gollywog, while but a standard model, turning at 1,200 r.p.m., gives the boat a speed of 21.4 knots (23½ miles an hour) in rough



General Arrangements of the Dutch 21-Footer

water, with one man aboard. In a race at Sneek, a well-known yachting resort of Friesland, Gollywog secured the first prize.

She was built by the Haarlemsche Yachtwerf and is slightly over the regulation length, being 21 feet 4 inches long by 3 feet 11 inches breadth. She can hardly be called a pretty boat, and her design could be altered with improved results. The hull is built of $\frac{1}{2}$ -inch mahogany planking on oak frames, and there is seating accommodation for three persons.

We would add that there is a growing interest in Holland in the International Restricted 21-foot class, and there is an excellent opportunity for American manufacturers to build a suitable engine and secure the business while British firms are busy turning out war materials. For instance, we understand that the Government has taken over the entire output of the Sunbeam factory, and it was the remarkable little Sunbeam engine that gave the 21-foot class boats a speed so high as 35 miles an hour. For the illustrations we are indebted to the English *Motor Ship and Motor Boat*.



MOTOR BOATS AND MARINE MOTORS OF THE FUTURE

A FORECAST OF PROBABLE DEVELOPMENTS

WHEN the heavy-oil engine first came forward in its application to marine work a few years ago, it was suggested in the first enthusiasm that it would in time entirely replace the petrol* engine for all work, owing to the possibility of using fuel which was very much cheaper than petrol. It would be perhaps too much to say that this prophecy is likely to remain for ever unfulfilled, but the fact remains that ever since the appearance of the heavy-oil motor the petrol engine has continued to make progress, probably at a more rapid rate than previously. We have, therefore, says *The Motor Ship and Motor Boat*, to consider the problem of the development of the marine motor and motor boats, with the point always in view that the petrol engine is by no means a dead letter and will not become so, at any rate for as long a period which we may care to survey.

It is not the intention of this article to discuss the progress which may be made in the hot-bulb or Diesel engine, since these motors have been dealt with in such a manner on many occasions. As they are newer, more interest has been centered lately round their possible future development, and there has been a tendency to neglect any consideration of possibilities of the older types of engine, at any rate for marine work. Of course, so far as the motor car is concerned, it is true the petrol engine is the only one to be concerned with, and it is for that reason, as well as for the much more widespread use of the engine for this purpose, that its future for marine work has not received much notice.

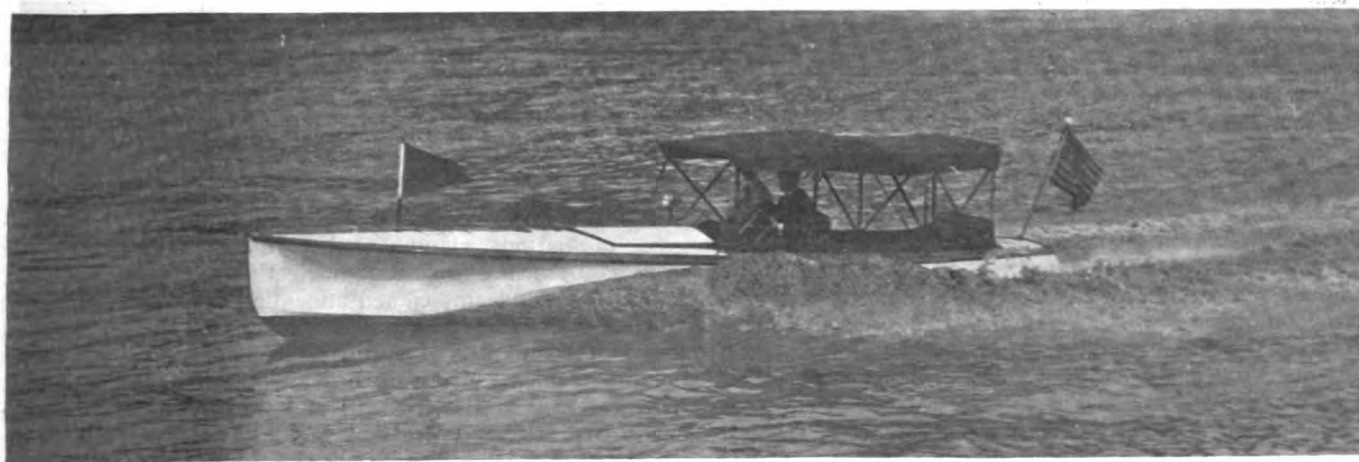
There are many ways in which the marine petrol

motor can be improved, and, indeed, one only has to think of the rapid changes that are occurring in the design and arrangement of petrol motors for motor cars to see that in many respects the builders of petrol marine motors are a good way behind the times. Certainly they suffer from disabilities not possessed by the automobile constructors, particularly in the fact that their output is very much less—and progress is reckoned largely in terms of output nowadays—but there is evidently a good deal of work that could be done and yet remains unaccomplished.

In many respects the design of the marine petrol engine has followed along the lines of that of the motor applied to car work, and this has been particularly noticeable during the last two or three years, when the enormous output of motor cars has led to great standardization and reduction in cost, and has enabled the manufacturers to carry on development work which they were previously unable to afford.

It is not difficult to see that even if we do not alter the principles upon which a motor operates, there is still much to be done in making more complete use of the accessory parts which are necessary to every engine as now designed. There can hardly be any doubt that one of the main tendencies in the future will be towards the proper utilization of electricity for various purposes, particularly as it is now becoming essential on practically every boat of reasonable size for lighting. This involves necessarily the employment of a dynamo—unless only accumulators are installed, which is undesirable practice

[*Petrol is the British term for gasoline—Ed.]



A 26-Ft. V-Bottom Runabout Built by the St. Louis Yacht & Boat Co Speed 32.75 Miles an Hour

—and the point then arises that to install a dynamo solely for lighting is waste, when the same accessory with comparatively little alteration could be employed for starting the engine, for firing (since it is electricity that is required for sparking) and for reversing.

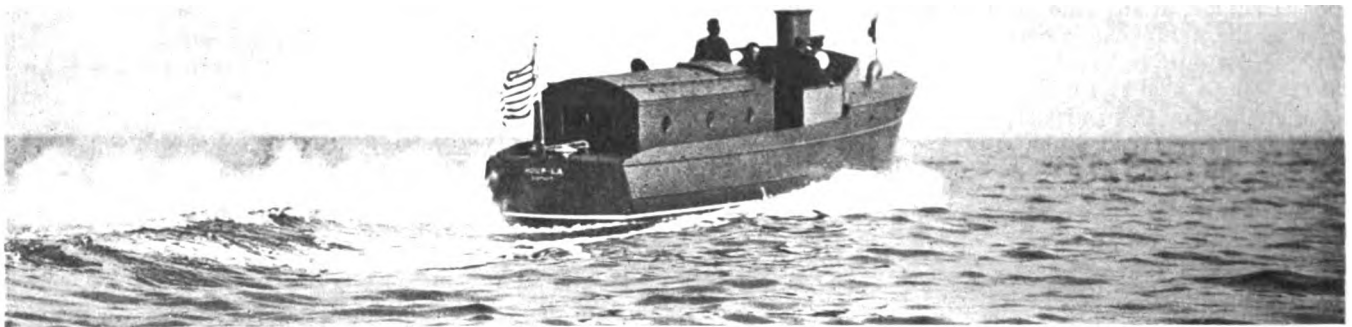
It has always been an anomaly that the four-cycle petrol motor should almost invariably be employed as a non-reversible engine when the modification in design necessary for its utilization as a reversible motor is comparatively small. This modification is very much less when means are already provided for starting up, since one of the objections to rendering an ordinary petrol motor reversible is the fact, that, unless an electric starter be provided, it is necessary to fit a small air compressor and air reservoir for the engine. When the electric starting arrangement is fitted, it is practically only a question of having another set of cams on the cam shaft and making arrangement for the moving of this cam shaft when it is required to reverse the motor.

Considering that in the standard marine motor of the future the starting device will be fitted, it would seem undesirable that no arrangement be made for reversing when, by the addition of the second set of cams, and a device for shifting the cam shaft, the reverse gear, with its consequent losses, could be dispensed with. In reality, the saving would be considerable, since, apart from the fact that the new arrangement would not be so expensive as the installation of a reversing gear, it is well known that reverse gears, even under direct drive, may cause a loss of as much as 20 or 25% in efficiency in the motor, which represents 20 or 25% of the total fuel bill.

In regard to ignition, it may be said that it is going backwards to adopt any form of coil ignition in conjunction with a dynamo and battery, but it is questionable whether this is not merely an old-fashioned point of view, and one that exists merely because we have become so

accustomed to the magneto. It will be admitted that if a dynamo is installed, together with accumulators, for the purpose of lighting or for the dual purposes of lighting and starting, then the additions required to render it suitable for the ignition also are considerably less costly than the fitting of a high-class magneto. Perhaps, too, among marine motorists the idea of the magneto has not sunk in so deeply as with users of motor cars, since coil ignition is still employed to a considerable extent in a large number of fairly modern motor boats. The apparent reversion might, therefore, be looked upon as a step forward, for there is no reason to suggest that the ignition from the dynamo would be less effective or less efficient than magneto ignition: it must be remembered that magneto ignition is practically as from a dynamo, so that in using it together with a lighting dynamo we are by no means employing the means at our disposal to the best advantage.

That this idea is not the least fantastic may be shown by indicating that in America probably about one-half of the leading manufacturers now standardize a dynamo and lighting set which also provides for the ignition within the cylinders. All that is required is a master coil with a distributor supplying the current to the plug, and although it would be unreasonable to suggest that the magneto of a good type as at present constructed is not a reliable piece of mechanism, there is no reason to infer that the provision of ignition from the main lighting and starting dynamo would be inferior to it in many respects. So far as the results attained on motor cars go, there seems to be no cause for complaint, and it is even suggested that the firing is more satisfactory at low speed than with a magneto; this is doubly important in marine motors, where flexibility is more necessary than in automobile engines, so that what applies to the motor car applies even more emphatically to the motor boat.



Hoop-La, an Express Cruiser Described on the Next Page

LAUNCH FOR THE PANAMA

THE Gas Engine & Power Company and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City, recently completed a 50-foot motor boat for the Panama Canal Commission, which is to be used for carrying the officials around the canal. The general dimensions are 50 feet over all, 48 feet 3 inches long on the water-line, 10 feet breadth, 3 feet draught, and she is named Taboga.

The launch is constructed of oak keel, stem, frames, floor timbers, upper and lower guards and deck beams; hackmatack stern knee; the sternboard plank-sheer and

coaming are of Philippine mahogany; the keelsons, engine foundations, clamps, shelf, are of yellow pine; the deck is of white pine one inch thick, blind fastened, wood plugged, seams calked and filled with marine glue; riveted over burrs; the seams of planking are calked the floor beams are of spruce; the planking is of cedar one inch thick, fastened to frames with copper nails with cotton, payed with lead and filled with putty; the heads of fastenings are countersunk and covered with wood plugs. All fastenings are of copper, brass screws and composition nails for the hull, and for the other



The Fifty-Footer for the Panama Canal Commission

work brass screws are used. The hull is copper sheathed with heavy 14-ounce copper to 4 inches above the load water-line. Felt is placed between the planking and copper. The rudder, skeg, rudder post guide and quadrant are of bronze.

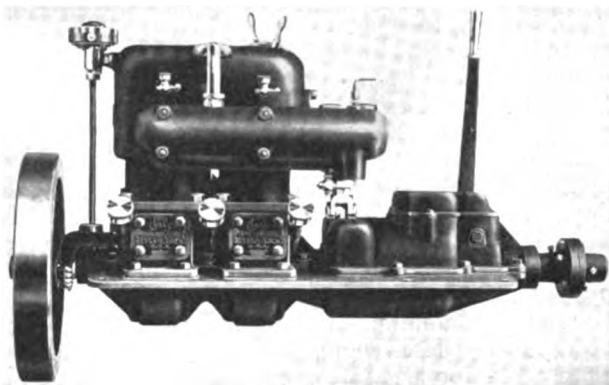
The motor compartment is arranged with double sliding hatches with bulkhead forward and aft of engine. Galvanized ventilators, painted, are fitted for ventilating the motor compartment. There is a cockpit forward and aft of the motor compartment, with floors of Philippine mahogany. Slatted seats are arranged in this cockpit, also constructed of Philippine mahogany. The lockers on the starboard side of engine room are of Philippine mahogany. The launch is painted battleship gray color above the water-line. The coaming, decks, cockpit, seats and hatches over motor are varnished.

The motive power consists of one six-cylinder, four-cycle, 8-inch by 6-inch Speedway gasolene marine engine of 60-80-h.p., complete with all of the appurtenances necessary for its proper manipulation. The controls to the motor are arranged on the steering wheel, and engine reverse gear is at the forward end of cockpit, so as to make it a one-man boat.

HOUP-LA—A ROUND-BOTTOM RACING CRUISER

HOUP-LA is the name of a new displacement racing cruiser belonging to Mr. Harold Wesson, of the well-known firm of Smith & Wesson, of Springfield, Mass. This notable boat was designed by Swasey, Raymond & Page, and built by Britt Brothers, of Lynn, Mass. The dimensions of Houp-La are 40 feet length over all by

8 feet 6 inches breadth. She is light, but very seaworthy and has already proven her ability to stand considerable weather. Houp-La is powered with an eight-cylinder Sterling, which has a bore and stroke of $5\frac{1}{2}$ by $6\frac{3}{4}$ inches and develops 150-h.p. at 1,200 r.p.m., giving the boat an actual speed of 28.34 knots.



Caille Engine

CAILLE 8-H.P. ENGINE

THE illustration depicts a two-cylinder Caille two-cycle type motor-boat propelling outfit. The bore and stroke is $3\frac{7}{8}$ inches and $3\frac{1}{2}$ inches respectively, and 8-h.p. is developed. We are advised that the variation of revolutions is from 100 to 1,000, and that the plant is built for craft of 16 to 32-foot length. It is the same model that enabled the 16-foot hydroplane Silver Heels, owned by Mr. Arthur Gilmore, Jr., of Stone Harbor, N. J., to win the American Championship last year. She was entered in nine races and captured the first prize in all events.

MOTOR BOATS FOR ALLIES

CONSIDERABLE mystery surrounds the building of a large number of motor boats and engines now under construction in this country. It is well known that the Van Blerck Company and other leading engine and boat concerns are busy on a large number of marine motors, one firm having one hundred high-powered sets building. As our own Government has made no appropriation for such craft, it would be interesting to learn which of the Allies placed the orders.

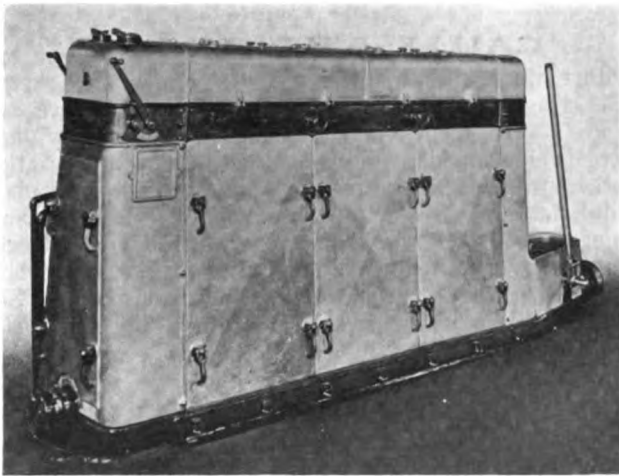


Bow View of Houp-La

LADY BALTIMORE'S ENGINE

REMARKABLE LOW CONSUMPTION MADE ON TEST BED

WHEN we exclusively described the Hall-Seeley high-compression engine of Lady Baltimore (March, 1915), we mentioned that the principal feature was the unusually low consumption expected by the makers. On the tests of her engines in the shops, which were witnessed by two of Uncle Sam's engineers, the expectations were fully realized. Generally, the fuel consumption of a four-cycle type marine gasoline engine is in the neighborhood of 0.85 lb per b.h.p. hour and rarely does it fall below 0.75 lb, while the thermal efficiency is from 13 to 18%; but according to the builders, the Hall engine on this test showed a thermal efficiency of 27% and a fuel consumption of 0.502 lb, which is as low as some types of Diesel engines, so may be considered remarkably low for a gasoline engine.



The Hall-Seeley Engine

Generally speaking, this is accomplished by the embodiment of a new combination of known principles of premixture explosive motors, which enables the engine to be operated normally at maximum compression, and which secures an increased ratio of expansion.

First: A gain is effected by a constructional arrangement that permits of maintaining compression normally close up to the maximum, or point of ignition.

Second: Economy is further secured by expanding the gases at a low terminal pressure, requiring an expansion ratio of at least eight to nine volumes.

Third: A long stroke in proportion to the bore of the cylinders is adopted, permitting a more nearly spherical form of combustion chamber, higher piston speed and a 50% reduction in the cooling effect (absorption of power) upon the combustion chamber.

Owing to these features, however, the maximum efficiency for the bore has been found to be somewhat lower than normal.

One of the chief mechanical features of the design, which is on the four-cycle principle, is that instead of the intake valve closing at the bottom of the suction stroke, it remains open at least one-half of the compression stroke, in addition to the whole of the suction stroke, and so one-half of the charge of mixture is expelled and

passed to another cylinder, but not wasted. Compression begins at this point, and is carried to the maximum pressure at the moment of ignition, which is over 100 lb per square inch.

This method of compressing a partial cylinder charge of mixture to the maximum possible pressure, and then expanding the same throughout the whole working stroke to an increased ratio, constitutes the only radical departure from the general working principle of the internal-combustion motor using gasoline as fuel. In conjunction with the method of heat conservation adopted, it is responsible for the fuel economy. To make matters a little clearer, it may be said that the gases of explosion expand to a greatly increased volume, or ratio, actuating the piston throughout the entire working stroke, until the point of exhaust is reached, when they are expelled through the exhaust valve in the ordinary manner.

Regarding the constructional arrangement of the motor it will be noticed that it is entirely enclosed by large plates, which are easily removable, and make for accessibility; in fact, a piston and connecting rod were removed in two minutes during the test. This operation is accelerated by reason of the cylinders being individually hung from the manifold combustion chamber or cylinder heads, while the latter are supported by steel columns.

For further and more detailed description, our previous article should be read, although we should add that without the silencer 117 b.h.p. was developed, or 95 b.h.p. at 510 r.p.m. was given with the silencer in position. The illustration does not give much idea of the size of the engine, but its height is about 4 feet 6 inches.

SCOTTISH MOTOR FISHING VESSELS

ACCORDING to the 33d Annual Report of the Scottish Fishery Board, the war did not interfere with the adoption of motors in the Scottish fishing boats; in fact, 171 boats more than in any previous year were converted to power, as will be seen by the following table:

Year	First Class		Second Class	Third Class	Total	Increase in each year
	Over 45 ft. keel	30 to 45 ft. keel	18 to 30 ft. keel	Under 18 ft. keel		
1901	1	—	—	—	1	1
1902	2	—	—	—	2	1
1903	3	—	—	—	3	1
1904	3	—	—	—	3	—
1905	4	—	—	—	4	1
1906	5	—	—	—	5	1
1907	6	—	1	—	7	2
1908	10	1	7	—	18	11
1909	35	3	30	7	75	57
1910	56	1	90	9	156	81
1911	75	4	144	10	233	77
1912	81	15	244	16	356	123
1913	102	80	313	28	523	167
1914	152	113	397	32	694	171

As these figures are official, it looks as if it would well pay some of our leading firms to endeavor to secure some of this business. An active man on the spot with a demonstration engine is necessary, and a reasonable amount of credit should be allowed on about 50% of the first cost.



SOME SPEEDY CRUISE

FROM TORONTO TO KINGSTON THROUGH LAKE ONTARIO IN KIOTA III

John G. Robinson

BY this time everybody in Canada and most everybody in the United States who cares a hang for fast motor boats has heard of Kiota III, biggest of the Crouch V-bottom "wave collectors" or "Cinderellas." She's owned by Mr. Richard S. Waldron, of Kingston, Ontario, was built by the Canadian Beaver Company, of Toronto, and is powered with one of the 225-250-h.p. eight-cylinder Sterling racing engines, with overhead valves, exactly like the engines in the Blackton "Babies," and lots of others of America's fastest.

These are the bare facts regarding the outfit which carried us from Toronto to Kingston through Lake Ontario and the Bay of Quinte in a time so fast that the fleetest of the Lake's fish could only find a few bubbles above them after we had passed on. To those more technically interested, it may be a good scheme to state that the fastest craft in Canada is 35 feet long and has a greatest breadth of 6 feet 3 inches. She is built of solid mahogany, follows the very latest and strongest type of V-bottom construction, and has as up-to-date and as good equipment and furnishings obtainable. These include torpedo-type dash with a two-piece folding windshield, one-man auto top with side curtains, and comfortable cushions and lazy-back. The engine, which develops 250-h.p. at 1,700 r.p.m., turns a three-bladed Ailsa-Craig Columbian propeller, 20 inches by 34 inches, at 1,500 r.p.m. It is equipped with North-East electric starting and lighting system with Williard storage battery.

So much for the outfit; now for the "cruise." For "cruise" it was, the distance being over 200 miles, and our run, I believe, is a record sky-high above all others for the distance. We cleared Toronto at 11:05 a. m. one morning in June, with instructions to go slow at first as the big engine had not yet had a chance to get limbered up. We pulled up at Whitby, just 28 miles East of Toronto, at exactly eight bells, having run along at about 30 miles per. At this port we dropped a passenger who had expressed a fervent desire to have a run in Kiota. We don't blame him. You know Kiota is not like a racing boat. She exhausts in a gentlemanly—I mean lady-like—manner through closed manifold, and belches forth no fumes nor noise. Furthermore, she glides over the water evenly and smoothly and does not hop about with the leaps of a jackrabbit. Any of you fellows who have driven a hydro will very well understand what I mean.

Being unable to find anything to eat at Whitby Harbor, which is a good-sized walk for a seafaring man from the town of the same name, we went on to Oshawa Pier, which is about 6 miles further down the lake. Being hungry, we were less merciful on the new plant, and hit her up for fair, making the run in 10 minutes, or at a speed of about 36 miles per hour. We filled up with a bully lunch at the Summer resort pavilion there, where our craft was dubbed inelegantly as a "white streak with a red end."

We devoted plenty of time to that lunch and did not skip away from Oshawa till 2 p. m. Our next port of call was Cobourg, a 40-mile run from Oshawa. We arrived there at 3:20, having averaged about 30 miles an hour for the run. We found the gasoline tank in need of replenishment by this time and had a job getting it filled. A garage uptown finally supplied it, delivering the juice by means of 5-gallon cans portaged in an automobile which once belonged to the first settler of Canada. Some car, that!

We left Cobourg at 4:30 p. m., just as the car ferry from Charlotte was entering the piers, taking her wash at full speed, and making the rail birds take notice of our



"J. G. R." and His Sunny Smile. For the Reason of the Happy Countenance See Next Page



We "Forgot" to Mention This Incident, Because Our Wives may Read This Story

grandstand stunt. The lake was slightly ruffled, just enough to make Kiota jump a little and vary the monotony of a smooth trip. We soon picked up Presqu' Isle Point, which we rounded at 5:20 p. m., running North toward Brighton Dock and following the range lights closely. Being very discreet, we slowed down here, for the writer had not forgotten running aground at this point earlier this season, owing to a lack of water,—strange as it may seem. Rounding the buoys at Brighton Pier, we sped up to the entrance to the Murray Canal. Here we had to slow down for fair in order to leave some of the canal water in the ditch intended for it. One of us had read somewhere that the rules of the canal called for a speed of 4 miles per hour. We weren't quite sure whether it was 4 or 40, so compromised on 12. (Visions of Kiota at 4 miles per!) We made the canal run nicely without exciting the bridge tenders into anything more serious than frantic gesticulations, and once clear of the ditch at about 6:15 p. m., we opened up a little and tore down the Bay of Quinte to Belleville. We arrived here at 6:45 p. m., and tied up for the night at the boathouse of Jack Roblin, right at the harbor's head.

Belleville is a city and famous for its Hotel Quinte, so we chose a good place for spending the night. The excitement of high-speed cruising proved fatal to an early start next morning, however, and it was 9:30 a. m. before we had another look at Kiota. Then we had to tell all the "bugs" about the craft and her sensational run from Toronto. We then filled our tanks (gasolene tanks) for the remainder of the cruise and pulled out of Belleville at 11:15 a. m., a disgraceful time to start. [Was it due to the incident referred to in the above picture?—EDITOR.] However, Kiota was fast enough for us to ignore such a thing as time.

It was interesting to pick up a fast automobile hitting it off on the road which paralleled the route, and running alongside of it at the same speed as our land friend for

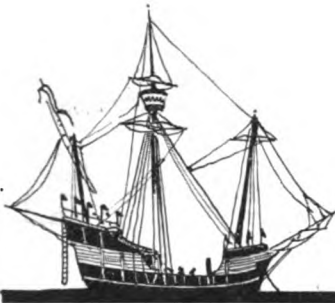
some time. We headed down the bay toward Cape Anne and the Narrows. The Narrows were soon far behind us and we crossed the big bay, passing the schooner yacht Oriole III, of Toronto, at Northport. We made Deseronto next, rounding the buoy at Foresters Island just before noon. Then came the beautiful run almost due South from Deseronto to Picton, a distance of about 14 miles, with towering banks on the West side and an occasional Summer cottage and boathouse nestling down close to the shore. That's the usual place for boathouses, anyway, I believe. On the East side were lower shores with more cottages, beautiful farms, and indications which showed that the farmers appreciate motor boats. We reached Picton at 12:25 p. m., entering the beautiful landlocked harbor and ruffling up the absolutely calm waters into some signs of life. We hitched our buggy to the wharf and sought dinner and some motor-boat friends at the Central Hotel.

Our next adventure was a brush with an alleged 35-miler. She made a sorry showing. After a few runs up and down the harbor, just to show what we could really do, you know, we slipped away as though on a marine banana peel for the last lap of our cruise. From Picton to Kingston is about 32 miles. We left the former port at 3:50 p.m. and put on a little speed. The engine had been finding herself during the run, and was in fine shape. Heretofore, we had not attempted anything faster than 30 miles per for long runs. Now we opened up to about 35 miles per, according to our Sanborn speedometer, and ripped along in great shape, passing the upper and lower gaps, and sighting Kingston Y. C. at 4:40 p. m. From this point we fairly tore along at full speed and our pride really compelled us to give a speed exhibition in front of the clubhouse before bringing Kiota III to rest in her own pretty boathouse near the club.

It was a thrilling run, but so smoothly did we travel that we were not tired with the uncomfortable jolting experienced in the hydro or in an automobile. The performance of the engine was in every way creditable. Kiota III's best speed is 42.20 miles per hour. For the long run our average was remarkably high, and we are willing to bet a good cigar that the record will stand for many moons.



Snapshot, a 16-Ft. by 3½-Ft. Hydroplane Powered with a 12-H.P. Kermath Motor. Her Speed is 21 M.P.H. and She is Owned by Her Builder, Mr. R. K. Pearce of Islands Heights, N. J.



SHEER LINES

BY C.G. DAVIS.



OLD customs and traditions handed down from father to son for generations are more prevalent in the boating game than any other form of amusement, even golf.

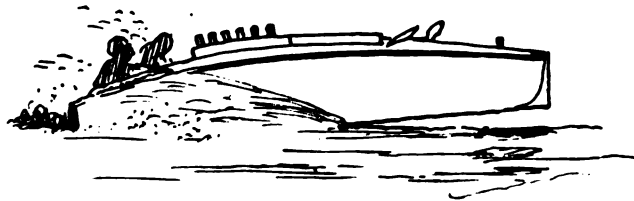
The origin of many of these customs is obscure in the fog of time, while others may be traced back over a clear horizon for centuries. Take sheer, for an example. Sheer is the curve, or sweep, the upper part of the boat's hull makes as compared to the level surface of the water upon which she rests. There is no line in the ship so dear to a sailor's heart as this same sheer line. It is the outline of the whole ship, and either makes a beautiful craft or spoils one's looks by the fairness of its curve. The graceful upspring to the after end and the long, easy, gradual increase in height or rise above the water as it goes forward to the bows all give character to a boat.

A sailor loves his ship for her beauty just as everyone loves to see any perfectly formed animal, and many an hour have ship designers worked bending long thin wooden battens in drawing and redrawing this sheer line in a vessel's plans, endeavoring to make her look more graceful.

An amateur knows one boat looks much prettier to the eye than another, but is unable generally to account for it, or give a concrete reason why she does look so.

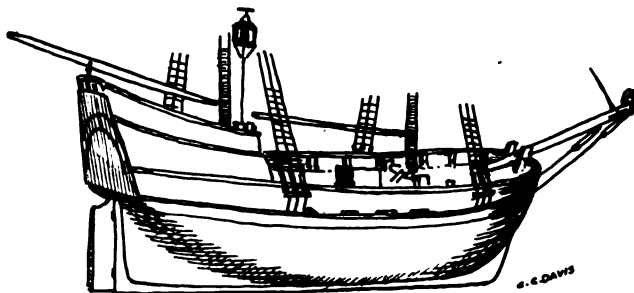
One more experienced in boats can analyze a boat's appearance and show what part of it is disproportional. Each type of boat has a certain sheer that looks well. Racing motor boats or fast runabouts, where speed is sought, generally have very straight sheer lines, or sheer lines that are what are known as "hogged," while cruisers or slow speed have more curve, and small boats, in order to keep their ends from dipping under the waves, gen-

erally have the most sheer. In olden times the caravals were built high at both ends; the after end, where the officers lived, being the higher, as that was the end from which the ship was controlled, and this high poop deck gave an advantage to those upon it over those on the lower deck when it came to hand-to-hand fighting to keep control of the ship. By the windage it exposed it acted like a weather-vane to keep the ship's head up to the seas when riding out a gale, and when scudding before the wind and sea made a stern no sea could poop or break over upon.



The hogged sheer of a modern hydroplane.

The New England fishing schooners up to as late as 1770, as the models of them in the Smithsonian Institute at Washington, D. C., show, retained this excessively high poop or after deck. The peculiar double-ended fishing schooners, known as pinkies, in use up to 1850, also had a relic of this high poop in the way their sterns were carried up higher than their bows.

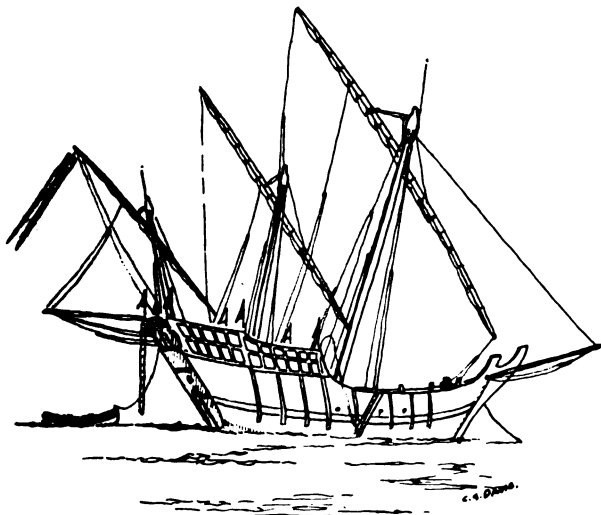


Model of fisherman of 1770 in the Smithsonian Institute.

The old North River sloops so popular on that river about 1880, still adhered to a sheer that was higher aft than forward.

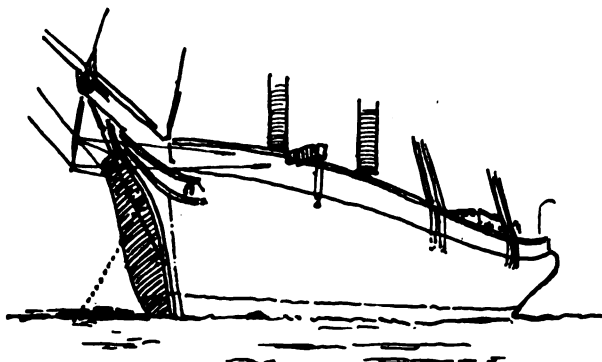


North River Sloops had high sterns.



The high stern of an old time galley.

With improvements in sail-cloth, in the use of wire rigging and the demand for more speed, there came a change in model, and the forward end, the bow, became the higher of the two, particularly on yachts and Gloucester fishermen, to stand the driving into the seas these

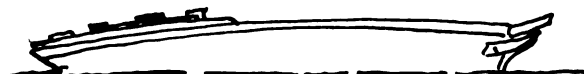


The high bows of a lime schooner.

boats were subjected to. The bow being, compared to the stern height, as 3 is to 2. A true arc of a circle makes a "scoop" sheer. A section of a parabola gives a straightish sheer line forward the increase in curvature towards the stern. When the bluntness of the bows makes the sheer appear higher a little aft of the bow than it does at the point of the stem, so the sheer makes a compound curve, it is known as a "powder-horn" sheer.



A strained ship showing a sagged sheer line.



A strained ship showing a hogged sheer line.



A double curve called a powder-horn sheer.

A "hogged sheer" is highest at some point along in the middle of the boat and then lower at the ends; a "sagged sheer" is one where the middle has settled, making an unfair curved sheer line.

The producing of a graceful sheer line, while it may seem easy enough, is one of the most difficult parts of yacht designing.

A sheer line that in itself on paper may make a most beautiful curve to the eye, when viewed in the side of the boat by being influenced by the shape of the boat's side line, will often produce an unfair curve. It is the development of these two lines that really produces the sheer and then, too, perspective enters into the question to an appreciable extent and must be considered at all times.

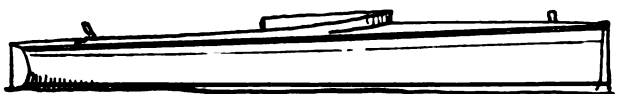
New recruits in yachting are not shocked by crooked sheer lines to the extent old hands are. Many of them, no doubt, think it intentional. The large number of new men brought into the sport by the advent of motor boating has brought out a large fleet of homemade boats



A section of a parabola makes a pretty sheer.



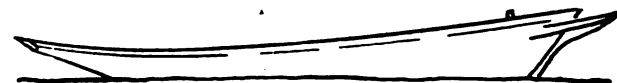
An arc of a circle gives the scoop-sheer.



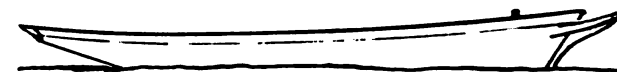
A straight line gives a racy looking sheer.

that are amusing to watch as they pass in review home-ward-bound on a Sunday afternoon, or congregate by the hundreds in Gravesend Bay or such fishing grounds as Rockaway Shoals and off Plum Beach in Long Island Sound.

In the type of boat known as a raised deck cruiser the sheer line is so broken up by the deckhouses that no real sheer line is visible. But the ungainly height this gives a short boat, where the cabins are raised in an endeavor to get full headroom below, has brought about a style that outlines a sheer line with the aid of a half-round moulding in an endeavor to lessen, to the eye, this apparent high side.



The upcurve aft that the parabolic curve gave prevented the overhang from looking drooped, and made them appear light and graceful.



which was not the case with an arc sheer - their overhangs looked clumsy and heavy.

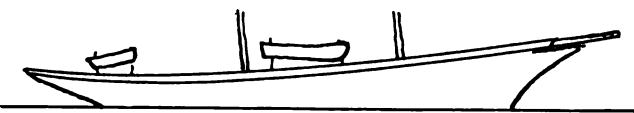
Where this is the case these mouldings must be very carefully run so as not to produce a lot of lines that lack harmony. If one would but study the beautiful taper made by the edges of the planks on a lapstrake-built rowboat and notice how, as they vary in widths, they all appear to run on the same lines, he will better understand the point I am trying to illustrate. It illustrates the taper and proportions that should exist in the lines of the top of the cabins or raised decked part of the boat in relation to the sheer battens, etc.

Where this is worked out to perfection is on the big Hudson River day-line steamboats. An analysis of their plans will show that the main deck has the most sheer and that each deck as you go higher and higher grows straighter and straighter, just as the planking of a lapstrake rowboat does.

The best-looking hull afloat can be scandalized by a set of deckhouses not slanted in harmony with the sheer. Sailors have learned all this by experience. Row ashore some day and look out over the bay at the various boats anchored there and study these points, and you will soon see how the way one yacht has her rowboats hoisted, all stowed in the davits so they line up true with the sheer.



The way boats and other objects are stowed on deck influence the looks of a yacht.



A boat that is too low forward looks badly.

looks trim and neat, and then see another with her small boats hanging slipshod at all angles, and note the difference, and you will soon learn to have your boat looking "shipshape and Bristol fashion."

In drawing a plan the sheer is usually the first line drawn. This calls for a decision on the amount of freeboard—as the height of the boat's deck above the water is termed—the proposed boat is to have.

The size of the new boat is supposed to have been previously decided upon. If that were unlimited, and you were simply drawing out the best-proportioned and best-looking boat you could, it would be an easier problem to solve. But where, owing to limited means, the boat's size has to be limited to certain dimensions and you are trying to design the best-looking 40-footer, we will say, the problem is different.

You want height for ample headroom under the deck beams—but you don't want the boat for her sake as a sea-boat too high out or too deep into the water. You want a wide boat for the floor room it gives in the accommodations below, and yet you don't want too much beam as it will make the boat tubby and hard for her engines to push through the water. As my old tutor, John Harvey, used to say—yacht designing is the choosing of the lesser

of the two evils. The successful designer is he who can strike the best compromise to fit the conditions under which the boat is to work.

If the side shape, the half-breadth plan, be a long, straight-sided shape rounding in abruptly at one or both ends, it is going to influence a nice straight-looking sheer line. Many a boat when being built has had her sheer raised forward after her designer had seen the result of these two lines, sheer and half-breadth, in actual projection. Where the sheer is an arc of a circle, an arc side line will not distort it, but a parabolic curve will and *vice-versa*. A long, straight sheer line, for instance, used in connection with a bluff-ended half-breadth or side line will produce a hump in the boat a short distance aft of the bow.

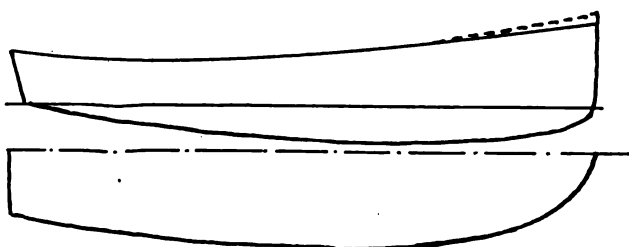
For such a shaped side the sheer line should have swept up, as shown by the dotted line.

Sometimes there is a reason for peculiar sheers. A certain firm, who built motor boats, to make the tedious joinerwork easier to build disregarded looks and carried the body of their boat almost parallel up as far forward as the end of the cabin and then, in a sudden scoop, put all the sheer from there to the bow, which does not make a good-looking boat at all.

Far worse than this, however, is the boat where the stern seems to be, even if it is not actually, higher than the bow. In some boats this is due to faulty designing and in some due to putting in a larger and heavier engine than the boat was intended to carry, which puts her down by the head, or bow.

If it is only poor designing it looks badly, but if the boat does actually go "down by the head" so she is deeper forward than aft, then she is a defective boat. It is very difficult to steer such a boat, as she will sheer off first to one side then the other, and in close quarters is apt to ram into another boat before she can be turned away.

To be an easy-steering boat—and by easy we don't mean a quick-steering boat necessarily, but one that can be kept running on a straight course—the keel should be deepest aft so it acts like the feather on the end of an arrow.



The result of a bluff bow on a straight sheer.



A poor design - Too much sheer forward



GOLD CHALLENGE CUP RACES

Manhasset Bay, Long Island, August 14, 16 and 17, 1915

Fred W Goeller, Jr.

HISTORY OF THE GOLD CHALLENGE CUP

THE American Power Boat Association, now comprising about 150 yacht clubs, purchased in 1904 this perpetual trophy, and this is the thirteenth match held for its possession. The first was won on the Hudson River, May 20, 1904, by the Standard, entered by the Columbia Y. C.; the second over the same course on September 24, 1904, by the Vingt-et-un II, entered by the Chippewa Y. C.; the third at Chippewa Bay, on August 26, 1905, by the Chip, entered by the Chippewa Y. C.; the fourth over same course on August 23, 1906, by Chip II, entered by the Chippewa Y. C.; the fifth over the same course on August 15, 1907, by Chip II, entered by the Chippewa Y. C.; the sixth over same course August, 1908, by Dixie II, entered by the Thousand Islands Y. C.; the seventh over the Thousand Islands Y. C. course in August, 1909, by Dixie II, entered by that club; the eighth over the Thousand Island Y. C. course in August, 1910, by Dixie II, entered by the Frontenac Club; the ninth by Mitt II, entered by the Thousand

Islands Y. C., August, 1911; the tenth by P. D. Q. II, entered by the Thousand Islands Y. C., August, 1912; the eleventh by Ankle Deep, entered by Lake George Regatta Association, August, 1914; the twelfth by Baby Speed Demon II, entered by the Motor Boat Club of America, July, 1914, and the thirteenth this year at Manhasset Bay by Miss Detroit, entered by the Miss Detroit Power Boat Association.

The method of determining the winner is as follows:

"The winner of the match shall be determined by the point system, whereby each boat entering and finishing a race of a match receives one point for entry and one additional point for each boat which she defeats, the winner being the boat scoring the highest aggregate number of points in all races of the match. In computing points, the maximum number of *entrants* shall be deemed racing each day, and those that do not start shall be counted as defeated boats. A boat which starts in a race, but does not finish before one hour after sunset, shall receive no points for that race, but shall be counted as a defeated boat in that race by the boats finishing."

Miss Detroit, a Smith creation, powered with a single Sterling engine of 250-h.p. and owned by the Miss Detroit Power Boat Association, had little difficulty in winning all three races, although after they were over and the one-mile trials held, Tech Jr., which had had difficulty in negotiating the turns of the 30-mile course, easily carried off the honors and made a new record for this distance. The winner of the one-mile trials gives him possession of a cup for one year, emblematic of the championship of North America.

There were thirteen entrants, but the largest number of starters was on Saturday, the 14th, when seven went over the line. Only five finished, as the Little Joker III sunk and Wee Peter Pan II withdrew after the third lap.

FIRST RACE, SATURDAY, AUGUST 14TH

At 3:55 p. m. the warning signal sounded, and shortly afterward the Tech Jr., moving very fast, shot across the line, hurrying to get into position. All the helmsmen seemed to be gun shy, and Commodore Blackton was the only helmsman who kept near the line, which was between the revenue cutter on which was one committee and the Commodore's flagship, the steam yacht Arrow, on which were other officials. The starting whistle sounded at four o'clock and the Baby Reliance V, which had been lying dead near the line, started her engines and shot across the line well in the lead. About two hundred yards astern of her was the Little Joker III, moving well with her two 250-h.p. motors. Then came the Baby Speed Demon, the defender of the Cup. Miss Detroit was next and she was followed in order by Tech Jr., Presto and Wee Peter Pan II. The last named was late and was out of the contest then.

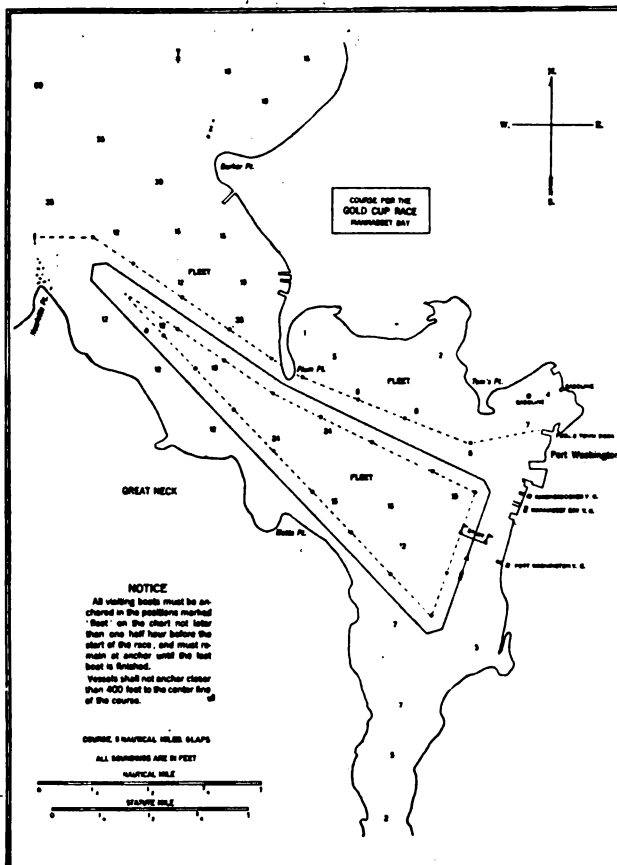


Chart of Course at Manhasset Bay

The Speed Demon soon moved second place, but when the racers were straightened out for the finish, the Miss Detroit passed her and was second to the Baby Reliance at the end of the first lap. The Baby Reliance's time was 7m. 20s.; Miss Detroit, 7m. 35s.; Baby Speed Demon, 7m. 38s. The Tech Jr. was next, and then came Presto and Little Joker. The Joker was back-firing and belching flames out of her exhausts so that she looked to be on fire. She was taken in tow, which disqualified her for this day, but later started and finished the round and sank on the following one. The Baby Reliance held her lead on the second lap, which she finished at 14m. 33s, but Miss Detroit was gaining fast and was only two seconds later in finishing this lap. The Speed Demon was third at 14m. 46s. It was on this lap that the Little Joker turned over. The race at this point had become one between the three leaders. The Tech Jr. had broken her steering gear and was out for over half an hour. They finally got things fixed up and later ran over the course

to get her points, and Presto was not fast enough, being two minutes behind the leaders at the end of ten miles.

On the third lap the Miss Detroit passed the Baby Reliance, and was leading the race, and her time at the end of this lap was 21m. 32s. She was leading the Baby Reliance by 16 seconds and the Speed Demon by 23 seconds.

On the next lap the Speed Demon passed the Baby Reliance and at the end of the lap was 28 seconds astern of the Miss Detroit. On the fifth lap the Miss Detroit had a little trouble at the same spot where the Little Joker had sunk and she almost turned over. At the end of the lap she led by 30 seconds and she finally won the race without having been pushed, by 18 seconds. The Miss Detroit ran very consistently. Her times for each round of the five miles in minutes and seconds were: 7:35, 7:00, 6:57, 7:00, 6:57, 7:12.

The boats, owners, clubs they entered from, power, etc., and the actual times and points won were as follows:

Boat	Owner and Club	H.P. and Make of Engine	Positions and Time at End of Each Lap						T'l Time	Pts.
			Lap 1 M. S.	Lap 2 M. S.	Lap 3 H. M. S.	Lap 4 H. M. S.	Lap 5 H. M. S.	Lap 6 H. M. S.		
Baby Speed Demon II	Mrs. Paula H. Blackton, Motor Boat Club of Am.	250 1 Sterling	3 07:38	3 14:46	3 0:21:55	2 0:29:00	2 0:35:59	2 0:42:59	0:42:59	12
Baby Reliance V	J. S. Blackton, Atlantic Yacht Club	250 1 Sterling	1 07:20	1 14:33	2 0:21:48	3 0:29:14	3 0:36:24	3 0:43:36	0:43:36	11
Little Joker III	Harry S. Ford, Tappan Zee Yacht Club	500 2 Sterlings	—	—	Sunk off Plum Point.					
Miss Detroit	Miss Detroit, Power Boat Association	250 1 Sterling	2 07:35	2 14:35	2 0:12:32	1 0:28:32	1 0:35:39	1 0:42:41	0:42:41	13
Presto	Carl G. Fisher, Biscayne Bay Y. C., Fla.	— 1 Sterling	5 08:12	5 16:22	4 0:24:27	4 0:32:40	4 0:41:22	4 0:50:09	0:50:09	10
Tech Jr.	T. Coleman Dupont, Atlantic City Y. C.	250 1 Sterling	4 07:35	4 15:06	6 1:19:08	5 1:28:41	5 1:37:55	5 1:46:40	1:46:40	9
Wee Peter Pan II	George E. Vigouroux, Huguenot Yacht Club	100 1 Wisconsin	7 16:15	7 29:49	5 0:45:22	Withdrawn.				

The Ankle Deep Too, Count C. S. Mankowski, 500-h.p., burned out bearing during trial over course in morning.
 The Hawkeye, Lake George Syndicate, 300-h.p., repairs not completed since she was burned two days before.
 The Peter Pan VII, J. S. Simpton and J. P. Bickell, 500-h.p. blew out cylinder head during trial in morning.
 The Tiddleywing, Thomas Chesebrough, 250-h.p., did not arrive in time.
 The Jitney, G. McK. Brown, not reported.
 The P. D. Q. VI, A. Graham Miles, blew out cylinder head and did not arrive.

SECOND RACE, MONDAY, AUGUST 16TH

This race was not as fast as on the opening day and only three boats were able to finish. These were Miss Detroit, Tech Jr. and Presto, but Presto had engine trouble twice and was a long way astern, finishing only to get her points. The Miss Detroit took 43 minutes 56 seconds to complete the course of 30 nautical miles. She averaged 40.97 nautical, or 47.11 statute miles an hour. She beat the Tech Jr. 54 seconds. The fastest lap by

the Miss Detroit was the third, 6 minutes 54 seconds, and on that lap she averaged 50 statute miles an hour.

The Baby Reliance V and Baby Speed Demon II, the Blackton pair, were out shortly before the starting time and showed up well in their preliminary spins. Just before four o'clock, when the race was started, the Baby Reliance suddenly stopped and could not be started again. Too much oil in the engine was the cause of the trouble.

The Baby Speed Demon, Mrs. Blackton's winner of



Miss Detroit (No. 7) and Baby Speed Demon II Going Around the First Turn



Baby Reliance V. Com. J. Stuart Blackton's Entry

last year, got away well, but cracked a cylinder on the first round. Bob Edgren, her helmsman, kept the boat going in spite of her crippled condition, but at the beginning of the fourth lap the connecting shaft broke and that ended her career, much to the disappointment of all. Commodore Blackton decided that he would not build a new boat to defend the Cup this year, but would race his last year's boats and let some others have chances if they could be beaten, and thus give the sport a needed stimulant.

The Tech Jr. made a fairly good showing in this race. She got away poorly, but ran steadily after that and was overhauling the Miss Detroit on the third lap, which caused Jillot to let his boat out a little. The Presto twice had engine trouble, but she managed to complete the course.

The Baby Speed Demon was the first away at the start with Miss Detroit second, about 50 yards astern; then came Tech Jr. and Presto, the latter being late. The Miss Detroit soon overhauled the Baby Speed Demon and Tech Jr. moved into second place before the first lap was completed. The accident to the Speed Demon's cylinder caused her to drop back to last place. On the second lap the Presto stopped for twenty-five minutes and the Speed Demon took third place. At the end of the third lap, with half the course covered, the Miss Detroit led by 47 seconds from Tech Jr. Then came Baby Speed Demon, 2 minutes and 23 seconds further astern and the Presto 16 minutes later. The Baby Speed Demon retired after this, and the Miss Detroit going on without a miss or a skip, won easily from the Tech Jr. by 54 seconds.

The summary:

Boat	1st Lap	2d Lap	3d Lap	4th Lap	5th Lap	6th Lap	El. Time		Pts.
	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	H. M. S.	H. M. S.	
Miss Detroit	07:00	14:25	21:19	28:25	35:40	43:56	0:43:56		13
Tech, Jr.	07:48	14:54	22:06	29:27	37:03	44:50	0:44:50		12
Presto	08:17	33:07	40:20	47:35	28:52	37:30	1:37:30		11
Baby Speed									
Demon II	08:06	16:27	24:19	Disabled.					0

THIRD RACE, TUESDAY, AUGUST 17TH

This race completed the series and was not a remarkable one. Of the thirteen boats entered, only seven started in the first race, and only five of them finished. More were eliminated in the second race, and yesterday only three crossed the starting line and but two finished. The Miss Detroit, it is said, can make 57 miles an hour. Just once in the series she was let out a little, and on that occasion she did one lap of five miles at the rate of 50 miles an hour.

The Miss Detroit, Tech Jr. and Presto crossed the starting line yesterday in the order named and after making the first turn the Miss Detroit ran away from the other two. The Presto got in trouble on the second leg of the course, and then Tech Jr. stopped. Miss Detroit, having a comfortable lead, was slowed down and made the first lap in 9 minutes 31 seconds, a little better than 30 miles an hour. The Tech Jr. was repaired and limped on, finishing the first lap in 14 minutes 6 seconds and the Presto made her first five miles in 33 minutes 21 seconds.

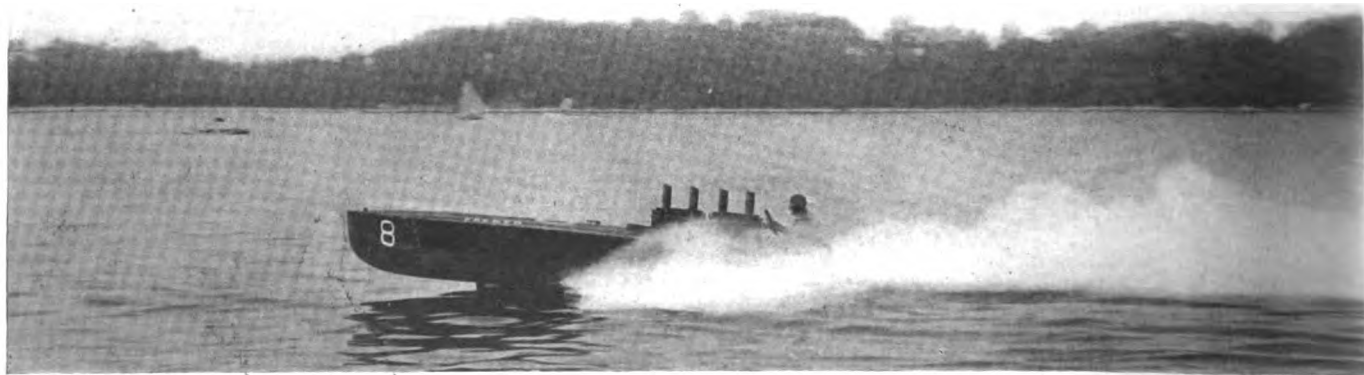
After that Presto broke down again and withdrew.

Miss Detroit lapped the Tech Jr. on her fourth round of the triangle and she eventually won the race, finishing in 1 hour 3 minutes 34 seconds. Her average speed was 29.62 nautical, or 34.06 statute miles an hour.

The Tech Jr. finished her fourth lap just after the Miss Detroit finished the race. She kept on going, because there was a handsome silver cup for the second boat and she finished the race in 1 hour 33 minutes 30 seconds. The times at the end of each lap of the course in minutes and seconds were:

Boat	1st Lap	2d Lap	3d Lap	4th Lap	5th Lap	6th Lap	El. Time		Pts.
	M. S.	M. S.	M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Miss Detroit	09:31	20:12	30:30	0:41:24	0:53:00	1:03:34	1:03:34		39
Tech, Jr.	14:06	29:51	47:46	1:04:37	1:20:23	1:33:30	1:33:30		33

↳ Total number of Points for three races.



Presto, Owned by Carl G. Fisher, Biscayne Bay Y. C.

TRIALS FOR THE ONE-MILE CHAMPIONSHIP OF NORTH AMERICA--AUGUST 18th



HE Tech Jr., owned by Colonel T. Coleman du Pont, and steered by his son, T. Coleman du Pont, Jr., made a new record over the measured mile course and captured the Championship Cup, which she will hold for one year. She ran six times over the measured course of 6,080 feet, a nautical mile, and her average was 46.79 nautical miles, or 53.879 statute miles an hour. This is the greatest authentic speed yet attained by a motor boat on this side of the Atlantic. She ran so smoothly that she did not appear to be making any great speed, and only close students of motor-boat speed could tell that she

was moving so fast. She started without any fuss, and when her mechanic opened up the engine she quietly lifted herself onto the surface of the water and, skimming along on her planes, exceeded railroad speed. Her best mile, the fourth, she made in 1 minute 16 seconds, which is at the rate of 54.54 statute miles an hour.

The Tech Jr. was designed and built by Adolph Apel, at Ventnor, near Atlantic City. She is driven by an eight-cylinder Sterling motor of 250-h.p. The engine turns 1,550 revolutions a minute, and is geared so that it turns a Columbian Architect's propeller 2,067 times a minute. This propeller is of two blades, 20 inches in diameter by 40 inches pitch. The boat is 21 feet long, 6 feet 6 inches breadth, and with the motor weighs 3,463 lb without the crew.

The Tech Jr. does not negotiate, turns easily, and she lost ground at every turn of the triangle of the Gold Cup course, but on the straightaway she always moved very fast.

Four boats succeeded in completing the six trials over the course, and Ankle Deep Too started, but stopped in

the middle of the first mile. After finishing the first trial, she withdrew. She showed some remarkable speed running into the bay, and many declared that it was the best speed of the meeting, but it ended there.

There was a fresh wind from the North which roughed the surface of the water, so that conditions were not nearly as good as they were for the cup races. The owners met in the clubhouse of the Manhasset Bay Y. C. and drew lots for the order in which they should make their trials. The order was Presto, Ankle Deep Too, Baby Speed Demon II, Miss Detroit and Tech Jr. The Tech Jr.'s position was the best, as by the time for her to start the wind had dropped somewhat so that the water was smoother with nearly high tide, and it was deeper, as well.

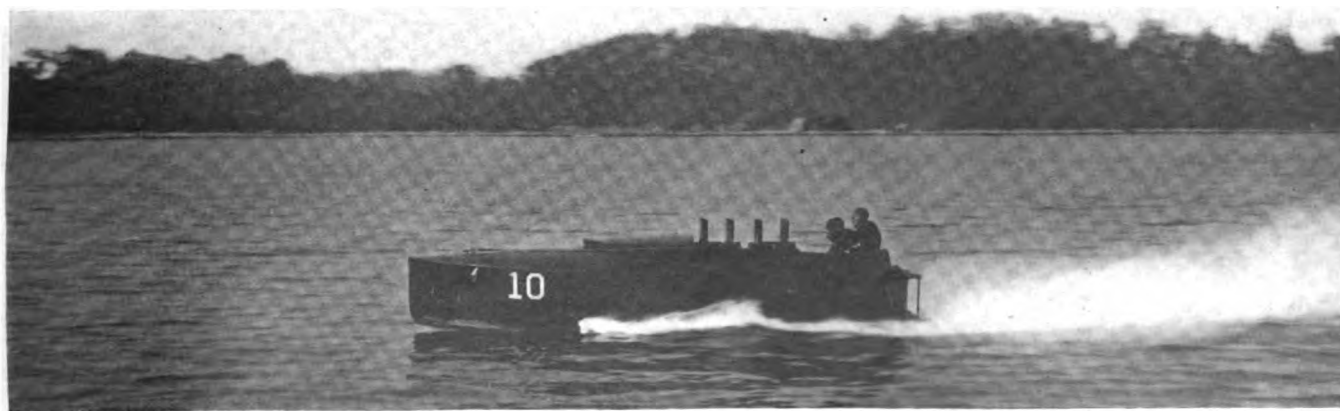
Ranges had been placed at each end of the course, and the timers were on platforms erected, so that they could have a clear view. These platforms were connected by telephone, and watches were started and stopped at each end of the course.

Each boat was allowed half an hour to make the six trials, three each way of the course, and Carl G. Fischer's Presto, steered by Victor Kleesrath, started promptly at 3:30 o'clock to run to the West. She made her first mile in 1 minute 21 seconds and came back in 1 minute 19 $\frac{1}{2}$ seconds. She did well until her last two miles, when she slowed down considerably and averaged 43.73 nautical miles an hour.

The Ankle Deep Too was next out, and she started off well, but threw a big wave. For about half a mile she moved very fast. Then she stopped suddenly, but started again and finished the mile in slow time. They tried to get her going again, but failed, and she was withdrawn.

Mrs. Blackton's Baby Speed Demon II, with an engine of composite build, that is, she had parts of the motor of Baby Reliance to replace broken parts in her own engine, was third to be tried. Robert Edgren had the wheel, and she showed a remarkably consistent performance. Her first mile was in 1 minute 22 seconds, and each other mile varied from that time by a fraction of a second.

The Miss Detroit came next. It had been announced that she had made 57 miles an hour and would be pressed



Tech Jr., Owned by Col. T. Coleman du Pont, Established a New Record of 53.879 Statute Miles per Hour in the Six Speed Trials



The Peculiar Wave Formation of a Modern Hydroplane Viewed from Above

to her limit, so her performances were watched carefully. She was a disappointment. The best she could do was her last mile in 1 minute 18 3/4 seconds. Her average was 42.53 nautical miles an hour and she was placed fourth in the day's performances.

The Tech Jr. came out last and started off with a mile in 1 minute 17 3/4 seconds. She went out again in 1:17 1/2 and home in 1:16. Her fifth mile she did in 1:17 1/4

and came back in 1:16 1/2. It was on the second mile that she broke her plane, which caused her to lose two seconds, but after that she performed consistently.

The summaries:

*The times for each mile and the average speed of each performer were:

Tech Jr.—1:17 3/4, 1:19, 1:17 1/2, 1:16, 1:17 1/4, 1:16 1/2. Average, 46.79 nautical, or 53.879 statute miles an hour.

Baby Speed Demon II.—1:22, 1:22 3/4, 1:22, 1:22 3/4, 1:22 1/2, 1:21 1/4. Average, 43.738 nautical, or 50.367 statute miles an hour.

Presto.—1:21, 1:19 1/4, 1:20 1/4, 1:21 1/4, 1:23 1/2, 1:24. Average, 43.73 nautical, or 50.36 statute miles an hour.

Miss Detroit.—1:23 1/4, 1:20 1/4, 1:22 1/4, 1:20 1/2, 1:23 1/2, 1:18 1/2. Average, 42.54 nautical, or 49.46 statute miles an hour.

Ankle Deep Too.—Disabled.

SUMMARY OF MILE TRIALS

Manhasset Bay, N. Y., August 18, 1915

For 40-foot Class and under, Mile Championship of North America, and American Power Boat Association Challenge Cup for holder of this title.

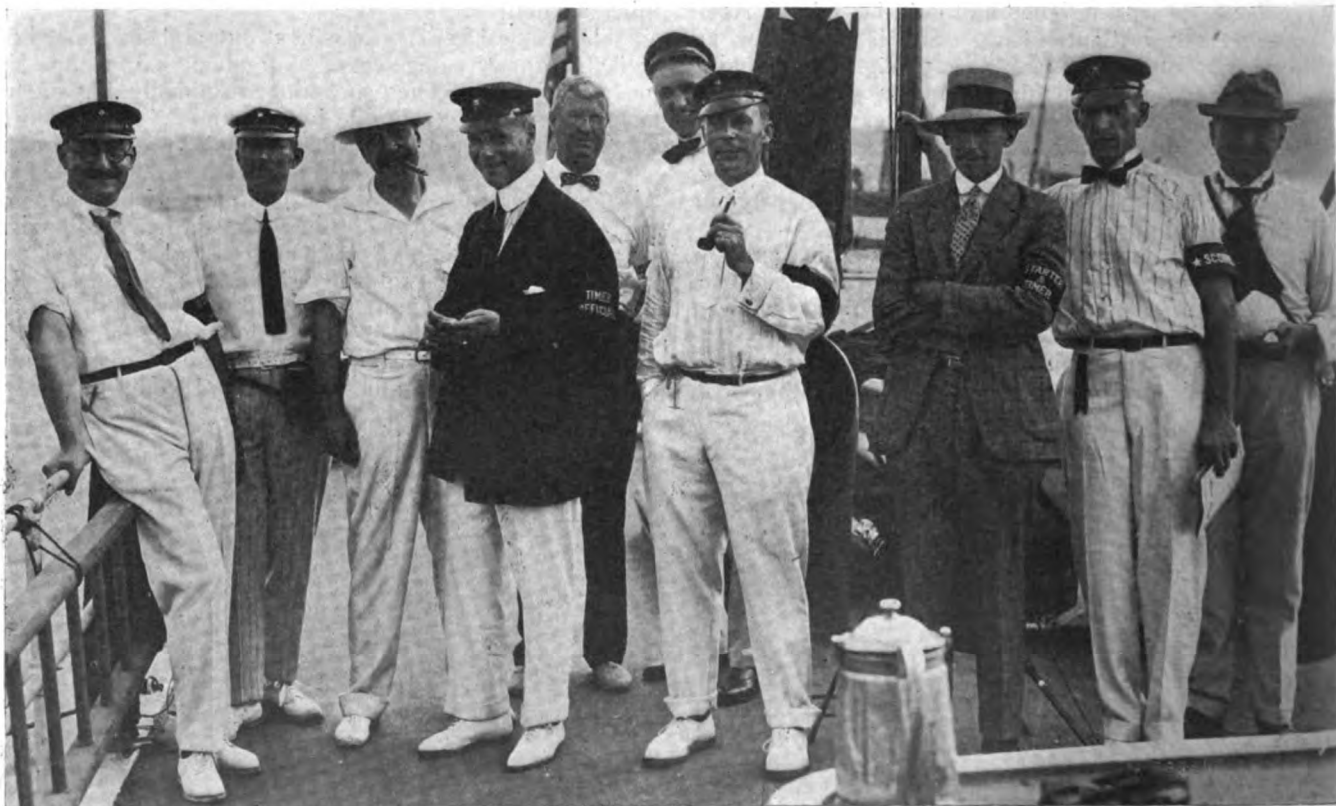
Average of six runs over course of 6,080 feet under Admiralty conditions.

Timed by six watches* and telephone. Weather fair. Sea rough.

Boat	Average Speed		Speed of Best Mile	
	Nautical M. P. H.	Statute M. P. H.	Nautical M. P. H.	Statute M. P. H.
Tech Jr.....	46.637	53.7	47.3	54.465
Presto	44.237	50.938	45.112	51.946
Miss Detroit.....	44.05	50.723	45.708	52.632
Baby Speed Demon II	43.753	50.381	43.088	50.652

Note.—Record made by Baby Speed Demon II, August 1, 1914, at Lake George, in competition for this Cup and Title, flat calm sea: 44.920 nautical; 51.725 statute.

*Watch No. 1, Henry A. Jackson, Jr.; Watch No. 2, James W. Alker; Watch No. 3, Robert E. Power; at Northern end of course. Watch No. 4, R. B. Clark; Watch No. 5, Henry Sampson, Jr.; Watch No. 6, Fred W. Goeller, Jr.; at Southern end of course.



The Happy Crowd of Starters, Timers and Scorers After the Races. Everything Went Along Without a Hitch or Delay, Consequently, the Smiles. Left to Right—James W. Alker, Edward H. Tucker, Henry A. Jackson, Jr., Reuben B. Clark, Henry Stephensen, John Mitchell, Henry Sampson, Jr., Robert E. Power, Fred W. Goeller, Jr., Henry Berg.

HANDICAP CLASS REGATTA

NINE yachts of the handicap yacht racing class, two of them sailing "scratch" and the others with time allowance varying from 4½% to 19½% of the elapsed time of the first yacht to finish, sailed a race on Long Island Sound on August 15th, for a trophy offered by A. G. Hill, a member of the class. It was stipulated that all the yachts of the four divisions should sail as one class, hence the unusual time allowances, which were "differentials," in addition to the usual allowances within the divisions.

The start was made at a quarter after twelve o'clock. At that hour the wind was very light, but it increased to a fair sailing breeze before the yachts had covered the first leg. The start was quite close for one made in light air. The Miss Modesty, the smallest boat in the fleet, was first over the line at the leeward end, with her wind free. All the others were bunched at the windward end, with the Anita in the middle of the squadron, slightly ahead. She never lost her advantage. She led the fleet at every mark, and at the end of the windward work she was 12 minutes in the lead, and on the close

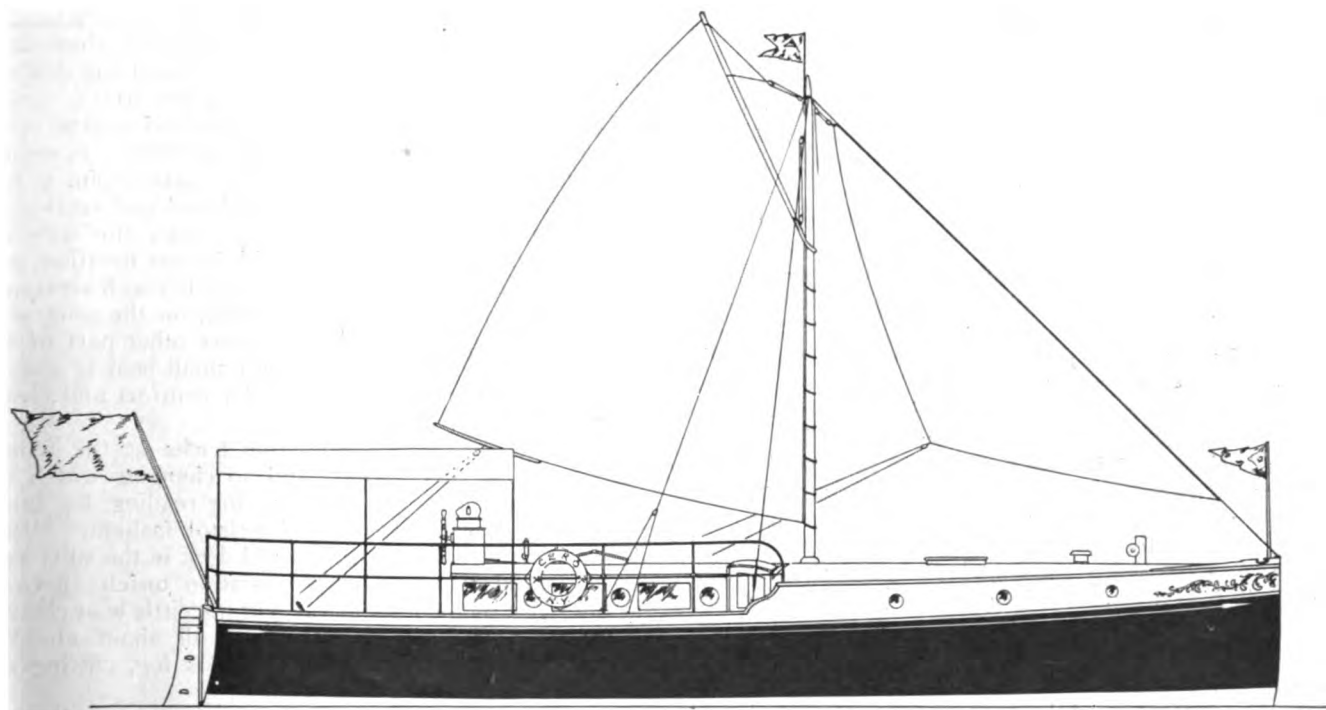
reach home she made another small gain. It was a moderately fast race, for the Anita, the first to finish, sailed the 17 miles in 3 hours 9 minutes, and was able to concede all the time allowances required by the others, and considerably more. The Amoret, which sailed on even terms with the Anita, was second to finish, slightly more than 12 minutes astern of the Anita, and rather more than 6 minutes ahead of the Carolina, but allowed the latter more than 8 minutes, and fell to third place.

The summaries:

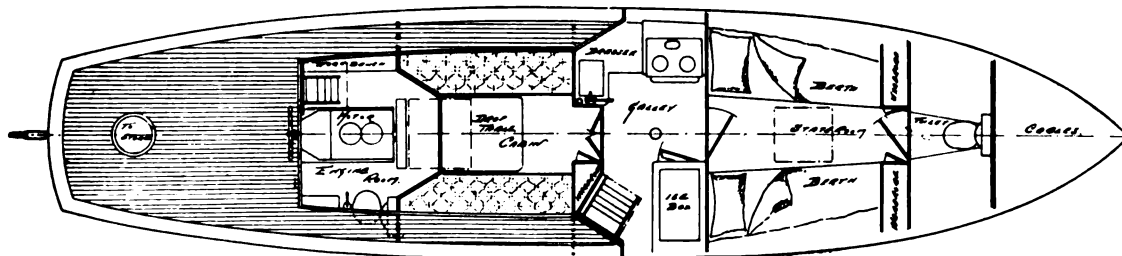
HANDICAP YACHT RACING CLASS.—Start 12:15. Course, 17 Miles.

Yacht and Owner	Finish	El. Time
	H. M. S.	H. M. S.
Anita, G. P. Granbery.....	3:24:07	3:09:07
Carolina, A. W. Lockwood.....	3:42:48	3:27:48
Amoret, R. B. Budd.....	3:36:20	3:21:20
Sally IX, A. E. Black.....	3:51:57	3:36:57
Red Wing, Grace and Loewy.....	3:57:59	3:42:59
Ariel, T. Price.....	4:00:30	3:45:30
Veda, George Chadwick.....	3:56:42	3:41:42
Twinkle, S. C. Hunter.....	3:59:02	3:44:02
Miss Modesty, C. M. Reed.....	4:30:08	4:15:08

Corrected Time.—Anita, 3:09:07; Carolina, 3:19:17; Amoret, 3:21:20; Sally IX, 3:25:36; Veda, 3:28:28; Red Wing, 3:28:48; Twinkle, 3:28:54; Ariel, 3:33:12; Miss Modesty, 3:38:15.



— 40 Ft. Sea King Cruiser —



Cero, Wm. P. Frost, Owner. 39 Ft. 11 In. x 9 Ft. 6 In. x 3 Ft. 9 In. Power, 2-Cycle 6 In. x 8 In. Mianus Engine. Designed by A. E. Luders and Built by the Luders Marine Construction Co.

A CALIFORNIA CRUISE

By W. P. B.

ON a beautiful afternoon in February, 1912, I found myself one of a small party, lolling around the cockpit of my motor launch Alice. We were at anchor in the mouth of Redwood City Slough, one of the largest of the many creeks or sloughs which break up the lower part of San Francisco Bay, having come that afternoon from Alviso, at the extreme Southern end of the bay.

We had worked out Alviso Slough under dead slow bell as the tide was falling and the channel narrow. The open waters of the bay reached, we went ahead full speed, and soon rounded Beacon 11, a familiar mark to those who know these waters, then passed Beacon 7, and running the regular channel about four o'clock, passed under the splendid new railroad bridge at Dunbarton.

Here a compass course was set, as a haze made it impossible to pick up with the eye Beacon 1, which guards the entrance to the Redwood Slough.

On more than one occasion at night I have had reason to think how inappropriate it is to speak of these marks as "beacons," for they carry no light whatever and being painted black, are next to impossible to find in darkness. On this occasion, Beacon 1 was found without difficulty, and after rounding him close on our port side, we soon were "steaming" into the mouth of this big slough, up which we proceeded with extreme caution, as the tide was now full out and we were running between great banks of mud, until just near Redwood City, we dropped anchor.

It had been such a splendid afternoon and everybody had so thoroughly enjoyed the run that over tea the possibility of continuing the trip up the bay and then on up into the Sacramento River was discussed. Before tea was half over, difficulties that first presented themselves were cleared away, and it was finally agreed, that the little party then on board were to join Alice at 10 a. m. on the following morning but one in Oakland Harbor, and all were cautioned to come prepared to rough it. And to some of our party, life during this week on the river, absolutely living on this 30-foot boat, was roughing it with a vengeance.

Brownie, who had come out on a trip from England a few days before, and I, were to stay on board that night, and run the boat up to Oakland the following morning. Alice's paid hand was to be left behind, as there was no room for him. Our party as finally made up, consisted of Brownie and myself, with my wife and her friend, Helen, as cook and stewardess, respectively. I need not say that names are fictitious.

After putting the ladies ashore, we ran out to the mouth of the Slough, and came to anchor just astern of a trading schooner who also was spending the night there. It was late, and with darkness came a chill, so with a last look around while the anchor light was sent up, we went below, shut the companion slide tightly, and with our large table oil lamp alight, and electric ceiling lamp glowing overhead, sat down in the cosy little cabin to supper, a pipe, and bed.

Early next morning found us on deck, and at breakfast in the cockpit, and how splendid that breakfast was; the first of many in the delicious fresh morning air, with the lapping water softly gurgling around the bows of our little craft as she quietly swung on her chain. The surrounding waters had not a ripple on their surface, nothing but a gentle heave now and then, the almost invisible shores were enveloped in a warm blue haze, and over all shone the brilliant Californian sun, already high in the heavens overhead.

Anchor was weighed at 9:45, and giving our friends of the schooner a wave as we went by, we stood out the bay, setting a course of W.N.W. $\frac{1}{4}$ W. about five minutes later when we came abreast of Beacon 4.

Leaving Brownie at the wheel, let me take you, reader, you who love a boat, over our little ship: Leaving the roomy cockpit, where on the forward bulkhead is located engine control levers, wheel, binnacle, chart case, etc., we enter the companionway to starboard and descend to the engine room. Here a two-cylinder, 20-h.p. Union constitutes our motive power. To port of engine room and opening from it is a nice little lavatory. Forward, and entered by double doors, is the main cabin, 9 feet long, with bureau locker at forward end and seats convertible into berths at each side. Under the forward deck were tanks. The galley I did not yet mention, and it was the feature of this boat. Small, but well arranged, it was entered from the cockpit only, on the port side, and was entirely separated from every other part of the ship. This isolation of galley on a small boat is a wonderful convenience, and essential for comfort and cleanliness, if really living on board.

Brownie and I took one-hour tricks at the wheel, half-hourly bells were rung, and on changing watch the relieving officer was given course, log reading, log book, etc. Everything shipshape and Bristol fashion. When off watch, we lolled on the forward deck in the sun; here the engine was unheard and vibration unfelt; nothing but the swish of the fine cutwater as our little boat cleaved through the still oily surface, and all about absolute stillness bounded by wisps of vaporous fog, cutting out all sight of land and of other vessels.

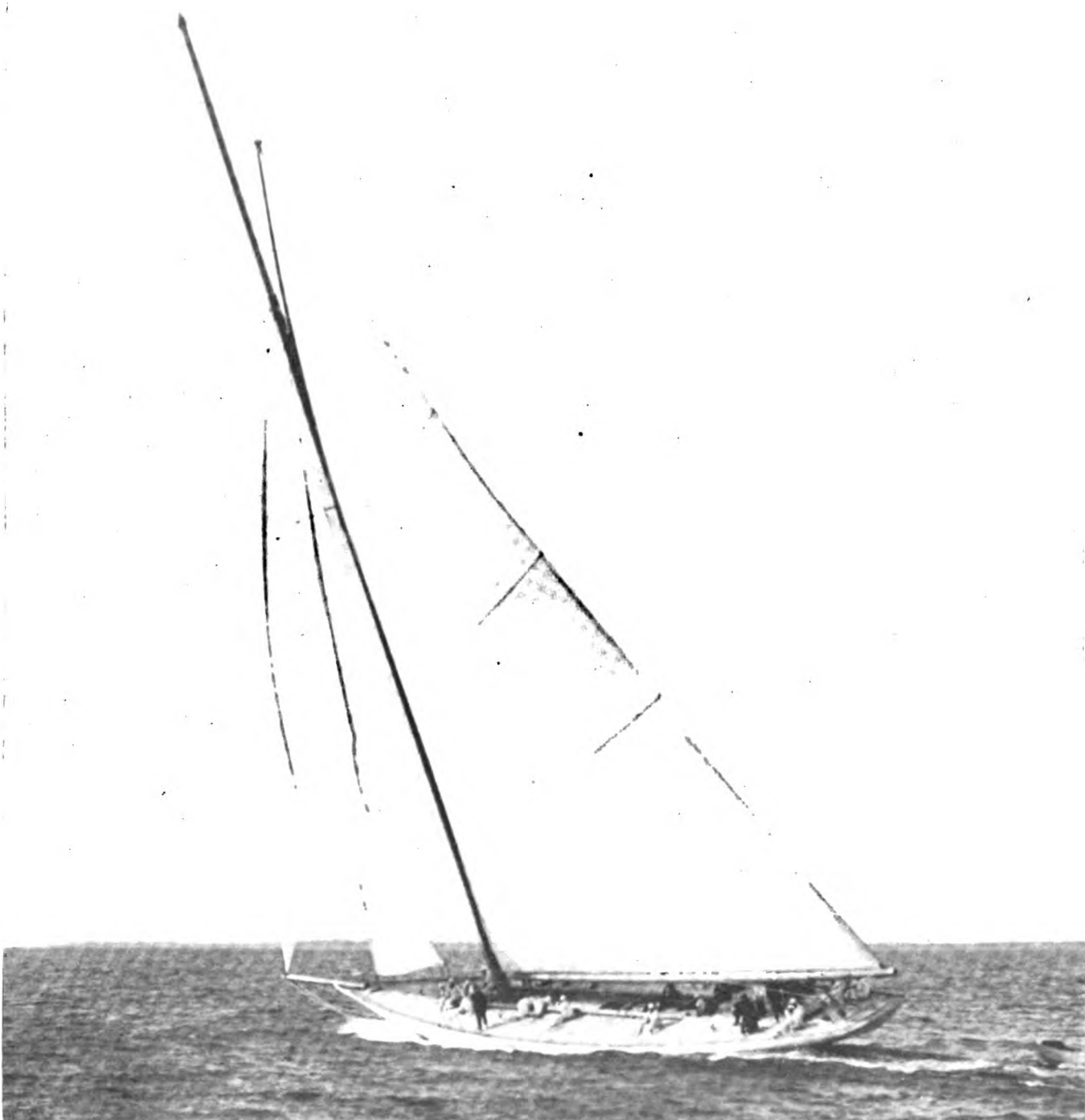
At 10:35 we caught sight of Beacon 2, some distance to port, showing us to be dead on our course. Sounded in 7 fathoms at 11:15, having run estimated distance. At 11:30 sounded in 6 fathoms. We were now coming near the shoal water off San Bruno I was looking for. At 11:40 sounded in 5 fathoms. Must be just about right now, so altered course to N.N.W. $\frac{1}{4}$ N. and a moment later, through a rift in the mist, we caught sight and got a bearing of San Bruno Point. Our position now verified, Alice was let plough ahead through the slight fog, while a sharp lookout was kept for other ships, as we neared the thicker traffic of the upper bay. Fog whistles and hoots of ferryboats came out of the fog with increasing frequency as we got North, and exactly at 1:43 p. m., Oakland Harbor Mole was sighted over the starboard bow. Turning in the entrance, we continued up

San Antonio Creek until coming to the tidal basin, we stopped in the yacht anchorage there, and got a mooring from one "Peterson," whom we left in charge of Alice, with instructions to refill fuel and water tanks in preparation for the start on the morrow.

The first thing that greeted me next morning on arriving on board was old Peterson. He grasped me by the hand in a warm hearty shake and for a second or two seemed quite overcome. My mind flew to the wine locker, where among other good fellows, was a most excellent bottle of J. J.'s very best three-star. My thought was entirely wrong and in old Peterson I had found a first-rate friend. He had skippered a relative's

yacht for years and something he came across in the cabin over night put him on the right track. So the greeting. Verily, the world is small, after all.

The ladies and a most shocking supply of provisions having been taken aboard, we slipped moorings at noon-day, and shouting many promises to our newly found friend to remain longer on our return, steamed away, bound for Mare Island and the upper reaches of the Sacramento. In little over an hour we found ourselves between Goat Island and the Key Route ferry slip, and here set our first course N.W. $\frac{1}{2}$ W. All these courses are compass courses, and correct magnetic, too, as my deviation on every heading was practically negligible.



Resolute, Winner of the Majority of Races During the N. Y. Y. C. Cruise and Beyond a Doubt the Boat to Defend the Cup

Our first lunch with full party on board was now served, and a truly magnificent view of the City of St. Francis on her many hills and of the Golden Gate in the distance was enjoyed as we went by.

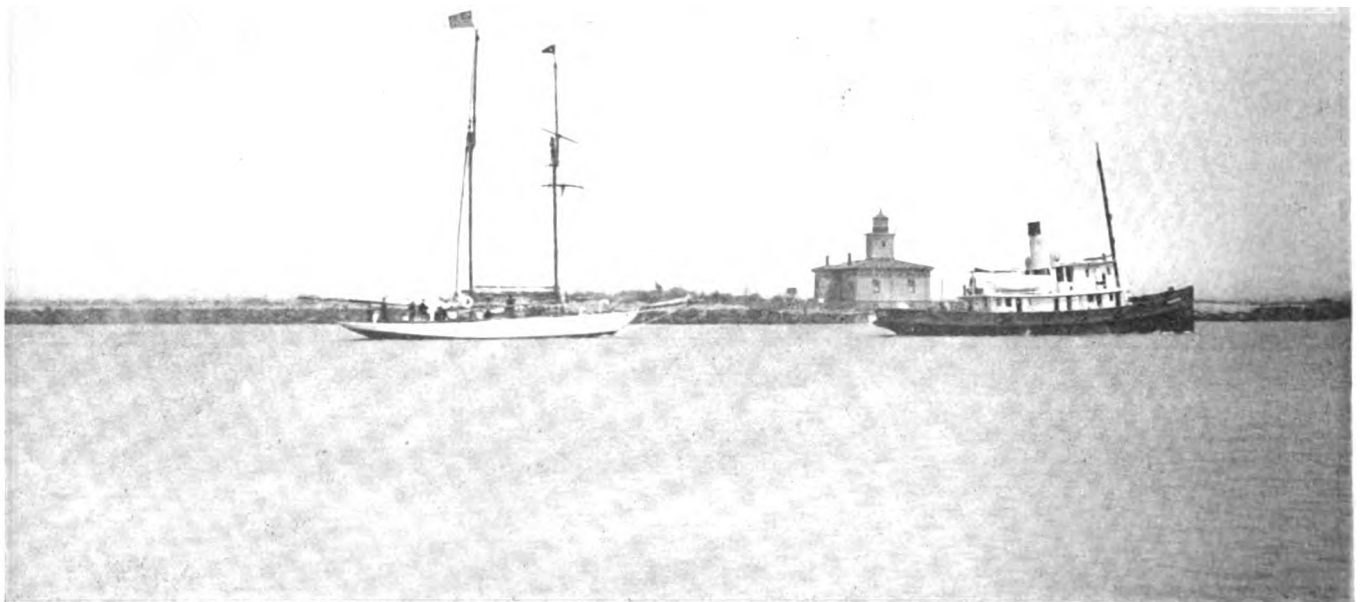
From here, the first time I had so viewed it, the great extent of the city of San Francisco could be really seen, and as we sat there looking at it, and as hill after hill unfolded itself to our view as we got further away, every one intersected with streets and covered with buildings, the uppermost thought in all our minds was one of wonder—wonder as to how it had been done. Six years ago next April 18th, what a sight that scene would have been viewed from this very point, with the big city a mass of roaring flames, lying helpless in their fiery grasp and not a drop of water to be had—nothing to help stay the utter destruction. And one week later we could picture those ruined hills, the skyline burned down, except here and there, where a gaunt scarred skeleton still stood upright against the sky in the midst of inconceivable ruin and desolation. And yet today we go by and see but few traces of that great visitation—the greatest conflagration probably the world will ever know. San Francisco has truly arisen from her ashes, and this new city, not yet in her sixth year, is to my mind one of the most wonderful of the “wonders” of the world.

But navigation must not be forgotten, as we should be nearing the end of our first course, Southampton Shoal Light and the Red Rock being now far astern. San Quentin prison was in full view to port, and over our azimuth sights we find the “Brothers” Rocks now bear N.E. A sounding gave $3\frac{1}{2}$ fathoms. This was at 3:45 and course was changed to N.N.E. $\frac{1}{2}$ E. At 4:40 in the growing dusk, I mistook what must have been a temporary mark for one of the deep-water channel buoys leading towards Mare Island, and changed for it to

N. $\frac{1}{2}$ E. Getting close to the mark, I found my mistake, which a sounding confirmed, and changed course to N.E. $\frac{1}{2}$ E. This was a stupid bit of fooling, as my original course of N.N.E. $\frac{1}{2}$ E. would have made land-fall correctly. It was a lesson to rely more on one's own reckoning and the lead than on floating marks, especially in semi-darkness.

In the growing dusk the various navigation lights began to appear and it was not long before we raised the red light at Mare Island entrance right ahead. Tea was now served in the cabin and when the light was switched on, flooding the room with its cheerful rays, and showing the flowers on the table center, with everything round about arranged so tastefully and nicely, all bearing those unmistakable touches of feminine hands, a more cosy little cabin would be impossible to see. Our side and masthead lights were going and, leaving Brownie in charge, I went below. Being in close quarters now, I did not remain long, and quickly returned on deck, and found us to be off Mare Island entrance, where we turned in at 6:12 p. m.

Feeling our way along at reduced speed with Brownie in the bows on lookout, we shortly arrived between Mare Island Navy Yard on the left and Vallejo on the right, where we soon found the anchorage of the Vallejo Y. C., where we remained for the night. This first night on board was looked forward to with interest by some of our party. Helen, a most admirable stewardess, had the berths made up, and while Brownie and myself were exploring some adjoining docks in the dinghy, the ladies made their preparations for repose and went to bed, one on each berth. Brownie turned in on the engine room berth, and I on my wife's, feet to feet. Altogether, we were splendidly fixed, though it was long before sleep settled over our little ship that night.



Hawaii, a Pacific Coast Ocean Racer

Early next morning we were up and away, and I find under remarks in the log: wind light, weather fine, warm. Barometer 36°. Off Carquinez Straits Light a course of East was set, but it was unnecessary, and a vicious tide made it impossible to steer compass courses, so I simply kept the center of the channel. Between Port Costa and Benicia the tide was running out like a mill race, and progress was slow, and here we passed the Solano, one of the largest ferryboats in the world. Occulting Light Buoy A1 was close a port at 12:40 p. m., and it became necessary to now run our compass courses, as we were in waters where treacherous invisible mud banks abound, and the similarity of all the surrounding marshy shores, with channels and sloughs breaking in all over the place, would make it quite impossible to pick the right channel except by compass. With buoy A1 close abeam, we set course N.E. by E.

At the risk of being tedious, I am going to here insert a few verbatim log book entries. To me, no description of a cruise or run is of as much interest as the plain simple tale from the log book.

At 1:15, therefore, Beacon 2 was passed some distance to port, course changed E.N.E. for Spar 2 in sight. Time 35 minutes; distance $2\frac{3}{4}$ miles.

1:27 Spar 2 abeam to starboard; course changed E. $\frac{1}{4}$ N. Time 33 minutes; distance 2 miles.

2:00 Middle Point close abeam to starboard; course changed E. by N. Time 29 minutes; distance 2 miles.

2:20 Stake Point close to starboard; changed course E. $\frac{1}{2}$ N. Time 6 minutes.

2:35 Course change East to counteract current and clear Simmons Point; held East 15 minutes; at 2:50 back to E. $\frac{1}{2}$ N. for 14 minutes.

3:04 Spar 6 abeam to starboard. Distance from Stake Point $2\frac{1}{4}$ miles. Changed course to N.E. for 23 minutes.

3:27 Changed to N.E. $\frac{1}{4}$ N. to counteract current setting us a bit close to Van Sickle Island shore.

3:35 Spar 8 close abeam to starboard; changed course N. $\frac{3}{4}$ E. for 5 minutes.

3:40 Abreast of Van Sickle Island Light.

Here we were in the mouths of the Sacramento and San Joaquin Rivers, and in the midst of a maze of mud banks, islands and innumerable channels wending away out of sight, into the marshes on every hand. With the chart in its case on the cabin top and Brownie taking frequent prods with a bamboo sounding pole, we held on until the little town of Collinsville opened out over the starboard bow, when we altered helm, and steered directly for it. Tied up at the little dock at 3:55. Met an old inhabitant here who gave me an amount of information, much of which I noted on my river chart, as to river navigation later on. The afternoon being still young, it was determined to push on before finally halting for the night, and so lines were cast off and Alice began the ascent of the great Sacramento. Just after starting a big river steamer ploughed straight down upon us, taking up apparently every inch of the river. She gave one blast on her whistle. I ported my helm and gave one blast, too, and by she went, like a train, leaving a trail of foamy troubled water in her wake, through which we ploughed and reared until the heavy turbid flow smothered the swells and left us again on a surface of glass. This river business is interesting, every turn unfolds something new.

Coming around a bend after passing Tolands Landing, we steamed out of semi-darkness, as the sun was now on the horizon, into a straight stretch, and there burst

upon us a most wonderful sunset. A broad expanse of the river was absolutely turned to blood; the red hue in the middle distance brightening into gold, through which the remains of a great broken tree came floating towards us. Here a long slanting mark lay sparkling upon the water, there the surface was broken by little boiling, tumbling, circling pools, and in the distance was a smooth spot over which the sombre shadows of night were beginning to fall, the thick forests which lined the banks being pierced in places by shafts of fire; while the tips of the tall trees glowed like flames in the unobstructed splendor that was flowing from the dying sun. Over the whole scene the dissolving lights were drifting steadily, and with every passing moment new combinations of color, of light, and of shade, would glide in and out of our view. We were speechless with wonder; all the grace, beauty, poetry of that majestic river held us for those few moments entranced, and when we passed into the darkness, now of night, round the next bend, it was moments before the spell of that scene passed away. That indescribable feeling of sadness, of loss, with which we are at times oppressed on coming out from a bright play into the hard cold glare of a city's life, was upon us. Our emotions had been stirred, and not till the twinkling lights of a distant town came into view did we awake into our various duties. It was Rio Vista, and coming off the town, we ran to the opposite side of the river and let the anchor go within a few yards of the bank, under the outspreading arms of a giant tree. It was a lovely spot, and after dinner we visited the town.

Coming off in the dinghy, we bid a worthy man of Rio Vista good-night, and his last remark to us was—we had been discussing the night—"that this night, at any rate, was as dark as the inside of a cow."

That morning we up-anchored early and again headed upstream, and as Alice settled down to forging ahead steadily, hour after hour, we passed landing after landing, and town after town, in rapid succession. The surrounding views of the famous Delta Lands of the Sacramento Valley were full of interest, these lands being among the most productive in the world.

As I write, there are some figures before me, scientific figures given to me by a scientific farmer of Sacramento, all on scientific farming. They are unbelievable, and I like not to mention them. Science and scientists are at times a bit unreliable; they get such wholesale returns of conjecture out of such trifling investment of facts.

We made not a stop today, and as the navigation was easy, the ladies took spells at the wheel. Courtland, Richland (perhaps christened by my scientific friend, though by the looks of it, it belies its name), Charlesburg, Riverside, Sutterville, and other towns were quickly passed, and during high tea, Brownie, at the wheel, shouted that he was rising the lights of Sacramento.

Going on deck, the glare of a large city was ahead, and here and there a bright light or two would show up for a moment and then disappear. Every moment I expected to get there, but as we rounded bend after bend, it still seemed as far away as ever. Here a night steamer, bound down, passed us, all her decks aglow with light, and shortly afterwards a harsh blast of her whistle, immediately answered by another, floated up to us on the night, and reminded us to put out our stern light. However, the inbound steamer did not overtake us, as turning the next bend, we unexpectedly found ourselves in the blinding glare of many dock arc lights, and there on the right hand, lay Sacramento.

(To be Continued)



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.

AN ALCOHOL STOVE FOR AUSTRALIA

It will, no doubt, be of considerable interest to you to know that we have received an order for one of our Speedway safety alcohol cooking outfits of special design for shipment to Australia. This is a direct result of a descriptive article which appeared in a recent issue of THE RUDDER and is indeed evidence of the far-reaching effect of such a medium, and we believe will prove as interesting to you as satisfactory to ourselves, especially as we know alcohol ranges and oil ranges are available in most markets throughout the world.

It is indeed a long way to send for an alcohol stove from Australia to the U. S. A., and it proves how far people will go sometimes in order to secure something that is absolutely reliable, safe and in every way the best.

GAS ENGINE & POWER COMPANY
AND CHAS. L. SEABURY & CO.
CARLOS DE ZAFRA, M. E.



Phydoro, Aux. Schooner, 43 x 30 x 11 ft. 6 in. x 4 ft. 6 in. Power 2-cyl. 15 H.P. Keystone Engine. H. Lawrence Hess, Jr., Owner. Designed by Messrs. Bowes & Mower and Built by John Kirk, Toms River, N. J.

LIKES THE KICKS

Gentlemen:

Your letter requesting kicks at hand, so here goes. You offer advantages to those who renew around the first of the year. Why don't the other fellows have an equal chance?



12-ft. Skiff and 16-ft. V-Bottom Runabout, Built by Lucien V. Leach

The Oldman kicked about the way the "Sextant Book" was treated. I did not pay any attention because I seemed ruled out.

I love to hear him growl. In fact, I am like little Elizabeth Young. Her brother Jack wanted to go camp-

ing, but she pleaded with her father, "Oh, pop, don't let him go, I love to hear him cry."

The Oldman's knocks are so absolutely near the truth that it is a wonder they do not ruin the circulation of the magazine.

As you sometimes ask for pictures of RUDDER boats, I am sending you two. The rowboat was built six years ago and the motor dink last year, both from the same moulds, which are of the 10-foot dink in the "Rowboat Book," spaced out to 12 feet. The dink pounded badly in a bad blow and was very wet, so I put the splash boards on. They are a great scheme. I am now building a Hand V-bottom 16 feet by 4 feet 4 inches, and send a picture of the framing.

You may notice that the rudder on the dink is very broad. It was so broad that it reversed the steering thrust. The dink turned naturally with the *top* thrust of the propeller instead of the bottom thrust. I shaved it away until I now have a very fair balance.

If you don't want the pictures put them in this envelope instead of the waste basket.

Philadelphia, Pa.

LUCIEN V. LEACH.

FROM MADRAS

IN your fitting-out number for March, 1915, there is a short article on a 16-foot cutter, the Cockle, designed by Mr. S. R. Purdon. This is just the sort of boat which will suit me here for afternoon cruises, and I write to ask, therefore, if you will be good enough to let me know where I can get the complete working drawings for building a small boat of this type. If you can supply them, I shall be glad if you will do so and on hearing from you I will remit the cost of the drawings. As a member of this club I own a fast racing boat, but she is rather too wet and uncomfortable for cruising and I am sure that

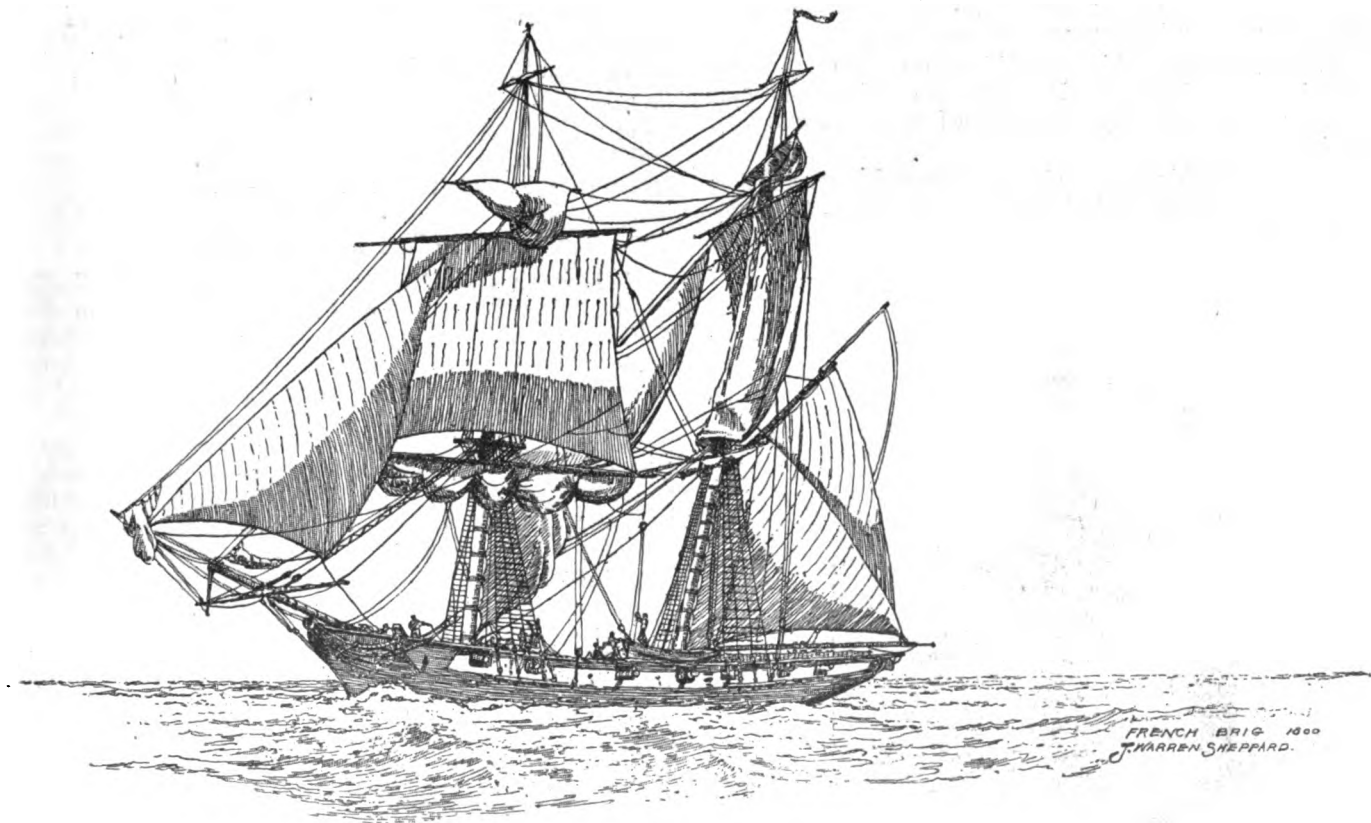


The Alabloha Made the Trip from New York to Miami, Florida

Mr. Purdon's design will suit me admirably for that purpose. We cannot indulge in long cruises at this place owing, first and foremost, to there being no harbors anywhere along the coast where we could call, and, secondly, because the only time we can cruise is during the hot weather, when it is much too hot to venture out in the middle of the day. During our so-called cold weather



The Alabloha of New York at Miami, Florida



there are very few days that the sea is not much too rough for the class of boats we have got here. Of course, when I build the Cockle everything will be changed in favor of short cruises in bearable weather.

Before I end, I would like to tell you that there are many members of our club—the writer among them—who are enthusiastic readers of your journal.

D. D. R.

[Mr. Purdon's address is Marblehead, Mass.—Ed.]

HONORING THE OLD MAN

I TAKE great pleasure in notifying you that at a regular meeting of the Bayshore Motor Boat Club, held July 28th, you were unanimously elected to honorary membership in the club. Our club feels that you have always taken an interest in us and have in many ways extended many courtesies, and we wish to show our appreciation by granting you every privilege that our club affords.

Hoping that you may be able many times to take advantage of what our club affords, and the good fellowship of our membership and with best wishes,

Very truly yours,

FREEMAN T. HULSE.

Secretary.

LIFEBOAT CRUISERS

THE boat for the man who wants a small safe cruiser, combining fair power and speed, fair sailing ability and limited draught, seems to be represented in the lifeboat cruiser we hear so much about. I am not referring to any particular make of boat. I refer to the double-ended, raised deck lifeboat cruiser, with yawl auxiliary rig, outside ballast on keel, with about 3 feet draught. Will you kindly answer candidly the following three questions, either by mail or in your valuable magazine?

1. Why has not this type of boat become more popular? I have cruised from New York to Maine and failed to see a single example outside of a few older type specimens.

2. Would this type make good boat for cruising on Long Island Sound and along the coast from New York to Maine?



Fowey Light



3. I have heard it said that these boats are "cranky." Is this true, or do they handle nicely? W. W.

[I have several times expressed my opinion of the lifeboat type of cruiser. These boats are freaks. Why build a freak when for the same money you can have a real boat? They have nothing to recommend them for cruising and much to damn them.—EDITOR.]

A HAIL FROM SWEDEN

I ALWAYS thought that the first number of THE RUDDER that I bought at a newspaper stand in New York was early in 1893 and that I had been a constant reader and subscriber since that time. Somehow I now see that it is twenty-five years ago since I read the first RUDDER from stem to stern.

I was born and reared on one of the thousands of islands and rocks that fringe the Western coast of Sweden, so I was predestined to like the sea and sailing, consequently I at once got stuck on THE RUDDER and my love to this paper is still redhot. Wherever I have been in the world, icy seas, tropics, Rocky Mountains or Lapland's remotest old-time wilderness, I have always punctually got my number of THE RUDDER.

I have never had the pleasure of personally meeting you. Still, I regard you as a real good old-time friend.

Congratulating you on the twenty-fifth anniversary! May you live another twenty-five years to be able to maintain the spirit of love to the sea and sailing in the boys, whether old or young.

Göteborg, Sweden.

D. T. AHRENBERG.

THE RUDDER

OCTOBER, 1915

Vol. XXXI

No. 10



Photo by Leveck

PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

When you plan for the Florida season

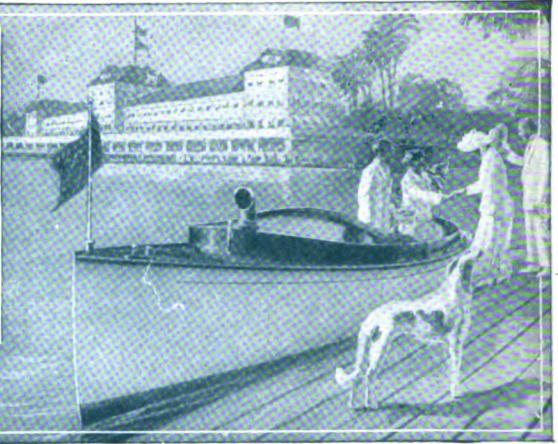
—include a SPEEDWAY. A true aristocrat in appearance, its all-around usefulness, moderate cost, ease of operation and economy of upkeep make it ideal for Florida service. *Place your reservation now.*

Familiarity with Florida conditions has enabled us also to produce fishing boats that more than satisfy every requirement.

A SPEEDWAY engine in the boat you now own will mean better service and a continual saving in upkeep costs. Write for particulars of the new designs.

Gas Engine & Power Co., and Charles L. Seabury Co., Consolidated
Launch Dept. E., Morris Heights, N.Y. C.

Speedway MOTOR BOATS and ENGINES



Kahlenberg

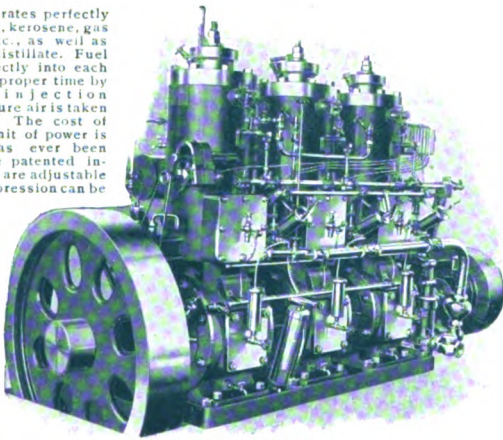
MARINE HEAVY DUTY OIL ENGINES

For severe Heavy-Duty service in cruisers, commercial boats, tugs, etc., the Kahlenberg "Semi-Diesel" type engine is so far in advance of other marine power plants, that it has no real competitor in efficiency and economy.

The engine operates perfectly on crude fuel oil, kerosene, gas oil, solar oil, etc., as well as on gasoline or distillate. Fuel is injected directly into each cylinder at the proper time by individual fuel injection pumps. Only pure air is taken in at the base. The cost of operation per unit of power is lower than has ever been achieved. The patented internal hot bulbs are adjustable so that the compression can be changed as desired while the engine is in operation.

This Semi-Diesel engine is started on gasoline or distillate and in two or three minutes when it has heated the bulbs, the gasoline or distillate is turned off and the fuel pumps turned on. Any cylinder can be operated individually if desired.

If you want a business engine, built for business, an impartial investigation of the Kahlenberg "Semi-Diesel" will convince you.



88-H.P. Semi-Diesel Type

WE BUILD ENGINES from 2-H.P. UP. MEDIUM DUTY and HEAVY DUTY

No matter what kind of marine power you need, let us tell you the exclusive advantages of the Kahlenberg model which is built for your purpose. There isn't a better engine in design, material or workmanship. It isn't fair to yourself to buy another engine before you have our catalog.



Write today for catalog and booklet, "What Users Say."

KAHLENBERG BROS. CO.

Main Office & Factory 1708 12th St., Two Rivers, Wis., U. S. A.

JAMES CRAIG

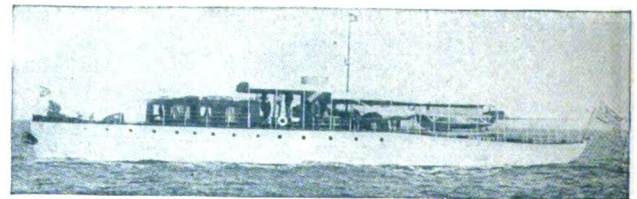
Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

Designers and Builders of Craig Marine

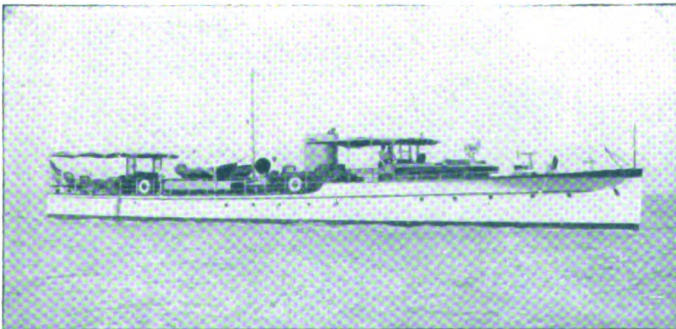
**Oil Engines (Diesel Type)
Gasolene Engines**



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9 1/2 x 11



100-ft. Cruiser MAROLD. Three 300-H.P. Sterling engines. Fastest motor cruising yacht in the world, combining perfectly the elements of high speed, comfort and safety.

Matthews cruisers are known the world over as aristocratic in appearance, of unsurpassed design and workmanship, with all little details worked out for the owner's maximum comfort.

Superior facilities and long experience assure satisfaction. Correspondence solicited.

THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio

Builders of the world's finest motor yachts.

The Rudder

Edited by THOMAS FLEMING DAY

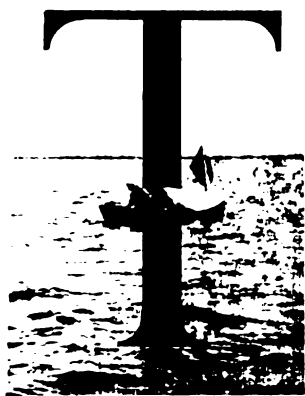
Vol. XXXI

OCTOBER, 1915

No. 10

ACCOUNT OF A VOYAGE FROM NEW YORK TO BOSTON IN A 12-FOOT DINGHY DRIVEN BY AN OUTBOARD MOTOR

THE man who wanted to get to Boston in the worst way was told to take the Joy Line. The usual way is to take the New Haven Railroad or the Fall River Line, the one doing the distance in six hours, and the other in fourteen. In the passage I am about to chronicle it took much longer, but was a far more interesting and enjoyable trip than being Pullmaned or paddled to the city of beans. Why we chose to make this voyage in so small a craft with such unusual power is told in another



chapter. You will also find a drawing and description of the Sea Pup in May and June numbers of this magazine, so it is unnecessary for me to give you other than the two principal dimensions. Length over all, 12 feet; extreme breadth, 4 feet 3 inches. The power was an Evinrude outboard motor, a regular stock model, using a magneto, nothing being altered in anyway to fit it for the long passage.

In order to carry the fuel for the motor and food for the crew, it was necessary to have a nurse boat go along, and I intended to take Sea Bird for the purpose, but a few days before the start was planned she developed an obstinate leak which necessitated her being hauled out. She would have been just the boat for the job, as her speed under power is about equal to that of the dinghy, so enabling the two to keep readily together. Convoying another vessel is never a pleasant task, and it is especially arduous and wearying when your speed exceeds that of the convoy. You are constantly obliged to stop or circle back so as not to lose sight of the charge.

What a miserable temper-breaking job it must have been in the sailing-ship days when men-o'-war convoyed big fleets of merchantmen from port to port. How the captain of a smart sailing frigate or sloop must have

cursed at a rotten old tub that, elbowing along at a speed of two or three knots, kept the whole bunch waiting. He and all his crew must have rejoiced when at sun up the tortoise was missing, having foundered or been picked up by privateers during the night. Convoying under power is a simpler and a more comfortable task, if the speed of all the vessels can be regulated to a uniformity. Had we a nurse boat that could have been run at the same speed as the small boat, the voyage would have been deprived of most of its difficulties. But owing to the big boat not being able to slow down to the dinghy's speed, we had to be constantly on the alert so as not to become separated from our convoy.

The nurse boat was a high-sided 40-foot cabin cruiser, powered with an old-fashioned two-cylinder, two-cycle motor that would run at full speed, but obstinately declined to be slowed down to anything less than five and one-half knots, the maximum speed being six and two-thirds. The nurse's name was Mayzi II, Captain Charles K. Sackett, and enrolled in the Robins Reef Y. C., of Bayonne, N. J.

Knowing what such a trip meant to a crew, especially if bad weather was encountered, it was my intention to have along at least eight—four to run the small boat and four the large—but as usual, when the time came to go, several who had volunteered backed out and left us short-handed. But having said I would start on such a day and hour there was nothing to do but go.

With sufficient crew we could have pushed right through without a stop, but owing to my being the only navigator on board, we were obliged to come to anchor so as to get a rest. The Evinrude Company sent on Mr. Oakley Fisher to run the motor in the little boat, and another Evinrude man, Mr. Hans Mikkelsen, volunteered to go along and work in shifts with Fisher. This they did alternately, driving the little boat all the way from New York to Boston. The success of the voyage is largely due to the pluck, skill and perseverance of these two boys and if any glory is to be earned by making this successful passage, it belongs to Fisher and Mikkelsen, who performed their duties like real sailors. When

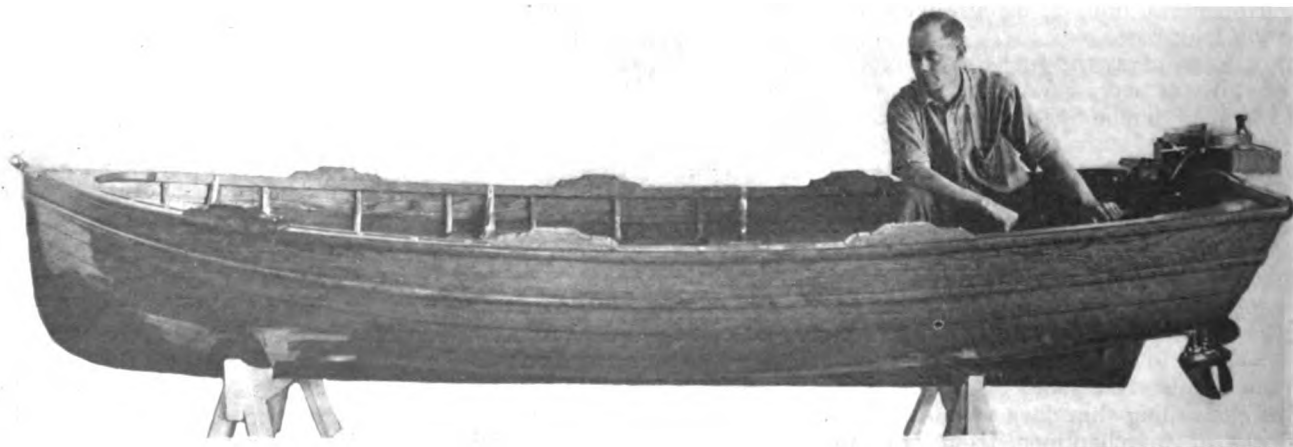
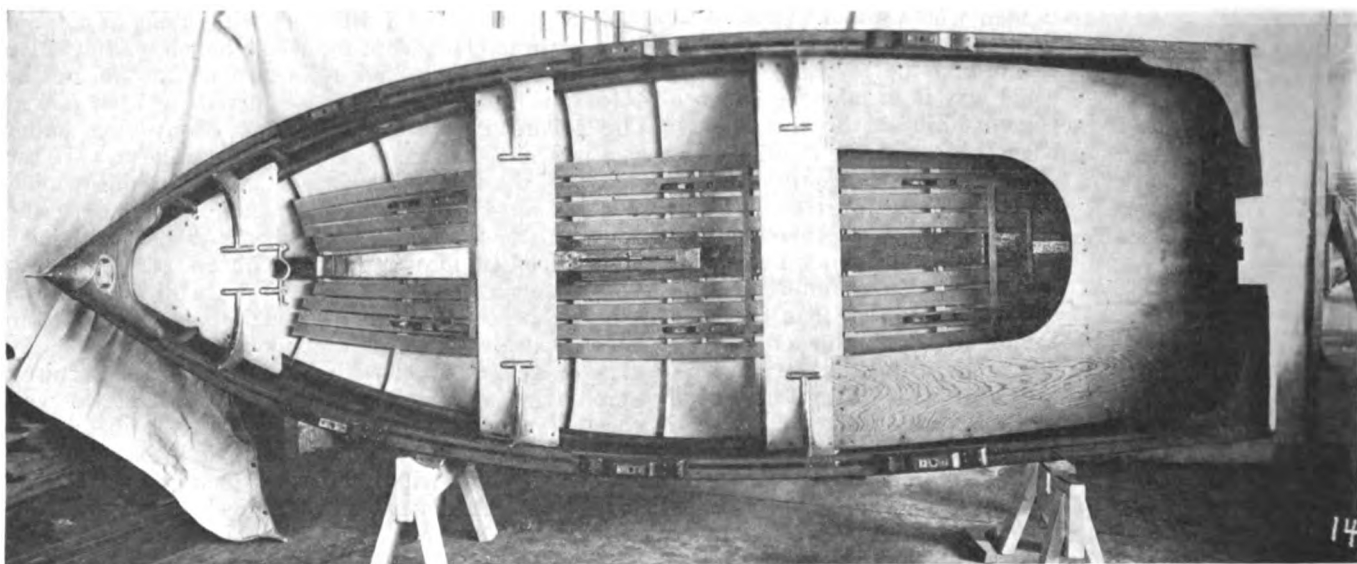
it is known that neither of these men had been over the course before, and had had little or no experience on salt water it will be admitted that they showed courage in tackling the undertaking, and skill in carrying it through without a hitch. It cannot be expected that all will go as planned, but usually three-quarters of the planning turns out as promised, and the rest, while causing delay and extra work, does not prevent the adventure being successful.

It was half-past one when we left the Robins Reef Y. C., and started for the Battery, with Sea Pup in tow. My intention was to start at two o'clock, it being low water at Governors Island, and take the flood up the East River. The tide sets very strong in this river, both on the flood and ebb, and it is waste of time and money to buck it with a small or low-powered vessel. Owing to the docking and straightening of the banks it is getting worse, especially in the Blackwells Island channels. Our reason for starting from the Battery was twofold—first, that is the beginning of New York, and second, because I wanted to get some movie films which my good friend, Dr. Salisbury, had kindly offered to take for me.

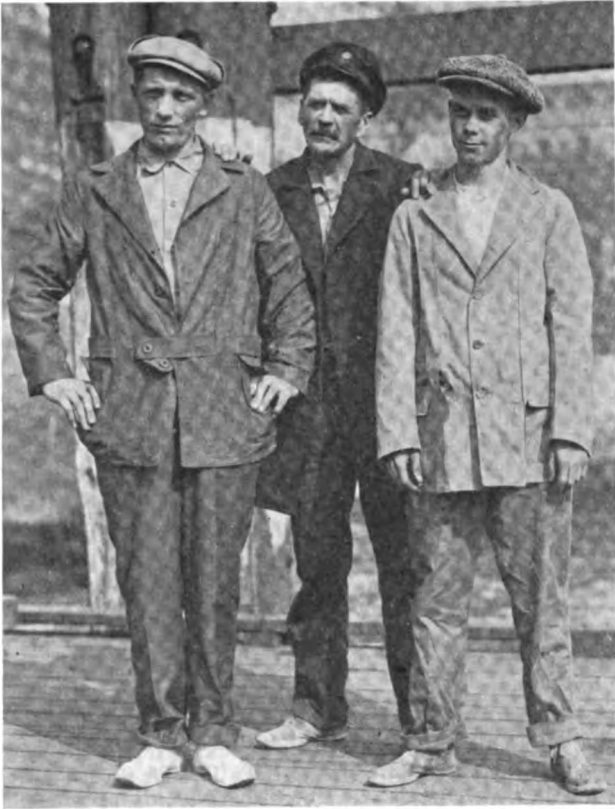
When off the boat basin, which lies on the West Side of the old Castle Garden building, I told Captain Sackett to lay-to and wait until we got through with the cameras,

and then we would come out and start. The basin has two entrances, and a float inside, but despite the protection of the walls, it is a bobbly place, owing to the swell thrown in by the constantly passing craft. Luckily, this day it was unusually smooth. We found the camera men and scribes waiting for us, and after a few words of instruction, started in circling around so the film artists could get what they wanted. We then took on one of the crew, a few dress-suit cases, and other stuff that had been forgotten in the morning. The Pyrene Company very kindly sent down an extinguisher to carry in the boat, which we were all glad to get, as we never feel entirely safe unless equipped with that fire-fighting device. This Summer there have been an unusual number of boat fires, several serious ones, entailing loss of life. Nine-tenths of these are the result of smoking. Careless use of matches. It would be a good idea to make every man who insists upon smoking on or in a motor boat carry a Pyrene extinguisher strapped to his waist, so he could put out the fires he starts with his widely flung matches.

It was three o'clock when through with the camera men, and we shot out of the basin to pick up the nurse boat. She was nowhere to be seen, so supposing she had gone on up the East River, we rounded the Battery and



Two Views of the Sea Pup Just After Completion



The Boys Who Did the Trick—Hans Mikkelsen and Oakley Fisher

motored off up that stream. The little boat was heavily burdened, there being three of us, three dress-suit cases and ten gallons of gasolene, but she ran dry through the ferry wash, making good time, with the young ebb helping along. Owing to the many bridges and tunnels, the river is not the watery hell it used to be when dozens of ferry boats cut across from side to side. Now, you see very few of these boats, and some of the lines have been wholly abandoned, the slips and houses falling to ruins. So the old order changes; what will put bridges and tunnels out of employment?

It took Sea Pup one hour and twenty minutes to make Hell Gate, a distance of seven miles. She had good weather all the way up, the wind being Southeast, and so off the Long Island shore. The river is not the pleasantest of pastures when the wind blows up or down, against the current. Not seeing anything of our nurse, we decided to go into Pot Cove, land and telephone to the Battery and find out why the delay. Just as we got through planning, Mayzi II came whizzing around Halletts Point, and without stopping, went on upstream. It was not until the Brothers were passed that she stopped and awaited our coming. We then heard the tale of woe.

Instead of laying-to outside, the nurse went into the police pier and made fast, and was promptly run into by a police patrol boat that smashed her steering gear. This was the cause of the delay. We now transferred the baggage and with one man, started off the little boat, with instructions to follow in our wake.

I had arranged a set of whistle and flashlight signals, the little boat having one set and the big boat the other. These consisted of numbers, for instance, 23 was *go ahead*; 43 *come aboard*. These proved good meat on several occasions. The boat was fitted with a small flag-

pole; on this she carried a white lantern by night. During the day we put a small piece of canvas on it as being so low it was difficult to keep her in sight in a seaway.

We passed Fort Schuyler at 5:45 p. m., and entered Long Island Sound for the first long run of some ninety miles to Race Rock. Off Stepping Stones we hoisted our lights, and passed Execution at seven o'clock, one hour behind the time fixed in the schedule. So far, all had gone well, the wind light, the sea smooth, and the sky clear. We were due at Stratford at 2 a. m., and arrived on time, the Sea Pup making over 4 knots and the motor running fine. You could hear its rhythmic song for a mile or more, and this, with the light, enabled us to keep track of the small craft. The motor on the big boat was giving trouble, and about ten miles East of Port Jefferson, it lay down and refused to start. Investigation showed that the batteries were dead, having died naturally, after two seasons' work. At the same time a thick fog settled down. Luckily, Mikkelsen, who was running the Sea Pup, seeing the big boat stop, and the fog, came back, and we took his line, or else he surely would have lost us. There was nothing to do but let the hook go. This we did after running South far enough to be out of the track of the night boats. Now came a scraping up of batteries. By sacrificing both our binnacle lights and two extras we got six cells for the engine, and found it would spark enough to set the mill a-going.

Preparation—that is the keynote of success. Preparation for emergencies; meaning always having ready at hand a duplicate or substitute for what is lost or fails. Yet how few ever take the trouble to have spares aboard! Not once, but half a dozen times, I have seen boats



Copyright 1915, by the International News Service

Talking to the Movie Man

crippled by neglecting to have spare parts of the ignition outfit on hand. Here were we, delayed for several hours through this neglect, and obliged to go back ten miles to a port to buy batteries.

As soon as daylight made, I sent the small boat off ahead, and began creeping and nosing through the fog to find the Port Jefferson breakwater. The first thing was to pick up the shore and find out where we had fallen upon it. We gradually shoaled the water until the beach came right aboard, with not six inches under the keel. All these Long Island beaches look much alike, and it was only after running up and down it for a mile or two we decided it was about 5 miles to the East of the breakwater entrance, and turned the boat bow West again. At last, we picked up the black buoy off Mt. Misery, and ran in until the bell sounded right ahead. The vapor was so thick I could not see the tower until within fifty feet of the rocks. The little boat had gone in ahead of us, and made the village all right. How fog distorts objects! The white buoy off the entrance looked a hundred feet high; a man towered a gigantic creature. Seeing things in a fog always brings into my mind those weird pictures of Doré's. Two gulls sitting on a chip of wood looked like two men in a skiff, and I was about to hail when the birds took flight and destroyed the illusion.

Long Island is blessed with a number of fine harbors, and of these Port Jefferson is one of the best. It has been for many years a favorite Wintering place for yachts; many lying at anchor there season after season. In the good old days a number of vessels were built in its yards, Port Jefferson sloops and schooners being famous along the seaboard, but at present there is little or no building going on. The town is directly North of Patchogue on Great South Bay, but while about nine miles apart, they are as far from each other as London from Cairo. The island has no cross communication, except

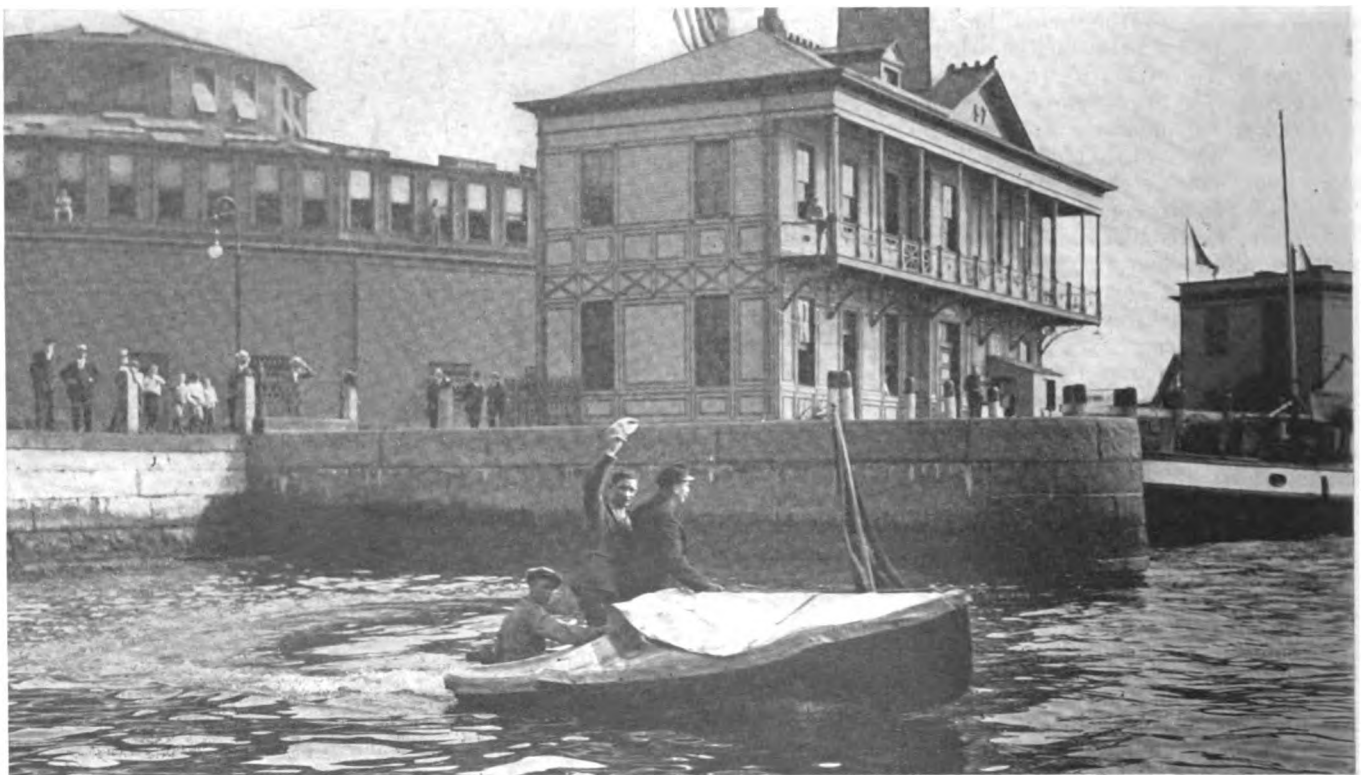
in one or two places, and the South Side and the North Side seldom meet. East from Port Jefferson for forty miles there is no decent harbor, no towns of importance, and the land a sandy, scrub-covered waste, given up to huckleberries, deer and mosquitoes.

After getting the batteries, and 30 gallons of gasolene, so as to be sure not to run short, we put off outside to look for the little boat. The fog was still thick on the Sound, though clearing on the bay. Soon we heard the Evinrude humming and Sea Pup showed up, minus one hand, he having jumped the ship. As the deserter was the only relief I had at the wheel, it left me to do all the helming.

The water was dead smooth, the sun hot, and the fog passing away, we hoped, for good. At 5:30 the mist began to shut down again, and we called the little boat alongside and looked for a harbor before it got too thick. Saybrook being the nearest, we put in there, and came to anchor. I was well blown and glad of a chance to rest, having been without sleep for thirty-eight hours.

The morning dawned with promise of fine weather, and a long spell of it. The sun rose right out of the sea, his red round face cutting the horizon sharp as a sword edge. The wind came out of the Northwest, a gentle zephyr, steadily growing, sure sign of a real breeze. All hands were rested, and we determined to make a long day of it, and pick up some of the hours lost through fog. The only spot on our happiness was a head tide, but head tide at the start usually means a fair one at the finish, but it held Sea Pup back considerably, so that it was eight o'clock before she passed New London and two hours later when Ram Island Light Vessel bore abeam. Then came the turn, and in fifty-eight minutes she was off Watch Hill, doing over 5 knots.

Such weather! If it had been ordered, you couldn't have bettered it. Clear as a bell; cool, strong breeze, and



Leaving the Boat Basin at the Battery, New York, on the Start of the 270-Mile Trip to Boston, Mass.



**At Times It Was Difficult to See the Sea Pup.
So the Sail Shown Above Was Rigged and
Was Always Visible Even When the Boat
Was in the Trough of the Waves**

moderate sea. We were making a grand run. The little boat kept astern of us about half a mile, and when getting too far, we would circle back, and repass her. Every two hours and a half she would stop for two or three minutes to refill the tank, but except to get rid of weed on the propeller, she ran along steadily without changing one small note of her song.

We saw for the first time a number of vessels, including a large schooner yacht, carrying all the muslin her spars could stretch. This clipper was a beautiful sight, heeled to the rail, and going a good 10 knots. The Sound, once so full of sail, is almost deserted of craft. Some days you will voyage for forty miles without seeing a schooner, but this morning we saw a dozen run out of New London at the coming of the West wind, and start East through the Race. It shows how utterly bad trade is when such a highway is almost deserted. Coming back between Cuttyhunk and Watch Hill, we passed one solitary tow, and not another vessel of any size.

It will be some days before I forget that afternoon's run down the beach. Point Judith Breakwater was passed into at two o'clock, and here we shifted crews, and then set off for another leg to Cuttyhunk, passing the Light at 2:25. The wind was blowing fresh and bit rough sea, but it bothered Sea Pup not one mite. She was running along easy and dry, and her crew having the time of his life.

The mill on the nurse was an awful consumer of gas, so to save, we decided instead of circling back, to come to a halt and let the little boat run ahead for a mile or two, and go after her. We did this halfway betwixt Judith and Sekonnet, with almost dire results. I waited for twenty-five minutes, then ran ahead, expecting to pick the convoy up on the course in a quarter of an hour, but after running a mile, we could see no Sea Pup. At last, after an anxious searching, the small bit of canvas looking like a shark's fin, could be seen far inshore, and we turned and ran up to meet it. The cause of the boat getting so far off the course was the helmsman sitting on the starboard side of the sternsheets, and the tendency to pull the helm towards him, rather than to shove it away, consequently the boat constantly worked to port. It was difficult to see so small a craft unless she was ahead of the sun; when between you and the sun, at any distance she was invisible. At seven o'clock it was dark, and I was busy trying to locate the Hen and Chickens Light Vessel when the mill gave up again, and we came to a stop; so after trying for sometime to start, I ordered the hook let go and Sea Pup given the forty-three. She came alongside, and we settled down for the night.

This run from Saybrook to Hen and Chickens in twelve hours was a good day's work—the best we had made—and without a hitch, the little boat clocking off a steady $4\frac{1}{2}$ knots. We could easily have made the canal that night, but might have lost the little fellow in the dark, so the best plan was to lay by and wait for daylight. What difference age and experience make to your ideas of distance! I recollect when a kid, and we first went cruising, we used to think twenty miles a good day's work, and thirty something extraordinary. In a cruise from New Rochelle to Thimble Islands, some fifty miles, we took from two to three days to make the voyage, and perhaps six, getting back against the wind. Today the air would be blue if obliged to dawdle along like that. The coasters in Colonial days sailing as packets between the Eastern ports and New York, only made about thirty miles a day, taking from six to eight days to make the passage to Boston. One fellow, whose log I read, was six weeks from Boston to New Haven. They went into harbor every night, and never worked a head wind, except with a fair tide. Read Richardson's, the novelist, account of his voyage to Lisbon, and see what went for speedy voyaging a generation or three ago.

When morning broke, we were within two hundred yards of the Old Cock, the outermost rock of this dangerous reef. I never see that jagged line of stones without recalling the loss of Mystery, the New Haven sloop yacht that capsized off there, drowning all her crew. She was taken aback by a sudden shift of wind in the night and upset, being an inside-ballast, centerboard craft. One of the men was seen by a schooner's crew next morning standing on the rock just inside the Old Cock, but the vessel's captain left him to perish, giving the excuse that it was too rough to launch the yawl boat. This was supposed from description to be Bartlett, a man whom I knew.

The distance from Hen and Chickens to Wings Neck is about twenty-one miles, and leaving early, we made this by 9:50, and then headed in for the canal, Sea Pup following close behind. The fine weather still continued; light wind, smooth sea. While waiting off Cleveland Ledge Gas Buoy for the little fellow to catch up, a large power skiff came to us and asked if we wanted help. We told the man why we were waiting and thanked him for his courtesy in coming to make the inquiry. I am sorry



**Photo by F. P. McIntyre
Through the Canal**

not to know the name of this man, but hope the mention of the act will be an incentive to others to do likewise. This Summer a power boat broken down was passed by five, not one of which offered to give him a tow, or even to make an inquiry as to whether he wanted help.

At Wings Neck begins the buoyed channel leading to the entrance of the Cape Cod Canal. This canal joins Buzzards Bay to Cape Cod Bay, passing across the narrow neck of sandy land lying between the sea and the Monumental River. The original name of Buzzards Bay was Monumental Bay. Why it was so called, and why and when it was changed to Buzzards, I don't know. On its shores at Cuttyhunk was the first settlement of the Eng-

lish in the New England States. Gosnold landed there and built a fort and village in 1609, but it was soon abandoned for the mainland. It is to be regretted that the original names of these places were not retained instead of new or corrupted titles.

At the entrance to the canal, just below the railroad bridge, Collector Ghen met us with the guard boat, and piloted the Mayzi to the pier, where we tied up and waited for Sea Pup to arrive. While she was coming along I telephoned Walter Moreton in Boston, and asked him to come down with his speed boat, Flying Clam, and meet us off the East end of the canal. This would allow us to leave the nurse boat at Buzzards Bay, saving the



The Four Upper Pictures Show the Sea Pup Logging $4\frac{1}{2}$ Knots Against a Strong Northerly Wind and Lumpy Head Sea, After Leaving Plymouth
The Two Lower Outside Pictures Were Taken Just After the Boat Arrived at New York In the Middle Mikkelsen Holding the Canal Pass

canalage and gasolene. The distance from Boston to the canal entrance is about fifty miles, and Flying Clam could make this in four hours. The canal charge for Sea Pup was five dollars, this being the minimum charge. The toll for yachts is based on their length over all, and very reasonable, it being about equal to the cost of the gasolene saved by using the longer route. The length of the canal is 8 miles, and the guaranteed depth 18 feet. The management are anxious to have boats use the waterway, and every attention is paid to vessels passing through it. The navigation on both sides is free from dangers and very simple.

Owing to the difference in the rise of the tides at the two ends, the current runs through very strongly, and as it was setting to the West, we were obliged to wait with the little boat until after two o'clock before getting underway for Boston. Moreton had promised to be waiting for us at the other end, so we loaded on all our goods and chattels and started off, the three of us, leaving Sackett and Noble to spend Sunday at Onset.

It has just occurred to me that in spinning this yarn I forgot to mention days and dates, unlike the hero who, in chronicling his campaign, wrote:

"Monday, Tuesday and Wednesday are week-days three:
Monday, the army met;
Tuesday, off we set;
Wednesday, beaten were we."

So to get you right in the reckoning, it was Wednesday, September 8th, when we sailed, and Saturday when we arrived at the canal entrance. It was scheduled to be in Boston Saturday, about 1 p. m., but owing to the fog, we lost some thirty hours, and as all who have voyaged know lost hours are untraveled miles and hard things to make up.

It was just 2:47 by the Buzzards Bay clock when we pulled out, and bucking a strong tide, headed East through the canal. The sides of the canal for some distance from the bridge are lined with dolphins for the waiting craft to moor to, and these dolphins are connected by a flying bridge similar to the dolphins in the Kiel Canal. To escape the current, we ran in behind the dolphins, and as close as possible to the bank. About halfway through the tide slacked and Sea Pup made better time, getting to and passing out at the other end at 4:30, being 1 hour and 43 minutes making the eight miles. Here another collector took up our pass, and we were free to proceed to sea.

The toll charged for the passage was \$5, a very reasonable charge, but the toll on the large vessels is too heavy and prevents these using the canal. This is especially true of sailing craft as the wind, being furnished by nature, costs nothing, and a good Southwester makes it only a matter of ten hours' running from Cuttyhunk to Highland Light, so that the saving of time is nil. If I was running the canal, my plan would be to station a tug at Minots Light and another at Hen and Chickens to pick up and tow the schooners through free of charge. Keep this up for a couple of years, and they would become accustomed to employing the short cut and continue to use it. The ultimate fate of the canal is to come into the Government ownership, and to be made free of toll. Then all hands will use it.

Our promised escort was not at the canal mouth, so we decided to go ahead and make as far North as possible before overhauling her. It was decidedly cramped, three in the boat, and we did not relish several hours

packed in with all the other goods and chattels. The sea, luckily, was like a looking-glass, and no sign of wind. Loaded as she was, the boat driven by the cheerful motor reeled off $4\frac{1}{2}$ knots. We saw two other boats, but neither proved to be the Flying Clam. When Gurnet Light showed up at sunset, I decided to run into Plymouth and put up for the night, so headed in across the shoal, never doubting, even at low water, there would be draught enough to float a dinghy.

Friend, have you ever been in the harbor of Plymouth, Mass.? If so, it is unnecessary for me to enlarge on the subject. The first thing we nearly landed on was Browns Island; backing off this we ran into the channel, and then into another bank. Two boats ahead of us went aground, each supposing the other knew the way. One man we hailed answered that they had an 18-foot channel.

"What, 18 feet wide?" was our rejoinder.

Take my advice, go into Plymouth in daylight if you don't know the way, or go in at high water. We ended up at the clubhouses, being very kindly received, and courteously treated by several members who were on hand. We heard Flying Clam was in port and that her owner and Mr. Meyer, of the Evinrude Company, had come in her, and were awaiting us at the Rock House. They had left Boston late, and made into Plymouth for the night, hoping to find us there. In coming, they had bumped several times, and picked up a lot of weed on the wheel. A lobster supper and a real sleep followed.

At daylight we were underway again, passing Gurnet Light at 6:15, and heading away North, headed into a brisk breeze. It was cold, and after passing Green River, I was glad to get into the Clam where there was room to move my legs. Fisher took the Sea Pup, and the other four voyaged in the speed boat. It was surprising to see the way in which the dinghy drove up against the sea and wind; it did not seem to check her speed a particle, and at 9:50 she passed Scituate, while we went in back of the breakwater and put on some more clothes to keep warm.

Scituate is a fine harbor for small craft, and very easy to enter, except when a heavy Easterly is blowing. The entrance is behind a breakwater, which is marked by a ruined light tower. The coast below Scituate as far as the canal entrance is free of all dangers if you give it a berth of a mile, but above this point there are many outlying rocks, and it is dangerous to approach at night or in bad weather. But in fine weather and daylight, small craft can make passage among these rocks, as they can readily be detected by the break of the sea, or color of the water. Another danger at night to power craft is the lobster pots, the place being pestered with them.

We made Cohasset at 10:50, going inside the rocks, so saving two or three miles, which would have been tolled if taking the course outside Minots Ledge. The wind now went more Easterly, and the sea smoothed out. It was warming up, much to our cheer. At 12:06, Sea Pup passed Point Allerton, which is the South gatepost of Boston Harbor, and made up to the finish at the Boston Y. C. At 1:29, she finished at the club float, having made the run from port to port in 52 hours and 47 minutes.

All through the run the Evinrude motor never stopped, except when it was stopped by the engineer, and never balked or missed fire, to my knowledge. Any further comment on the excellence of the little machine is needless.

In regard to the boat: Several designs have been put forth for the purpose of providing a small boat that will carry the weight of one of these outboard motors without squatting. Such of these that I have seen have been either failures or abortions, where the desired buoyancy has been obtained by making a craft that is out of proportion aft, and for this reason, useless for any other purpose. What we endeavored to produce in Sea Pup is a boat that is all-around useful, one that can be rowed, sailed or driven by motor. In plain words, what every experienced yachtsman wants his dinghy to be.

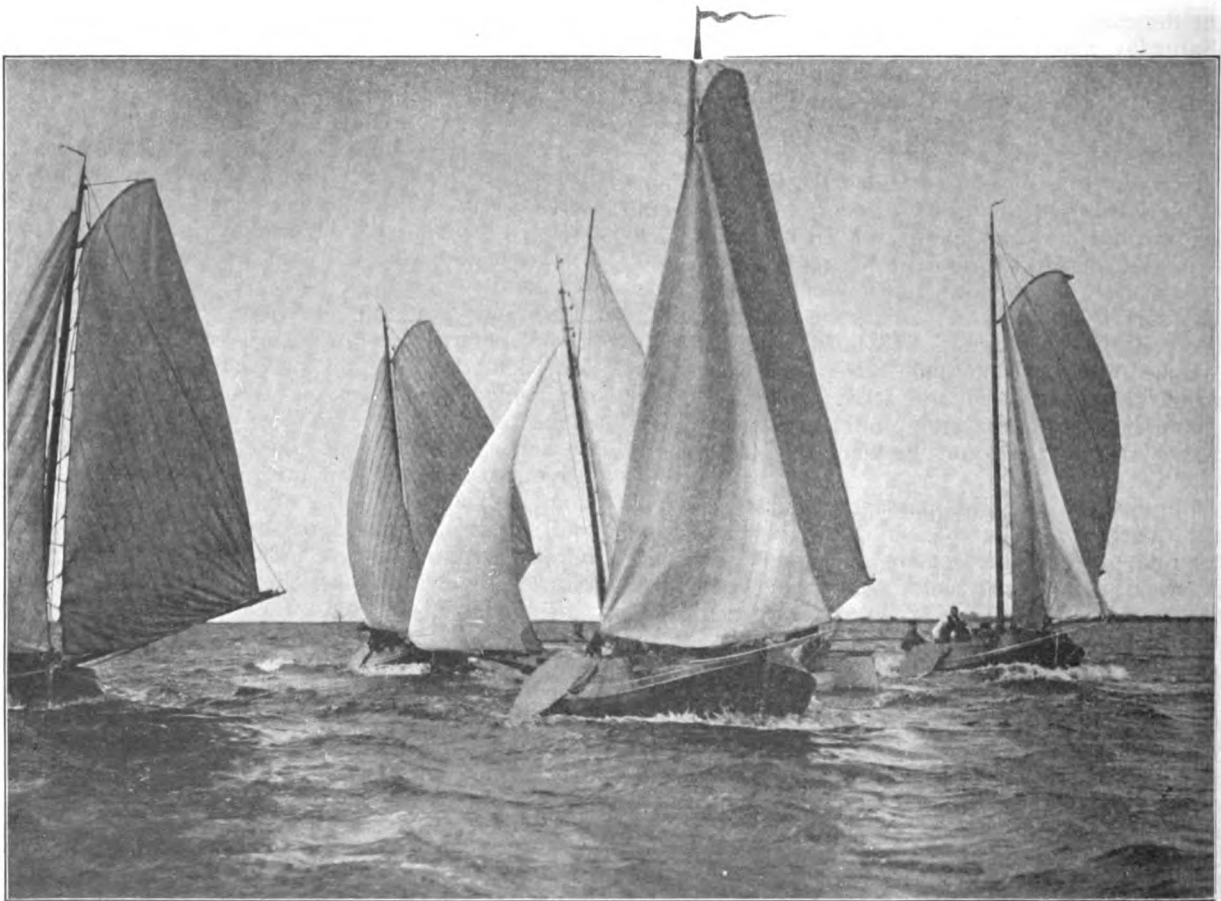
The average dinghy is a misfit affair. The reason for this is that they are designed and built by shop sailors, men who, no doubt, are good boat-builders, but having little or no outside experience. A yachtsman was unfortunately drowned this Summer out of one of these boats, and in a like craft I very nearly capsized in a moderate seaway. The most glaring defect of these boats is too much ends and not enough middle, the ends being pared and drawn out to make what is considered a good-looking craft.

Sea Pup is not in any way original or novel. She is the result of centuries of experience; nothing more or less than a ship's yawl, modified to carry the outboard motor. You have in her the accumulated experience of your ancestors, and that is a compound worth more—a thousand times more—than all the modern shop knowledge lumped together.

It has been the practice of THE RUDDER when it sent forth a design, to test it out, and that is the reason why this voyage to Boston was undertaken. To this is largely due the success of RUDDER boats. They are not office ideas worked up on a sheet of paper, but the result of years of experience, observation and study. We can now recommend this design to you with confidence that it will be found to be seaworthy, speedy and all-around useful.

In closing, I want to again compliment Mr. Fisher and Mr. Mikkelsen for their fine work, and to thank Captain Sackett for his able assistance in aiding in making the test a success. To Mr. Meyer and Mr. Moreton, for helping us out, our thanks are also due, and, above all, the weather deserves to be remembered, for never did men enjoy four finer days for voyaging in a 12-foot boat.

Total distance.....	232.9 sea miles
Total time.....	52 hrs. 47 min.
Gasolene used	14 gallons
Lubricating oil used.....	7 pints
Total fuel cost.....	\$2.10
Total oil cost.....	.56
Time taken per sea mile.....	13 min. 6 sec.
Average speed.....	4.58 knots (5.27 m.p.h.)
Quantity of gasolene per mile.....	0.48 pint
Cost of gasolene per mile.....	9/10ths of one cent
Quantity of lubricating oil per mile.....	0.03 pint
Cost of lubricating oil per mile.....	1/4 of one cent
Price of gasolene.....	15 cents per gallon
Price of oil.....	65 cents per gallon
Quantity of fuel per hour.....	2 pints (approx.)



Dutch Yachts Racing

MODERN MARINE MOTORS



AND T. ORCHARD LISLE, A.M.I.MAR.E

BOATS

WAKE UP, MOTOR-BOAT INDUSTRY!

RECORD BUSINESS AHEAD



IT is now drawing towards the end of the season, and we again comment upon the remarkable amount of business that a limited number of the marine motor and boat building firms have received. When war was declared, it was first believed that a great depression would sweep over the entire industry—we, ourselves, were somewhat more optimistic—and for the first two or three months things really seemed serious, many domestic engine and hull builders being dealt a severe trade blow.

But just before last Christmas things began to settle down as we anticipated, and simultaneously with the incoming rush of war orders from across the Atlantic business in general throughout the country began to brighten, and this favorably reflected upon the motor-boating game. Men making money, directly and indirectly, through war orders soon saw that their 1915 vacation would not have to be curtailed as expected, and as they could not go to Europe, some began to turn their attention to home-country pleasures and pastimes. While automobile tours attracted many, quite a number of orders for cruisers, runabouts and racing boats were placed.

In fact, the 1915 season saw the launching of a record number of highly-powered express cruisers, while for the recent Gold Cup Race, a record number of new hydroplanes were built. To make matters even brighter, several well-known engine and hull concerns received important war orders—one alone being for one hundred boats of 440-h.p. This in itself is also a record, and in a way it is unfortunate for the motor-boat trade in general that the order was not divided among a number of firms, or else sub-contracted.

By those who should know, we have been given to understand that the war is likely to last another three years, yet indications show that the coming winter and the season of 1916 will be one of the best that American motor boating and motor yachting has ever known. We are assuming, of course, that the United States will not be drawn into the fighting. Among the class of men that can afford a fairly expensive craft money is now

fairly free, and is getting more so each day, and so we should not be surprised to find most of the boat yards overflowing with new work. Even the man of moderate means is likely to be able to invest in his 16-foot runabout or 25-foot cabin cruiser, as, when money is freely being spent by the wealthy, it reflects upon the other classes, and so produces general prosperity. The Allies are sending hundreds of millions of dollars, and all this new money is circulating. But such business naturally will not find its way into the yard or works of the concerns that do not obtain full publicity, but will go to those who are out after it good and strong, and who do not mind spending a little money in getting the business. To make money it is necessary to spend money.

From abroad, too, the orders are likely to freely come—we refer to ordinary commercial orders—and we pointed out in our last issue how, despite the depression caused by the early part of the war, a record number of motors were installed in Scottish fishing boats, over 160 engines more than in the best previous year being fitted. Owing to manufacturers in Great Britain, Russia and France, particularly engineering concerns, nearly all being engaged on war productions, there is a splendid opportunity for American firms to make good. Already the United States automobile industry (both trucks and private cars) have received very large orders from British business men, and according to reliable reports, an enormous number of Ford runabout cars are being sold there, the same being far in excess of the usual number.

True it is that motor-boating is restricted in Great Britain, but so is automobiling, and still car orders are being placed in large numbers. Numbers of men are building, or are desirous of building, cabin cruisers for volunteer coast patrol work, several hundred craft being already so engaged. Also, in the near future the various neutral and belligerent countries of Europe are likely to place further and larger motor-boat contracts.

Individuals of the United States motor-boat and engine industries must wake up and obtain this business, and not leave it to a few firms to secure the largest share, and be content with the crumbs thrown to them. What is needed most of all is publicity, and publicity costs money—not very much—but it pays in the end. Those who adopt the false economy policy of stopping or reducing all advertising cannot hope to obtain this business, which goes to the “well-known” firms, who become “well known” by persistent advertising and publicity—a fact that cannot be denied.



Peter Pan, Disturber IV (Nearest the Camera) and Miss Detroit

CHICAGO RACES

PUGH'S FORTY-FOOTER EASILY DEFEATS THE BLACKTON-SKIMMER AND THE GOLD CUP WINNER

WHEN Commodore Blackton condemned motor-boat racing in rough water, Count Mankowski advised him to get a real boat, but instead of swallowing his own medicine and building another Ankle Deep, the Count came out with as near to a freak as is possible, and the ultimate disastrous results are now known to all devotees of the sport. Commodore Blackton advocated in THE RUDDER a "safety first" policy, so far as the weather conditions are concerned, but not with his boats, consequently all his latest speeders are flat-bottomed skimmers, which are purely smooth-water boats. So when his Baby Reliance V got up against a real husky boat, she couldn't see the other's stern for the foam left behind. The pounding opened up her seams, and she was just saved from sinking on the second day.

The races were run under the auspices of the Associated Yacht & Power Boat Clubs of America, and the first day's race was for the Wrigley Trophy. Owing to very rough water, the race for the National Championship on the second day was postponed. The Wrigley Trophy course was twice round the outer cribs, or a distance of 30½ statute miles.

Six motor boats of the ten originally entered for the

United States Motor-Boat Championship competed. The time of the first run was: Disturber IV, 36:58; Miss Detroit, 42:37; Baby Reliance, 42:37½; Peter Pan, 42:38½. Then followed Peter Pan VII, Barnacle II and Billikan.

Disturber IV made the first round, or 15 miles, at the rate of 55 miles an hour, but Skipper Pugh, finding that his speedy craft had a great advantage, reduced his speed, and the average rate per mile for the entire distance was 49 4/10 miles an hour.

Disturber IV had the race so much to itself, so far as the first place was concerned, that the interest of the motor-boat enthusiasts was directed to the contest between the three that followed Pugh's speedy boat. The real race was between Miss Detroit, Baby Reliance and Peter Pan, and those who followed the struggle between these three said that a closer contest had never taken place on Lake Michigan waters. The second race was held on the 9th, and the final contest for this \$20,000 trophy on the 11th, Disturber IV winning just as easily on each day. On a series of ½-mile trials held by the committee, Disturber IV averaged 62 miles an hour.

	FIRST DAY		SECOND DAY		THIRD DAY	
	1st Lap	2nd Lap	1st Lap	2nd Lap	1st Lap	2nd Lap
<i>Disturber IV</i> , Jas. A. Pugh.....	16:30¾	36:58	16:33¾	33:08¾	28:38¾	55:51¾
<i>Miss Detroit</i> , M. D. M. B. Association.....	20:44¾	42:37	17:06	34:15	42:59¾	Withdrew.
<i>Baby Reliance V</i> , J. S. Blackton.....	20:45½	42:37½	Did not finish.		Did not start.	
<i>Peter Pan Seven</i> , James Simpson.....	22:17	42:38¾	25:31¾	46:50¾	33:49¾	1:11 19
<i>Barnacle II</i> , Chas. Steele.....	31:39	1:00:09¾	18:51¾	Withdrew.		
<i>Billikan</i> , W. T. Warren.....	32:40¾	Did not finish.				
<i>Black Demon IV</i> , L. J. Johnson.....	Withdrew.		35:18	Did not finish.		

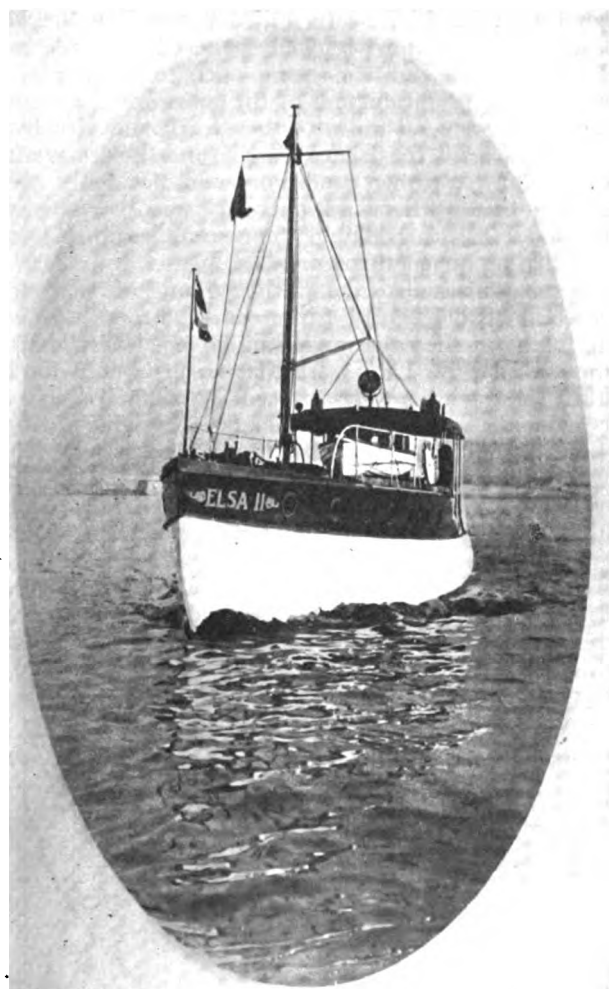
Points, Total: *Disturber IV*, 21. *Peter Pan Seven*, 15. *Miss Detroit*, 12. *Baby Reliance V*, 5. *Barnacle*, 3. *Billikan*, 0. *Black Demon IV*, 0.



Miss Detroit in Choppy Water

THE PERFORMANCE OF ELSA II

MOST small motor yachts are used chiefly for week-end cruising and for the owner's annual vacation; but once in a while a cruiser is put to steady hard cruising—work that is nearly as severe upon the machinery and hull as is the continuous running of a commercial boat. As pleasure cruisers are nearly always equipped with a lighter type of engine, long-distance cruising soon brings to light the merits or demerits, as the case may be, of the power plant. Therefore, under such circumstances, an owner should expect a certain amount of machinery repairs, but the smaller the bill the better it is for the reputation of the motor builder. Considerable stress, too, is placed upon the hull, so substantial construction means much.



Bow View of Elsa II

During the seasons of 1913 and 1914, considerable long-distance cruising was accomplished by Commodore Judson H. Boughton's (St. Louis Y. C.) 46-footer Elsa II, she having traveled, we learn, 6,000 miles on the Mississippi River, and 4,000 miles on the Great Lakes, respectively. Reports of her performances for 1915 have not yet come to hand, but it was the intention of

the owner to cruise at least an equal distance to an average of the two previous seasons. When she returns to his home port no doubt details will be available.

Elsa II was launched in 1913 by the St. Louis Yacht & Boat Company, and the illustrations show that she is a combination of the raised and flush deck types, the raised deck being carried to past 'midships, suddenly falling away to the flush deck. As the raised deck also is flat and railed off, plenty of deck space is provided. So while she is not a handsome craft from a naval architect's point of view, she is a comfortable type of boat with plenty of headroom, which perhaps is more important for a yacht used for long-distance cruising.

Her length over all is 46 feet 6 inches with 9 feet 8 inches breadth and 2 feet 4 inches draught. She is what may be termed a combination of the river and deep-sea-water classes. Her cabin layout is complete in every detail and up to the last minute in boat design. There are three connecting cabins, besides the engine room and hold, so affords cruising accommodations for a party of eight in absolute comfort. One unique feature of this



Broadside View

craft is that the heat is furnished by one of the modern hot-water systems, which gives an even and steady temperature at all times. It also has one of the most modern electric lighting plants. Her propelling plant consists of a four-cycle type, four-cylinder, 5½-inch by 6-inch medium-duty Sterling engine, rated at 30-h.p. This is said to give the boat a steady cruising speed of 12½ miles an hour, retaining this speed day in and day out. Another added feature to Elsa II is the fact that she has a one-man control, and is equipped with an auxiliary mainsail and jib for use in both deep and shallow water.



MOTOR BOATS IN WAR SERVICE

It was reported officially from Petrograd that in connection with the operations of the Russian Army in the Caucasus one of the Russian motor boats fitted with a machine gun attacked a large sailing vessel which was fully laden. It is understood that motor boats are being largely used in the Caucasus campaign for all purposes, for in this district the roads are infrequent and extremely bad.

WHAT IS THE WORLD'S RECORD SPEED?

The following article, revealing, as it does, the exact truth of the remarkable 1913 B. I. Trophy speed records, should carefully be read by all interested in the sport of motor-boating, as the question involved is as grave as it is interesting.—EDITOR.

EVER since the extraordinary speeds attained by Maple Leaf IV and the Despujols hydroplanes in the 1913 British International Trophy Races, the records (which are official, for they were endorsed by America's accredited representatives at the races) have been disbelieved by many persons in the U. S. A.

The excellent speed attained by Tech Jr. in the mile trials recently in Manhasset Bay brings this subject into the limelight again, for a world's speed record is claimed for this boat by several journals and newspapers, which mean well, but are perhaps carried away by superabundant exuberance. This, of course, is regrettable, as it unintentionally places a stigma upon the International Committee which, of course, included two of our own country's representatives, one of whom is the present Mayor of Chicago, and whose honor is *sans reproche*.

For instance, in the account of the Sea-Mile Contest, *Motor Boat* says: "There is no doubt that Tech's performance constitutes a new and authentic record, and that she is probably the fastest boat in the world . . . for the amazing speed credited to the boats in the Harmsworth Races in England two years ago are disbelieved wherever people know anything about motor-boat racing."

With due respect to our esteemed contemporary, we think it a pity that such rash statements should be made without more substantial proof than supposition that the B. I. Trophy records were otherwise than correct. We fully acknowledge that much doubt ever since has existed in this country, but that is because no real explanation of the proper facts was given. Under the circumstances, we offer no excuse for bringing out an old subject. We, ourselves, have no hesitation in saying that the actual speed *through the water* of Maple Leaf IV was at least three to four miles an hour less than the 49.02 knots for the second day's race.

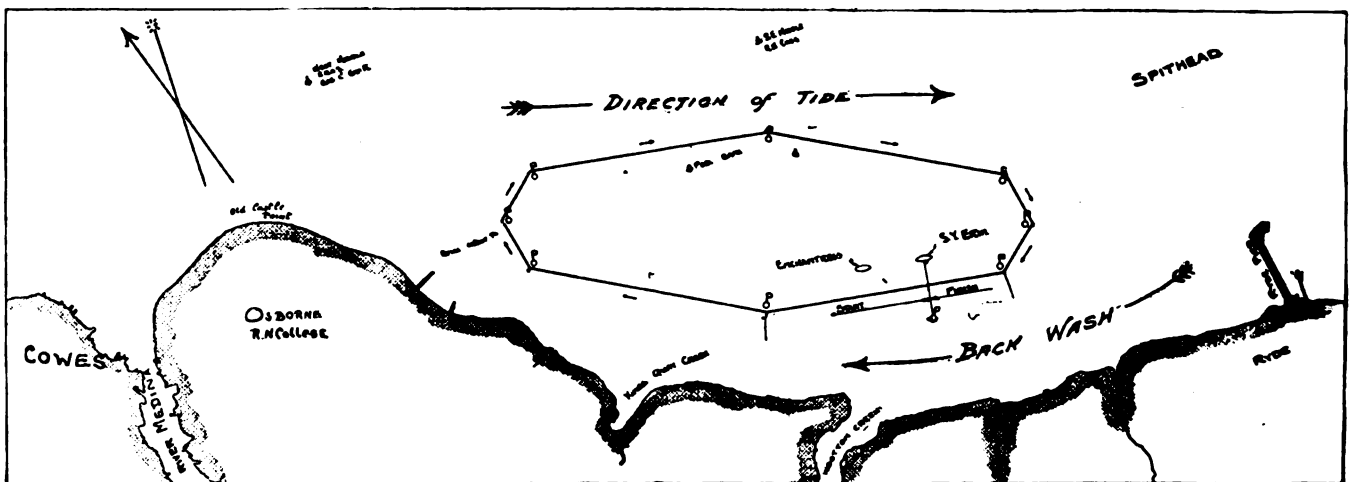
Yet, during one short mile burst the French boat, Despujols II, showed herself to be nearly 10 miles an

hour faster than the British winner. So the writer, who actually saw the races (no house-staff member of either of the U. S. motor-boating journals was present), personally considers Despujols II to be the world's fastest; but she was not capable of standing the terrific strain. Anyhow, no other craft has publicly shown such a terrific speed, although this still leaves Maple Leaf IV the official fastest boat.

Now as to the truth of the B. I. Trophy record speeds. A study of the map will show that the situation of the course was extremely favorable to high speeds, it being situated in very deep water in Osborne Bay, between Cowes and Ryde, and was well sheltered on three sides by land, only the one end being open to the sea. Unfortunately, the reproduction of the course does not show the mainland, several miles to the North and Northeast. The land shown is the Isle of Wight, and the sea is many miles distant. Weather conditions were decidedly favorable, there being little wind, perfectly smooth water, and no ground swell, each day. The course being octagonal, there were no sharp turns.

The boats turned to the starboard, and on two of the longest legs had the full force of the strong tide with them, while on the other two longest legs were assisted by the considerable back-wash that swung round the bay on the island side. Thus it will be realized that for practically the whole of the distance the boats had the ebb tide in their favor—and it is some tide, too. There also may have been a slightly favorable drifting of the buoys, as is very possible under the circumstances. Hence, whilst the official speeds are no doubt correct, the speed of the racers *through the water* is really considerably less.

The course was measured by Messrs. F. Smith & Son, the experts, of Southampton, and was checked and re-checked each of the three days, and upon the accuracy of this the American, French and British delegates were thoroughly satisfied.



The 1913 B. I. Trophy Course

Unfortunately, the printers incorrectly printed the course figures on the official program, and these figures were used to endeavor to prove the course inaccurate. It was an eight-sided course, with nine stretches, the starting and finishing line coming between the buoys of one leg. The distances were as follows:

Legs	Distances as Given on Programme Sea Miles	As Altered and Published in The Rudder Sea Miles	As Measured and as They Should Have Been Printed Sea Miles
1	.75	.66	0.75
2	1. 1	1.01	1.10
3	.25	.25	0.25
4	.25	.25	0.25
5	1. 1	1.01	1.10
6	1. 1	1.01	1.10
7	.25	.25	.25
8	.25	.25	.25
9	.35	.35	.35
	5. 4	5.04	5.40

Six rounds of the actual course (No. 3) = 32.4 sea-miles.

It will be seen that the printer, in three instances, placed the figure 1 in the wrong place, making them read one-hundredths of a sea-mile instead of one-tenths. When THE RUDDER editorial staff received the report from their correspondent, they found that the leg-distances did not add up correctly, so leg No. 1 was altered to 0.66 of a sea-mile and the total added to 5.04 sea-miles, whereas it actually was 5.40 sea-miles.

After the races, Count Mankowski, who raced Ankle Deep, the fastest of the two American challengers, avowed to the writer that his hydroplane had never moved so fast before, and the Count is one of the most honorable sportsmen in the motor-boat racing game. The writer has also seen his boat racing here, and is absolutely confident that she was running faster in England.

There is no doubt but that Ankle Deep raced splendidly and her average times, each of the three days, were wonderfully close, only varying one-tenth of a mile an hour. Her best speed was on the first day, when she averaged 45.5 knots.

Now this is faster than Ankle Deep can move through still water, but if we knock off three knots as being due to the extraordinary tide conditions and drifting of buoys, we get an actual speed of 42.5 knots.

Last year at Lake George (still water) and Buffalo (with and against current), Ankle Deep attained average speeds of 42.1 knots and 44.44 miles an hour, respectively, so her speed at Lake George was only a fraction less than her B. I. Trophy speed.

In the latter races, Maple Leaf IV showed herself without any doubt whatsoever to be very much faster than Ankle Deep, so the results prove conclusively that there was no faking or miscalculation about the 1913 B. I. Trophy speed records, which should and must hold good until they are beaten fairly and squarely.

Therefore, while Maple Leaf IV's speed of 49.02 knots (56.44 m.p.h.) is the official one, her actual speed, based upon the performance of the reliable Ankle Deep, is about 46 knots, or 52.96 miles an hour, which is by no means impossible, considering she has more than double the power of Miss Detroit or Tech Jr. Tech Jr.'s recent mile record was 46.78 knots or 53.87 miles an hour, which makes the English boat's speed all the more probable. Maple Leaf IV's best 5½-mile lap was officially made at 58.5 m.p.h., or actually 55 m.p.h. if the tide, etc., be allowed for, so is entitled to her record.

Finally, there is the speed of the French boats to account for. This is easily understood, when we say that these boats are very similar in size and design to Miss Detroit (best Gold Cup speed = 42.17 knots, or 48.49 miles an hour), and to the speedy Blackton Babies, yet instead of 280-h.p., as these U. S. boats have, they had 400-h.p., which, of course, is some difference, especially as the complete weight of the French craft were perhaps a little less than the Smith productions.

These facts will, we hope, place the speed record question upon a definite basis, and the next Gold Cup Races should, if possible, be held under similar tidal conditions. Somebody must constitute an authority on speed records, and if we are going to dispute or sneer at the declaration of an international committee, and make other records, it will upset the whole question of motor-boat records.

We owe it to Great Britain to acknowledge the Maple Leaf IV's speed record was raced for and won absolutely on the square. And shall her feat be detracted just because she was assisted by unusual conditions of nature, which also benefited all competitors in the same races? Her owner is a fine sportsman, and having raced for the Trophy four times won it twice, and now stands to defend it against all comers. Let us build some real boats, beat her and set up a new speed record, over which there must not be the slightest shadow of doubt. Until then let us be generous and honor her record, as is worthy of a nation of sportsmen.

[Our readers' views on the subject are welcome. The opinion of Commodore Hale Thompson is given on another page.—EDITOR.]



Lapwing, a Thirty-Footer. Owned by Mr. E. W. Burdett, of Marion, Mass. Her Power Plant is a 50-H.P. Sterling



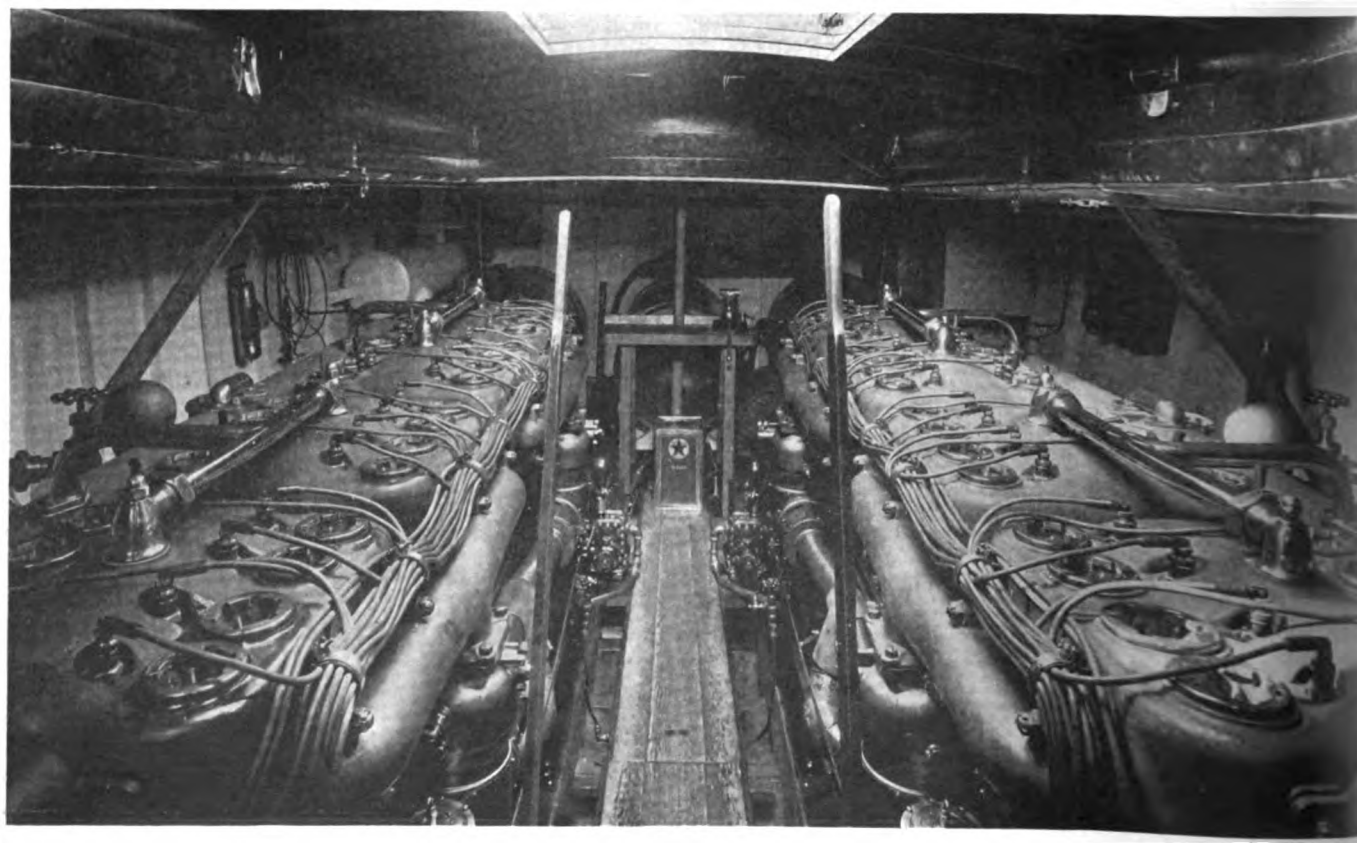
The Conejo at Slow Speed

A REAL EXPRESS CRUISER

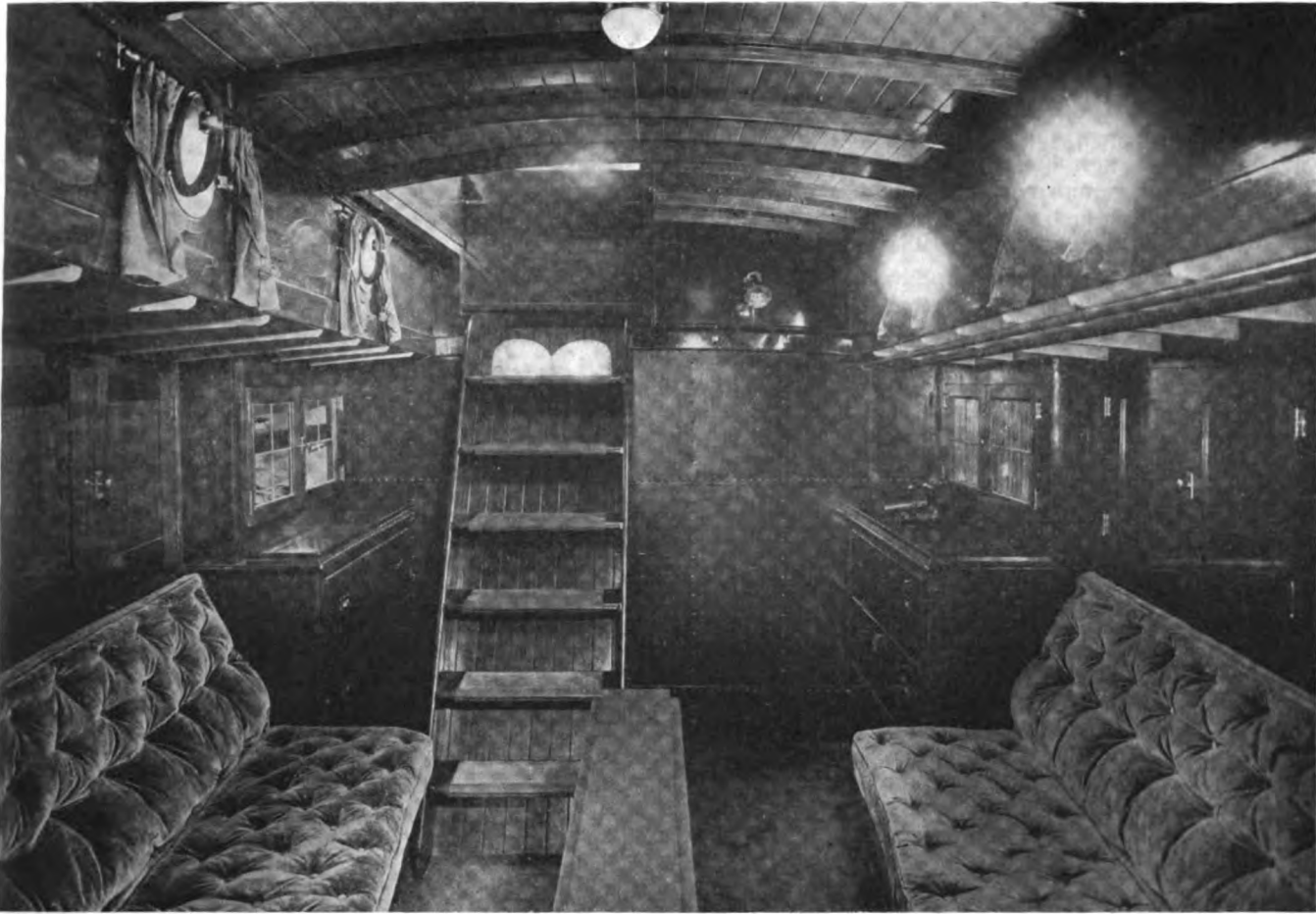
THE NEW 600-H.P. STERLING-POWERED CONEJO

RANKING among the most important of express cruisers launched this year, undoubtedly is Conejo, of New York, the new 91-footer, owned by Mr. Roy Rainey, and built from Lawley from designs by A. S.

Chesebrough. Conejo is a twin-screw yacht, and may be termed a "real express cruiser," having quite a fair amount of comfortable accommodation, also a high turn of speed. According to the designer, a speed of 31



The Two Big Sterlings in Her Engine Room



Dining Saloon of Conejo

statute miles per hour has been attained on trials, and even better is expected.

She is 91 feet 6 inches long over all, by 91 feet on the water-line, with 10 feet 10 inches breadth and 3 feet 3 inches draught. Her power plant consists of two four-stroke-type, 300-h.p., eight-cylinder Sterling gasoline engines. Each cylinder has bore of $6\frac{3}{4}$ inches by 9 inches stroke, and turn at about 1,000 r.p.m. We understand

that in the boat as much as 630 brake-horsepower in aggregate is developed.

Regarding her accommodation, it will be seen from the illustrations that there are no deck cabins and that the furnishing and decorations have comfort as their chief feature. Commencing from forward, is the forecabin, then comes a well-equipped galley, followed by the dining saloon. Next is the engine room, which contains the two big Sterlings and the electric lighting plant. Owing to the narrow breadth of the boat, these engines practically take up the full beam, but there is room between the two motors for a passageway. Aft of the engine room is the owner's toilet, and then the owner's stateroom. Conejo has already done a fair amount of cruising this season, and has caused much favorable comment wherever she has been.



A NEW SHIPYARD

RUMORS are current at Providence, R. I., says *Shipping Illustrated*, that a new and extensive shipbuilding plant is to be erected at Bristol Ferry in the near future under the control of Nat Herreshoff, the yacht builder, Paul Rainey and Roy A. Rainey, owner of the express cruiser Conejo. The new corporation, it is stated, will be capitalized at \$1,000,000, and is believed to have already taken options on about 15 acres of land with a frontage on the water of about 3,200 feet. Sir Thomas Lipton and the Fletchers, of Hoboken, N. J., are also mentioned in connection with the scheme.



The Well-Equipped Galley

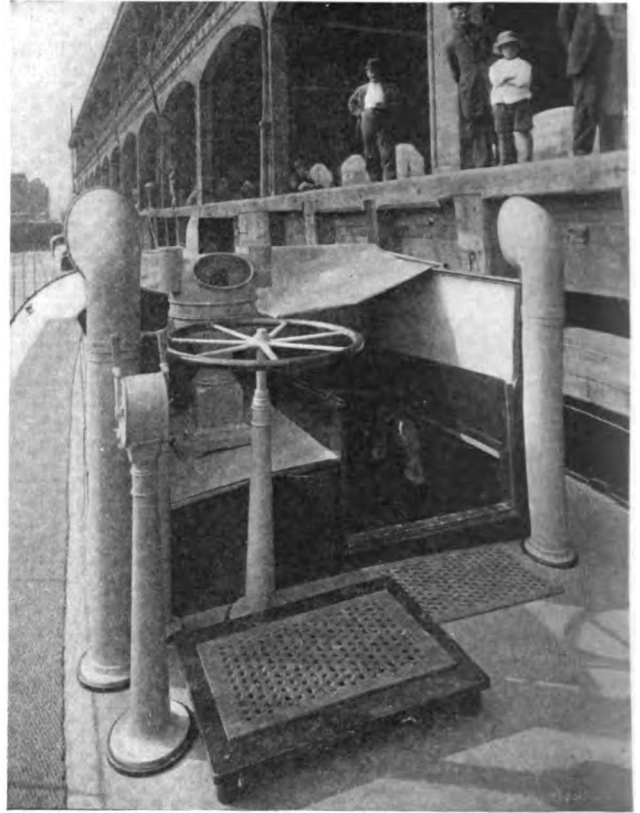
THE EFFECTS OF WAR ON AMERICAN MARINE ENGINE SAILS AS SEEN BY A MARINE MOTOR MANUFACTURER

[After our article, entitled, "Wake Up, Motor Boat Industry" (see page 435), was in type, we received a copy of *The Herd*, a new booklet published by the Buffalo Gasolene Motor Company, and from it we extract the following article, which curiously enough endorses our belief in a remarkable manner.—EDITOR.]

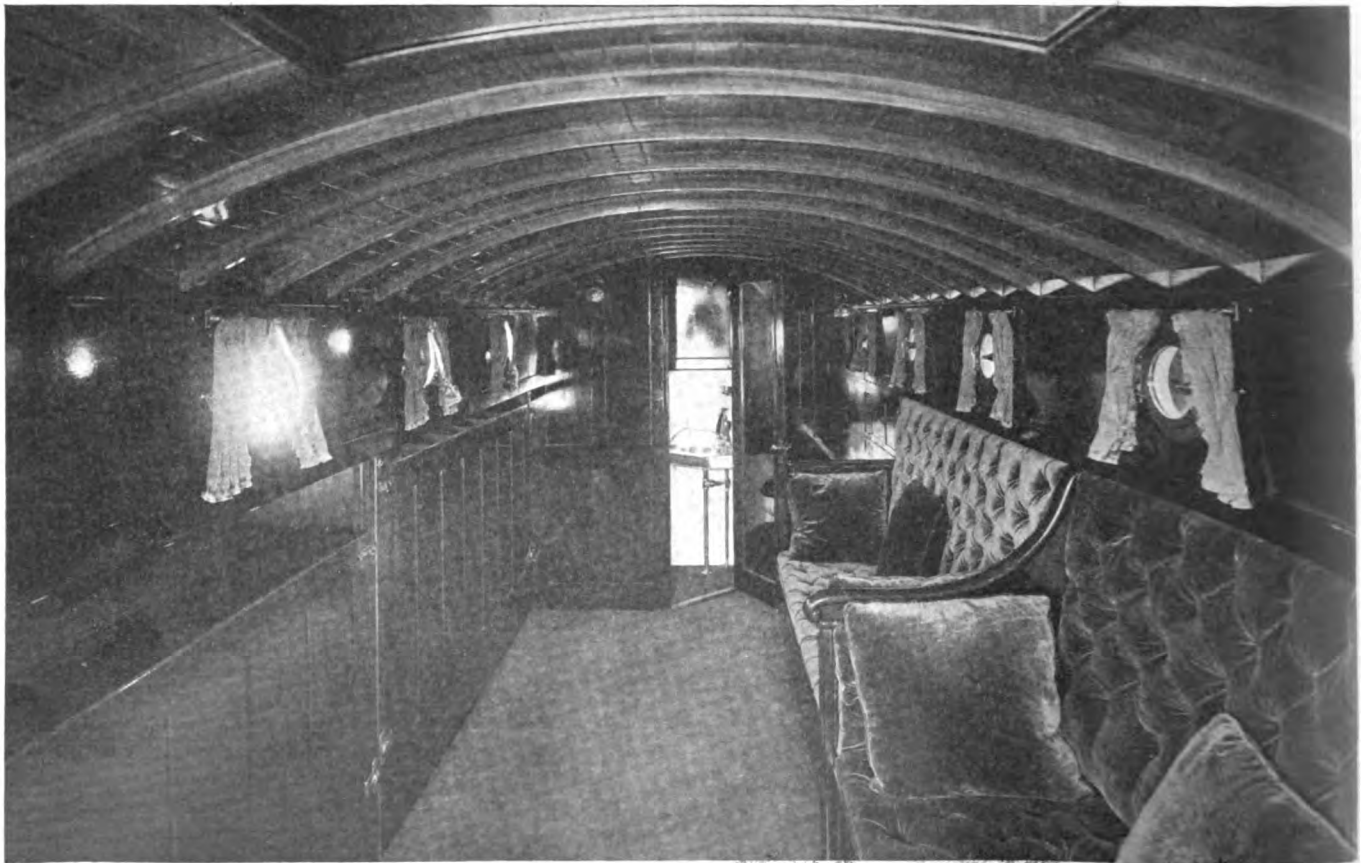
JUST one year ago all the craze hangers in this great and glorious United States were working overtime. In one brief hour they could tell you of more varieties of trouble that were due to strike the country than Job, with all his trials, ever dreamed of having. And it looked for a while as if they were right, as far as the marine engine business was concerned.

The war began on July 28, 1914. On July 29th, the marine engine business stopped dead, and refused to be started. It was generally feared that the happy days of the engine man were over, but the situation turned out to be much like that of the man who cranks his engine for half an hour without avail, and then recollects that he has forgotten to turn on the gasolene supply.

Marine engine men, both salesmen and manufacturers, suddenly realized that there was an abundance of business at hand, and that all that was needed was to go get it. Presto! The wheels began to turn again, not very fast at first, to be sure, but nevertheless they turned, and today there can be no division of opinion concerning the fact that the marine engine business is getting back on a very satisfactory basis.



The Bridge. Showing the Steering Wheel and Engine Room Signals



The Owner's Stateroom. Showing the Pullman Berths (Closed) to the Left and Settees to the Right

It is true that much export business has been cut off by the war, but on the other hand the marine engine requirements of many countries abroad have increased. The English and German motor makers, who formerly were the strongest competitors of the United States for trade in Central and South America and the Orient, are now too busy making war material to think of much else. War has found its own peculiar uses for the product of the marine engine maker, and every day sees fresh orders placed in the United States.

But equally, if not more important, is the increased demand which is springing up in our own country, due to the fact that Europe is off the map as far as the Summer tourist is concerned. He is in the sad predicament

of being "all dressed up and no place to go." Is it any wonder that his thoughts should turn toward the water and motor boats?

Men who never before took any interest in things marine are this year going into the motor boat game. They are buying everything from outboard-motor-powered rowboats to 200-foot yachts. The various Summer resorts are most of them better patronized than they have been for years, and next year it will be still better.

In short, the millions of dollars which have usually gone to Europe are staying home this year, and it is only natural that some odd pennies should trickle into the motor-boating game.



COMMODORE WM. HALE THOMPSON'S ENDORSEMENT

[The article on the World's Speed Record given elsewhere in this issue, we submitted to Commodore Wm. Hale Thompson, as official representative of this country at the race, and his reply is as follows.—EDITOR.]

PERMIT me to congratulate you upon the thorough and fair manner in which you have treated the subject of records of motor boats during the last International contest, at which meet I had the honor of representing the United States.

I concur in your editorial on the subject.

After the splendid record made by Maple Leaf IV, I offered the suggestion to the committee that it might be well to have the course checked, on account of the high speed established. They explained that the same had been laid out by competent engineers, who had furnished a certificate for the correctness of the distance, and a majority of the committee ruled that a further measurement was unnecessary.

It may be of interest to our motor-boat men to know that Maple Leaf IV really did slightly better than her record shows, as she was at no time near the starting line when the gun was fired, and in some of the races she was at least half a mile behind the line, which, of course, made her cover a greater distance during her elapsed time than her records show.

But fast and able as she may be, I was fully convinced a year ago, when our fellow-townsmen, Commodore James A. Pugh, tested his new boat, Disturber IV, in her trials in Chicago, that this boat would be able, if properly supported, to lift the "Blue Ribbon of the Seas" in the motor-boat world, and the Commodore's many friends deeply regret that he was denied the opportunity of a contest after going to England a year ago last August, on account of the unfortunate declaration of war which occurred three days before the motor-boat championship races were to have been held, and which necessarily prevented all competition.

I have felt for months, and have so stated, that it was my opinion that Disturber IV could do 60 statute miles per hour, and her recent record in Chicago, in which she did a ½-mile course in 29 seconds, and her poorest time for six such trials was 31 seconds, shows us conclusively that the Commodore has a 60-mile boat.

I would like to take this opportunity of offering, for what they are worth, a few suggestions to our racing men in this country.

First, that it is a waste of time and money to build anything less than a 40-foot boat for International racing.

Second, that when the United States again challenges for this Cup, we should have a full team of three boats, which the rules provide.

The French team of two boats in the last International Race clearly demonstrated what a great advantage a nation has in the race when a fast boat is used for the purpose of assisting her team mate in such a contest. For this reason, I desire to impress upon our sportsmen the great importance of having a full team in the next International Race.

We, of Chicago, are naturally elated over the fact that our fellow-townsmen has driven his motor boat at a speed to exceed 60 miles an hour, and our further appreciation in him as a man whose first interest is to see our country regain this Trophy, and I take the responsibility of assuring any sportsman who may contemplate the building of one of these boats, that he can secure from Commodore Pugh all the information which might benefit him, that Commodore Pugh may have gained through his long experience in this sport.

WM. HALE THOMPSON,
Mayor of Chicago.



SPEED AND THE TRUTH

WHEN a man comes along with a design of a motor boat having an "absolutely-certain" speed of over one mile per minute, he can be correctly regarded as either a knave or a fool. There has been altogether too much of this 60, 70 and 80-miles-an-hour hydroplane talk, and such does serious harm to the sport, also it reflects upon the industry, and it is time the various magazines and journals devoted to the interests of motor-boating cut it out entirely, instead of encouraging such wild-cat talk by giving it prominence in their magazines. The various editors are far too sensible personally to make such rash statements, but they still allow their local contributors to write the ridiculous nonsense. Of course, the daily newspapers are the worst offenders, seeing that they are always seeking sensational copy, but it behooves technical and semi-technical journals to be a little more dignified.

For instance, a speed of no less than 82 miles an hour was claimed for the Gold Cup challenger Tiddlewink, whereas her actual speed was under 50 m.p.h. when she appeared on the race course. Previous to the race, almost 70 miles an hour was claimed for Miss Detroit, the winner, but her speed was under 55 m.p.h., and there are dozens of similar instances, not only with hydroplanes, but with runabouts and cruisers. Creating these false im-

pressions cause a boat to make only a sorry showing when she is put to the test.

Much of this speed exaggeration is caused by the builders' endeavors to make the owners feel good, also by the owners themselves testing a boat's speed by taking her over a course on a river or lake which is locally known to be a certain distance, and which really is far short of the actual distance. Add to this the little natural bias and a favorable current, and hey, presto, the wonderful speed is accomplished. Timing of a fast boat needs the greatest care and checking for the results to be accurate, and a few seconds make all the difference in the world.

Sixty miles an hour, and even more, will surely come, but not without some radical engine and hull development. It mainly rests upon the engine giving more power for a given weight and the proper selection of a propeller. Furthermore, it is impossible to state with certainty what speeds any hydroplane will accomplish whilst the design is still on paper, and no naval architect of repute and standing would give a guaranteed speed if he had not previously built a very similar boat.

If an owner desires to check the speed of his boat he can do so by measuring up the pitch of the propeller, for no boat can go faster than the pitch of the wheel will allow. Generally, they are way below that figure, because of slip.



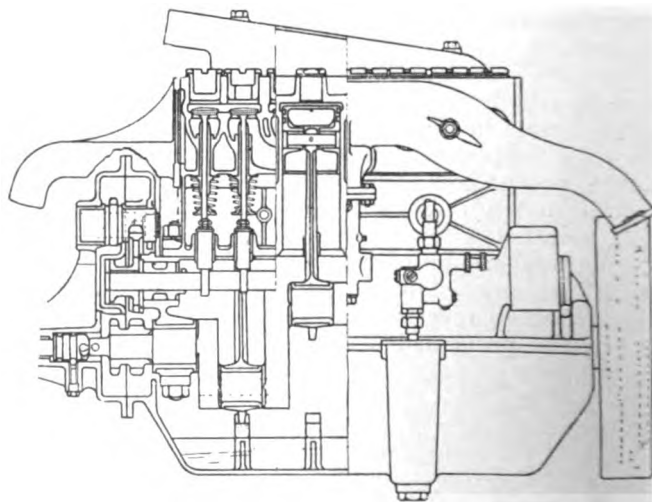
FOUR THOUSAND REVOLUTIONS PER MINUTE

IN a recent issue of THE RUDDER we referred to several remarkable automobile engines that were run at nearly 4,000 revolutions per minute, which makes the famous Sunbeam marine motor look like a slow chugger. The makers of one of these engines—the Calthorpe—have sent us photographs and drawings, which we reproduce, of this wonderful little machine.

Although built for car work, this motor, we think, lends itself, if minor alterations are carried out, splendidly to small hydroplanes and to the 21-foot class, and we suggest that our marine motor manufacturers should turn out a similar job. It is a four-cylinder, four-cycle model, 62-mm. bore by 90-mm. stroke, rated at 9½-h.p., yet it develops 37-b.h.p. at 3,710 r.p.m., on a weight of 180 lb complete. Evidently the maximum power is obtained at these revolutions, because at 3,800, only 36-b.h.p. is developed. When running light, it will turn up to 4,000 r.p.m. Its over-all length is under 20 inches, so it is a veritable pocket edition.

The cylinders, which are water-cooled, are cast en bloc, and the valves are arranged in single file on the port side. The cam shaft runs in three white metal bearings and is driven by a silent chain, and the magneto is also driven by a silent chain. The crank shaft runs in two white metal bearings, and is of large diameter. Lubrication is by a plunger pump driven by an eccentric on the cam shaft, and the oil, which is drawn through a large and easily detachable filter, is forced direct to the crank shaft bearings and to troughs underneath the con-

necting rods, on which scoops are formed and which pick up the oil to lubricate the big ends. The gudgeon pins, cylinder walls and cam shaft bearings are lubricated by splash, whilst the oil pressure is adjustable. Why the



General Arrangement of the Calthorpe Engine. Unfortunately the Photographs Were Not Clear Enough for Reproduction

engines are driven at such high speed is because they were for racing light cars. Of course, the ordinary models turn at lower revolutions.

DOROTHEA—AN EXPRESS CRUISER

TO the steadily increasing list of express cruisers may be added Mr. John R. Fell's new yacht Dorothea, which flies the burgee of the Corinthian Y. C., Philadelphia, although this particular boat is not so highly powered as many recent craft of her type. She is of V-bottomed class, and in design follows the torpedo boat destroyer profile, which, since the war, has become almost a craze among motor yachtsmen.

In general appearance and dimensions, the Dorothea is very similar to Shark II, which was built for Mr. S. H. Collom last year, the chief difference being that the design of the hull shows the hollow V-bottom model, while Shark II is of the usual round bilge type, both being from the pen of Mr. J. Murray Watts. The engine in Dorothea is a six-cylinder, 6-inch by 6-inch Frisbie, developing 50-h.p. at 600 r.p.m., and 75-h.p. at 800 r.p.m. At cruising speed the engine is run at about 600 r.p.m., and, we are advised, drives the boat at about 15 miles per hour. It is expected that when the engine has had a good limbering up that a speed of close to 17 miles an hour will be obtained, but we are inclined to think this a little optimistical.

The general dimensions of the boat are 56 feet over all, 10 feet 10 inches breadth and 3 feet draught. The generous breadth and good freeboard should make her a dry and comfortable boat in a sea-way. The arrangement plan shows the owner's stateroom and toilet room forward. There is a saloon aft, with another toilet room connecting. On the starboard side is the galley leading into the saloon. Amidships is the engine room and crew's quarters, with bunks for two men, and there is a separate toilet room for the crew.

The boat is lighted by electricity and the furnishings and equipment are very complete throughout. The finish is of Honduras mahogany. The decks are clear white

pine and the planking white cedar finished in black enamel. Besides the usual rowing tender, the Dorothea carries a light V-bottom, high-speed power tender. Owing to the hard bilges in connection with the breadth of nearly 11 feet, this power tender can be swung out on davits without giving a noticeable list to the yacht.

She was built at the Smith & William yard, and her trial trip consisted of a run from Salisbury, Md., to the Summer home of her owner at Narragansett Pier, a distance of about 450 miles, which was accomplished in six days without any hitch whatever, the engine running in splendid shape through a Northeast storm on the Sound, which, it will be remembered, gave some of the big yachts on the New York Y. C. Cruise considerable trouble. We reproduce the plans on the following page.

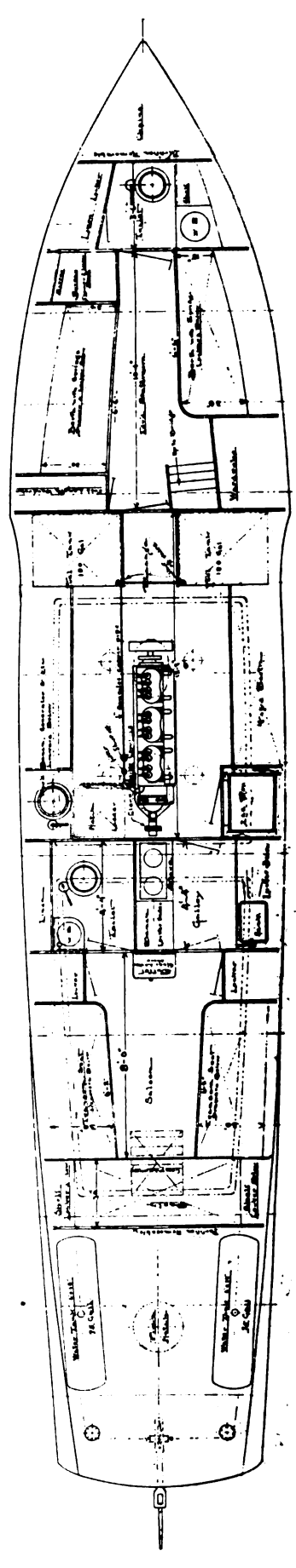
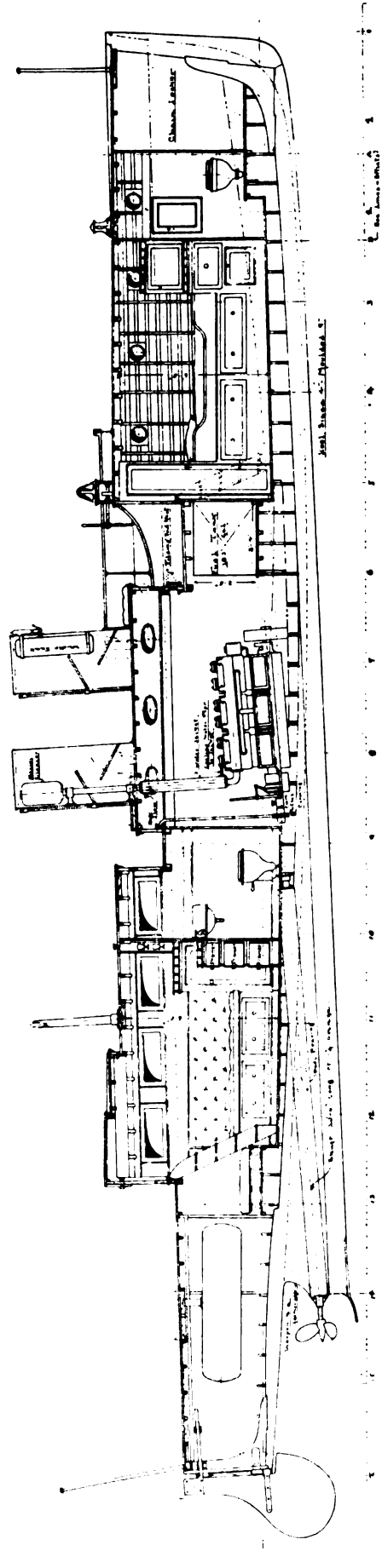
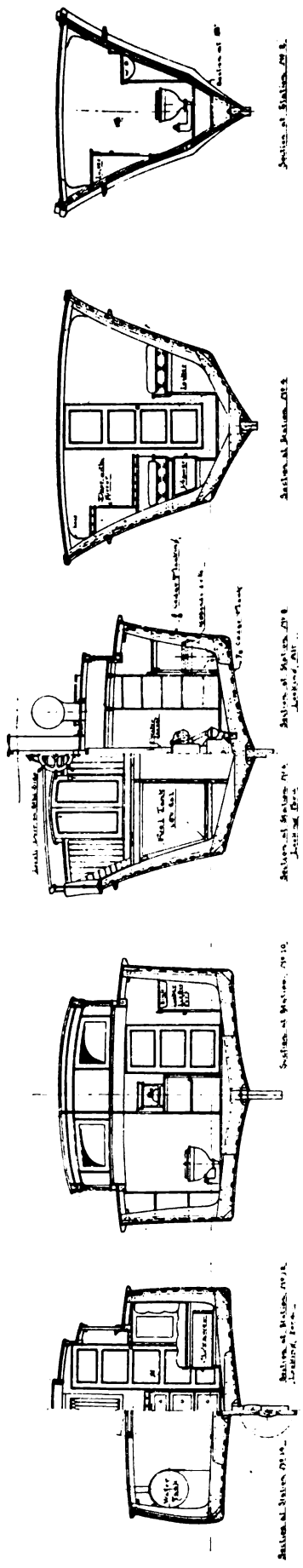


A CHILDISH ORDER

THE British Admiralty find it necessary to issue a warning that books containing profile outlines, drawings, photographs, or silhouettes of his Majesty's ships, as, for instance, Jane's *Fighting Ships*, Jane's *British Naval Recognition Book*, Jane's *The World's Warships*, Jane's *Warships at a Glance*, *The Fleets of the World*, *The Naval Pocket-Book*, *Brassey's Naval Annual*, etc., must in future be regarded as coming under Regulation 18 of the Defence of the Realm Regulations. It is important, therefore, that all persons having copies of such books in their possession for purposes of sale should withhold them from sale, and that no dealings in copies of such books, whether by way of sale or otherwise, should take place during the continuance of the war. Any traveler through Germany knows that such books on the British Navy can be obtained by the hundred, which makes this order petty and childish.



Dorothea



Accommodation Plans and Sections of the Express Cruiser Dorothea, Described on the Previous Page

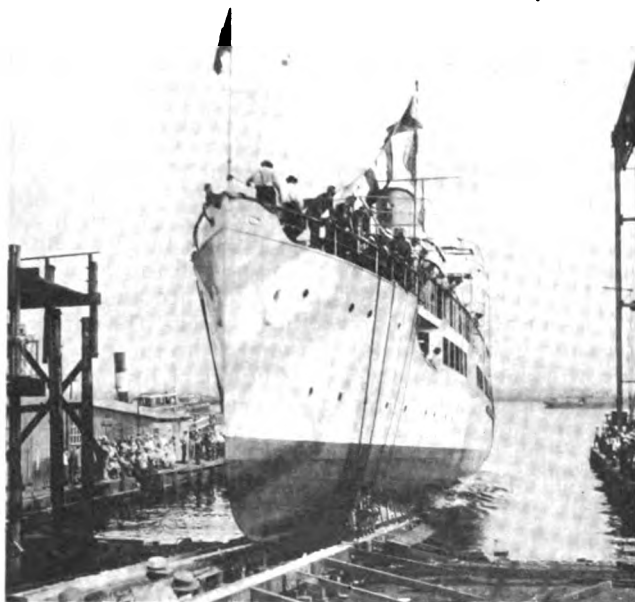
WHILEAWAY, THE NEW PAYNE-WHITNEY STEAM YACHT

IT is the exception, rather than the rule, to hear of the launching of a large steam yacht, and so the launching of a new 177-footer for Mr. H. Payne Whitney on September 9th was of more than usual interest. One reason why a new vessel of this type is somewhat of a *rara avis* is because the modern wealthy yachtsman seems to prefer gasoline or heavy-oil-engined craft, from which he can get similar accommodation and speed on much smaller dimensions and on less tonnage, apart from the question of cleanliness.

Mr. Whitney's new vessel is of the express type, having a speed of 21 miles an hour. Whileaway, as she is named, was built at the Cramp Shipbuilding Yard, Philadelphia, from designs by Cox & Stevens, of New York. Mr. Whitney attended the launching and his

Breadth 24 feet 6 inches
 Draught 7 " 6 "

The main features desired by Mr. Whitney were large rooms, good headroom, ample light and ventilation. All the main staterooms for Mr. Whitney and his guests are on the upper deck, and each stateroom has two or more large plate-glass windows in place of air ports. The dining room is also on the upper deck, while the main living room and smoking room, both of which are very large and airy, are in a continuous deckhouse. The furnishings and equipment will be placed on the yacht at once, and as soon as she is fully equipped, she will proceed to New York, where Mr. Whitney will use her the balance of the season.



The Launch of Whileaway

eldest daughter, Miss Flora Payne Whitney, christened the yacht. Mr. Whitney brought with him in addition to the sponsor, his daughter, Miss Barbara Whitney, and his son, C. V. Whitney, also Mr. S. A. Clark, Eugene Hale, Jr., and Frederick Watriss, of New York. The launching was witnessed by the officials of the shipyard, and Mr. Daniel H. Cox, representing the designers.

The motive power consists of two Parsons geared turbines of sufficient power to give the yacht a speed of 21 miles an hour, supplied by steam from an oil-fired tubular boiler. Whileaway is of the modern steamer type of yacht with straight stem and elliptical stern, and is designed for coastwise use, her moderate draught making it possible for her to enter all the interesting harbors along the coast.

The dimensions of Whileaway are:

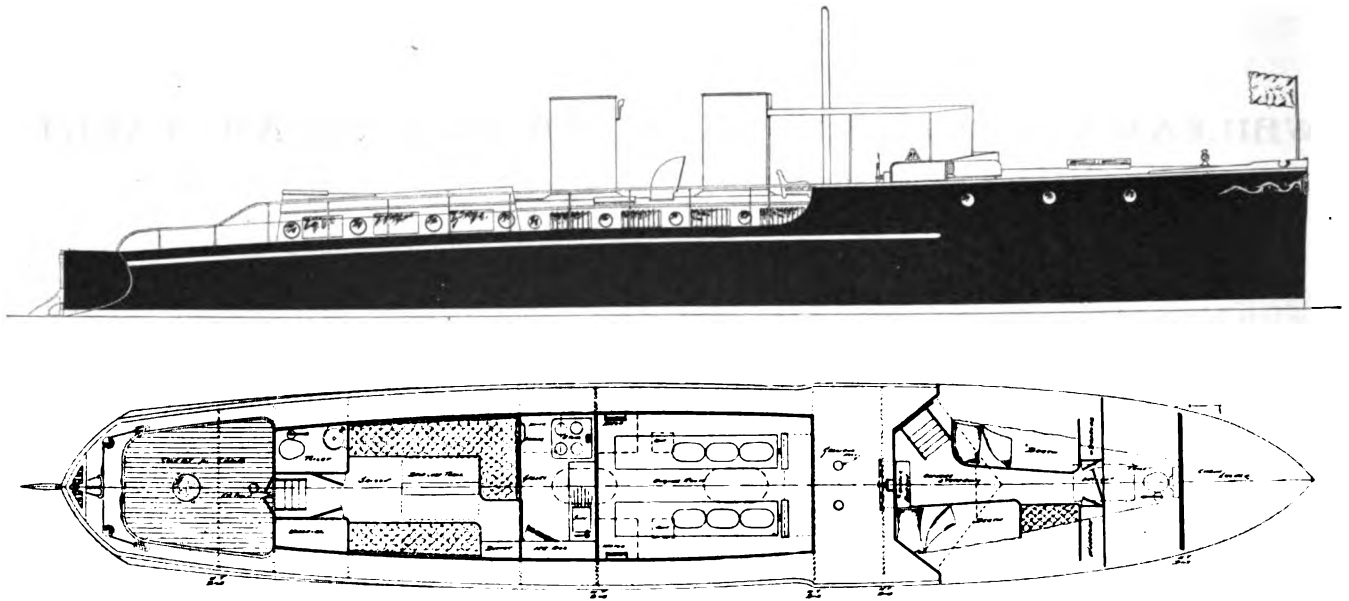
Length, o. a. 177 feet 0 inches
 Length, w. l. 170 " 0 "



Whileaway on the Launchways

EXPORT OF OIL ENGINES FROM DENMARK

ACCORDING to *The Motorship & Motorboat*, "the export of all internal-combustion engines is now forbidden in Denmark, and this has had a serious effect upon some of the best-known Danish oil engine manufacturers. A similar prohibition does not apply to Sweden and Norway, and we have the somewhat curious state of affairs that a firm manufacturing an oil engine in Denmark cannot export, whilst their licensees in Norway, building the same type of motor, are able to send it almost any part of the world." Here, apparently, is an opportunity for American manufacturers to capture Denmark's marine motor export trade.



A New Express Cruiser Building at the Yard of the Luders Marine Construction Co., Stamford, Conn., from their Own Design. Length 62 Ft., Beam 10 Ft. 3 In., Draught 3 Ft.

NEW SPEEDWAY 120-H.P. POWER PLANT

AMONG the engines designed for express cruiser work, the new 120-h.p. Speedway power plant calls for considerable interest, as while of the heavy-duty, or cruising type, it is not of the *heavy engine* class, so its weight does not overburden a small or medium-sized yacht requiring high power. As a matter of fact, its weight is 5,000 lb, which includes the air-starting system. Again, while the revolutions are not low, they are by no means high, so that vibration and excessive piston speed, with its wear and tear, is avoided. Furthermore, care has been taken by the Gas Engine & Power Company's designers to enclose the moving parts, and thus eliminate the leakage of oil and noise. The advantage of a clean bilge will be appreciated by all sea-going motor yachtsmen, especially those who have suffered from the unpleasantness of dirty and oily bilges.

There are eight cylinders, cast in pairs, each $6\frac{3}{4}$ inches bore by $8\frac{1}{2}$ inches stroke, and the revolutions are from 500 to 600 per minute. The magneto is of the Bosch waterproof two-spark type; a springless carbureter is fitted, as is also a double-acting bilge pump, double-acting piston with circulating pump, gear oil pump inside

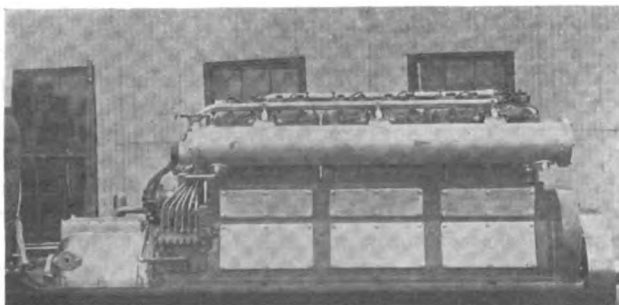
of engine housing and large noiseless air pump to supply compressed air for starting the engine and for the whistle, etc. The working parts of this engine are automatically oiled by means of a force oiling system, the oil being forced through the crank shaft, and from there to all the other working parts, including the gears in the reverse clutch. The oil can be regulated to any desired pressure, which pressure is indicated on a gauge mounted on the engine. The amount of oil contained in the engine oil-well will lubricate the engine for thirty days without renewal. Large hand-hole plates are provided for easily cleaning, etc.

We are advised that at a recent test before a number of engineers, the engine ran so smoothly that, though at full power, it was difficult to tell whether or not it was running. Indeed, five-cent pieces were balanced on their edges on top of the cylinders, thus showing the entire absence of vibration. This engine attracted considerable interest among the engine experts, and they particularly noted the ease with which valves should be removed without disturbing the cylinders.



AUXILIARY FOR DUKE OF WESTMINSTER

SOME time ago, the Duke of Westminster, owner of the racing motor boats Ursula and Pioneer, purchased a large sailing vessel and refitted her as a yacht, into which two 320-h.p. hot-bulb-type of oil engines were to be installed as auxiliary power. However, the British Admiralty took over and paid for the two motors, and the Duke turned the Belem, as the craft is named, into a temporary hospital. Very shortly two similar engines, but each of 240-h.p. will be installed, and the Belem will go into commission as a yacht.



Speedway 120-H.P. Engine

NEW KETCH FOR MISCHIEF'S OWNER

Most Eastern yachtsmen are familiar with Mr. Bancroft C. Davis' auxiliary yawl, *Mischief*, illustrated on this page. She was built in 1907, and is 41 feet long by 12½ feet breadth and 8½ feet draught, and is equipped with a four-cylinder, 6½-inch by 8-inch heavy-duty Sterling gasoline motor, which drives her about 8½ knots when under power alone. She flies the colors of the Eastern, Boston, Camden and Edgartown Yacht Clubs.

Whilst he will still use *Mischief* during the Summer, Mr. Davis is having a new 35-foot auxiliary ketch built by Lawleys for use at his Winter residence, Coconut Grove, Florida. For the power of this little craft, a four-cylinder, 25-35-h.p. Sterling engine will be installed.



VITESSE, AN ATTRACTIVE EXPRESS CRUISER

ONE of the smartest little cruisers launched on the Pacific Coast this season is *Vitesse*, a 43-foot by 8-foot express yacht built by John Wilson, of Seattle, from designs by Lee and Brinton. She has made, we are advised, an even 20 m.p.h. in her trials, and is used by her owner, Mr. Edgar Ames, as a ferry between Seattle and his Summer residence, away up on Puget Sound. Despite the fact that this boat is exceptionally fast, she has comfortable cruising accommodations for a party of four or five. In addition to this, she has strength and seaworthiness way above the average, and Mr. Ames is never afraid to take her out, regardless of the weather.

In the recent races held from Seattle to Victoria, *Vitesse* won the Brestwood Cup and the Hathaway Trophy, defeating all other boats in her class in both events.

The general arrangement of *Vitesse* is as follows: Chain locker forward, with a hatch from the deck, and separated from the engine room by a water-tight bulkhead. The motor room and engineer's quarters occupy the rest of the raised deck portion. The steering bridge has a standing top and windshield, whilst the wheel and all control switches, etc., are mounted on the forward bulkhead. The owner's quarters, consisting of galley, toilet room and cabin, are under the trunk, followed by a large cockpit.



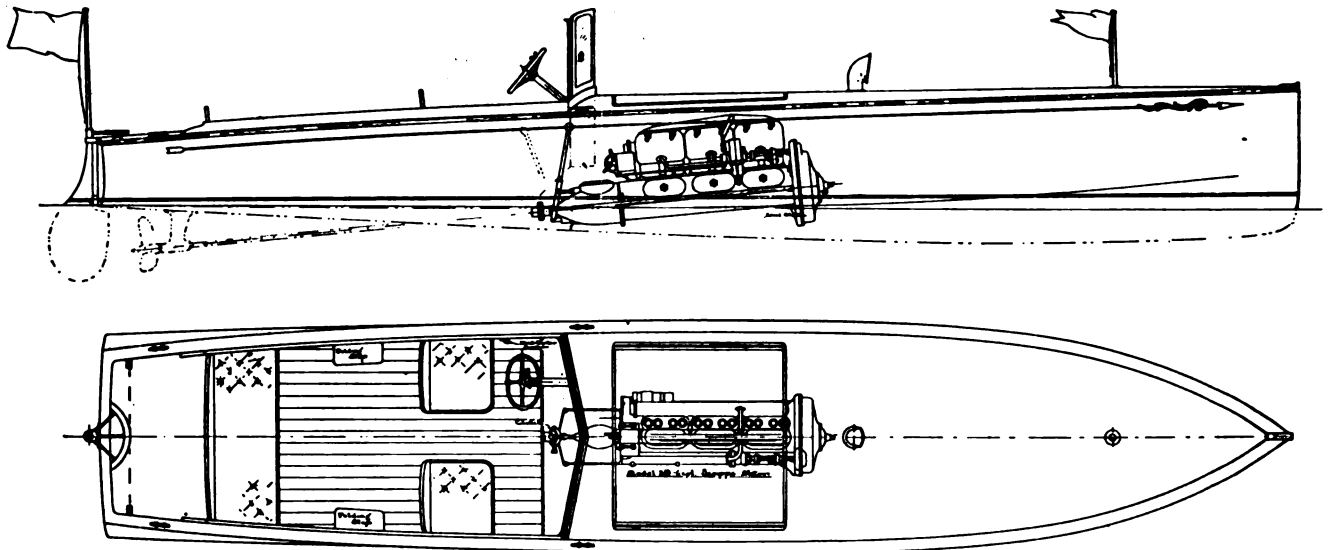
Mischief

Her power plant is a six-cylinder Van Blerck 5½-inch by 6-inch, developing 116-h.p. at 1,200 r.p.m., and turning a 24-inch by 22-inch Hyde propeller at that speed. It is equipped with every latest improvement, including a two-unit Leece-Neville electric starting outfit, Stewart Warner Vacuum system for feeding gasoline, etc.

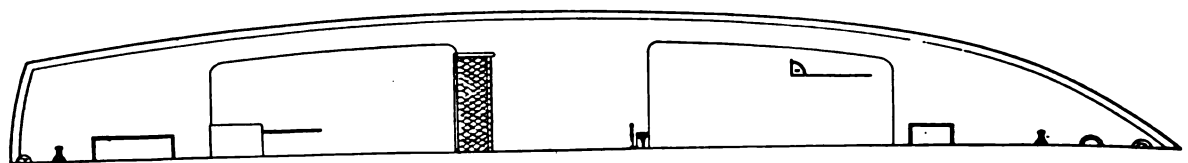
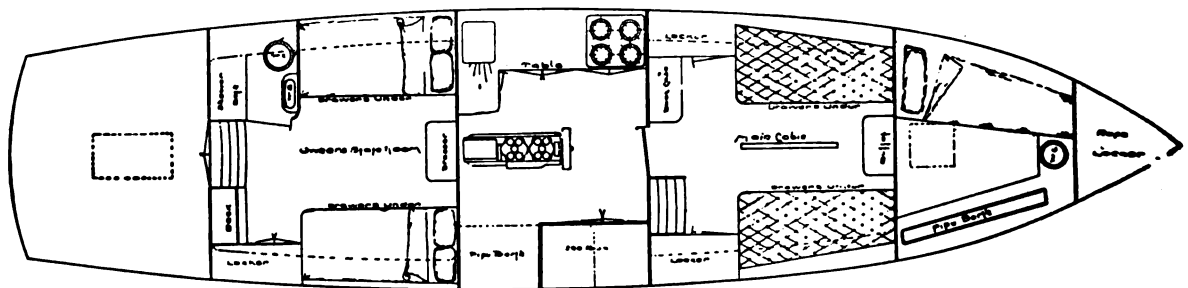
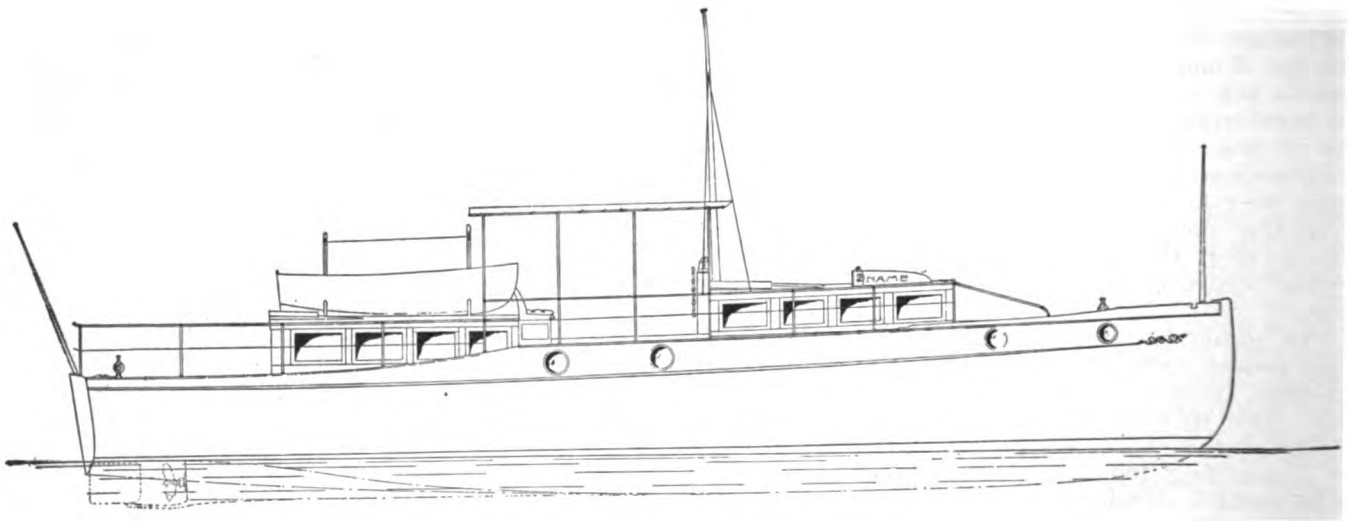
The express cruiser has caught the fancy of the man on the Pacific Coast just as much as it has the man on Long Island Sound, and there is no doubt but that the type of boat such as *Vitesse* is a noteworthy advance in many respects, and from all reports many such boats will be built on the Pacific Coast in the immediate future.



Vitesse



A 25 Ft. x 5 Ft. V-Bottomed Runabout. Designed by J. Murray Watts and Fitted with a Six-Cylinder Scripps Motor



A 51 Ft. 6 In. Shallow-Draught Florida Cruiser Designed by the St. Louis Yacht & Boat Co.

A CALIFORNIA CRUISE

W. P. B.

PART II—(Concluded)



WE threaded our way cautiously along, passing a number of steamers, some just about to sail; then under a fine new railroad bridge and a squint or two through the night glass revealed Sacramento Y. C. anchorage. We anchored here, but in the stiff current had doubts about the holding power of the soft muddy bottom, so gladly ran out a line to a safe mooring kindly placed at our disposal. Setting the anchor light, we disembarked

and an automobile in waiting quickly conveyed us to the Hotel Sacramento, and many and varied were the comments heard that night as we settled in between the sheets of comfortable beds in this first-class hotel.

By the way, if any of you readers find yourselves in Sacramento, don't fail to go to this hotel and ask for Mr. "Billy" Hanlon; tell him I sent you, and he will show you Sacramento as no other man can, and make your visit as memorable and as pleasant a one as he did ours. Our very pleasant day in Sacramento was brought to a close by a splendid automobile drive through the rapidly growing suburbs on the following evening, darkness making but a momentary stop at Sutters Fort, the most interesting historical relic in this country, possible on the way home.

We boarded the Alice once more after dinner, and within twenty-four hours of our arrival, went astern hard and backed out into the darkness of the stream. A tremendously strong current made it impossible to back up against the flow. I therefore kept astern till well out, when throwing the wheel over and going ahead, we gradually gathered away, then got going faster than the flow and with increasing steerageway, got her nose down stream. As we went by the docks two great river boats were straightening up in the stream, pausing for a good ready before going ahead, the black smoke piling out of their funnels and hanging like a pall over the river in the still night air. We became involved with these boats, and it was exciting lying there, in the semi-darkness, in the boiling water ploughed up by their great big stern wheels. Presently they gathered momentum and soon were fairly underway, and then they boomed along by us, their decks ablaze, which for some moments left us dazzled after they disappeared ahead, round the bend.

Getting to the bend ourselves, we found we were in the midst of a vague dim expanse, almost shoreless, the banks fading and losing themselves in the murky distances, and the edging of the tree tops with the sky we could not see, so heavily laden was the air with the smoke and grime of Sacramento's manufacturing fur-

naces. We were utterly lost. Every moment I was tortured with the exquisite misery of uncertainty. I felt certain I was in the middle of the river, but didn't know. One thing alone was certain, and that was that I *might* be within a foot or two of the bank and destruction, or I *might* be where I thought I was. The last *might* proved to be wrong, and the first intimation I had of touching ground was the sudden disappearance of the foamy ridges which usually radiate from our bows. Clutch was quickly thrown out, when a great dead swell came rolling forward and swept ahead of us, our stern was carried up and with a nasty broadside twist and a heavy list to port, we lunged over the bar and floated into deeper water beyond.

Brownie was hurried forward and dropped the hook in fifteen feet. Thoroughly rattled now, and in darkness absolutely impenetrable, I put off in the dinghy to try and find out where we were. Soon found that we had run into a regular pocket in the right bank yards from the river center and our proper course. So here we were for the night, and our position to some of us was a bit unusual.

In a small boat, in a large river in the middle of the night, and seriously thinking of going to bed, all five of us, for we had added another friend, Charles, to the party at Sacramento, in the tiny cabin. I hesitate to speak of this night at all, and the riots reached their crises when our new friend heroically came to bed on the cabin floor in a striking suit of silk pajamas.

Anchor was weighed next morning at 10:10 a. m., and our exhaust belching forth from its pipe, rang loud on the clear morning air. What can surpass those few moments at starting on a morning like this, with your engine running strong and true, as you take a glance round about the decks and from side to side to see that everything is all clear, and then back comes the sharp voice from the foredeck, "up and down, sir," and then, "anchor's apeak, sir," as you throw in your clutch and your little ship gathering way, comes up to her helm and you turn her nose to her course! Flags begin to flutter and crack as they feel the first breath of the breeze, the first log book entry is made, a walk from side to side of the "bridge" assures us again that everything is all O. K., while up forward an eye is kept on the men washing down anchors and chains before sending below. Such moments are worth living for, and no man, or woman, either, but is not a better being for them.

So it was with us, meaning wife and I, and as we got to know and love Alice with the pleasures and delights she brought within our reach, we dreamed and longed for something larger and better, something that we could really live aboard, and go further afield off the beaten tracks. This dream will soon be realized, and is even now actually taking shape in the form of a beautiful 75-footer under construction, which is destined to be

our home all next Summer on the inland waterways of France and the French and Italian shores of the Mediterranean.

The Sacramento that morning looked her very best, and fascinating river pictures unfolded themselves to us at every turn. Some of these pictures charming in their quiet peacefulness, with the placid river flowing between widely separated banks, not a ripple on its surface of dark brown color, the little white farms, each with its little wooden landing stage nestling in the banks, and here and there an old sailing scow lying quietly at rest in the shade. Then again, we came to places where the dense untouched virgin forest overhung both banks, where the river narrowed down, forming a regular "chute." Some of these "chutes" were utter solitudes, the thick foliage almost meeting overhead and entirely closing out the rays of the midday sun. The swinging tangle of underbrush and climbing creepers winding away around the corpses of great dead trunks, the glades and nooks and vistas glimpsed as we tore along, and the still damp rank air, with not a solitary sign or sound of life, made us almost believe that no human being had ever intruded here before. We were carried through these narrow places at a great pace, and in some the banks, invisible in their mantle of forest foliage, were so bluff that we could almost bury our little ship in the edge of the thicket as we swept along, and then we fairly seemed to fly.

Being pressed for time, it was decided to run well on into the night, so the wife was left in charge after lunch, while I spread out my Suisun Bay Chart upon the cabin table and with protractor and dividers, worked out our courses and distances for the night run to Mare Island. My work was just finished when word came down that Collinsville was in sight. Brownie took the wheel and was allowed to take her in, and right well he brought us alongside without a jar or scrape, having slowed down and stopped at just the right time, straightening her out correctly when alongside the landing, when a touch astern brought her in broadside to, and she lay up to the stage so softly and gently that she couldn't have cracked an egg.

Nothing shows seamanship so well as making a proper landing, and how often the very rudiments of the act are so flagrantly neglected. Only a few weeks ago I was standing with some friends on the landing stage of the Columbia Y. C., in New York, when without a second's warning, a handsome cruiser flying the N. Y. Y. C. burgee ploughed right into the middle of us, splintering up bow and landing stage, amid shocking uproar and fuss. It was a most horrible exhibition of incompetence.

We filled our fresh water tanks here at Collinsville and while so doing, my wife and I took a ramble round about this queer little settlement on stilts. It is on stilts, or piles, the whole town, and it is nothing but a little Italian fishing settlement. The dark-hued sons of Italy with their short black moustaches and large soft brown eyes, all talking in that soft Neapolitan dialect, carried me back in mind to an evening some few years ago, spent among just such a crowd on the splintered broken quay at Messina, Sicily, one week after the earthquake of December, 1907. There, too, in the midst of surroundings inconceivable, the talk was of fish and fishing; the earthquake had, at least, spared the fish. Those poor fellows, their homes gone, relatives gone, their very world gone, all shivered, shaken into an appalling ruin, were yet spared their fish, their livelihood, and in this how much more fortunate they were than thousands of their stricken compatriots.

I would have liked to have stayed longer amid the old world surroundings of this little place, but an imperative blast of Alice's siren told of tanks been filled, lubricating cups replenished, lamps alight, and everything in readiness for departure. As we pushed off from the stage, darkness was upon us, and our clock said 6:10 p. m.

Spar 8 was found in the darkness at 6:27 p. m., and I was glad this was so, because it was from here I intended to take our departure. Course was set S.W., and now I give some actual log book entries, which possibly may be of interest to those readers who have charts of these waters:

6:40 p. m. Spar 6 abeam to port; changed course W. $\frac{1}{2}$ S.

7:00 p. m. Stake Point red light abeam to port; changed course W. by S. Had difficulty here in avoiding fishing nets and boats. No uniform system of carrying the white light appears to be in vogue.

7:22 p. m. Middle Point red light abeam close apart. Changed course W. $\frac{1}{4}$ N.; standing in close here is important; bad water outside, shallow.

7:35 p. m. Roe Island Light, fixed white, close abeam to starboard; changed course S.W. $\frac{3}{4}$ W.

8:10 p. m. Point Edith, red light, close apart.

8:30 p. m. Occulting white light on Buoy A1 close abeam to starboard. Had to alter this course of S.W. $\frac{3}{4}$ W. occasionally, owing to strong currents round Benicia, as I wished to keep Buoy A1 bearing N.E. by E. to end of this course. Just at end of course light became invisible.

9:25 p. m. Had run distance. Stopped. Sounded in 7 fathoms. Changed course W.N.W.

10:05 p. m. Carquinez Straits Light, fixed red, bears W. $\frac{1}{4}$ N. Changed course W. $\frac{1}{4}$ N.

10:15 p. m. Rounded Carquinez Straits Light and entered Mare Island Entrance.

11:30 p. m. Tied up to Government mooring buoy in channel between Mare Island and Vallejo.

So ended a delightful evening's run full of pleasant incidents, not the least of which was the "Captain's" dinner, served underway, with special honors and jollifications, as this was to be our last night on board; tomorrow we were due at San Francisco.

On waking next morning, the first sound to greet me was the incessant clanging of bells and the hooting of horns and sitting up to glance out a port hole, saw that we were surrounded by dense fog.

Putting on a few clothes, I hurried out into the cockpit, turning out Brownie "en route" and started regular watches at the bell to comply with Art. 15, sub. d. of the "Regulations." These spells at the bell in the chilly raw air of early morning were by no means devoid of interest or excitement, because as luck would have it, we were tied up in the very center of a busy channel.

In my last watch I heard the heavy deep tone of a large steamer working up channel, and heard it getting nearer and nearer, until finally, after what seemed an age of anxious peering into the thick white mist, I made out the bow of a big empty tramp cautiously feeling her way through the fog. She was heading dead for us and gradually her entire outline vaguely appeared out of the webby veil. I rang our bell like Old Harry, and had a jumpy few seconds until with absolute distinctness I heard her lookout forward call back to the bridge, "Boat anchored right ahead, sir." The old tramp sheered away from us and disappeared in a moment, though the thrash of her screw, half over the surface, on the still smooth water told clearly how near she passed to us in the mist.

The fog kept us at our mooring until past 11 o'clock, when things began to brighten, and we determined on making a start. Mooring was slipped at 11:50 a. m., and we glided away into the fog under slow bell. Before we got into Carquinez Straits fog had cleared off entirely and at 12:15 p. m., with Carquinez Straits Light abeam, I set a course of S.W.½W., and leaving Brownie in charge, went below to study the chart a bit for this day's run. I was in the cabin, I fancy, for about twenty minutes, when my wife drew my attention to the extraordinary violent motion which had become apparent within the last few moments. I went on deck and was amazed at the sudden change I saw. A short, nasty sea had arisen and at every other plunge Alice would bury her nose in the top of a breaking comber, and a ton of water would bury our foredeck, and swirl and swish around the cabin top and then be lifted bodily by the wind, now a moderate gale, and be thrown in solid sheets of spume into our faces. I slowed down to half speed and kept her on her course to turn things over in my mind for a few moments. I never saw such a sudden change at sea in my experience. Thoughts of the ladies, who were already complaining, decided me to turn tail and run for the nearest shelter. This I did during a lull, at 1:30 p. m. Brownie meanwhile rigging up a canvas cover over the after part of the cockpit to keep out the worst of the rollers. The sky had assumed a dark threatening look, and bank upon bank of black angry clouds were piling up astern.

Rain now began to fall and soon obliterated all traces

of shore. We were scudding away through as nasty a sea as I ever want to see in a small boat. Thirty minutes before the sea was absolutely calm, with every prospect of a fine day. The waves, though not high, like the big honest fellows we had often enjoyed a tussle with in the open sea, were steep and breaking, and it was next to impossible to keep the vicious foam-flecked curling tops out of the cockpit. I was really glad, when at 2:45 p. m., we ran behind the protecting shelter of Lone Tree Point, and with an occasional cast of the lead, held on until within 50 yards of the beach, when we let go our hook in about 10 feet. The ladies and Charles, who was down and out, were landed here with a suitcase apiece, and the last we saw of them was as they were disappearing round a knoll on their way to the station, they were waving us a goodbye as they went.

We weighed at 4 p. m., and worked along inshore until near Selby, when we ran out into a mountainous sea roaring up the straits. A few moments of wild wet pitching and tumbling about and we were across and once more within the mouth of Mare Island entrance.

At 5:30 p. m. we passed the buoy where we had spent last night, and took up a mooring off the Vallejo Y. C. Here we must for the present take leave of our dear little ship, leaving her in charge of her paid hand, who had been telegraphed for from Lone Tree Point. As we went by some minutes later, standing on the deck of the Vallejo to San Francisco steamer, Alice dipped her ensign to us in silent farewell.



LOS ANGELES AND SEATTLE- SAN FRANCISCO RACES

E. D. Seward

RIVALING the Bi-Annual Trans-Pacific Ocean Race from San Pedro to Honolulu, which held the attention of the yachting world in 1908, 1910 and 1912, two classics were sailed on the Pacific Coast this Summer, both terminating at the little yacht harbor at the Panama-Pacific International Exposition at San Francisco. Handsome silver cups were presented the winners by the Yachting Bureau of the Exposition.

One of the races was from Los Angeles to San Francisco; the other from Seattle to San Francisco. The former was a 500-mile beat dead to windward, the latter a 700-mile free run. Both were exciting events, and while this article is written for the Southern race, the details of the other event will be briefly given first.

On July 29th, the sloop Genevieve, purchased by Captain John Barneson, Chairman of the Yachting Regatta Committee of the Panama-Pacific International Exposition, and sailed by Captain Joseph Pugh and a picked crew, sailed from Seattle with the yawl Ortona, owned by Captain Graham, and sailed by Captain Ted Geary, of the Seattle Y. C. The race was boat for boat. Rough weather and a young storm marked the passage. On Genevieve, oil bags were effectively used, and in just three hours less than six days, Captain Pugh brought his newly acquired command into port, 33 hours ahead of the competing yawl.

In the meantime, the yacht clubs of Southern California had made up a race, and at noon on Sunday,



Start of the Race from Los Angeles to San Francisco. Left to Right—Yankee Girl, Seamore, Trojan and Viking III



Yawl Trojan. Winner of First Prize

August 1st, from off the Government breakwater at San Pedro, an auspicious start of five racers was made.

Commodore Albert Soiland, of the South Coast Y. C., led the bunch in his flagship, the ketch Viking III, 25 seconds behind the gun. Rear-Commodore Verna A. Goodrich, in his yawl Minerva, crossed at 12:00:30; the yawl Trojan, Captain Ellis Taylor, at 12:01:52; the ketch Yankee Girl, Commodore Alex. J. Mitchell, of the Sunset Y. C., at 12:02:16, and the yawl Seamore, Captain H. B. Warren, at 12:02:34.

The Minerva led the fleet on a beat up the coast, and no more was heard of the racers until Yankee Girl put back three days later with a broken rudder, having encountered rough weather beyond the Santa Barbara Channel Islands.

This left four racers in the field, all entries of the South Coast Y. C.

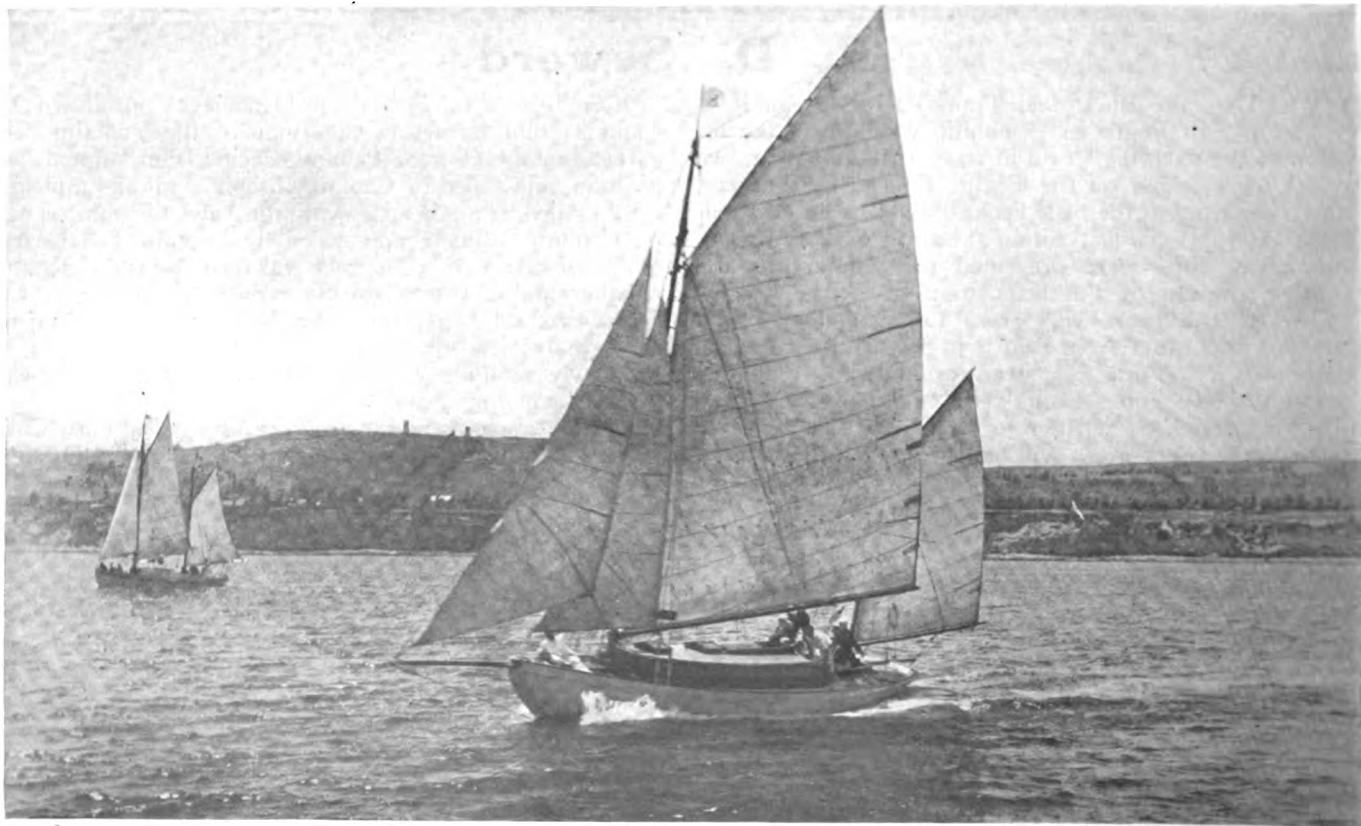
In 7 days, 2 hours and 15 minutes, the yawl Trojan crossed the finishing line at San Francisco, finishing just 9 hours 19 minutes and 27 seconds, corrected time, ahead of Minerva, which arrived some 15 hours later.

Seamore made the trip in some eight days, while Viking III took over 11.

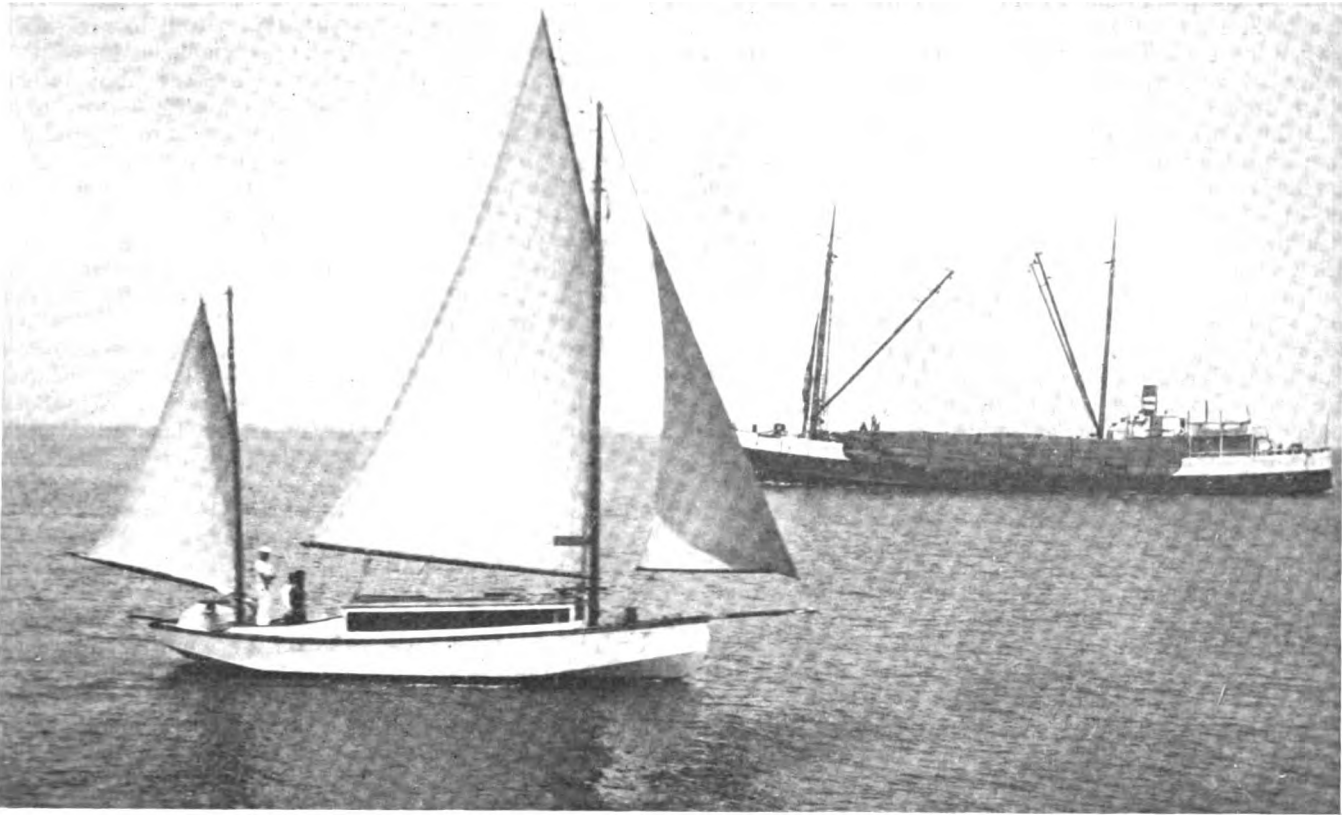
On Sunday, August 15th, before the Column of Progress, Captain Barneson, on behalf of the Exposition, presented to Captain Taylor, of Trojan, the big first prize cup and to Rear-Commodore Goodrich, of Minerva, the handsome second prize cup, and also gave to the other two skippers small participation cups.

The race of Trojan differed from that made by the other racers in that she put to sea after rounding Point Conception (a day behind Minerva) and stood offshore some 250 miles when San Francisco was made on the next tack.

Minerva worked the coast and had some tough experiences. Being the smallest of the fleet (39 feet over



Yawl Minerva. Winner of Second Prize Viking III Out to Windward



Thirty-Eight-Foot Seabird Seamore

all) the weather encountered was neither to her liking or to the crew of six amateurs aboard. A double reef was taken at Conception, and again at Piedras Blancas, where a near gale of 45 or 50 miles blew the little craft offshore for 60 miles during the night. The forestay-sail was carried away and some water taken aboard. Within eleven miles of the Northern goal, and six or eight hours ahead of the Trojan, in a dense fog, the yacht put in close to shore only to run into a calm, where she lay all day Sunday, while Trojan slipped in from the sea and won first place.

Seamore went out beyond the Channel Islands, but had to come back on account of rough and stormy weather.

Viking III fared worse than the others. After a similar experience as had by Seamore (the Seabird model), Viking lay becalmed for one day, and then was hit by the same storm that disabled Minerva. After lying hove to for six hours, some progress was made against the wind, which had carried away some of the rigging. In Monterey Bay two days were spent in the doldrums, and the Commodore slipped into San Francisco just in time to escape a searching party from coming out for him.

After seeing the International yachting events off the Exposition, the Southern visitors returned with a free sheet and calm seas to the more placid and balmy waters of Southern California.



THE CAPE MAY CHALLENGE CUP AND BRENTON REEF CUP RACES

Fred. W. Goeller, Jr.

THESE two cups were raced for first in 1872. They are sailed for without time allowance, and are held subject to challenge after thirty days. The Brenton Reef Trophy is a perpetual challenge cup, but should the Cape May Cup be won by the same yacht in three consecutive contests, it becomes the property of the owner of that yacht. The challenger has to post a forfeit of \$500 in each race. If he is successful, this money is returned to him, but if he loses, it is used to purchase a suitable cup for the defender.

A. B. Stockwell's Dreadnought won the first race for

the Cape May Cup, in 1872. The next year it was won by J. F. Loubat's Enchantress. The third race was sailed in 1877, when Samuel J. Colgate's Idler was the winner. Idler was sold, and the cup returned to the club. In 1885, Sir Richard Sutton brought the cutter Genesta to try to win America's Cup, but he failed. He raced against the schooner Dauntless for the Cape May Cup and won, taking the trophy to England, where it was won in 1886 by J. Jameson's cutter Ivex, in 1889 by T. B. C. West's Wendur, and in 1893 by the Prince of Wales' Britannia. Wilson Marshall won the prize back again with the At-

lantic in 1904, and successfully defended it against the Karina in 1911. He then returned it to the club. Last year Robert E. Tod challenged, but no race could be arranged, and the cup was forfeited to the Katoura, which defended it this year.

J. M. Forbes won the first two races for the Brenton Reef Cup with the schooner Rambler, in 1872 and 1873. In 1876, the Idler, owned by Samuel J. Colgate, won, and in 1885, Sir Richard Sutton took the cup to England with the Genesta, having defeated Dauntless in a race sailed in a gale of wind. Genesta surrendered the cup to Britannia in 1893, and that yacht sailed against Navahoe. The finish was very close, and after the race Royal Phelps Carroll protested on the ground that the mark boat at the finish had been moved. The Prince of Wales, afterward King Edward VII, declined to accept a trophy about which there was any doubt as to its having been won fairly, and ordered it given to the Navahoe. Atlantic won in 1904, Karina in 1911, and last year it was forfeited to Katoura.

Katoura, this year's defender of the two cups, was built last year by Herreshoff for Robert E. Tod. She is 162 feet over all, 115 feet on the water-line, 30 feet breadth, and 18 feet draught. She carries a very large spread of canvas, and has the masts of Reliance as her mainmast and the mast of Constitution as her foremast. Recently her spars were cut down a little in order to make her balance better and handle more easily. Atlantic is a three-masted schooner, built from designs by William Gardner in 1903. Her general dimensions are 185 feet over all, 135 feet on the water-line, 29 feet 6 inches breadth and 18 feet draught. She took part in the race across the Atlantic for the Kaiser's Cup, and under the management of the late Captain Charles Barr, won. She was sold by Wilson Marshall, for whom the yacht was built, to James Cox and Nicholas F. Brady about six weeks ago.

CAPE MAY CHALLENGE CUP RACE

Course.—Starting from Ambrose Channel Lightship to and around Five Fathom Lightship, off Cape May, and return. Distance, 214 miles. Start, 11 a. m., Wednesday, September 15th. Wind at start, South, about 8 knots strength.

When the starting signal was set they approached the line on the port tack, Atlantic crossing at 11:02:42, and Katoura at 11:02:22. Both stood in toward the New Jersey shore. Atlantic carried fore, mizzen and main sails, fore mizzen and main working topsails, main and mizzen topmast staysails, staysail, jib and No. 2 jibtopsail, while Katoura carried corresponding sails of a two-master, but hers was a small main-topmast staysail.

Mr. W. Butler Duncan was at the wheel of Atlantic, while Mr. Tod sailed Katoura, and near at hand, on board both yachts, were others who are known to be among the cleverest Corinthians in this country.

The yachts had to contend with a strong head tide at the start, and as they made toward the Highlands, it was noticed that both pointed about equally, but Atlantic appeared to slide off to leeward most perceptibly, and before long Katoura assumed a position well to weather of her. The long weather leg, 107 miles, in the light breeze, was better suited to Katoura, a two-master, than the three-masted Atlantic.

The breeze freshened considerably, and when off Highland Beach, Katoura went on the starboard tack, at ten minutes before noon, but Atlantic held on for another

two minutes before going on the opposite board. When they tacked, Katoura's position was well to weather of her adversary, and she had an appreciable lead.

Thereafter followed short hitches of about twenty minutes each, Atlantic holding in closer to shore to get the first of the changing tide, while Katoura depended on stronger offshore breezes. A Southeasterly ground swell made them pitch slightly as they went on their way. At half-past twelve Katoura was off Monmouth Beach and three-quarters of an hour later off Long Branch, at which time she had a lead of nearly two miles on Atlantic, with the breeze continuing to freshen, but soon after the haze hid them from view.

At half-past three o'clock, when off the Mantoloking Coast Guard Station, 30 miles from the start, Katoura had a lead estimated to be close to three miles. Mantoloking is between the Northerly end of Barnegat Bay and the Atlantic, on the strip of land which separates the two bodies of water.

The times as they turned the Five Fathom Shoal Light Vessel were: Katoura, 4:15 o'clock a. m., on the morning of September 16th; Atlantic, 8:08 a. m. The times for the Southern part of the race were: Katoura, 17 hours 11 minutes 38 seconds; Atlantic, 21 hours 6 minutes 18 seconds. Thus, in 107 miles on the wind, Katoura beat Atlantic 3 hours 54 minutes 30 seconds. Katoura crossed the finishing line at 6:11:59, and Atlantic at 10:26:29. The elapsed times for each boat on the journey North were: Katoura, 13 hours 56 minutes 59 seconds; Atlantic, 14 hours 18 minutes 59 seconds; showing that Katoura had beaten Atlantic 21 minutes 30 seconds. The official figures are:

Yacht	Start	Mark	Finish	Elapsed Time
	Sept. 15 A. M.	Sept. 16 A. M.	Sept. 16 P. M.	
	H. M. S.	H. M. S.	H. M. S.	H. M. S.
Katoura	11:02:22	4:15:00	6:11:59	31:08:37
Atlantic	11:02:42	8:08:00	10:26:29	35:24:47

On board Katoura were Mr. and Mrs. Robert E. Tod, Miss Angelica Schuyler Brown, Commodore George F. Baker, Jr., Fleet Captain Grenville Kane, Charles Francis Adams, Robert W. Emmons, 2d, George A. Cormack, John Parkinson, George Nichols and Paul Hammond. On Atlantic were Mr. and Mrs. James Cox Brady, Miss Audrey N. Osborn, Mrs. William Preston Griffin, W. Butler Duncan, Commander F. L. Sawyer, U. S. N., and James D. Sparkman.

BRENTON REEF CUP RACE

Course.—From Ambrose Channel Lightship to and around Brenton Reef Lightship, off Newport, and return. Distance, 264 miles. Start, 11 a. m., Saturday, September 18th. Wind at start, light from the East.

The two yachts started from the Ambrose Channel Light Vessel on September 18th, their times being taken as follows: Katoura at 11:00:42, and Atlantic II at 11:01:49.

It was a thrash to windward for the first part of the race, and small jibtopsails and small main topmast staysails were set. The two yachts had worked closely to the Lightship, and when the starting signal sounded, Katoura was first over the line at 11:00:42. Atlantic crossed at 11:01:49.

Both were on the starboard tack and Atlantic at once took the port tack and stood out to sea. Katoura followed. This tack was held for about three miles and then they took the starboard tack and headed in toward the Long Island shore.

At 12:15 Katoura was slightly in the lead, and was heading in toward Long Beach. The wind had hauled to East Southeast, but was light and the yachts made slow progress. Katoura continued to work along the shore, but Atlantic made a long board out to sea.

At two o'clock the wind freshened somewhat, and at 2:07 Katoura stood offshore, and ten minutes later Atlantic, far to the Southward, tacked and headed toward the land. Katoura, well in shore, passed the Fire Island Light Vessel at four o'clock, and fifteen minutes later Atlantic also passed, but she was about five miles South of the Lightship. Fire Island Light Vessel is thirty miles East of the Ambrose Channel Light Vessel, and it had taken Katoura five hours to sail that distance.

After that Atlantic stood out to sea again, and Katoura continued to work in close to the Long Island shore until they were lost to sight about sunset.

The yachts rounded the Light Vessel off Newport as follows: Katoura at 2:05:30 a. m., Sunday, September 19th; and Atlantic II 1 hour 40 minutes and 30 seconds later, or at 3:46:00. Katoura's elapsed time for the outward trip was 15 hours 4 minutes and 48 seconds, while Atlantic II's was 16 hours 44 minutes and 11 seconds, and conditions proved to be nearly ideal for the big two-master.

The yachts encountered heavy rain squalls during the return trip, and the wind for the greater part of the day was from the Eastward at the start and then from North-Northeast, and of such velocity until near the

finish as to enable Atlantic II to do her best work. In beating to leeward and reaching along the Long Island coast, Atlantic II kept overhauling Katoura all the time, and they finished as follows: Katoura, 2:46:27; Atlantic II, 3:19:27.

When Katoura was near the finish line off the Ambrose Channel Light Vessel, there was a decided decrease in the velocity of the breeze, and it continued to decrease after the winner crossed the line, or the difference would have been even less than it was.

On board both boats were the same crews as had sailed on her in the Cape May Race; those on Katoura were practically the same as those which composed the after-guard of Resolute, and Vanitie's afterguard was on board Atlantic II, with Mr. James C. Brady. All hands took a trick at the wheel aboard both yachts and all the Corinthians were thoroughly tired out and ready for a rest after the race.

The summary:

	Katoura		Atlantic II			
	H.	M.	S.	H.	M.	S.
Start (Saturday a. m.)	11	00	42	11	01	49
Rounded Brenton Reef L. S. (Sunday a. m.)	2	05	30	3	46	00
Elapsed time, first leg	15	04	48	16	44	11
Finish (Sunday p. m.)	2	46	27	3	19	27
Elapsed time, second leg	12	40	57	11	33	27
Total elapsed time	27	45	45	28	17	38
Won by	0	31	53			
Better than old record	4	32	31	4	00	38

Previous record was 32h. 18m. 16s.



L. I. S. M. B. A. CRUISER CONSISTENCY RACE FOR THE WALLACE TROPHY

Fred. W. Goeller, Jr.



CONDITIONS and rules governing this consistency race are so novel, and the results obtained of such value, that we are printing herewith the rules so that the motor boat associations in the various localities may take it up.

The data obtained would be of great value to the country in case of war (which everyone is interested in at present), particularly to the newly-formed power boat reserve. The conditions follow:

Open to cruisers as defined by the 1915 A. P. B. A. Rules for 1915, under 50 feet in length, and rating 32 or over, and belonging to any club enrolled in the American Power Boat Association.

Course.—From the clubhouse of the Stamford Y. C., Stamford, Conn., thence to Echo Bay, New Rochelle, N. Y., 11.17 miles, Manhasset Bay, N. Y., 5.75 miles, Huntington Harbor, L. I., 19.81 miles, Port Jefferson Harbor, L. I., 18.65 miles, Morris Cove, New Haven, Conn., 18.32 miles, Black Rock Harbor, Bridgeport, Conn., 14.77 miles, returning to the Stamford Y. C., Stamford, Conn., 15.87 miles.

The length of the courses will be calculated from the United States Government charts, using the shortest route that it is practical for a boat of 6 feet draught to navigate, and all competing boats will be handicapped on a course of this length.

Classes.—All boats will race in one class, unless the number of entries warrants a sub-division.

Handicaps.—All competing boats will be handicapped according to combination of the following three methods:

1. A. P. B. A. ratings.
2. Actual performance.
3. Owner's schedule of time of arrival at various reporting stations.

Power and Fuel.—An explosive engine or engine operated by either gasolene, kerosene, alcohol or producer gas. Any ingredient to increase the power of the fuel will not be allowed. An extra supply of fuel may be taken on en route, provided the boat is not making headway through the water while so doing. The use of sails is prohibited.

Reporting Stations.—At each reporting station mentioned above under heading of *Course*, a reporting official will be on duty for the signing of schedules, until all contestants have reported. Each contestant will be required to anchor and land his entire crew, including guests, by his own dinghy, after which he shall hand his schedule to the reporting official, who shall retain same for fifteen minutes before returning schedule to the contestant. The

contestant or his crew shall not leave or return to his boat without the schedule, which shall act as clearance papers from each port. The reporting official will write on each schedule in ink the exact time he receives the schedule from the contestant. Fifteen minutes for each reporting station will be deducted from the total running time of each contestant by the judges at the finish.

(NOTE.—Contestants will not be required to land the ladies of their crew.)

Schedule.—Each contestant must make out in duplicate a schedule of the time he expects to arrive at each of the reporting stations mentioned above, making due allowance for the fifteen minutes' stop at each reporting station. One schedule must be handed to the judge at least one hour before the start, and the other retained by the contestant to be signed as mentioned above by the reporting official at each reporting station. This latter schedule must be returned by the contestant to the judge immediately after finishing.

Measurement.—Rule V, 1915, A. P. B. A. All competing boats shall be measured by the official measurer of the A. P. B. A., Mr. Frederick K. Lord, 105 Lord Avenue, Bayonne, N. J., or by one of the following assistant measurers:

F. W. Horenburger, New York Motor Boat Club.

L. Huxtable, Colonial Y. C.

C. O. Gunther, Columbia Y. C.

R. M. Haddock, New Rochelle Y. C.

Certificates signed by other measurers may be accepted at the option of the committee.

Penalties.—To the handicaps as calculated by the 1915 A. P. B. A. rules, there shall be made the following deductions:

(1) The fastest speed made between any two reporting stations will be used as a basis. For variation in speed between other reporting stations, penalties will be imposed by increasing the boat's rating between the re-

porting stations in question at the rate of 4 points increase per mile of variation. (For example, a variation of three-tenths of a mile per hour will increase the boat's rating 1.2 points, etc.)

(2) For any variation (faster or slower) from the declared schedule of expected time of arrival at each of the reporting stations, made by each contestant before the start, there shall be added to the actual running time between the two reporting stations in question, an amount equal to the difference between the actual time and the declared time. (For example, should the actual running time between two reporting stations be 60 minutes, which is 3 minutes slower than declared by the owner, then his net running time will be 63 minutes, etc.)

Entries.—Entries must be made in writing and accompanied by a rating certificate, and must be in the hands of the Race Committee on or before September 10, 1915.

Protests.—Rule XXIII, 1915 A. P. B. A. Rules.

Prizes.—A valuable trophy will be presented by J. H. Wallace to the boat showing the best consistency according to the above method of handicaps and penalties; a second prize will be presented if four or more boats start. A banner will be offered to the club entering a team of three boats, which makes the most consistent showing, based on the point system.

Race Committee, Long Island Sound Motor Boat Association.—C. F. Chapman, 119 West 40th Street; H. L. Stone; Harry Anderson.

THE RACE

The Long Island Sound Motor Boat Association Cruiser Consistency Race for the Wallace Trophy was won by Cero of the Stamford Y. C., owned by W. P. Frost, with Gardenia, of the N. Y. A. C., owned by Harry Anderson, second. The race began off the pier of the Stamford Y. C., with a flying start, at three



Gardenia, N. Y. A. C., Mr. Harry Anderson, Owner, and Cero, Stamford Y. C. Mr. W. P. Frost, Owner Starting in the Wallace Trophy Consistency Race



The Beautiful New Clubhouse of the Stamford Y. C.

o'clock p. m., Saturday, September 11th, and the first stop was Black Rock Y. C., Black Rock Harbor, Bridgeport, Conn., run of 15.87 nautical miles. Gardenia arrived at 5:35, Cero at 5:24, both exactly in accordance with their schedule.

Set out for New Haven, where both were due at 8:11, at which time both boats reported exactly on time.

Port Jefferson was reached at 11:14 by Gardenia, and 11:17 by Cero, both exactly on their schedule.

Huntington was reached at 2:14 Sunday morning by Gardenia, exactly on schedule time, while Cero was due there at 2:12, but arrived at 2:26½—14 minutes behind schedule. This was occasioned by Cero running into a very strong ebb tide while making the Huntington point, which was located at the Ketewomoke Y. C., at the extreme end of the creek.

Cero was aided by the tide coming out of Huntington, so she reached Port Washington at 5:42:20, 1 minute and 20 seconds behind schedule. Gardenia reached Port Washington at 5:22, exactly on schedule, and New Rochelle at 6:27:30, also exactly in accordance with her schedule. Cero reached New Rochelle at 6:55, having got up to her schedule at that point. Both boats reached

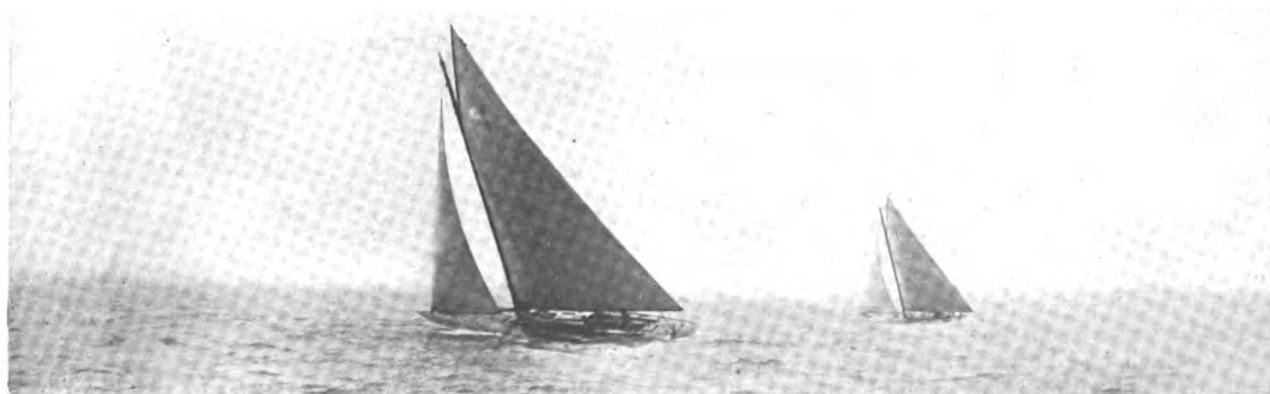
Stamford on schedule time, Gardenia 8:25:30, and Cero 9:04.

The race was a remarkable demonstration of the ability of motor boats to set out to do a job and to reach their ports on schedule time.

Corrected time for each leg is made by taking the normal A. P. B. A. rating for each boat, and subjecting it to a penalty for variation from the speed of the fastest leg, so that each boat's rating changes with each leg, and the second penalty of being late at any point. Corrected time of the two boats on each leg is appended herewith, showing that Cero won on corrected time about 3 hours.

CORRECTED TIME

	Miles	Cero H. M. S.	Gardenia H. M. S.
Stamford to Black Rock	15.87	1:41:16.5	2:35:00
Black Rock to New Haven	14.77	2:03:10	2:21:00
New Haven to Port Jefferson	18.32	2:08:03	2:48:00
Port Jefferson to Huntington	18.65	2:27:37	2:45:00
Huntington to Port Washington	19.81	2:16:01	2:53:00
Port Washington to New Rochelle	5.75	47:07½	50:30
New Rochelle to Stamford	11.17	1:33:04	1:43:00
		<hr/>	<hr/>
		12:56:19	15:55:30

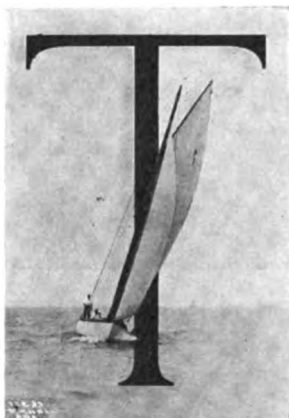


Second Race—Manhasset Challenge Cup Races, on the Windward Leg—Josephine to Weather

THE MANHASSET CHALLENGE CUP RACES, CHICAGO, 1915

Photos by Robert Harry Hall

Fred. W. Goeller, Jr.



THE Michigan, representing the Chicago Y. C., racing against the Joyant, Corinthian and Windward on Long Island Sound in 1912, won the Manhasset Challenge Cup, emblematic of the Class "P" Championship, and carried it out to Chicago with her.

Since that time, attempts have been made by some of the Eastern boats to bring it back, but until this year no boat from Long Island Sound has tried for it.

Early this Summer, Mr. James O. Heyworth, of Chicago, came to New York to stir up some interest in this race, and finally made arrangements for Josephine to be sent out as challenger.

Josephine, built in 1913, cleaned up on Long Island Sound that year, and last year, looking for new laurels, went East and won four out of seven races, racing against the entire fleet of Eastern "P" boats.

These performances established beyond the shadow of a doubt that she was the fastest "P" boat in the East.

Valiant, designed by Gardner, and built last year, and so the story goes, guaranteed to beat Josephine, has had little difficulty in winning the majority of races on Lake Michigan, and was conceded by the local yachtsmen to be the fastest "P" boat on the Lakes.

Mr. Price and his crew handled Valiant very well, and on only one or two occasions did it seem to the spectators that her sails were not trimmed to the best advantage. However, Addison G. Hanan, who has now raced Josephine three seasons, and knows every trick in her, had her going at her very best, and as he afterwards remarked, she seemed to go faster than she did last year.

It was undoubtedly due to Mr. Hanan's very clever handling that Josephine won in each race by as large a margin as she did, although most everyone admits that she is the best boat.

On one or two occasions, the wind got fluky, but neither boat could be said to have gained any decided advantage through it.

In all three races, and on every leg of the different courses the times show that Josephine made a gain. This is indeed remarkable, and eliminates any doubt as to her claim of the Class "P" Championship.

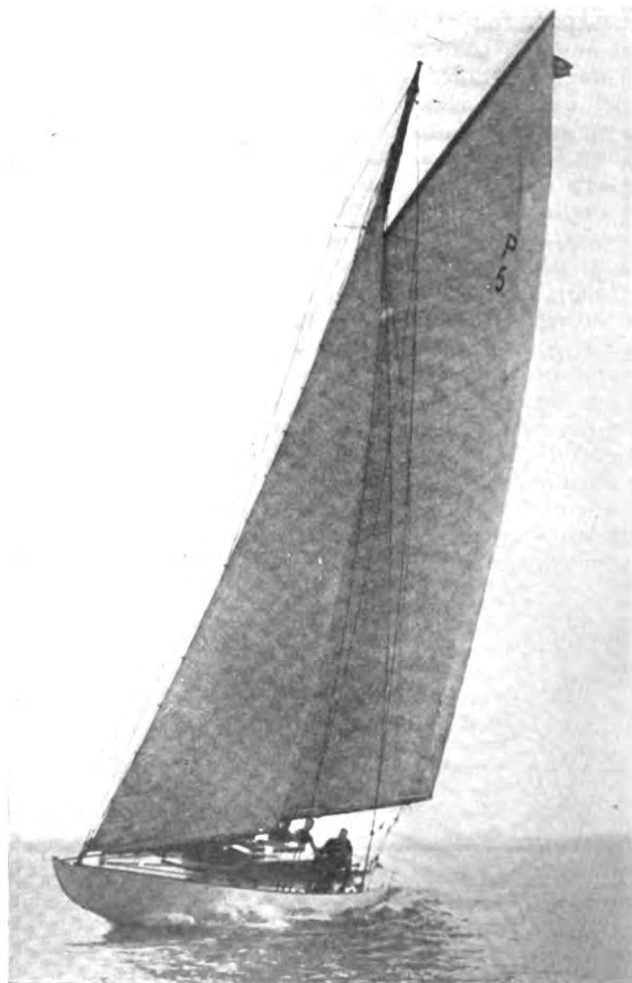
In addition to bringing back the Manhasset Challenge Cup, Josephine also won the Ocean-Great Lakes Challenge Cup, which had been put up as an additional inducement for competition between the Eastern and Great Lakes boats.

Immediately after the races, there was the usual talk of a number of new boats being built, but at the present this seems to have petered out, and there seems little likelihood of more than one, or possibly two, boats being built to race for these cups.

The details and times of each race for both the Manhasset Challenge and the Ocean-Great Lakes Challenge Cups is as follows:

FIRST RACE, SATURDAY, SEPTEMBER 4TH

Course—Four miles to windward and return, twice over; total, 16 miles. Wind about North by East; velocity 8 to 10 miles. Start 1:30 p. m.



Valiant, Representing the Chicago Y. C., Did Not Make a Single Gain on Any of the Legs in all the Three Days' Races



Start of the First Race—Josephine Over First

The first race was started to windward, and three minutes before the start, Hanan worked Josephine to weather, with Valiant under her lee, and held her there, thereby killing her headway, and allowing Josephine to cross the line with a lead of about 30 yards. Price immediately tacked Valiant to avoid Josephine's back wind, and Josephine followed and covered Valiant again. In order to get clear, Valiant was sailed wide for some time, but even then she did not seem to out-foot her rival, who was pointing half a point or so higher. After several short hitches, Josephine each time tacking on Valiant, those on Josephine finally decided that they could make the windward mark, so came about on the port tack, and for a time were heading half a point above the mark, Valiant continuing on inshore on the starboard tack. The wind finally headed so that Josephine did not make the mark, and Valiant, by going inshore got a better breeze, which enabled her to reduce Josephine's lead. The times at the first mark were: Josephine, 2:24:25; Valiant 2:25:22.

Running before the wind, Valiant set her small spinnaker and balloon-jib. Josephine set only her spinnaker, and lowered her jib, and when the wind drew somewhat abeam, took the spinnaker around the headstay, and used it as a balloon-jib, which enabled her to pull out quite a lead on Valiant, as the two sails of Valiant did not



Start of the Second Race—Valiant to Windward
Photo Copyrighted, R. H. Hall

draw properly. Finish of the first round: Josephine, 3:02:39; Valiant, 3:06:10.

Hauled on the wind again, Josephine opened up a long lead, but Valiant stood well to the Northward and, getting a better slant of wind, drew up, and on the leg gained one second. They rounded the windward mark the second time as follows: Josephine, 3:48:42; Valiant, 3:52:12.

Both broke out spinnakers smartly, and for a while Valiant drew up on the Indian Harbor yacht, and in failing breeze it looked as if she might catch her, but the wind freshened again, and Josephine increased her lead, crossing the finish line at 4:46:50, 5 minutes and 16 seconds ahead, Valiant's time being 4:52:06.

SECOND RACE, MONDAY, SEPTEMBER 6TH

Course.—Nine-mile triangular, twice around; total 18 miles. Wind West by South, blowing from 12 to 16 miles an hour. Start 1:30 p. m.

The first leg of triangle was dead to leeward, Josephine and Valiant crossing the line booms to port at practically the same time, with Valiant to windward; both started to luff for a few seconds, and then Josephine suddenly squared away, setting her spinnaker first, and getting her



Two Minutes After the Start of the Second Race—Josephine Ahead, Her Wind Clear, to Leeward of the Valiant



Start of the Third Race—Josephine Ahead

wind clear to leeward. On this leg, Josephine pulled out a lead of 32 seconds, the times at the leeward mark being, Josephine 1:54:18, Valiant 1:54:50.

It was then a jibe at this mark, with the wind just aft of the beam for the next leg. Josephine carried her regular working jib, and Valiant set a balloon-jib. Josephine gained considerably on this leg, and seemed to take the seas, which now were running fairly high, better than Valiant. Times at second mark: Josephine, 2:13:40; Valiant, 2:14:35.

The next leg was a beat to windward, and Josephine gradually pulled out a considerable lead, the wind increasing in velocity on this leg to 16 or 17 miles an hour. The times at the finish of the first round: Josephine, 2:59:23; Valiant, 3:00:25.

The second leg was a repetition of the first, Josephine increasing her lead at every mark. They turned the marks of the second round as follows: First mark—Josephine, 3:23:18; Valiant, 3:24:49. Second mark—Josephine, 3:42:47; Valiant, 3:45:45. Finish—Josephine, 4:30:12 and Valiant, 4:34:10. The elapsed times were: Josephine, 3:00:12; and Valiant, 3:04:10.

The biggest gain was on the second reach, when it appeared to the spectators that Valiant's jib was trimmed too flat, and back-winded the mainsail.

THIRD RACE, TUESDAY, SEPTEMBER 7TH

Course.—Four miles to windward and return, twice over; total, 16 miles; start to windward. Wind about South by West, blowing 8 to 10 miles an hour. Start, 12:15 p. m.



The Judges—Left to Right: Herbert Stone, Neutral; Richard Monks, Representing the Indian Harbor Y. C., and Chas. Scates, Representing the Chicago Y. C.



Josephine, Indian Harbor Y. C., Won All Three Races with the Greatest Ease, Completing Her Third Season as Champion of Class P

In maneuvering for the start, Josephine kept nearer the line than Valiant, and when the gun went off, she crossed the line closehauled on the starboard tack, with Valiant about two boat lengths dead astern. Valiant at once started to come about, and Josephine was about to follow her, when Price finally swung back again to the starboard tack, as did Josephine. Before gathering good headway after this luff, Price swung to port suddenly, and Valiant having hardly any headway, Josephine was kept going about two lengths, when she then swung to port, and was sailed rather full, and in a very few minutes was cutting Valiant's wind badly. Those on Valiant tried several short tacks to get their wind clear, but each time they tacked, Hanan tacked on top of them, and Josephine gained considerably in each short hitch, and by the time the windward mark was reached, was a long distance ahead. The times were: Josephine, 1:09:48; Valiant, 1:13:36.

On the run back to the home mark, the Eastern craft almost doubled her lead, as the wind was falling lighter. Her spinnaker was drawing to perfection, and she rounded the mark at the end of the round at 1:46:26, with Valiant timed at 1:53:02. The wind was now light and fluky, and both yachts stood well inshore looking for a breeze off the land. They found it, and romped down to the weather stake boat at a fast clip. Valiant did her best work of the day on this leg, and only lost 43 seconds. They rounded as follows: Josephine, 2:38:20; Valiant, 2:45:39.

The run back could not help being anything but a procession. Josephine gained another minute and three-quarters, and Valiant was more than a mile behind as the former crossed the finish line, and was hailed as the winner of the series. Times at finish: Josephine, 3:11:47; Valiant, 3:20:50.



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



NAMES OF ISLANDS MENTIONED IN AN ANCIENT CRUISE

IN reading the account of the Ancient Cruise in the September RUDDER, I found the names of several islands different from what they are called today. Brents, Minnewitts, Falcon, Sylvesters Islands. What and where are they?

A. L. C.

[Brents Island is in the East River at Hell Gate, now called Wards Island. Minnewitts is either City or Harts Island at the West end of Long Island Sound. Falcon Island is now corrupted to Faulknors. Sylvesters Island I don't know, but it possibly is Plum Island. The Zeehond was not so slow if she made the run as stated from Plum Gut to New York in 24 hours. If any reader knows the ancient names of any other of the Sound Islands, will be glad to have them.—EDITOR.]

COMFORT AFLOAT—AND NO CREW!

HAVING read ever so many articles in the boating papers from time to time upon cooking on ship-board, and having never seen anything representing our own ideals of comfort and daintiness combined, this article is written with the hope that it may help some novice in the yachting world, or someone who is not quite satisfied with what he has for his culinary arrangements on board.

There is an extraordinary notion that one must have in the way of food and general equipment something entirely exceptional to what one would have on land, while such is not the case. One man will pile up his tiny yacht with a range in the cabin and the coal pretty much everywhere, while another will almost entirely disregard the cooking arrangements and have but one single-burner stove and a pan or two. One will explain that



Salad and Flowers

cooking bores him, while his friend asserts that he is always hungry, and likes to eat well while at sea.

It is likely that there will always be a great deal of argument as to which is the best—the coal or the kerosene, or the alcohol stoves—and, of course, it all largely depends upon the size of the boat, the number to be fed, and their personal tastes and requirements. If one is in the habit of using a coal stove at home, and is thus used to it and likes it, the best way, probably, is to take one to sea—if there is room for it. For the amateur who has dabbled with cooking, camping, or upon electric stoves or chafing dish at home, we can, from personal experience, recommend the little alcohol stoves of certain makes, one of which proves especially reliable, and will burn well in the open air, even in a breeze, when one wishes the cooking *al fresco*, on some delightful little run, when scenery and weather are so lovely that it seems wicked for anyone to be inside. These little stoves are made especially for boat use, are galvanized, and have a neat little brass rail around the edge, which is con-



Luncheon is Served



Peace and Comfort



Prepared for the Night

venient and not in the way. Unlike most people, we prefer two of these single-burner stoves to one double one. In the first place, it is somewhat safer, and then it can be so easily carried on deck for a light meal, as described. With a little practice, it is astonishing how much one may cook with only two burners at a time. Over one of the stoves in our galley an oven sets, one of the very small ready-made kind, with a glass door, such an oven as one may buy at nearly any department store. To the base of the oven is added a collar, simply a strip of copper to fit into the inside of the stove's rail. This collar serves the double purpose of preventing the escape of heat where the rail raises the oven from its correct position (for these ovens are designed for use upon a regular stove, which has no rail) and of holding the oven firmly in place, which is so important in a seaway.

It is probably pretty much agreed by all that copper is the ideal material for cooking utensils. We use copper, nickel-plated, which we find best of all, unless it is aluminum, nickel-plated. Aluminum, itself, is very good if kept in good condition, but all agate wares are quite impossible, as well as tin, for obvious reasons.

And always remember one thing in fitting up, which is, to do things in the way in which you are used to doing them—as nearly as you can. Also, start with an absolutely clean boat, with lockers empty and ready to be filled, rather than with things in them which are only to be thrown overboard at the end of a few days.

Regular preserve jars with tops which fasten down, or screw on, are excellent for keeping the provisions, and one may see what is in them, which is a tremendous advantage. And as to provisions, take enough, but do not take too much. Such articles as vegetables, flour, etc., spoil quickly, and they can be bought in any port. And be sure that there is plenty of bottled water for drinking—and some ice. It is extremely disagreeable to be hungry on a cruise, but people usually err the other way, and unless one is going far to sea, it is to be remembered that the staples are to be found at every port—while one of the chief of staples—eggs—may be bought pretty nearly everywhere, and chickens, as well, as one passes along. And there are always fish in the sea—with the Southern waters teeming with them—and there are oysters, too,—if one has tongs!

The fishing tackle is very important, and should be selected with care, with not too much of it taken aboard, for it can be bought pretty nearly always en route—or written for.

We have a small list of articles to be taken on board—at least, some of them—not all at one time, but the list

suggests and reminds in a very convenient way. We insert it here, as it may help some one else:

LIST

Ice	Mustard
Water	Tobasco sauce
Bottled waters	Catsup
Coffee	Rice
Tea	Flour
Chocolate	Macaroni
Cocoa	Shredded wheat
Sugar, lump and granulated	Maple syrup
Oil	Honey
Vinegar	Prunes
Salt	Dates
Pepper	Figs
Crackers	Paper napkins
Pilot Biscuits	" toweling
Butter	Tooth powder
Bread	Stationery
Potatoes and other vegetables	Shoe polishes
Meat and poultry	Gold dust
Eggs	Soap
Fruit	Matches (safety)
Bacon in glass jars	Alcohol
Condensed milk	Clothes pins
Marmalade, jelly, etc.	Canned soup— tomatoes, peas

ENGINE

Gasolene	Kerosene
Lubricating oil	Grease
Extra batteries	Waste
Packing	Piece of rubber hose

Charts

Fishing Tackle

Camera	Films	Log Book
--------	-------	----------

And above all, take plenty of wraps, some good cloaks, waterproof, and some traveling shawls. And have a good heater for the cabin, for it is forlornly cheerless to be cold or damp. For comfort, one must be dry and warm.

The size of the boat doesn't matter, provided it is well arranged, and everything is neatly in its place. Head-room is desirable, but we have had delicious little cruises, the whole way between Jacksonville and Miami, several times, in a tiny boat, the cabin of which one had to stoop in. The cook stoves were always out of sight when not in use, as well as all the utensils. There was always a cozy cabin and a good cuisine. We have a large craft now—as becomes our advancing years—but the memories of "the first cruiser" are ever dear!

P. P. L.



White Rat, a 20-Ft. V-Bottom Runabout at Thousand Islands, N. Y., Equipped with a Sterling Engine Which Gives Her a Speed of 22 Miles per Hour

ROUND THE CLUBHOUSE FIRE

WHAT a change comes to us with the first cold night of October! Our enthusiasm, at its high-water mark in June and July, begins to fade out in August, and by the end of September only a faint patch of color shows where it once reached and variegated life. In May and June we rushed down to the water, jumped on board and begrudging the time it took to cast the lines adrift, drove out on the sea, river or bay, impatient to feel the wind and spray beating our faces. Today, we dawdle down to the pier along in the afternoon, lazily inspect the boat, then gaze undecided upon the water, and at last either make up to go out for a short spin or fish, or go back home. We are like children with a toy, first had, play with it ardently and constantly, but soon grow tired and thrust it off in a corner. Very few yachtsmen keep it up after October 1st, and yet to me this is the most perfect month for cruising. It is then that you can enjoy the sea or the lake. That is, if you are a bird that cares not to flock, for few of your feather will be found afloat. An October afternoon, anchored in some quiet bay, or up a sandy marsh-bound creek, a gentle Westerly wind, not a cloud in the sky, the upland white and purple with wild asters, the salt meadow discharging briny sweetness, a rod and reel, plenty of bait, and fish now and again. What more can a man want? Then, after sunset, the cabin warm enough to be comfortable. The fish sizzling in the galley, the smell of frying salt pork, the redolence of coffee, and the table set in the after cabin. Hark! The faint murmuring of the insect world singing their loudest in woods and meadows, as if knowing they had to accomplish their purpose now or never, for frost is not long off, and that coming means for these noisy individuals eternal silence. Hark, again, the lapping of the tide under the bows, and far off outside the beating of paddles. The moon is due to rise soon and the planet that nightly attends its progress is already showing like a lantern being hoisted above the distant hills. What! give such a night as this for the hot, stuffy humid ones of July and August? Never!

* * *

Recently, in New York, we have launched a city yacht club, a club that will be afloat during the Winter and laid up in the Summer. For years, yachtsmen have recognized the need of such a club and sometime back one was started, but the men at the helm of it had exalted ideas as to membership and dues, consequently the project went to wreck. This new departure is on the right lines, open to all real yachtsmen, with small dues, so as to have a large membership and thus always a crowded house. Any man belonging to an organized yacht club can become a member. The dues for city members are \$10, and for out-of-town members \$5. The clubhouse is centrally situated on Broadway, about equal distance between the Grand Central and Pennsylvania Stations. This makes it convenient for out-of-town yachtsmen. If you are a real live yachtsman, we want you for a member, but we do not care about shipping piazza warmers or marine motorists; also we don't want people who use clubs for getting business, or talking Wall Street or Society. This is, and we hope always to keep it, a yacht

sailors' meeting place. Send your application in to me and I will put you on the books.

* * *

After the voyage to Boston we can safely recommend Sea Pup to any man who wants a real boat. I would also call the attention of boat builders who are complaining they have no work to this boat. Let them get busy and build a few hundred for the market next Spring. They will sell every one that can be turned out. A man who deals in outboard motors told me that he could have sold at least two hundred last Spring, and I don't doubt it. What has restricted the sale of outboard motors is that there are no boats to be had to carry them. So far as safety is concerned, Sea Pup could voyage to Europe, and we have demonstrated that she could carry fuel enough to get to Bermuda. Our next is a small catboat. These plans, as soon as completed, will be built from and tried out. We expect to build six of these boats for a one-design. If anybody is looking for craft of the kind they better get in on the venture, as the more boats the less money it will cost to build each one. Plans will appear in November and December issues.

* * *

A number of cases of interference and breach of the racing rules come before me yearly, and in nine cases out of ten the man who asks the decision is in the wrong. Men who lose are victims to the belief that the rules are framed solely for their protection and benefit, and that a winner has no claim to be either sheltered or bulwarked by these laws of contest. Imbued with this belief, they attempt to distort or extend the application of the rules so as to make their own side of the case the only side, and to wholly exclude the defendant from the consideration and protection of the court. Another thing the loser does is to use the rule to beat the rule, and then when he fails, he invokes this same rule against the man who has defeated him. In cases of down-wind interference this is often the case. Taking advantage of the right given to the overtaken boat, he believes or pretends to believe that he has the privilege of maneuvering to prevent the overtaking boat passing, and then if fouled, insists that the fault lies with the boat overtaking him. Get this into your heads: the fact that you are loser does not alter your status as regards these rules. You are not privileged by defeat to any further protection from them than you have when winning. Another thing, you have no right to act on the supposition that the other man does not understand and is not going to conform to the rules. It is your business to believe, and to act to the belief, that he knows the rules and will conform to them. If a man comes down on you on the port tack, it is your duty to hold your course and openly assert your right to do so. You have no right to suppose he is going to foul or force you around simply because you have the right of way, and it is to his advantage to do so. It is as much your duty to keep clear as it is his, and the rules require you to keep clear by holding to the starboard tack.

* * *

In my time I have seen many ups and downs of the sport. Like everything else human, it ebbs and flows, and

has its low and high tides. From 1868 to 1873 there was a period of high water, then came the great panic, and the sport went nearly out of existence. Again, from 1880 to about 1886, there was another time of prosperity, to be again succeeded by a heavy ebb. The last and greatest rise of the sport began in about 1895 and lasted until 1910. During this period the sport waxed tenfold, and spread into every part of the land. Foreign countries, with the exception of Great Britain, also shared in this phenomenal rise, and the number of yachts and yachtsmen very largely increased in Europe and the British Colonies. The present depression has been a heavy one, and in the last five years the falling off of the rank and file has probably exceeded fifty per cent. Much of this is due to the cheapening of the automobile, taking out of the sport men who came into it with the advent of the power boat. There are in the country a large number of persons who rush into any new thing, and these people were the ones who came in and swelled the sport for a time, leaving it again when a something else came along. Am pleased to say that my opinion is that the lowest point of the reaction was reached this Summer, and that for the next decade the sport will grow and flourish, but it can only have a sturdy, healthy growth by taking into its ranks men who are really interested in

yachting, not because it is the fashion or fad, but because they love the water and value the pleasure of being on its broad stretches. Have no hesitancy in predicting that a large number of boats will be built this Winter, and next year's census will show a solid gain for the sport.

* * *

The Panama-San Francisco Race is off, the Exhibition people having welshed on the prize money. The race was foredoomed, as several things combined to give it the stroke of grace. But let us hope this will be a lesson to the association, and that it will not interfere again with things that don't concern it. Associations, as well as individuals, are bound by those unwritten laws which regulate the social intercourse of men, and make it possible to carry on without friction the affairs of life that move outside the pale of trade. An association of men, especially those claiming the added title of sportsmen, are supposed to be directed by the same spirit of courtesy that animates and guides the individual, and not to do as a body what would not be done as individuals. In suggesting and promoting the 'Frisco-Panama Race, I had nothing materially to gain; my sole object was to give the sport a strong hoist, and therefore, I was entitled to such courtesy as one sportsman should always extend to another.



Catboat Emeline. The Jibs on Catboats Have Since Gone Out of Style

THE RUDDER

NOVEMBER, 1915

Vol. XXXI

No. 11



Westward, Winner of King George's Cup at San Francisco This Summer

PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

Winter

Boating THREE ALLIES

Florida

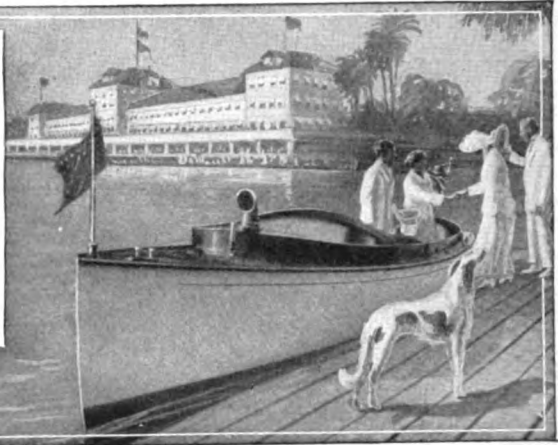
SPEEDWAY boats and engines have made the increasing success which boating in the South has attained.

We are prepared now for the coming season with a complete line of SPEEDWAY boats and engines for immediate delivery.

Fishing boats and express launches with sightseeing wells a specialty. Write to us now.

Gas Engine & Power Co., and Charles L. Seabury Co., Consolidated
Launch Dept. E., Morris Heights, N.Y.C.

Speedway MOTOR BOATS and ENGINES



Kahlenberg

MARINE HEAVY DUTY OIL ENGINES

For severe Heavy-Duty service in cruisers, commercial boats, tugs, etc., the Kahlenberg "Semi-Diesel" type engine is so far in advance of other marine power plants, that it has no real competitor in efficiency and economy.

The engine operates perfectly on crude fuel oil, kerosene, gas oil, solar oil, etc., as well as on gasoline or distillate. Fuel is injected directly into each cylinder at the proper time by individual fuel injection pumps. Only pure air is taken in at the base. The cost of operation per unit of power is lower than has ever been achieved. The patented internal hot bulbs are adjustable so that the compression can be changed as desired while the engine is in operation.

This Semi-Diesel engine is started on gasoline or distillate and in two or three minutes when it has heated the bulbs, the gasoline or distillate is turned off and the fuel pumps, turned on. Any cylinder can be operated individually if desired.

If you want a business engine, built for business, an impartial investigation of the Kahlenberg "Semi-Diesel" will convince you.

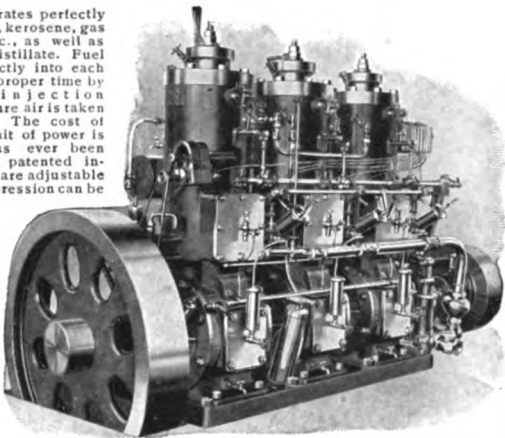
**WE BUILD ENGINES from 2-H.P. UP.
MEDIUM DUTY and HEAVY DUTY**

No matter what kind of marine power you need, let us tell you the exclusive advantages of the Kahlenberg model which is built for your purpose. There isn't a better engine in design, material or workmanship. It isn't fair to yourself to buy another engine before you have our catalog.

Write today for catalog and booklet, "What Users Say."

KAHLENBERG BROS. CO.

Main Office & Factory 1708 12th St., Two Rivers, Wis., U. S. A.



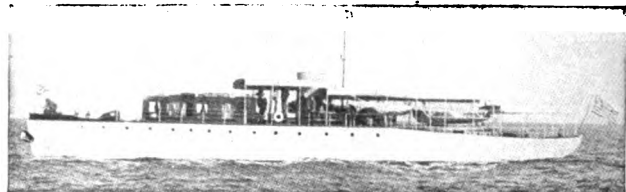
85-H.P. Semi-Diesel Type



JAMES CRAIG Engine and Machine Works

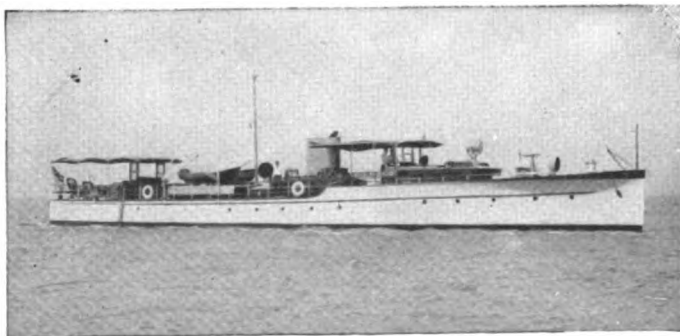
807 GARFIELD AVENUE
JERSEY CITY, N. J.

Designers and Builders of Craig Marine Oil Engines (Diesel Type) Gasolene Engines



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught
Two 4-Stroke, 6-Cylinder Craig "Diesels" 9 1/2 x 11



100-ft. Cruiser MAROLD. Three 300-H.P. Sterling engines. Fastest motor cruising yacht in the world, combining perfectly the elements of high speed, comfort and safety.

Matthews cruisers are known the world over as aristocratic in appearance, of unsurpassed design and workmanship, with all little details worked out for the owner's maximum comfort.

Superior facilities and long experience assure satisfaction. Correspondence solicited.

THE MATTHEWS BOAT COMPANY, Port Clinton, Ohio

Builders of the world's finest motor yachts.

The Rudder

Edited by THOMAS FLEMING DAY

Vol. XXXI

NOVEMBER, 1915

No. 11

A NOVEL VACATION

A TRUE STORY OF LIFE ON BOARD A FISHING SMACK
OFF CAPE COD

John A. Harding



BACK in the eighties, when I was a boy, I saw from the window of my home on the entrance to the Narrows, a fishing smack, that had come to anchor in Gravesend Bay during the night, set a storm-trys'l on the mainmast, and with only a fore-stays'l forward, work off a lee shore to open water, in the teeth of a West Indian hurricane that had struck in the harbor during the early hours of the morning. The sight so impressed me that I have ever since cherished a desire to go to sea in one of these staunch little craft and see for myself

the kind of life these brave men live.

The opportunity presented itself in the good old Summer time just passed. Vacation time having arrived, we "pals," Bill and I, decided to run down to old Cape Cod and ship aboard one of the Provincetown fishing smacks for a cruise of a week or ten days, as "guests of the captain." Of course, this sort of vacation must appeal to you or else its value will be lost; but, if you love the sea and its environs then, I say, there is no place like old Cape Cod, being one of the most exposed places on the whole New England coast, and where one might expect to find the fun he is looking for, sailing on the bosom of the broad Atlantic and fishing out some of the denizens of the deep.

It did not take us long to get away after we had once outlined a plan of action; so, getting together our outfit, which consisted mainly of a blue shirt, some old clothes, and the necessary fishing tackle, we bid our loved ones at home a fond farewell and boarded the steamer *Maine* for the quaint old town of New Bedford, where we disembarked for our train to take us down to the end of the Cape. This part of the trip through the Sound and through some of the most picturesque country one can imagine, where have lived some of our most noted citizens, including the home of the late President Cleveland,

and the home of Joseph Jefferson, is filled with historic interest. It is a pleasant four-hour ride on the train down the Cape, and you can hear the roar of old Ocean long before you arrive at your destination. It was one of those quiet days in early Autumn when we arrived, with just enough breeze off the ocean to make the hot rays of the noonday sun agreeably felt, and the Summer boarders, who make up the best part of this quaint old town's population at this time of year, were either lounging on the beach or painting the numerous marine views which are only to be had in this quarter of the globe. Soon after arriving we found a most hospitable boarding place, thanks to the kind suggestion of the local head of Uncle Sam's postoffice, and proceeded forthwith to refresh ourselves, after which we set about to find our ship.

The trim yacht-like smack *Rose Dorothea* having just returned from Boston market, lay swinging at anchor in the offing, together with a number of other vessels that go down to the sea to catch the finny tribe which inhabit its depths. It was not long before we got in touch with the skipper. We found in him, not the blunt, gruff old man so often told about in story-books, but a genial, whole-souled, pleasant-spoken, bronzed-faced skipper who has sailed the seven seas of the world over and over again, and knows more about human nature than the average chap does, having been tried and found not wanting in the rough life he leads. No one knows, ex-



Mother Carey's Chickens

Copyright 1915, by THE RUDDER PUBLISHING CO., New York. NOTICE—The contents of this magazine, including all articles, illustrations, plans and designs, are covered by copyright, and their reproduction is absolutely forbidden without the consent and permission of THE RUDDER PUBLISHING COMPANY.



This Is the Life

Trawls

Cleaning the Catch

Taking Things Easy

cept, perhaps, those who have been to sea with these men, the hardships that they endure. After presenting our credentials, we went on board at eight bells in the evening and stowed our dunnage aft in the captain's locker, which he ungrudgingly gave up to us, and told us to make ourselves as comfortable as possible for the night and said he intended to sail early the next morning.

We found the smack all ready for the trip to the Banks, with the exception of taking on board a few more barrels of bait. These are always left to be gotten until just before sailing time, in order to have it as fresh as possible. The ice, of which twenty-five tons are taken along, was put on board at Boston, and the stores for the trip at Provincetown. She was fully manned, having a crew of twenty-seven men, all hearty, hale fellows, with a happy-go-lucky smile on their faces, apparently without a care in the world, and always ready to play some prank or have a bit of fun at the expense of their fellow shipmate. Some of these men are almost as experienced in the handling of the vessel as the captain, having been at sea the best part of their lives, and know all there is to be known about their vessel. They obey orders in a mechanical way, so much so that all that is necessary generally to "bout ship," for instance, is to have the master wave his hand and the order is understood. Their quarters in the fo'c'sle are kept quite clean and orderly, each man having his own bunk, which is numbered. They live as well, if not better than the average mortal, having access to the pantry at all times, and when returned from the hard work of hauling the trawls, eat ravenously, and the steward is kept busy preparing food for these hungry fellows. He whets their appetites every day with some new dish, and about two dozen pies a day was the average consumption by the crew during our stay on board.

Every member of the vessel's crew, from the master down to the cabin boy, takes a special pride in keeping everything aboard in order or "shipshape and Bristol fashion"; and well they might, for the *Rose Dorothea* has a reputation that is envied by the whole Provincetown, Boston and Gloucester fishing fleet. She was the winner, against all comers, of the \$2,000 Lipton Cup given by Sir Thomas Lipton, in the Fishermen's Race over a 40-mile course, held off Boston Harbor in the year 1907, and still retains the trophy, which is on exhibition in the town hall at Provincetown, Mass. These boats are built for speed as well as work, and the *Rose Dorothea* has established a reputation for the former, as will be seen from the above. She has been across the "pond" several times of late years, running over to the Western Islands on the coast of Portugal for a catch when some special kind of fish was wanted. They go to sea in all kinds of weather, and seldom return on account of being caught in a gale, but are hove to and allowed to ride it out, if far enough off the shore to do so.

To return to our own trip aboard this 123-foot schooner with a main-boom 80 feet in length, and a tonnage of about 150, fit as a fiddle to go anywhere, ex-

cept up on the beach: at eight bells in the morning we got underway to run down the coast as far as Nantucket Shoals to load up with fish and get back to Boston before the other fellows who were on the same mission. On leaving Provincetown Harbor with a freshening North-east wind, we stopped outside long enough at the bait traps to put aboard the bait, taking with us forty-five barrels in all. We then proceeded on our way 'round Race Point, down past the famous Peaked Hill Bars, where many a hardy mariner came to grief on a cold and stormy Winter's night, having failed to pick up the submarine bell buoy placed there by Uncle Sam to warn him of his danger; or make out in the thick fog the beam of light thrown across the waters by the world famous Highland Light. On we went, unmindful of the freshening breeze, until the watchful eye of our experienced skipper told him that to proceed farther was taking unnecessary chances, and it was not long before the order was given to heave her to. All about us was a seething mass of green water, flinging its crest to the four winds of heaven, and lashing the sides of our little vessel with the fury of a lion.

Five hours we lay there, hove-to, with green masses of water rushing the full length of our good ship, which dipped her nose in each comber and then drew it forth



Captain Joe



Supper's Ready

Who Is She?

Got 'Cha Steve

Shipmates

again to shake herself free, as it were, from being engulfed. Such remarks as "Some weather," "I guess this is no place for us for comfort tonight," and "Hold fast, son!" did not tend to lessen the fear that had already begun to make itself felt with two more or less land-lubbers such as we were. Two bells, or nine o'clock in the evening, had just been sounded when the captain bawled the order to "'Bout ship," he having decided to run back to Provincetown Harbor for shelter from the ever increasing gale and await its abatement.

Captain Joe and an able seaman were lashed to the wheel when the run up the coast was started in the blackness of the night, with hardly an object to be seen a ship's length ahead. The creaking and groaning of the vessel and the slapping of the down-haul, or the main-peak halyard against the sail, together with the whistling of the gale through the rigging, could be plainly heard above the roar of the tempest. The lookouts were at their stations, straining their eyes through the heavy mist to catch a glimpse, if possible, of that welcome beam of light cast forth on the angry waters by the lighthouse on Race Point, this being the turning point to enter the great harbor of Cape Cod Bay, our haven and refuge. A shout from for'ard by one of the lookouts told us that the Light was on our port quarter, and as this gave us our bearings, we squared away for the buoy that marks the shoal off Long Point. This was no small matter to pick up as the rain, descending in sheets, blotted out the view of the lookout, and there was danger of running ashore if it was not quickly found.

"Do you find the spar?" bawled the captain, in a moment of anxiety. "No, sir!" came the answer, in quick response in unison from the two lookouts posted for'ard. "Well, it will have to be found, and that quickly, if we are to be kept off the beach this night," replied the captain. "Two men to the wheel," shouted the captain and, as he was relieved of the helm, he himself rushed forward in an effort to find the coveted buoy. No sooner had he taken up his position for'ard than through the blackness of the night he found the silent sentinel of the harbor, and giving its position to the men at the wheel, the course of the vessel was changed again to "round to" within almost a stone's throw of the spot where our Pilgrim Fathers landed in the year 1620. At exactly twelve o'clock midnight, or eight bells in ship's parlance, the "mud hook" was let go and we were back again in Provincetown Harbor, having experienced a storm at sea in a fishing smack such as few men have had the pleasure of doing, excepting, of course, the fishermen themselves.

The next morning, when we came on deck, we found that twenty-one other smacks, two coasters and a collier had sought shelter from the fury of the storm in the friendly harbor of Provincetown during the night. After lying at anchor another whole day and night awaiting the storm to abate and the sea to calm down a little, we again set sail for the fishing banks in a second attempt to supply the inhabitants of Boston and New York with fresh fish. Breakfast over, the captain came on deck and asked:

"Well, boys, what do you think of life on board a smack? Did you enjoy the run back to harbor, last night?" In answer to the first question, we told him we thought it "some life," and answering the latter, told him that we had enjoyed thoroughly every minute of the trip, and were anxious to go again. He said he knew men who would say "enough" after a night on the ocean such as that night was.

The gale had subsided during the night, but the wind still held true Northeast when we started out again and, although there was still *some* sea running outside, these hardy mariners think nothing of a "little chop of sea" and venture forth as soon as the storm clouds begin to roll away. With a good breeze on the quarter astern it was not long ere we passed 'round the Point, leaving the Pilgrims' Monument to fade away behind the headland as we reached further and further out to sea, until at last it was lost to view and we were, as it seemed, alone on the broad ocean, resting "in the hollow of His hand," rising and falling in the long ocean swell. Here and there, in playful mood, could be seen the great "fin-backs," with their huge tails rising above the sea, only to disappear for a few moments before again appearing on the surface to "blow," sending a column of water high in the air.

Slipping along at a 10-knot gait, our trim little schooner soon arrived at our destination but, as the hour was late and the supper bell had already announced the time for "eats," we all "worked for'ard" and satisfied our appetites before turning in for the night, leaving the night watch in charge. Our sleep was undisturbed for three hours, when we were awakened by the hoarse command of the midnight watch: "All hands turn out and make ready the trawls." Here the scene changes to one of much activity: flare lamps are lit, bait blocks are placed in position for cutting up the bait, trawl tubs are emptied and refilled again with baited hooks and lines, and the dories prepared for the day's work. Everything is made ready for the setting of the trawls, even before "Old Sol" begins to rise from his ocean bed. Breakfast over, the dories are put overboard with the agility of men about to make a rescue at sea, and dropped astern of the schooner as she sails on a fixed course. Each of the twelve dories are fully equipped for all emergencies, having compass, sail, water jug and a generous supply of hard tack, together with the six tubs of trawls necessary to do the fishing, and while one man does the rowing of the dory, the other sets the trawl. When the last hook is on the bottom of the ocean, then a light anchor is fastened to the end of the trawl and, as they say in Provincetown when asked what they do in the Winter time, they "just take a turn and hang on." The trawls are left down about two hours before they begin to haul them, which operation usually requires about four hours. When all the dories have set their trawls, the line extends close to ten miles in length, each dory setting about a mile of trawl, with a few hundred yards between each to prevent entanglements. In all, about 30,000 hooks are



All Hands Busy

Coming Aboard

Going Some

Preparing Supper

used at a single setting, and twice in every twenty-four hours this same work has to be performed.

There is not much rest for these toilers of the sea when engaged in the actual work of catching fish. They sleep only three hours of the twenty-four, but make up for part of the resting when the schooner is going to the Banks, returning to market with the catch, and during periods of bad weather, when it is impossible to fish. The life is a hard one in many respects, but has its allurements and rewards. "For man must work and woman must weep, goodbye to the bar and its moaning" was probably never better illustrated than right here off our New England coast.

After three days and nights of continuous fishing, with short intervals for food and rest, we had taken aboard about 40,000 pounds of cod, haddock, hake, pollock and some chicken halibut, all of which, after being cleaned, were sorted and stored below, well packed in ice, preparatory to the journey up to market. No sooner is the last dory hauled aboard than the order is given to make sail. Up goes every sail that can be set aboard the vessel, tops'ls, stays'ls and ballooner, together with all other working sails. The one idea now being to get the catch to market before your competitor, and with a favorable wind the Rose Dorothea is able to do this, even beating some of the smacks who have motive power installed in them. On the way to market the skipper seldom shortens sail, as first smack in secures the best price for the catch.

With a freshening breeze we got underway for the homeward trip; every sail had been bent on, decks cleared of all refuse and the schooner made as trim as a yacht. The course was given to the helmsman, and we were soon bounding through the rising sea with the speed of a gull on the wings of a storm. Now rising on the crest of a wave, only to fall back in the trough of the sea, as it receded behind us, then plunging forward again, as it were, to make up for lost time.

Along this rugged coast there is no end of interesting things to occupy your mind. First of all, I might men-

tion, is the fascinating sight of the hundreds of stormy petrel, or, as they are probably better known, "Mother Carey's chickens," that follow in the wake of the vessel, sometimes falling exhausted on the deck or alighting on the rail to rest. The sailors regard them with more or less superstition, believing that they are the harbinger of a storm or some other hardship that can befall them. Then there is the fog that creeps stealthily upon you in the night, and has been the means of sending so many of these little craft to a watery grave with all her crew, leaving the loved ones at home to mourn their loss. These fears are always uppermost in your mind when the shrill siren of a passing "greyhound of the sea" is heard in the distance.

Leaving the headlands of Chatham astern, and passing the twin lights of Nauset Beach, the mate recalls a wreck in which he almost lost his life on the treacherous bars off this coast. The vessel on which he was one of the crew was cast ashore in a furious Winter night's gale, and in a very short time was broken up by the pounding of the sea. The brave captain, in an effort to save the lives of his crew, attempted to swim ashore with a life-line fastened to him, but was drowned before his comrades' eyes, and it was only a merciful Providence that saved the mate's life after he was cast up on the beach clinging to a piece of wreckage, all the other members of the crew being lost in the wreck, he said.

Continuing on our homeward journey, past the Marconi Wireless Station on our port, and leaving the world famous Highland Light astern, we set our course for Boston Harbor and, with a fast-following Northeast wind which made our little schooner show her heels to all comers, we passed in by Minot's Ledge with lee scuppers full. The run up the harbor was made in quick time, and with skilful maneuvering, the master placed his vessel in her berth alongside the wharf, with all the crew happy in anticipation of a night ashore and the realization of a successful ending of another trip with the monetary reward that goes with it.



Looking For'ard

All Hands For'ard

Quarter Deck

Some Fish

Homeward Bound

THRICE-SPUN YARNS

THE sun had set in a clear sky, the tide was just beginning to ebb, there was no wind, and the boat rode at a slack hawse. Up the bay, against the dark background of the tree-covered hills, the lights of the village began to appear like a scattered grouping of stars. Outside Old Field was alight, and at regular intervals the flash of the Stratford Middle Grounds came over the beach. George was finishing up the dishes below, and I could hear the clatter as he dropped the plates and saucers into the racks and stowed away the pots and pans. Lighting the riding light, I half-hitched it to the stay, and then, after giving the rode a look to, went aft and sat down in the pit. Harry, who, if he could possibly break tacks with it, never made the same board with any work in a harbor. He had no objection to sailor labor, but hated to do anything below, except eat and sleep, so that the housework all fell on George and self. But Harry would steer—he would steer for hours—remain at the wheel until it was taken forcibly away from him. This was a mania we did our best not to discourage, especially in nasty weather or very hot days. He also had an almost insane desire to row; to pull a dinghy two or three miles up a hot creek to post a picture card to his girl was enjoyed by him as a light and pleasing pastime. But washing dishes or cooking—never. He had one distressing failing, a mad inclination to sing, especially at night when at the helm, and at times to escape this infliction we were obliged to insist upon his leaving the helm and going below for a four-hour rest. A number of seasons of cruising had made both George and I familiar with the premonitory symptoms of these attacks, and this evening, seeing it was coming on, we started in to head off the outbreak by spinning a few old yarns over again.

A FAIR EXCHANGE

"The last time I was anchored here," began George, cutting off Harry's pre-coming warble, "a funny thing happened. We came in and anchored in Ben Burger's yawl, and after supper rowed up to the village to see some girl friends of Ben's. After a pleasant evening spent three-quarters in a hammock and one-quarter in an ice-cream dive, we heard thunder growling in the West and made a break for cover. You can make fast time against a head tide in a 10-foot dink with one fellow in the bow, another in the stern, a 6-foot pair of oars and soap box full of groceries between your legs, I think. By the time we got to the yawl it was pouring like a busted garden hose, and all hands made a jump for the deck and fired themselves and the grub box below. It poured and blew all night, but cleared in the morning, and we went on deck to make sail, so as to get an early start and have the ebb tide at the first. After we had the sail up and the anchor apeak, Ben sung out that the dink was missing.

"Who made it fast last night?"

"Nobody. Everybody thought the other body had done it, and the dink was left untethered, and had drifted off.

"How was the tide?"

"Flood, and the wind West; she must have gone up harbor. So up harbor we sailed, and searched for two or three hours, but no missing dink to be seen.

"Well, let her go to —. She wasn't much good anyway. We can't waste this good wind for the bally box. Up stick and off on the course. Just managed to save the last of the ebb to get clear of the jetties. A young half-green lad was steering, and off Mount Misery he let out a hail:

"There's the lost boat!"

"Sure enough, about a hundred yards ahead, off the port bow, was the dinghy, awash. 'Sheets aft, boys, let her luff! Stand by to grab the painter; get a bucket to bail! Who's got his shoes off?'

"That's not our boat, by gosh," sings out Ben.

"Hurrah! It's a better one.' Sure enough, when alongside, it was a mahogany, brass-bound affair, sunken oarlocks, a cushion, pair of oars, boathook and rudder, all lashed in.

"We advertised her numberless times in the *Neveread Gazette*, but nobody claiming the parcel it remained with the finders. Expect some yacht lost it that night in the squall, the painter being chewed off about a foot from the ring bolt."

ONE MORE UNFORTUNATE

"I never had the luck to pick up a dinky. Have lost two. The only thing I ever salvaged was a pair of oars and a dead man. The last was worth ten dollars, but I didn't wait for the money, so suppose the coroner pocketed it," I began. "It reminds me of what happened one night halfway between Block Island and Gay Head. It was almost a flat calm, and dark as pitch, the water being that velvety shade, and seeming to be joined to the sky. At midnight I went below to turn in, leaving the owner's son, a young lad, at the stick. Just got to sleep when he came down and woke me up. He was scared, and trembling, so his words dropped out in scatters.

"Come on deck—dead woman—body floating—awful—what will we do?"

"What's that?"

"Dead woman—just passed."

"Sure?"

"Yes, right close to; long hair; saw her plainly."

"Going on deck, got the boat round and stood back. Soon we saw it, and worked up, inch by inch. The corpse was floating on its back, the white face turned to the sky, and the long hair drifting out, rising and falling with the swell. I went cold up my spine, and the kid was skiking like a too-near luff.

"Then we both reached over to grasp the poor unfortunate.

"A white lobster pot buoy and a lot of eel grass clinging to it! I was too disgusted even to swear, and went below again, but my friend, for revenge for the hoax, hauled the pot and got two lobsters. Just at daylight he came down and woke me again. He was itching all over, he said, and wanted to know if I had some medicine.

"Did you haul that pot?" I asked.

"Yes."

"Began to itch after you handled it?"

"Yes."

"Well, go strip off your clothes and take a bath; you're full of pot lice." And he was, from head to foot."

NOTHING SAID

"I never picked up a stiff or a good dink," said Ben, "but we picked up a live one off Hortons Point, one morning early. When I was just out of short pants my father bought a Cape Cod cat, and we boys used to cruise in it during the week, the old man only being off duty Saturdays and Sundays. We lived that Summer at Thimble Islands in a small affair called a cottage by the owner, who let my dad have it for some three-fifty a season. The Monday after the old man had hopped the steam bus for York we got the cat underway, and stood over through Plum Gut to Greenport. Here we played around until Thursday, late afternoon, and then worked it back.

"On getting through the Gut the wind died out on us, and we lay becalmed until morning. It was thick, and I was on watch when the night boats came by, and their lights were visible, but nothing else. A short time after they passed I thought I heard somebody calling, but the boat was rolling and the sail slatting, so you couldn't hear clearly. It sounded as if the voice came from off shore somewhere. At last, to make sure, I lowered the sail down and lashed it fast. Now I could hear the cries plainly, so going below called all hands on deck.

"We got out the sweep and rowed her over to where it came from, and pretty soon sighted somebody swimming, strapped in a life-preserver. Got the fellow alongside, and pulled him aboard. He had all his clothes on, except shoes and coat, but although he had the preserver on, he was pretty well done up. The first thing he asked for was whiskey, something we never had in those days. But he took some water instead, and after getting this down vomited it up, and a lot of salt water besides that he had swallowed.

His story was that he had fallen off the Providence

boat accidentally, but did not explain how he got the life-preserver strapped on, unless somebody threw it to him, and he put it on while sousing about in the drink. Anyhow, he got quite chipper by dawn, after a couple of cups of hot coffee had deluged the works, and asked to be landed at the first port on the Connecticut side. So we put him ashore at Saybrook.

"Before leaving, he pulled out a gambler's roll, and presented each of us with a fifty-dollar bill, shook hands and hiked for the train.

"That night, we got back to the cottage about nine o'clock, and mother was indulging in her evening pastime of reading the paper aloud to my two old aunts. The first item she read after we drifted into the lamp-light was about the Treasurer of Massachusetts Mill, who was supposed to have committed suicide by jumping off the Providence boat some time during the night, his coat, shoes and bag being found in the room when the boat reached New York. It turned out afterwards that he had taken all the mill's loose change before leaving home.

"As soon as we heard the news item read, we processioned out into the deserted kitchen on plea of getting something to eat, and there, after dovetailing experiences, decided not to mention picking the hundred and fifty out of the Sound.

"A few weeks after, I heard father talking to mother—the walls were only half-inch groove-and-tongue pine.

"'What's struck the boys lately, mother? They haven't asked for a cent for two weeks.'

"'They're too busy fishing and sailing to want money to spend,' answered mother.

"'Good thing,' said the old man, dropping his second shoe. And my brother Bill, who had only fifty cents left, fired a pillow at me, and then we both went to sleep."



Four-Masted Barque Hougemont Ashore on Fire Island Beach

SATURDAY AFTERNOON

W. H. DeC. Wright

ON Saturday in Summer, how many of us prisoners of the cities slip out of bondage till Monday morning! What a blessed sense of freedom we have when the office door closes behind us and we are off!

And then we scatter in all directions like so many children just let out of school.

I hope I shall never outgrow the joy of Saturday afternoon. There is a little auxiliary sloop waiting for me, somewhere near Annapolis Harbor, this particular Saturday. I know where to go when I leave the trolley car, and fast as feet can carry me in a dignified walk, I go to that place.

It is a boatyard with a great confusion of lumber, various railways, vessels high up on the ways, broken spars lying about, noise of hammering and so on. Down in one of the slips, there lies the merest scrap of a dinghy, an absurd-looking craft, blunt at both ends, with the forward end flared upward. I know this craft well, for it was constructed under my particular directions. Nobody bothers me as I put my packages aboard the little boat, and embark.

The sloop is lying out in the fishing grounds not far from Greenberry Lighthouse. She went out with my consent, because the freckled-face boy and the black sailorman aboard of her were keen for fishing and there was no reason for them to wait till I could get there before they began. So off they have gone, and if they have not caught enough fish for supper, there will be trouble when I get aboard.

I am glad of the chance to row the mile or more to reach Miranda and the fishing party, for I sorely need the exercise. Annapolis Harbor is always interesting to me, with the flocks of small vessels ever coming and going, and the very serious-looking naval craft, a few of which commonly are present.

The great stone buildings of the Naval Academy, in spite of their ugliness which cannot be denied, have much of grandeur and dignity about them.

How insignificant am I, splashing out of the harbor in this absurd 8-foot dinghy with oars hardly longer than canoe paddles!

Some boys are bathing at one of the slips, and their thin white bodies, unclad except for swimming trunks, appear at the end of a pier momentarily and dive into the water, one after the other, in quick succession. A crab-fisherman has his trot-line set across my path, and is slowly drawing himself and his boat along the length of it, while he dips up the crabs with a net deftly held in one hand.

There is a fresh Southeast breeze which catches me as I pull around the point at the harbor's mouth. The rough water tosses my dinghy about without ceremony, and splashes my straw hat and city clothes, which have not yet been changed for more suitable garments.

A number of boats are anchored at various points, but it takes only a moment for me to identify old Miranda's white form lying far down the river. Her one stick is waving to and fro excitedly, as she rolls and pitches on the swell which comes in from the bay. How

fresh the breeze is, despite the hot afternoon sun! Each lift and toss of the little dinghy is good to me, who have been rocked in nothing but an office chair for five days and a half.

And what a vast expanse there is to look at, with so many things worth seeing!

There comes a fine motor yacht, with girls on deck in white suits. They wave to me quite happily, doubtless being unable to see at this distance how gray my hair is.

Then I pass a small motor boat, hired for the day's fishing, and have a few words with those sunburnt city fishermen, who have had only moderate success. A curious-looking power craft, heavily loaded with passengers, overtakes me. She is bound for points in West River.

The people aboard of her gaze curiously at me, apparently headed down the bay in this chip of a dinghy. They do not know that the snug quarters on Miranda are my destination, by now only a couple of hundred yards away. I am well splashed when I reach her, and also hot, but the row has only served to make me a bit keener for supper than I would otherwise have been. How homelike it is down in the little cabin, for all the tossing and rolling!

I scramble down the companionway and change my clothes, while the freckled-face boy and the black sailorman tell me the news. They have many excuses for the small catch of fish. It is not so very small, however, for they have several nice trout and a number of spot, ample for supper, and breakfast, too. They tell me that So-and-So's yacht went by an hour ago, and expatiate on her good looks. They know many of the local craft by sight and name, and gossip about them with great interest.

Of course the question immediately arises whether we shall fish longer, or what shall we do? That fresh Southeast wind sweeping up the bay answers the question.

Miranda is straining at her anchor chain. Let us put sail on her and have a splash to windward through those combing swells which come rolling past us.

The bay here, at the mouth of the Severn, is only about five miles wide, and the tide runs swiftly, so that when we have a breeze one way and tide another, it is quite like real water.

A pretty yawl has got underway back in the harbor, and now comes bowling along with clouds of spray flying from her bows. The motor boats which have been fishing around us are getting shaken up too much for comfort, and while it is a little early for them to go home to supper, one by one they hoist anchor and go puffing back to Annapolis. We, too, must be going. We will make sail and beat down past Thomas Point. Then we will run in the mouth of South River and anchor for the night behind Turkey Point. The latter is a favorite anchorage with us.

So I take a look around, and then up goes the mainsail. Now the anchor is broke out, and we gather headway. Now she has the jib, and the mainsail is closehauled. What a jolly, good feeling it is as the old ship heels over and a bucketful of spray comes hissing over the weather

bow! There was just breeze enough to present to me the query: should we reef? But seeing that we had not a great way to go, I concluded not. The freckled-face boy has the wheel and the black sailor-man is forward, coiling down the halyards, and incidentally getting wet with spray. And I am perched on the coaming of the cockpit thinking how much better it is than working in an office.

It is as if one had wings and wanted to stretch them. I think we all have wings of one kind or another, and we all are pretty sure to stretch them one way or another. It is better, to my way of thinking, to stretch them here in this strong Southeast wind and ebb tide than to go frolicking down to some seaside resort for a week-end jaunt.

The sky grows hazy and the breeze freshens as the sun sinks near the horizon. We should have reefed for comfort, but we did not, so here goes one long tack across to the Eastern shore, and when we come back on the other leg, we can see how things are.

A flock of bay vessels under sails, Northward bound, press on exuberantly, borne on the foaming crests of countless seas. These bay schooners and bugeyes are ever trading up and down.

If one thinks sails are falling into disuse, let him look out on the Chesapeake when a good breeze is blowing, and he can frequently count thirty or forty sailing vessels in sight at one time. They are the playthings of chance, who wait their opportunities. When there is a calm they bide their time, and captains and crews sleep away serenely the hours of drifting and waiting. In the hours of calm, they are stationary features of the water view. When the wind rises, away they go like flocks of pigeons, or scraps of paper, borne on the breeze. They make the best of the weather; are guided and controlled by the weather. They are minions of the wind and tide, and live very close to nature. They are well acquainted with her every whisper, and with her rages and tantrums, too.

The South-bound vessels, closehauled and heeled over, appear in the distance as mere slanting lines against the gray skyline. It is hard to distinguish the skyline, to discern the line where the hazy sky ends and the dark gray water begins. The sun has gone down behind the tree-covered outline of the Western shore.

A wee speck of light glimmers from Thomas Point Lighthouse. It is not dark enough for the Light to show at its best. Its time is yet to come.

Miranda is shouldering her way to windward, through the combing seas, great smothers of foam rising and tossing about her bows. She rises until a third of her length comes out of water, and then dives down till the end of her bowsprit pricks open the green face of the oncoming sea.

We finish the starboard tack and head away for the Western shore before we begin to realize that supper time is on us, and it is too rough to cook in the galley.

Ah, well, we will not go all the way to Turkey Point tonight. There is Fishing Creek, a shoal little inlet which makes in from the bay immediately North of Thomas Point. We will go in there and have supper and spend the night. Thomas Point is a tree-grown sharp headland which obtrudes itself far out in the bay and affords a fine breakwater to protect the mouth of Fishing Creek from a Southerly blow. It is now visible merely as a black finger, pointing Eastward in the gathering dusk. It is a fine place for a shoal-draught boat like Miranda to go tonight. The great bay and its hosts of rolling seas,

and the flying schooners, and the stiff South wind, and the glimmering lights—these will hold sway through the night. These things, the spirit of the night will play with, until morning comes and breaks up the game.

Miranda, in her smother of foam, rising and falling, tossing and splashing, holds on for the snug harbor ahead of her. We cannot quite make it on the one long tack, but another short one, and with hatches fast and decks drenched, we slip into quiet water.

We have slipped aside from the night-shift. We have withdrawn from the game of night, with its rolling, foaming phosphorescent seas. We roll easily into the little creek's mouth, but a stone's throw from the open water. Our sails flap and rattle as we head up and come to anchor.

What a good sound is that of the anchor chain paying out, when you are tired and hungry, and get into a good berth for the night! We are amateurs and quit when we get tired.

A few minutes later our riding-light is lit, and our cabin ports glimmer cheerily. All is cosy and snug. The hatches are opened. Soon the smell of cooking floats off on the strong South wind.

The flocks of passing sails have now faded away into night, and in their places there is nothing but darkness, except the occasional glimmer of a colored sailing light.

Stealing along the bay shore, under the shelter of the headland, a little fishing boat fights her way Southward against the sea. It is Saturday night and the fisherman goes home for Sunday. He has no well-stocked galley, and would spend his Sunday ashore. While the little yacht rides gently at anchor and her occupants snuggle away in the cabin, the fishing boat beats onward. She comes up under the headland, making the most of its shelter, and then as the last soft light of day fades from the sky, with a dusky foresail straining in the wind and engine throbbing, she steps boldly out from behind the headland and joins the night-shift.

To us, she is just a dusky shadow of a sail, homeward bound, with half or all the night in which to fight her way against head wind and sea.

We lie in quiet water, spectators, looking out at the wind-swept bay.

Oh, well, why should we not quit when we are tired? This is our play. We have done our work for this week, up there in that office. We did not quit the office when we got tired—not by any means; else we had been here Monday, instead of Saturday. Thomas Point proper is now a small island of perhaps an acre in area, separated from the mainland by a hundred yards or more of shoal, almost uncovered at low water. Behind this shoal we lie at anchor with nothing between us and the Southeast wind coming up the bay fresh and strong. The sea cannot reach us for the shoal ahead, where surf is breaking. All that we get is the whistle of the night wind in the rigging, the roar of the surf and a gentle swell to rock us to sleep. Soon the moon rises, a great red disc, which slowly fades to a pale lemon and sheds the fairest silvery light on the tumbling seas, and the surf breaking on the bar.

It is a fine night—made up of moonlight, and pounding surf, and whistling South wind. The headland looms up dark in the moonlight, and from it comes a faint scent of pines.

And to add to all this—tomorrow is Sunday, with all day to sail or read a book.

MODERN MARINE MOTORS

by T. ORCHARD LISLE, A.M.I. MAR. E.

BOATS

SAFETY FIRST

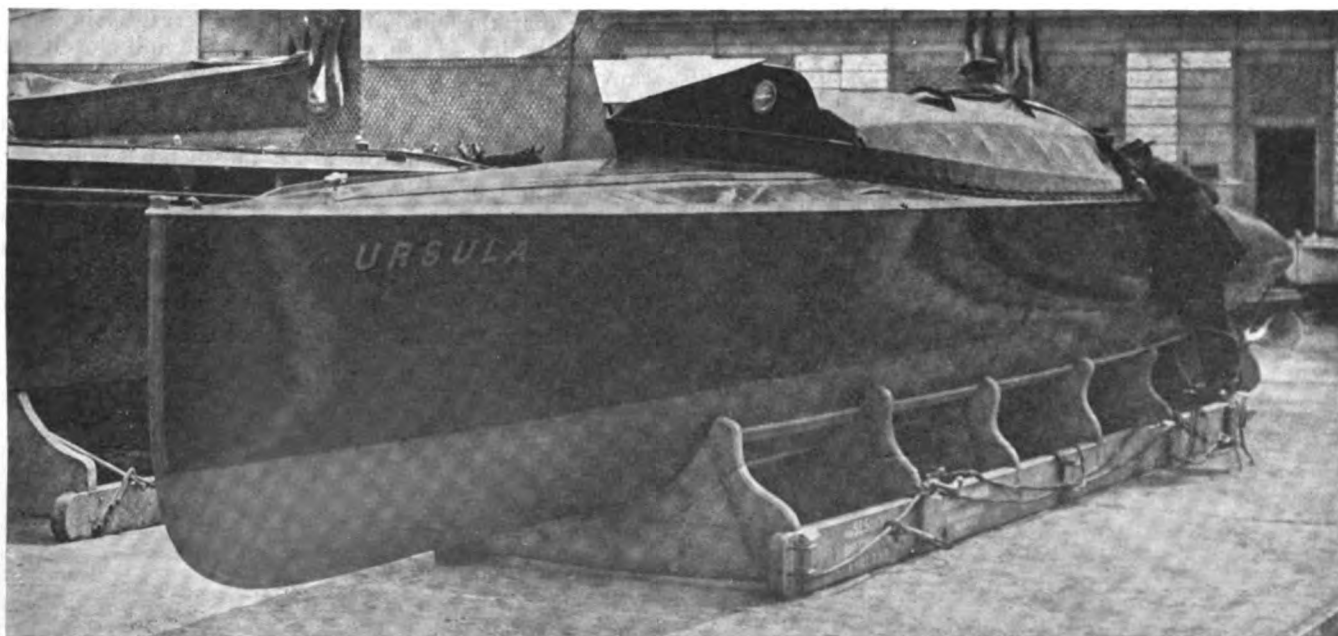
SPEED, and speed alone, is fast becoming the sole object of motor-boat racing, and sad to relate, is being allowed to overrule all other considerations. There can be no doubt but that the speed question is made too important, with the result of a type of hydroplane lately being developed, which from a naval architectural point of view is hardly desirable, because such craft are utterly useless for any other purpose than racing. In quite large numbers there lately has been produced a sort of skimming-dish, lacking in seaworthiness, freeboard, strength and reliability. Apparently the adage *Safety First* has almost been disregarded in motor-boat racing during the last two or three years, and the matter is really getting serious, for every meeting now results in the sinking of several boats.

Of course, freak boats always have and always will be produced by crank amateur designers; but that offers no excuse for the construction of champion speeders by professional boatbuilders along similar lines, for, sad to relate, many recent creations have become adept at submarine practice. As we said in our September, 1914, issue, it becomes a serious question whether it is advisable to encourage the development of the skimmer type of hull, for there can be no doubt that they cannot be driven

at full speed in rough water without risk of life, and damage to the hull and machinery.

The real object of racing is to develop and produce the best type of hull and engine, but lately the speed craze has brought about what might be termed "overpowered racing shells," consequently a little lop in the water means the temporary postponement of a race to the inconvenience of all concerned, as not only is it foolish to race such boats in anything like rough water, but is a tremendous strain upon the helmsman, who gets almost blinded by the driving spray.

It is more boats of the Dixie IV, Ankle Deep, Disturber IV, P. D. Q. V and Heloise types that we want, and all these could well stand more power to get the extra speed necessary to make them beat the little skimmers. It will be realized that in moderately rough water a light, little boat of the skimmer type is liable to receive a terrific pounding, while the force of meeting heavy waves detracts the speed, but the big seaworthy type of hydroplane can plunge along at full speed without harm. A firm stand should be taken by race committees, and they should in advance announce that races will not be postponed unless the water is really rough, and this would eventually result in more seaworthy craft.



Safety First.—This is One of the Most Seaworthy High-Speed Racing Motor Boats Ever Built, and for Beauty Could Not Be Surpassed. Yet She Has Never Been Duplicated. Exactly the Same May Be Said of Dixie IV

We can take a tip from the committee controlling the international meeting at Monaco who refuse to allow any boat to race that they consider unseaworthy, and the lesson of the Standard a few years ago seems to be forgotten.

The original reason for motor-boat racing was to develop the hull and machinery, at the same time derive pleasure; but the advent of the hydroplane caused the mile-a-minute craze. Let us have speedy boats by all means, but let speed be accompanied with seaworthy qualities and reliability. No matter how reliable is an engine, the boat cannot be considered reliable if she can be rendered *hors de combat* by running into the wash of a passing steamer. Of course, we do not intend to convey the impression boats should race in stormy weather.

If owners and builders always bear safety first in mind they will produce a boat for which there is some use. The present war has taught us that seaworthy and fast motor boats are the best destroyers of submarines. Boats of the Blackton Babies, Miss Detroit, Tiddlewink, Disturber V, and Little Joker III types are utterly useless for this class of work, or any other purpose than racing. They are just machinery with a veneer wrapping. However, while racing boats have derogated, the high-speed pleasure runabout has made remarkable advancement and today the United States may well be proud of her fleet of hundreds of fast and seaworthy runabouts which in the event of war could be used for a variety of purposes by our Navy Department as may well be the hundreds of fine and seaworthy express cruisers and motor yachts.



ORDER YOUR BOAT NOW

EVERY year about this time we have to encourage our readers to order their next season's boat early; but this year in particular there is special need to sign your contract with the boatbuilder now. Thousands of wealthy men will be unable to spend the Summer abroad next year and many of them are going to order boats, if we can judge by the inquiries afloat. Lots of these are newcomers to the sport, so that this will be additional work for the builders and engine makers. Furthermore, several of our biggest yards are pretty busy with profitable war orders, and the number of pleasure craft that they turn out in ordinary years will have to be passed to other builders, thus again increasing the congestion

of work. Apart from this there is the question of prices, for the builder can give a much lower figure when his yard is only moderately busy. In the Spring he will be overwhelmed with fitting-out operations as well as with new work, and then when you can't get a good offer of delivery you will curse the sport and industry in general. Again, owing to the enormous demands from abroad, the prices of raw materials are steadily mounting and will continue to mount until after the war is over, so not only can you get a better price now than in January next on propulsive machinery, but also on the hull and installation work. So take our advice and order without delay.

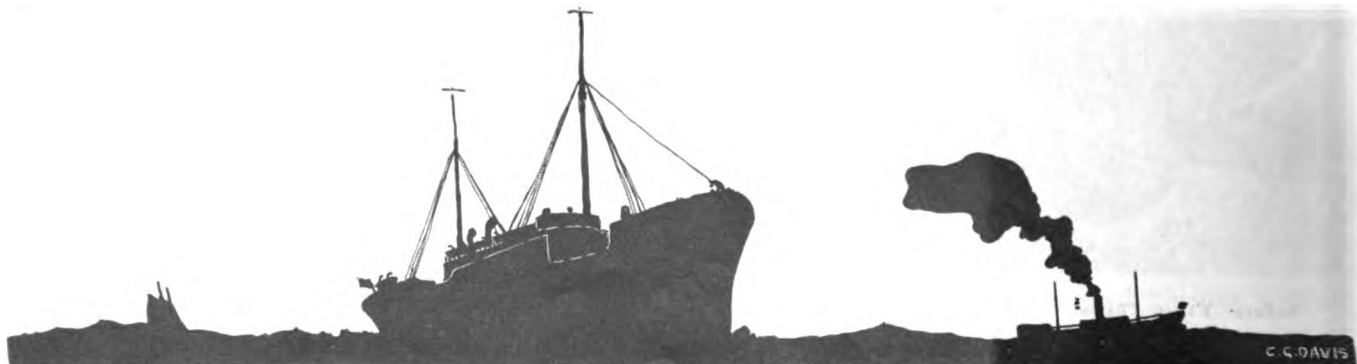


LAYING UP FOR THE WINTER

A FEW words in time to the wise. Just at the moment hundreds of boats are being laid up for the Winter, and every owner who respects his craft should either attend to her himself or give proper instructions to his boatbuilder to see that everything is made snug. If the boat is not being stored in a shed, but merely drawn up on the land, she should be properly housed in, and all the machinery, tools and metal work given a thorough coat of grease. It is not sufficient merely to throw a tarpaulin over the hull as we have seen done to some boats, unless you desire your boat to be leaky and the engine unreliable next season. You wouldn't think of leaving an automobile in the center of a ploughed field throughout the Winter just covered up with a canvas cloth, but otherwise exposed to the severe wintry elements. And a boat needs just as much care as an automobile; but

unfortunately rarely gets it. Then an owner wonders why the engine in his boat will not run so well as the motor of his car.

See that the shed in which your craft is housed is thoroughly dry. If so, do not cover the hull closely with canvas, because the changes in temperature will cause "sweating" of both the wood and metal, with the result that the paint or varnish is spoiled and the rust will even eat through a coating of oil on the metal. The canvas cover should be raised several inches clear of the hull. In any case, give a coat of grease to the machinery, and a smear of oil on the varnish of the hull will do no harm. The trouble taken now will be amply repaid next Spring. One thing above all, do not leave your boat in the water, unless she is too big to haul ashore.

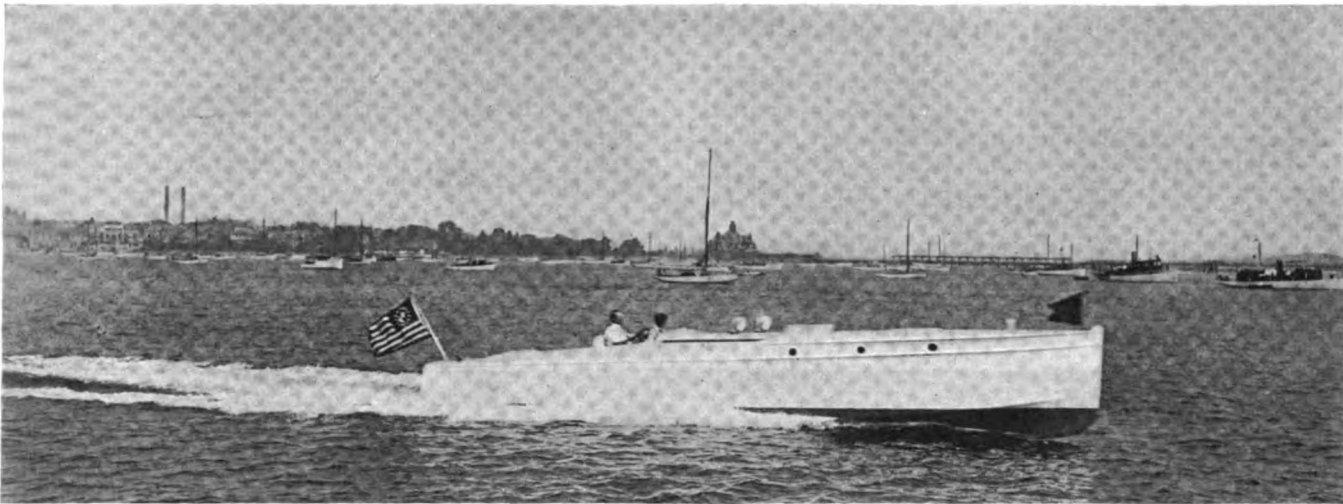


THE MYSTERIOUS SIX

WHERE are all these big, high-speed motor boats destined? This is a question every power-boat man, who has heard about the large numbers of such craft under construction is asking. That they are not for this country is a dead certainty. Most of them go to Canada and the minute they cross the border they mysteriously vanish—whither no one seems to know. Those who evidently do know wisely shake their heads—give you a curious wink and maintain a discreet silence, although it is an open secret that the Van Blerck-engined craft, built up in Long Island, have gone to Russia, but

named Flounder, Perch, Salmon, Tautog, Tuna and Trout respectively, but from their design, it is quite possible that they are submarine scouts. Each is 40 feet long by 8 feet breadth and is of the V-bottom type. The power in each is a six-cylinder, 5½-inch by 6¾-inch Sterling gasolene engine rated at 135-h.p. What makes us think that they are for some naval purpose is that each carries 240 gallons of fuel, which certainly no racing boat would need.

Furthermore, the interior of these boats indicates that they are intended for sterner service than the pursuit of



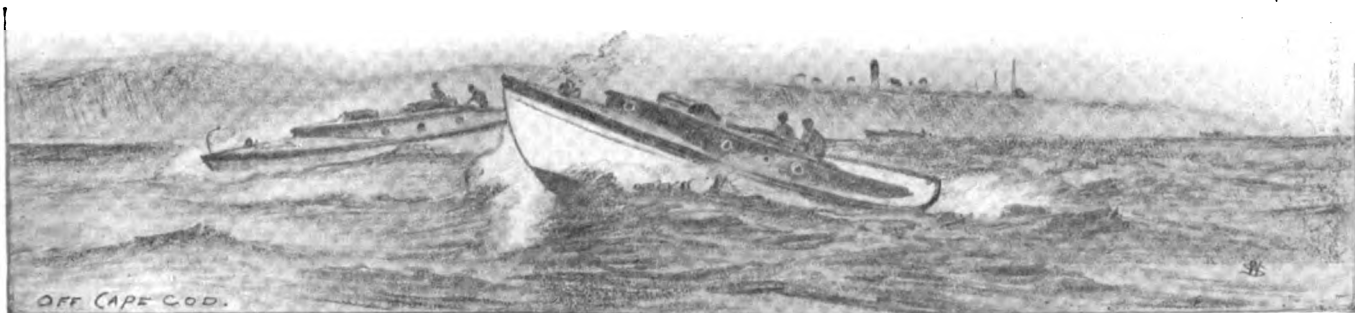
One of the Six "One-Design Mysteries"

a strict secrecy has been maintained regarding the one hundred large speeders, built and building at Bayonne, in each of which two Standard 220-h.p. standard gasolene motors are being fitted.

Now comes another mystery, for Lawleys have just completed six 40-footers, but beneath the names on their sterns there is a blank, for no hailing port is there to be seen, although we have heard a rumor that Sweden is not unconnected with these craft; but whether or not that country is their ultimate destination, we do not know.

These boats are termed a one-design class, and are

pleasure. Most of the cabin is occupied by the very large engine room. Forward are two simple pipe berths, a toilet, and a stove for heating and cooking. The cockpit is of the watertight, self-bailing type, and the boats are of an exceptionally seaworthy as well as speedy design. But whoever the owner, or owners, may be, whether club of yachtsmen, the still mistress of the seas, the grim purposes of modern warfare, or the pleasanter task of developing one-design racing, these boats are a splendid tribute to all concerned in their construction. Their speed is a little over the guaranteed speed of 22 miles an hour.



DECORATION AND FURNISHING OF YACHTS

INTERNAL ACCOMMODATION DESIGNS OF POWER BOATS OF 40 FEET UPWARDS

WHILE there are a number of yacht builders fully capable of successfully designing the interior accommodations of motor yachts, and whose experience enables them to produce refined results, it is not always wise for an owner to leave the matter in the hands of the builder, unless it is a large concern with experts on the staff, because the local hull constructor generally is a boatbuilder pure and simple, and can hardly be expected to thoroughly understand the business of furnishing and decoration. Naturally, his attempts often result either in gaudy effects of the crimson plush and gold trimming variety, or a general drab and dreary atmosphere, which will damp the ardor of the most enthusiastic yachtsman, should he be kept below by bad weather.

Atmosphere, without a doubt, has remarkable effect upon human beings, and even in the house it is remarkable how one's temper can be improved merely by changing the position of one's furniture, the color of the wall paper or carpets. In the cabin often a slight unharmonious effect jars and irritates, quite unconscious to the person it affects. It must be remembered, too, that many a yachtsman undertakes long cruises when he is run down in health through overwork, and at such times the immediate surroundings make a particularly strong im-

pression, necessitating a bright but soothing scheme of decoration, combined with as much comfort as is possible.

There is no reason why the well-to-do yachtsman should rough it just because he loves the sea. The average man goes yachting or cruising for pleasure and it would be foolish for a man not to get the utmost pleasure from the sport. Many men who are not strong enough to rough it avoid yachting and turn to automobiling and hotels, just because they misguidedly imagine that it is *infra dig* to go yachting-de-luxe. Doubtless the Oldman will call me over the coals for this. But roughing it is his idea of yachting; it's his enjoyment and his pleasure; but all men are not built alike, so every one to his own pleasure in the way that suits him the best. Heaven forbid that we should lose the old school of yachtsmen, but let's have the other type, too. Both help the sport and industry. The retired city man, being no longer young, can rarely rough it, and neither does he need to if he can afford a well-equipped yacht or power cruiser.

Not fully realizing the importance of these matters, many owners have been in the habit of leaving the designing and carrying out of the interior decorations, upholstery and furnishing in the hands of the local builder. Rarely is it that one can find the combination of art and



Fig. 1. A Smoking Cabin Finished in Mahogany, with Blue Upholstery. Quite a Snug Effect is Obtained



Fig. 2. A Dining Saloon, with Dark African Mahogany Panelling, Furniture, etc., and Dark Green Upholstery and Carpet

craft in yacht building, although the pleasing lines and profiles of some vessels obviously indicate artistic minds. Some of the larger builders employ experts in this particular branch, which accounts for the splendid results produced. Also here and there are boatbuilders with the proper taste and ideas.

The matter of color blending and the production of harmonious effects is quite an art and business in itself, so unless there exists a natural gift, considerable experience is very necessary. This will show how unfair it is to put the responsibility upon the boatbuilder. Many naval architects are becoming experts in this particular line, but even they often work in conjunction with a furnishing establishment specializing in this work, so usually it is quite safe to trust to the judgment of any of the well-known professional yacht designers.

It is by no means easy to obtain effects that will not irritate or weary the owner and his guests, therefore all hardness and glaring colors should be avoided, and soft tones adopted. For instance, a main cabin decorated in white or cream, with gold beading, deep crimson upholstery, with Russian hare-wood, can be made to give a charming effect in the hands of an expert, but when arranged by a man whose sense in artistic balance is not fully developed, or lacking, it will result in a gaudiness beyond description, especially if plush be used instead of leather for the upholstery. As a general rule, brilliant green or bright red plush should be avoided like a plague. Maplewood furniture is another thing to avoid, as after a few months' cruising it makes an interior quite shabby in appearance.

We offer some suggestions for effects that will produce harmony, cheerfulness and comfort, which are the first principles to be studied. First we will take the

saloon. Very good results can be obtained with light, unstained English oak panellings, moulding and ceiling carlins, with furniture of the same wood. The upholstery of the chairs and settees should be of dark blue or dark green Morocco leather, with small brocade or silk curtains over the scuttles to match, but of a lighter shade. If ladies are frequently aboard, they should be protected from draughts by a portiere to match the curtains. The electric fittings should consist of a central dome light and wall brackets, all of a neat and simple design, and they should be antique silver plated, bronzed-copper finish or wrought iron. Flambeaux type of glass shades on the wall brackets are very effective. The carpet or linoleum should have the color of the upholstery as the principal shade of its pattern. Contrasts are risky, but pleasing when well schemed out.

If low cost is an important consideration, this arrangement can be carried out with American oak and imitation leather. Generally speaking, even the most inexperienced could hardly fail to get good results with the foregoing scheme, but of course, the manner in which the design is carried out will really make an extraordinary difference, and much depends upon the individual.

An alternative to the light oak is the use of dark fumed or black oak, but in this case dark red leather may be used. Either a very dark green or dark blue will look well. Brown will give too sombre an effect. However, unless the saloon is on deck with large windows, the light oak is much preferable to the dark wood, because the latter absorbs too much light. With the light English oak avoid the use of stain or varnish if possible, the natural color being more pleasing.

Polished mahogany furniture and panelling with dark

blue leather upholstering always looks dignified as well as pleasing in a dining saloon or main cabin, but is apt to be bad for the lighting, although not so much as dull dark oak, because to a certain extent the polish acts as a light reflector. With mahogany, polished brass electric fittings are the best, but silver plated or gilt is permissible. With mahogany, some designers prefer dark red leather, but that is purely a question of personal taste. Polished Kauri pine makes a very attractive wood for panelling and furniture.

The style of the saloon furniture should be studied with minute care, so as to make it harmonize with the general scheme of decoration. For instance, the wall panelling and the buffet, bookcase and chairs should all

is very comforting on a long cruise and avoids resorting to hotels en route. A wine-colored carpet and hangings will make the cabin warm in tone and thus cosy.

For the ladies' cabin especial care is necessary. Above all, the inside of the door should contain a full-length mirror instead of panelling, for few ladies can be happy aboard a yacht without plenty of light and mirrors, so on either side of the door should be an electric light fitting. A charming effect can be produced with pure cream-enameled sides and ceiling, and Russian hare-wood furniture, including the bedstead. This wood, when finished, is a beautiful mottled grey. Endeavors should be made to squeeze in a wardrobe where dresses can be hung without crushing. In the door of this another mirror

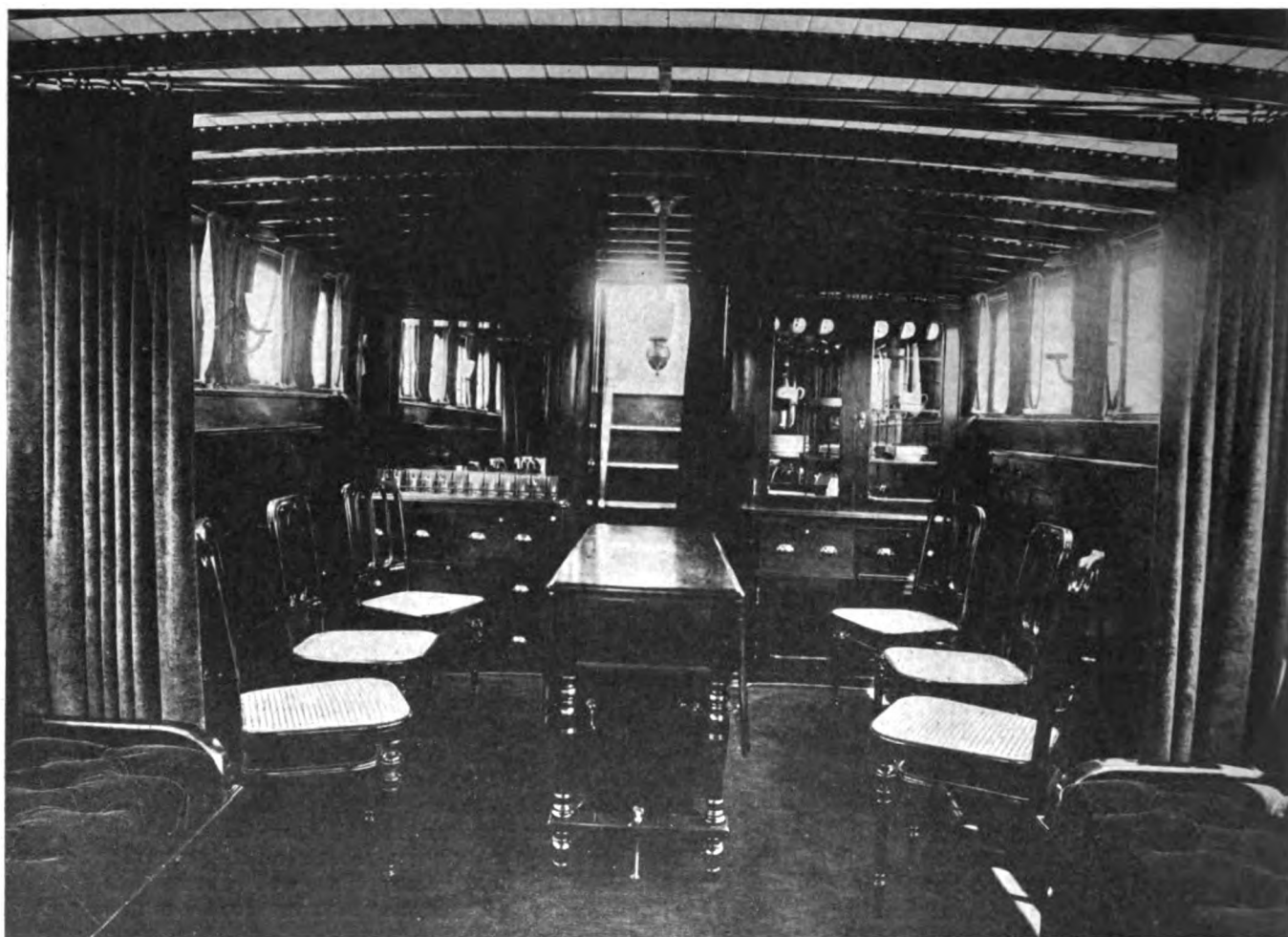


Fig. 3. The Heavy Polished Mahogany Effect of This Saloon is Very Beautiful, but Rather Dark, Especially as the General Color Scheme is Dark Green

be of the same wood. If dark oak is used the Jacobean style can be made to look very attractive in a yacht's saloon.

Regarding the owner's cabin, the general scheme should be simplicity. White or cream-enameled panelling with polished mahogany furniture, a brass bedstead and mahogany folding wash-basin is about all that is required. It has been found possible to fit a spring bed, even in boats of 45-foot length, and to an elderly man this is a comfort not to be overlooked. Under the carpet can be arranged a trap door which, when opened, exposes a porcelain enamel tub, so that a bath is possible when the boat is too small for a separate bathroom. Such a device

could be fitted with advantage. Near the dressing table should be arranged a small electric heater and curling tongs, for it is usually breezy aboard a boat, and so the latter are a boon to the weaker sex. Old rose hangings with an old rose or old grey and grey Wilton carpet complete the picture, but pale blue is equally attractive though not so uncommon.

Mr. J. H. Wells, of the Matthews Boat Company, of Port Clinton—a firm who have designed and built many motor yachts and cabin cruisers—has kindly put forward some suggestions on the subject, based on his extensive experience, as follows, and it will be noted that his main principles conform with our own ideas on the subject.



Fig. 4. A Stateroom in Which the General Tone is Brown

In the dining saloon, the one feature that should always be prominent is cheerful surroundings. This means good light and ventilation. Most all yachts in these days have the dining saloon in the deckhouse for this reason, although in many of our flush deck types this is not practical.

It has become general that in the dining saloon there should be upholstered chairs, a large ornamental buffet, with serving table, the buffet being open through to the dining room and pantry sides. As to the room finish: we like the mahogany panelling with as little bead work as possible. The mahogany-paneled ceiling makes the richest finish, although cream enamel with mahogany contrast is very pleasing, and is not quite so heavy.

The light of the cabin should be such that there will be a dome fixture over the table, so that light is subdued about the balance of the room and directly on the table. The concealed ceiling and side lights, now in vogue, which are laid flush into the panel work, make a very attractive side lighting scheme and give the room the soft mellow tone.

It is almost impossible to obtain furniture for the dining saloon in stock patterns and it is the usual custom to have this built to order, care being taken to have all corners protected by leather, so that in shifting about the side wall finish is not marred. The Turkish thick carpet makes the best carpet. This, of course, is removable for cleaning, and there is usually linoleum underneath.

As to the lounging or smoking cabin: The contrast

of mahogany or teak finish, with tapestry, or mahogany panel above seat line is very pleasing, and as the saloon is usually below deck, the ceiling should be finished in light enamel, so as to give the maximum amount of light. Here the sides should be fitted with divan seats, with alcove and small lockers over and pull drawers under the seats. The side light should be arranged so that the light will be in the best position for reading when one reclines on cushions. The seat itself should be made from 22 to 26 inches deep.

There are a thousand little things that the designer can do to make things attractive in the joiner work and built-in furniture, such as bookcases, desk, etc., so that they don't seem to appear to be plastered about the room. The phonograph is now a necessary piece of furniture in every yacht saloon and we have the phonograph companies send us the cabinets without finish, so that we can match the finish exactly with that of the boat, and build them in position.

Referring to the illustrations, the upholstery in Fig. 1 was in deep blue, which made a very pleasing contrast with mahogany. The carpet and table covering, of course, to match, the carpet being a thick Wilton. The curtains were light blue material, as we generally arrange the room with the dark colors on the floor, or possibly the same shade as the cushions, and lightening as we go up towards the ceiling. This takes away the heavy look that you often see in boat interiors.

In Fig. 2 the seats were of a green-black leather,

while the floor covering was a dark green, small-figured Wilton rug. Curtains light green, lined with cream color casement cloth. The wood in both rooms was dark African mahogany.

Figures 3, 4, 5 and 6 are examples of interiors carried out on boats built by the Gas Engine & Power Company and Chas. Seabury, Consolidated, of Morris Heights, New York. Turning to Fig. 4 we have illustrated the owner's stateroom of the 110-foot twin-screw yacht *Thelma*, and it will be realized that a boat of this size has good beam, so that there is plenty of room in this compartment. In this particular case the walls are paneled in mahogany and the dressing chest is of the same wood. The bed is of white enameled iron, while the curtains are of silk pongee and the carpet a brown-patterned Wilton, so that the general tone of the decorations is light brown. Seeing that this cabin is on deck, many large windows have been provided, so the atmosphere is soft and pleasing, but with ordinary port holes the compartment would have been too dark, particularly as the ceiling is of heavily moulded mahogany. The electric lights, it will be noted, are placed just where they are required, namely, over the dressing-chest and bed. A permanently-fitted wash-basin is provided and this is larger than the usual folding type.

In Fig. 3 we have a typical example of the poor-lighting result derived through the lavish use of polished mahogany, although perhaps the photograph exag-

gerates this. Nevertheless, the effect is very soft-toned and beautiful, and it is obvious that the design is the work of an expert with a refined taste. It is the dining saloon of the 65-foot Seabury bridge deck cruiser *Manchona*, and a more pleasing interior would be hard to find, except, of course, for the general dark atmosphere, which to an extent is relieved by large windows, the cream cane seats of the mahogany chairs and the white eggshell finish between the mahogany carlins on the ceiling. Let into the walls on either side are Pullman berths, while at the forward end the two settees are partitioned off by means of heavy silk velour portieres. The window curtains are of silk damask, and the general color scheme including the Wilton carpet is dark green. Under the folding table is a small organ, and at the after end, on either side of the doorway, which also has a portiere, is a china cupboard and buffet respectively.

A snug and cosy effect can always be obtained from the use of an attractive tapestry upholstery, as Fig. 5 will show. The general coloring of the curtains and carpet is light blue, which well harmonizes with the teak-wood table, chairs, etc. In this case the central column would have made a dome light look out of place, so a cluster of lamps was arranged on the column, thus utilizing the latter to a good effect. Between the teak beams the ceiling is enameled white. Thus the general lighting is good, particularly as there are large windows on three sides.

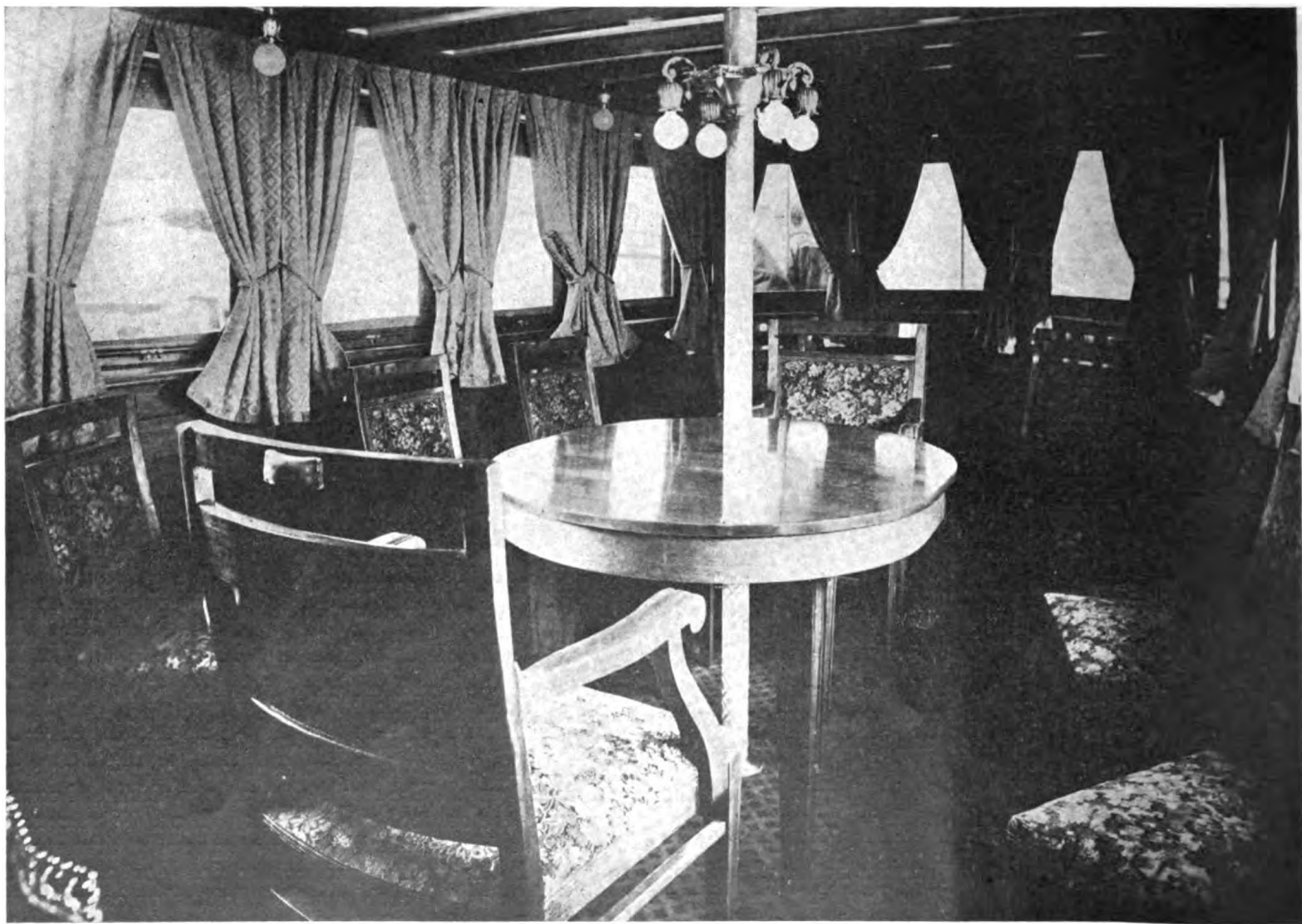


Fig. 5. A Deck Saloon Finished in Teak, with Blue Tapestry and Upholstery Its Chief Charm Is Cosiness

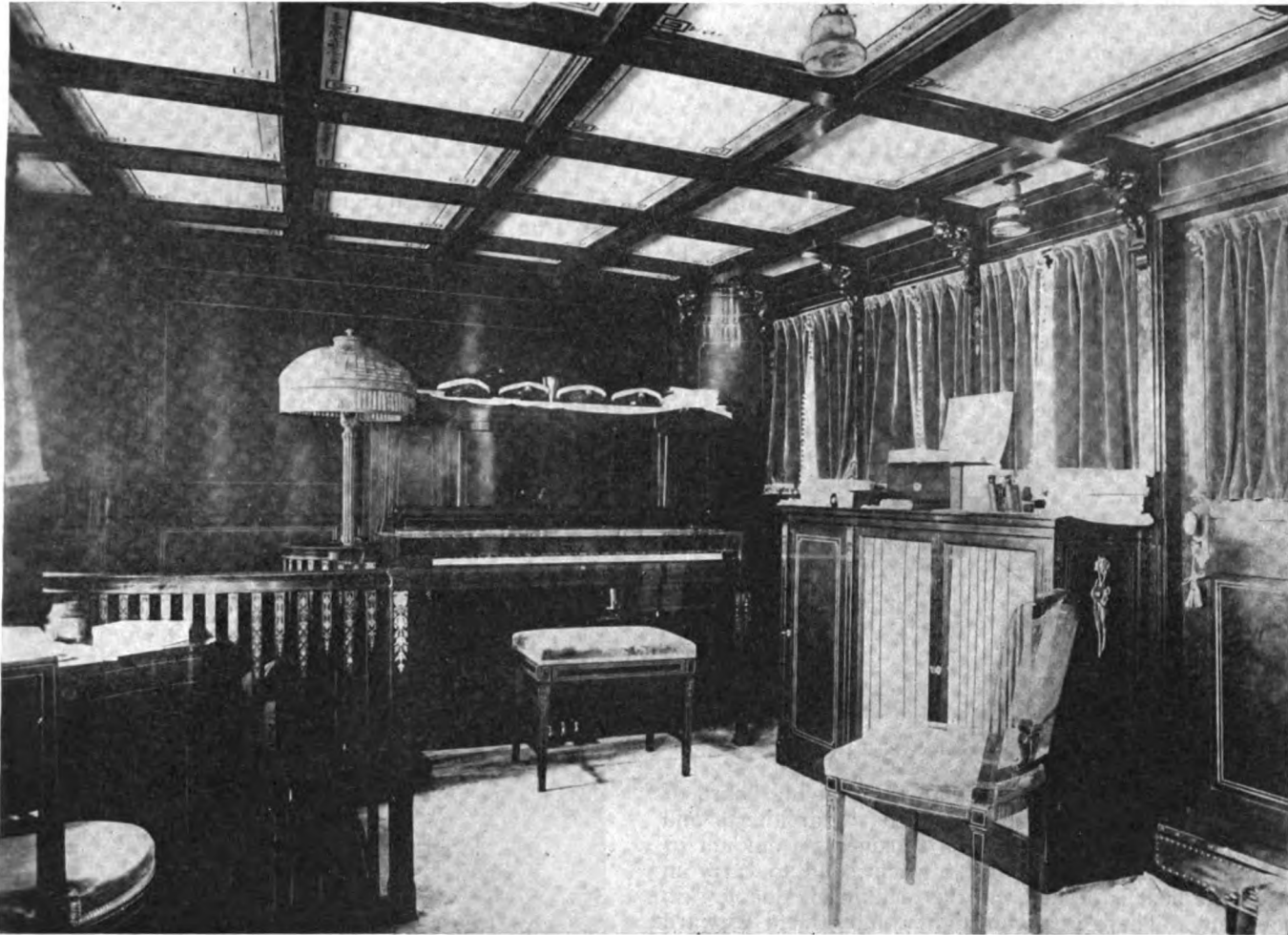


Fig. 6. A Music Saloon Carried Out in Inlaid Mahogany, and Dark Red Upholstery, Carpet and Hangings. The Result is Very Charming, but Not Over-elaborate

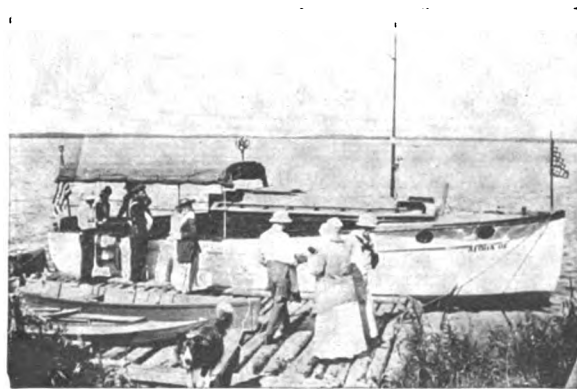
Last, but not least, we have an interior that is only to be found on the largest of motor or steam yachts, namely, the music room of a millionaire's floating palace. The walls, furniture and fittings are all of selected imported and inlaid mahogany, with dark red carpet, upholstery and silk damask curtains. The upholstery is of imported tapestry. A beautiful ceiling effect is produced by heavy mahogany carlins supported at the sides by carved cupids, with the sections between the carlins finished in golden white relieved in turn by a little decoration. The lighting fixtures are by the Tiffany studio. The general result is elaborate and charming, but not gaudy.

ALOHA OE

AMONG the most attractive of new boats on waters in the Middle West is the Aloha Oe, a raised deck cruiser owned by Mr. Wm. Musser, of Iowa City, Iowa. This boat is of the V-bottom type, and was built by the St. Louis Yacht & Boat Company. She is 31 feet in length, with 8 feet 3 inches breadth, and draws 2 feet of water.

Her interior is divided into two separate cabins, with sleeping accommodations for six people. A well-arranged galley and a lavatory are also arranged for. The cockpit

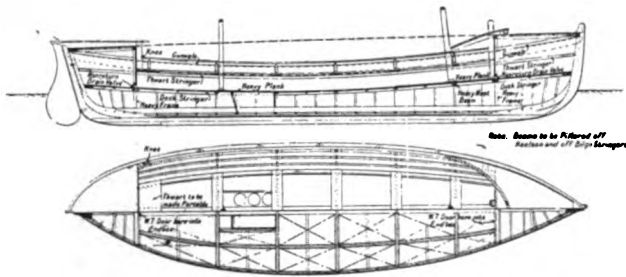
is particularly commodious for a boat of her size. The power plant consists of a 20-35-h.p. Sterling motor, having four cylinders, $4\frac{3}{8}$ inches by $5\frac{1}{2}$ inches. It is equipped with electric starting and lighting system, which forms a big factor in the comfort and convenience of motor craft nowadays. Mr. Musser plans to use his new cruiser on Leech Lake, Minn. The boat has a speed of 11 m.p.h., and all in all, is one of the most complete and attractive small cruisers in the district.



Mr. W. Musser's Aloha Oe

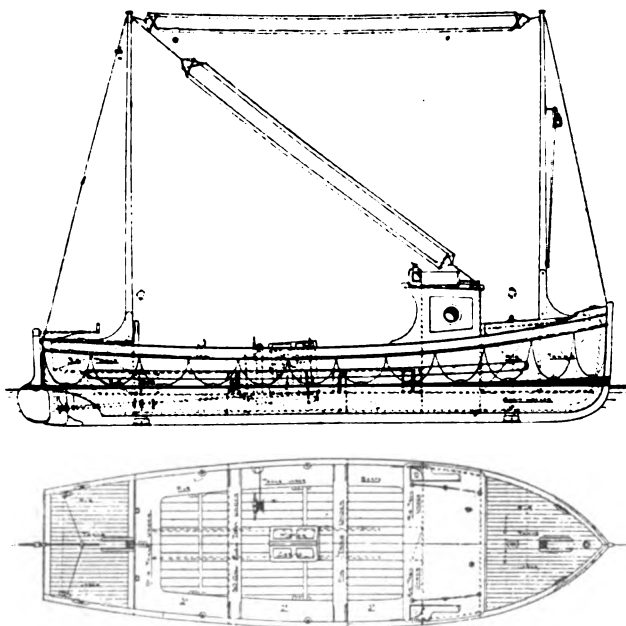
YACHT AND SHIPS' LIFEBOATS

THERE is a tendency, we are pleased to note, to equip large yachts and passenger ships with lifeboats, and we give herewith three examples. A point to be borne in mind is that it is foolish to fit a high-powered engine in a yacht's lifeboat because such results in too small a cruising radius, so a steady speed of 6 to 7 knots is all that is required. The first we describe is of the rowing type, while the others are power boats. There is no doubt that the usefulness of the former would be considerably augmented by the installation of a motor.



Watson-Designed Yacht's Lifeboat

However, coming as it does from the drawing board of G. L. Watson & Co., the notable naval architects and yacht builders, the design has a considerable amount of interest. Built especially for a yacht, and to carry in davits the boat is decked and the planking is double skin mahogany. There is a watertight compartment forward and also aft, these supplying additional buoyancy and keeping the boat dry in the case of head or following seas. There are flotation cases fitted in the hold below deck as well as those above deck. The deck valves are ample to clear any sea which may break over her. A substantial belting of cork covered with canvas runs round



Plans of Lifeboat for R. M. S. Britannic

the sides. The disengaging gear is Robinson's. There is an iron keel and a complete outfit, including a sea-anchor or drogue—one of the most important parts of a lifeboat's equipment. The two masts carry a lugsail each, and there is also a main staysail.

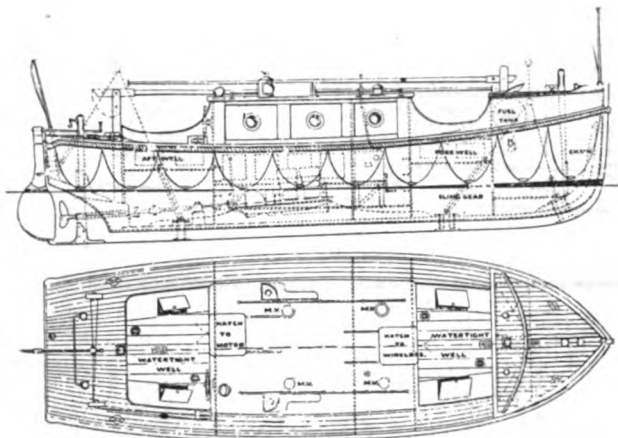
Secondly we have a motor lifeboat built by John I. Thornycroft & Co., for the R. M. S. Britannic, and it may be remembered that they supplied two of slightly different designs for the R. M. S. Aquitania. The length is 34 feet with 10 feet breadth and 4 feet moulded depth. For the purpose of mechanical propulsion a four-cylinder, 4½-inch by 6-inch motor is fitted, and about 15-h.p. is developed, which gives the craft a speed of 6 knots, the engine using gasolene or kerosene fuels. The hull is



Lifeboat for R. M. S. Britannic

built of teak, with American elm frames, and everything is arranged to meet Board of Trade requirements, air tanks, etc., being fitted. While being primarily intended as a lifeboat, the function of this boat is to superintend the remainder of the boats in a time of disaster. A towing post is fitted aft for towing, and thus prevent scattering of the others. In addition there is a wireless room arranged forward, the ariels for which are carried upon two masts hinged in tabernacles. The motor is placed amidships with steering wheel at hand, thus rendering the boat suitable for single-handed control.

Finally we have the boats carried by the Aquitania. This hull also is of teak construction, with 30 feet length, 9½ feet breadth and 4½ feet moulded depth. A 30-h.p. motor is installed, giving a speed of 7 knots, and the lifting weight is about 5½ tons without passengers. This design shows a decided departure from any previously accepted form of ship or yacht's boat. Its primary function is to tow away the ordinary rowing lifeboats from the scene of a disaster, and to carry the doctor, medical stores, and possibly, the officer in charge of the boats. It will also be fitted with wireless telegraphy apparatus, having a range of about 50 miles for transmitting. It would consequently be able to keep in constant communication with steamers in the vicinity. There is ample space for the stowage of blankets, medical stores and other necessities. The engine is well protected by a close-



The R. M. S. Aquitania's Motor Lifeboat

compartment, and would consequently not be affected by heavy seas, wind or rain.

Generally speaking, the design is probably one of the best and most practical proposals to meet the difficulties experienced in life-saving at sea. Forward of the motor space a soundproof room is fitted for the wireless operator. There is a short deck at each end, and a wide gangway fore-and-aft. Also, both forward and aft, a watertight well is arranged, fitted with seats and lockers.

The trouble with all these modern lifeboats, says the Oldman, is that they are too heavy and offer difficulties when launching, especially when crowded with women and children, and what is wanted is a strong, but much lighter type of craft.

BABY RAMBLER

THERE always is something particularly attractive about a good seaworthy runabout but just where the fascination lies is hard to explain. Perhaps it is in the graceful way she silently glides through the water, forming a distinct contrast to the short jumps of the skimming-dish class of hydroplane that bounds over every little wave with a harsh roar. On the other hand it may be due to the slick and graceful lines of the boat, again contrasting with the racer, which usually is devoid of all beauty.



Baby Rambler

A runabout that forms no exception to the rule is Commodore Chas. E. Greening's Baby Rambler, which has given her owner more pleasure than anything he has previously owned. Although the boat was new in the early Summer, we understand that she already has two thousand miles to her credit without giving any trouble. Commodore Greening has driven her in the vicinity of Monroe and Detroit, Mich., and is taking her down to his Winter home at Miami, Florida.

Baby Rambler is 28 feet 6 inches long by 6 feet breadth and 20 inches draught, and is driven by a six-cylinder, 5½-inch by 6-inch Van Blerck motor, which turns a 20-inch diameter by 32-inch pitch propeller as high as 1,400 r.p.m. At this speed about 130-h.p. is developed, and it is claimed that 35 m.p.h. is attained, but we are inclined to think that about 30 m.p.h. is nearer the



A 30-Ft. Hand V-Bottom Cruiser. Powered with a 40-H.P. Loew-Victor Engine. Speed 15½ M.P.H.

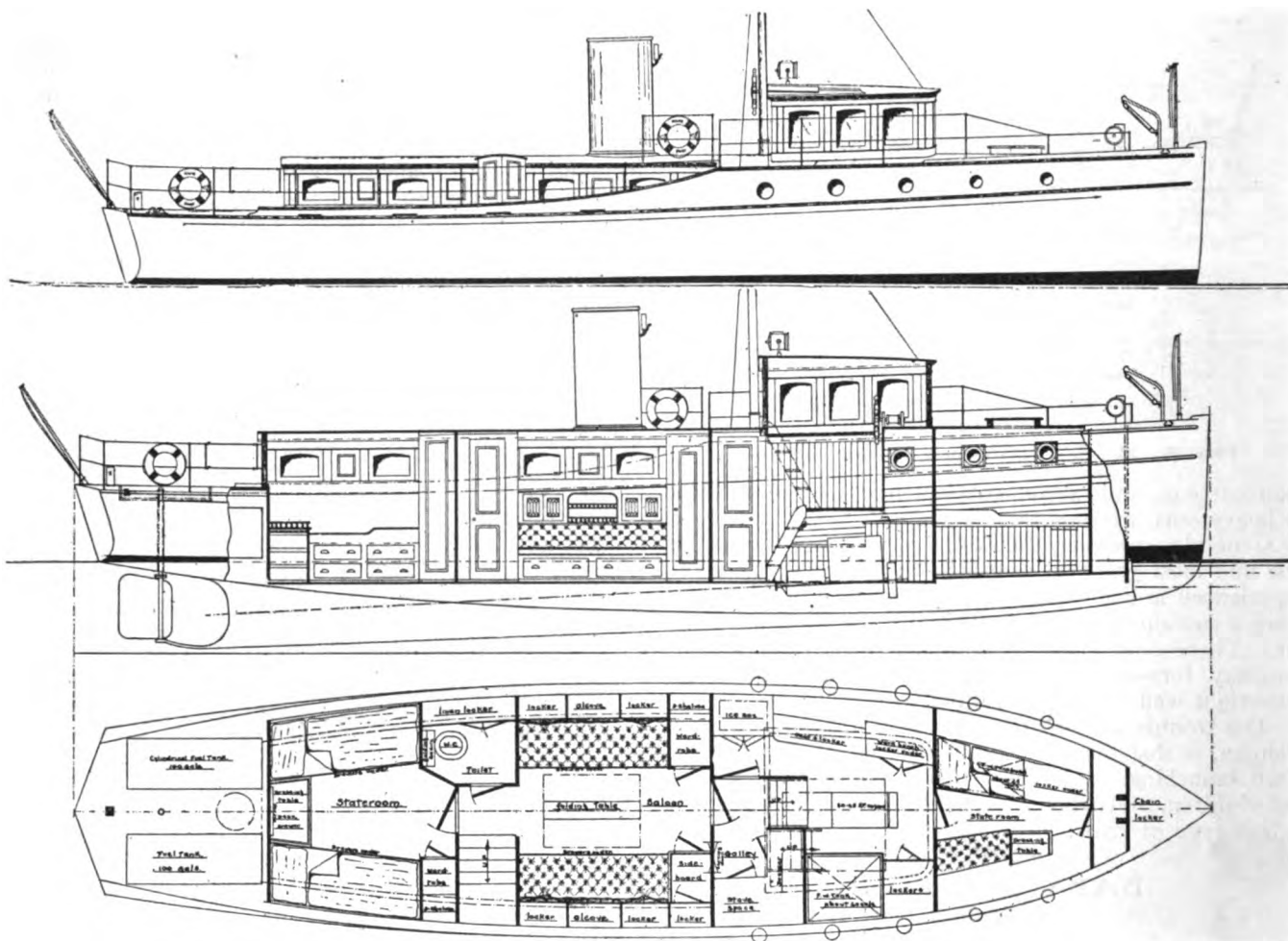
mark, unless the motor develops more than its rated power, as is quite likely. During the race meet at Put-in-Bay this Summer, Baby Rambler was the center of interest through her ability to go and to stand up against bad weather and choppy water at high speeds. Equipped as she is with an electric starter, etc., the operation of the boat is just as easy and simple as the operation of a modern touring car, no more trouble and much less dirt and dust, with the advantage of plenty of room.

FROM STEAM TO MOTOR

THE East Asiatic Company have announced that they will sell ten of their largest steamers and build additional motor ships, so in future nothing will be run by the company but motor ships, except a few steamers at their coaling station at St. Thomas, W. I. They recently converted three steamers with a fair amount of success, and already have half a dozen motor ships in regular service.

GASOLENE 50 CENTS PER GALLON

IN England the prices of gasolene have gone up since the war, and the best grade is now 50 cents per gallon, of which 12 cents is Government tax. There are three grades of spirit, and the other two are sold at 48 and 46 cents, respectively. Motor-boat owners, however, can obtain their fuel cheaper because they are allowed a rebate of the entire tax. The reason of this is that the tax was originally imposed to cover the cost of upkeeping roads and the motor boats naturally do not use the roads, so were exempted. However, all the tax now goes to the war bill, but as yet motor-boat owners have not been called upon to pay, which is only fair when one considers that hundreds of owners have loaned their boats to the naval authorities.



An Attractive Cruiser, Designed by Mr. Wm. G. McBryde, of Glasgow. She is 47 Ft. Long by 10½ Ft. Breadth and 3½ Ft. Draught, and is Intended to Take a 30-45-H.P. Engine. A Few Years Ago a Motor Yacht of This Type Was Unknown in British Waters, and It is Interesting to Note That There Now is a General Appreciation, Among British Naval Architects, of the Advantages of the American Type of Boat

TWO-STROKE-CYCLE MOTORS

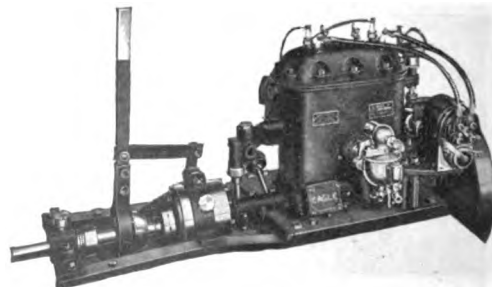
No. 4. THE 12-H.P. EAGLE

AMONG marine motors of the two-cycle type none is better known by repute than the Eagle, which is manufactured by the Standard Company, of Torrington, Conn. These engines have been very successful, particularly when installed in small pleasure craft. A few instances of successes made in races by Eagle-powered boats may be quoted as follows: One of these engines was installed in the little 14-foot Eagle Kid, and drove this boat at speeds claimed to be over 20 miles per hour. Very soon after, Adolph E. Apel brought out the Flying Eagle which, we understand, did better than 22 miles per hour; in fact, the stock boats from this design are all equipped with the same model and are marketed under a guarantee of 22 miles per hour. The engine is the one illustrated.

Silver Heels II, winner of the South Jersey Championship for boats with 40-60 rating, won her honors with this model. Another 16-foot racing hull was built for Unger & Mahon, Inc., of Baltimore, Md., as a demonstrator, which made better than 21 miles per hour. Since

the notable trip of Flying Eagle down South last Winter, many other boats of similar dimensions as well as others up to 22 feet in length have been built especially for this model and owners have reported speeds varying from 12 to 20 miles per hour.

This engine is very suitable for small speed boats for the reason that it is very neat in appearance, also powerful and flexible for its bore and stroke, light in weight for its



The 20-H.P. Eagle Power Unit

power. Its bore is $4\frac{1}{2}$ inches, stroke 4 inches, rated 12-h.p. at 800 r.p.m., and delivers 17.5-b.h.p. at 1,300 r.p.m. For the ordinary type of boat, either a 16-inch by 24-inch or an 18-inch by 22-inch, three-bladed propeller is recommended for engine speeds of about 800 r.p.m. For the speed boat, either a 14-inch by 22-inch or a 14-inch by 24-inch, three-bladed propeller will give engine speeds from 1,200 to 1,300 r.p.m. The weight of

the engine complete is 233 lb. A unit power plant (as illustrated), with reverse gear and Splitdorf high-tension magneto attached, weighs but 330 lb. Each magneto-equipped engine is fitted with a special cylinder head, tapped for two sets of spark plugs, providing for installation of an independent battery system. The wide range of speed and power and the weight make this engine useful for a large variety of boats up to 25 feet in length.

No. 5. THE 8-H.P. CAILLE PERFECTION

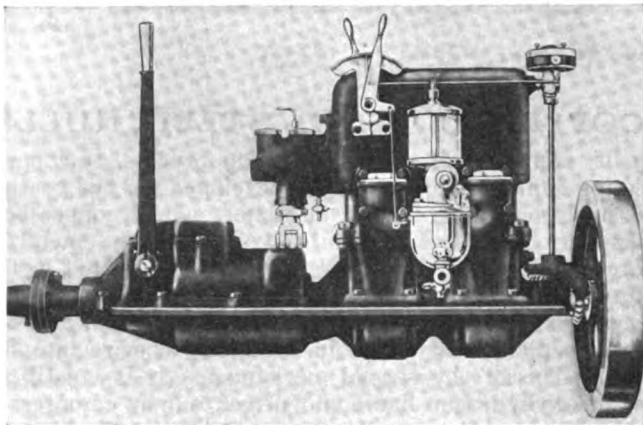
For boats of similar size, but of a slower speed class than those designed to take the motor described in the previous article, the new 8-h.p. Caille meets the requirements. The productions of the Caille Perfection Motor Company, of Detroit, Mich., are also so well known that they need no introduction to RUDDER readers. While the firm also stock 8-h.p., 14-h.p. and 18-h.p. models, it is the smaller one that interests us at the moment. We have just remarked that this little engine is intended for slower boats, but it is the same as was installed in the 16-foot

hydroplane Silver Heels, that won the American Championship in 1914, so it is also suitable for small speed boats.

It may be remembered that Silver Heels was entered in nine different races and captured first place in all nine events, a record that is perhaps the most consistent one of its kind in the history of power-boat racing. She was owned by Arthur Gilmore, Jr., of Stone Harbor, N. J., and was built by Eli Townsend of the same port.

The model that is being introduced for 1916 is in the main exactly the same as the machine the makers have been building for two years; in fact, it is so well standardized, that any radical change would not be considered good engineering. The motor has, however, some refinements in equipment as well as material and workmanship. There are two cylinders, each $3\frac{7}{8}$ inches bore by $3\frac{1}{2}$ inches stroke, and the revolutions can be varied, we are advised, from 100 to 1,000 r.p.m. The total weight with aluminum crank case and reverse gear is 220 lb, and the propeller that it turns is 16 inches in diameter by 22 inches pitch.

A special feature of the Caille engine is the ignition system, which ensures a waterproof outfit, at the same time obviating the use of the usual battery, magneto, timer, or coils. For the spark plug there is a steel guard, and the wiring also is protected. This, of course, is an advantage when the motor is installed in an open launch without any housing.



The Caille 8-H.P. Power Unit



MOTOR SURVEY CRUISER FOR THE WAR DEPARTMENT

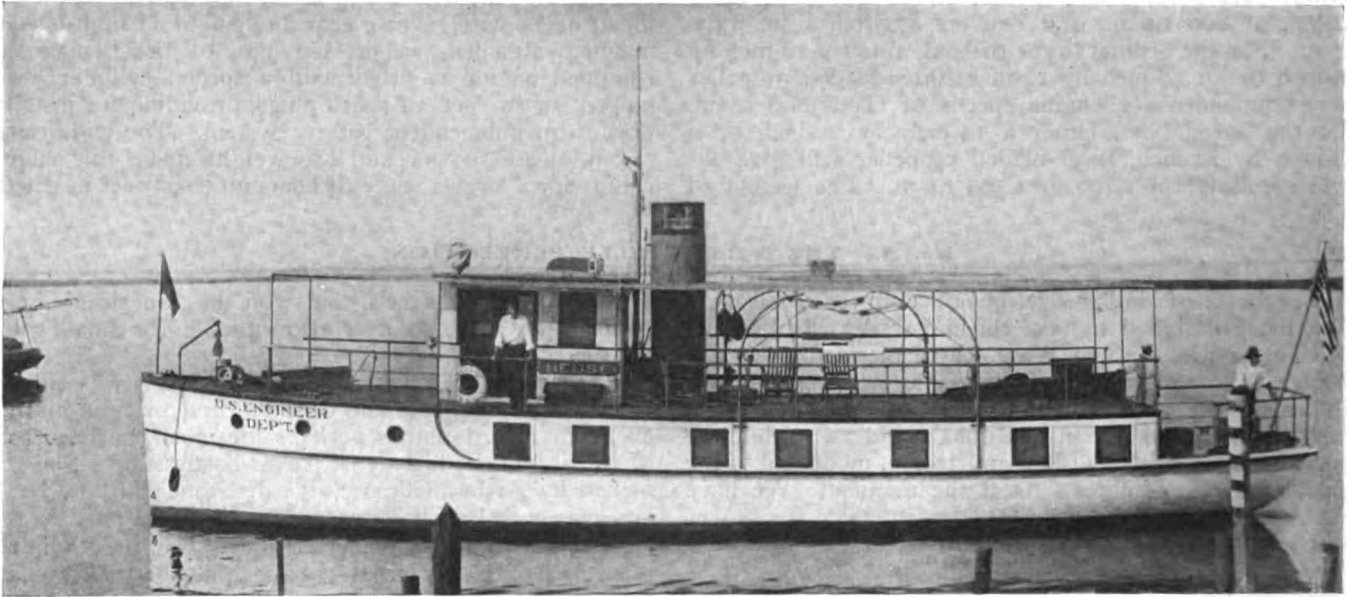
SOUTHBOUND cruisers this year will find at Cape Lookout, N. C., that a huge breakwater has been commenced by the U. S. Government, in order to form a suitable harbor of refuge at this point. Many vessels, both great and small, have found shelter in time of stress in Cape Lookout Bight, some seven miles from Beaufort, N. C., and right behind the tip of Cape Lookout, where a finger of land bends back, forming a natural protection. This harbor is being greatly improved by the construction of the breakwater, work on which was begun some months ago. At present the work has progressed sufficiently to bring the giant rock wall 6 feet above the surface. But building a breakwater is a slow and stupendous task, and it will be many months before the work is completed. The contract calls for the placing of forty carloads of rock a day after October 1st, and the breakwater when finished will represent an expenditure of \$3,500,000.

To assist the engineers in charge of inspecting the work on this breakwater at Cape Lookout, the U. S. Engineer Department have had a new survey motor boat

built. This boat, which is called the Neuse, was launched three months ago from the yard of the builders, the John F. Bell Company, of Morehead City, N. C., which is adjacent to Beaufort, and the terminus of the railroad. Neuse measures 62 feet 6 inches over all, has a greatest breadth of 15 feet, and an extreme draught of 4 feet.

The War Department specifications for the construction of Neuse called for a Sterling engine as its power plant, and one of the latest designed six-cylinder, $6\frac{1}{2}$ -inch by 9-inch heavy-duty Sterlings was installed. This engine weighs 3,600 lb, complete with reverse gear, and develops 70-h.p. at 400 r.p.m.

The Government engineers in charge of this work use Neuse as a ferry between Morehead City and the breakwater, where constant inspection and supervision is necessary. The boat is very sturdily built, as is fitting for the exposed waters in which she is operated. On her trial runs she made a speed of $10\frac{1}{4}$ miles per hour with the engine turning at 500 r.p.m.



U. S. Government Survey Cruiser Neuse

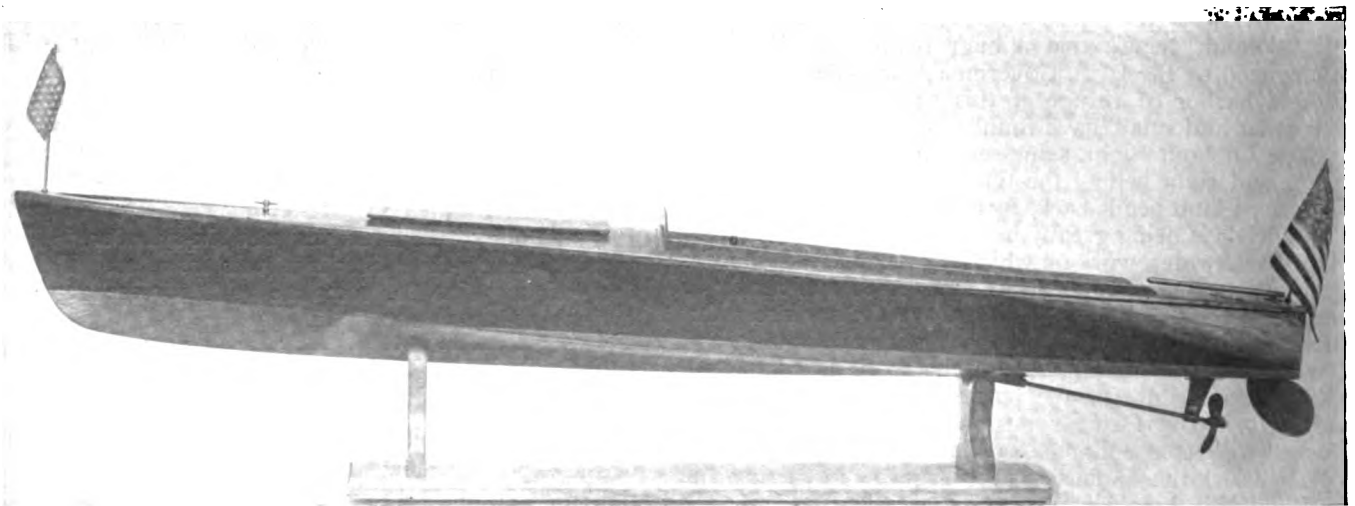
MODEL POWER BOATS

It is evident that few persons realize the true value and pleasure of model motor-boat racing, for so far we have received very little response to our proposed Model Power Boat Association, but while there's life there's hope. However, although no one has yet offered to organize such an association, several men have expressed their willingness to assist, including Mr. H. F. Jorgensen, of the Yarmouthport, Mass., firm of that name. He is of the strong opinion that the knowledge gained with models is of real value and of intense interest.

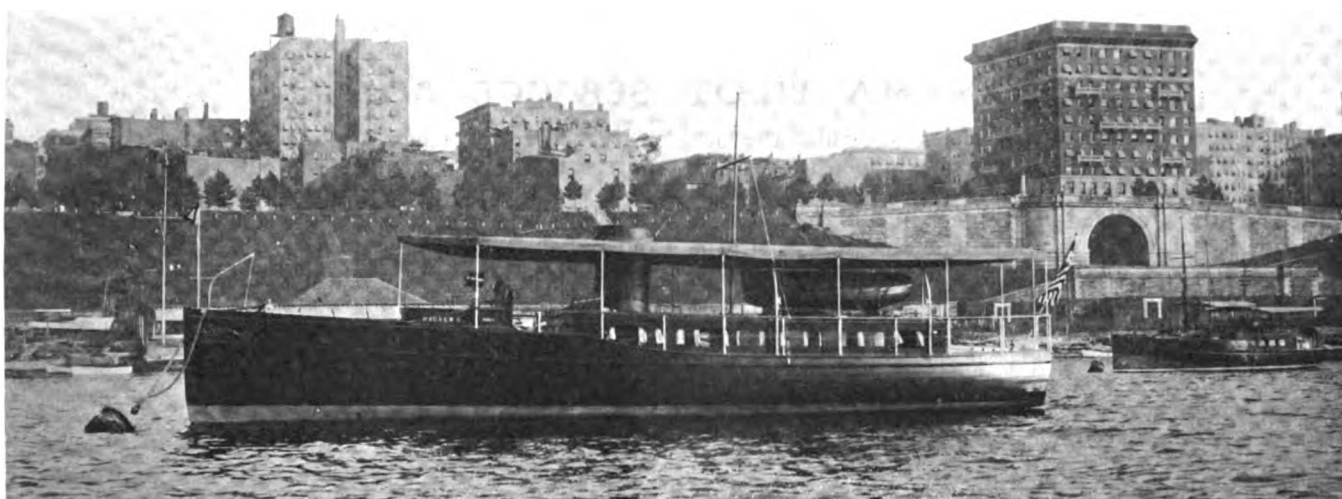
Mr. Jorgensen has personally experimented with different types of hulls and machinery, most with steam-driven models, but the most satisfactory results have been gotten from electric drive. He is now making a 4-foot wave-collecting type of hull, similar to the Crouch boats. The model we illustrate was a V-bottom runabout, 40 inches long by 9 inches breadth, and driven by four dry cells and a Knapp electric motor.

COPPER PLATING STEEL HULLS

It seems to us that the Schoop process of copper-plating iron and steel might be developed for the coating of steel boat hulls, for use in waters where copper bottoms are necessary. With this process, the metal is forced into contact with the surface to be plated in the form of a spray, not dissimilar to the method of painting by means of an air brush. The particular metal it is desired to plate with is fed in the form of wire into the plating "pistol" by special mechanism. It is volatilized by an oxyhydrogen flame and driven out by compressed air. It then strikes on the surface to be plated with such velocity that it welds itself on. Very uniform deposits from one-thousandth to an inch thick can be produced very quickly. In some parts of South America in particular, and other warm waters, the teredo worm plays havoc with wood hulls, so copper-treated steel-covered underbodies should overcome the difficulty, especially as copper is now so expensive.



A Pretty Model Motor Boat. Built by Mr. H. F. Jorgensen



THE FIFTY-FIVE-FOOTER HAUVER II

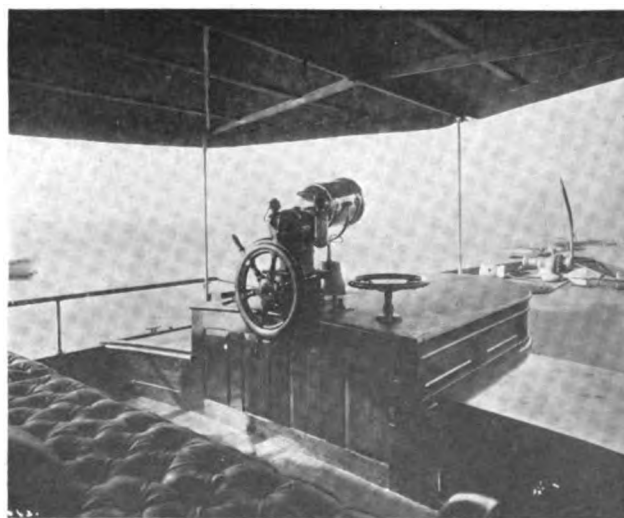
QUITE an attractive cruiser is Mr. A. C. Hauver's new power boat Hauver II, which makes a notable addition to the pleasure fleet of the New York Motor Boat Club, of which Mr. Hauver is a member. The little vessel is of the raised deck class, and is 55 feet long by 13 feet 6 inches breadth, and was designed and built by the New York Yacht, Launch & Engine Company, of Morris Heights, New York City. This firm, by the way, are one of the few domestic firms that complete a motor yacht from start to finish, including the designing and construction of the motor, the latter being known as the Twentieth Century engine. During recent years they have turned out many boats of about this size. The plant in Hauver II is a four-cylinder, 6½-inch bore by 8½-inch stroke, medium-heavy-duty model gasolene engine of the four-cycle type, developing from 40 to 50-h.p. and it was technically described in a recent issue of **THE RUDDER**.

The internal layout provides for the owner's personal use of a large double stateroom aft, furnished with two

double-width berths, a bureau and ample wardrobe space. African mahogany is used for the finish, etc. Forward of this compartment, on the port side, is the bathroom,—quite a luxury for a motor yacht of this size, although by no means uncommon with modern craft. The entrance from deck to this stateroom and the bathroom is on the starboard side, opposite the latter. Next forward is the engine room, where also is arranged the crew's quarters and a house-type of skylight affords good ventilation and light. Then comes the saloon, which is furnished with two Pullman berths, ample locker room, and the usual appointments. Forward again is the galley, the ice-box of which fills from the deck. With this craft everything has been done by the builders to make her as comfortable a cruiser as is possible, and without a doubt they have well succeeded in accomplishing what they set out to do, and it goes to show how experience enables a designer to plan the accommodation out in a sensible manner, in addition to producing a very handsome boat.



The Owner's Stateroom



The Bridge Deck

PANAMA PILOT SERVICE BOAT

SUCH a boat as the new 30-foot launch which the Gas Engine & Power Company have shipped to Panama for pilot service work, if plainly furnished, and without ornate trimmings, carried on the deck of our larger cruising steam yachts, would provide a good means of furnishing splendid sport in waters where the average power tender would be entirely out of place. She also possesses features that would render her a particularly serviceable offshore runabout or fishing boat.

This craft is 35 feet in length over all, and has an extreme breadth of 7 feet 6 inches. She draws 34 inches of water at the skeg, and her motor, a four-cylinder, 6-inch by 6-inch Speedway of 32-40-h.p., gives her a speed of something over 10½ miles per hour. The boat has a slightly curving bow and a whaleboat stern. There is 5 feet freeboard at the bow, 2¾ feet amidships and 4 feet at the stern. This, in combination with her rather full deck, should make her a dry and easy riding boat in a short chop.

The fact that the forward deck is 13½ feet long adds considerably to her dryness and makes her pretty nearly an ideal rough-water open boat. The cockpit, 11 feet in length, has a locker seat along each side, with steersman's platform at the forward end, at which are centered steering wheel, reverse lever, starting crank, and throttle and spark controls. Forward of the cockpit is the motor

space, 5½ feet in length, and covered with a hinged hood and ventilated with two good-sized cowls. The gasoline tank, which has a capacity of 125 gallons, runs across the full width of the boat directly in front of the engine space and is separated from the forward portion of the boat by a watertight bulkhead. This bulkhead, in connection with another one located in the extreme bow, renders most of



Panama Pilotboat on a Trial Run

the space under the forward deck an airtight compartment which, in connection with that in the stern, makes the boat unsinkable unless she is actually stove in. The centralization of the weights amidship and the shape of both her bow and stern obviate any tendency toward plunging or running under in heavy weather.

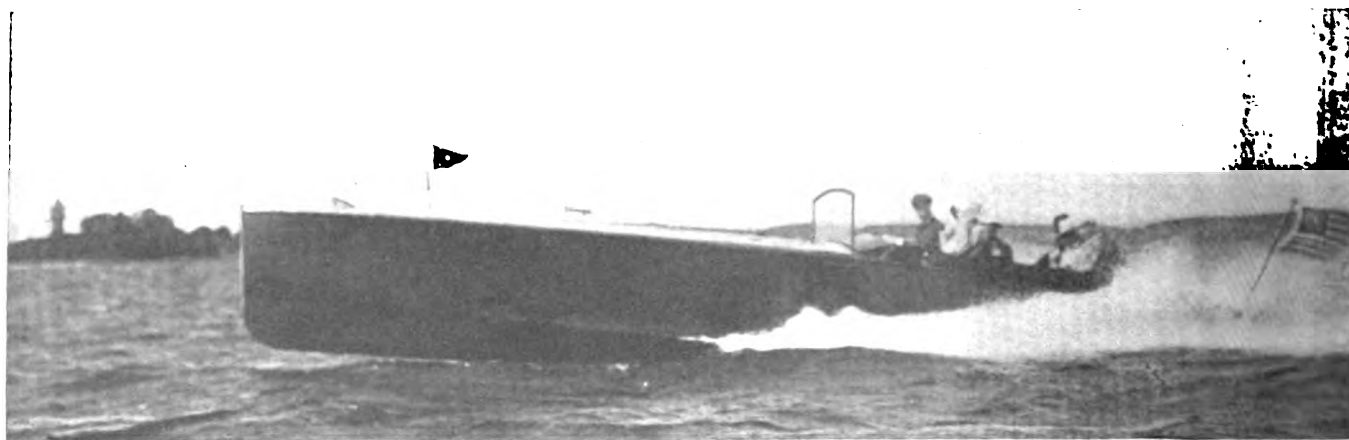


A SPEEDY THIRTY-FOOTER

CAUSING much interest during the past Summer has been the R. I. L., a V-bottomed runabout owned by Mr. Allen Bakewell, of Boston, and used by him at his Summer home, Grindstone Island, Clayton, N. Y. R. I. L. is 30 feet long over all, by 6 feet breadth, and having a double bottom, is of staunch construction, the total weight without crew being about 4,200 lb, of which the machinery weighs 1,280 lb.

Her engine is a six-cylinder, 5½-inch by 6-inch Van Blerck, developing 100-h.p. to 130-h.p. at 1,000 to 1,400 r.p.m. According to reports, this is said to drive R. I. L.

at 34 m.p.h. when turning a 20-inch diameter by 30-inch pitch wheel, or 35½ m.p.h. when turning an 18-inch diameter by 32-inch pitch propeller, but a little calculation will show that this speed is a bit optimistic. However, there is no doubt that the boat is fast, and of a seaworthy type, the development of which is to be encouraged. The boat has many good features, including the new cowl dash, recessed instrument board, disappearing wind shield, built-in electric lighting system, and many other features too numerous to describe.



R. I. L. at Full Speed

THE CONNECTICUT RIVER

Edwin C. Dickenson

SAYBROOK TO ESSEX

OUR entrance into the Connecticut was not entirely auspicious. We had come up the coast in a 25-foot sailing yawl, towing a flat-bottomed tender and a 15-foot canoe. The wind was Southwest and fair, but at the entrance to the river we were met by a strong ebb tide, running like a mill race between two piers or breakwaters, which guard the narrow entrance.

Yet the wind drew up the river ever stronger as we proceeded, and slowly we pulled by the outer and inner lights, by the Summer home of the Hartford Y. C., and abreast of Saybrook Point. Here the river was torn into fury between the turbulent tide and the strong South wind. The yawl, built for rough weather, spurned these short, wicked seas; the sturdy tender minded them not much more, but the light, unballasted canoe, which was out on a long painter, took a sudden notion to sheering, and went cruising off at dangerous tangents on the curling seas, to be brought up short at the end of her line, and jerked in the proper direction.

With the strengthening wind, the Skipper had enough to do minding helm and watching mainsail, jib and jigger, so to the Mate was assigned the duty of watching the antics of the canoe, and giving notice when they became too ostreperous.

Then came a black squall. It goose-winged the mainsail and gave the Skipper all he could do to prevent a jibe. The Mate let out a shriek (after all, she was only a woman), and the harassed Skipper looked around to see the canoe careening off to port with her painter slowly tipping her over. With rare presence of mind, he grasped the painter and completed the job. The canoe turned bottom-side up.

Point number one for river sailing. The Skipper brought the yawl on the wind, and headed her in for shallower water, and an anchorage. This he found off the coal docks at Saybrook Point. The canoe's painter was new, luckily, and she came along after, looking like a submarine with its whale-back awash.

So we rested at Saybrook Point that first day, the

Mate being ever partial to shore trips. We pulled the canoe over the yacht's rail and dumped the water out of her. We had left the paddles in her, and by a rare piece of good fortune they had been imprisoned when she turned bottom-side up, and were not lost. For the time we were sorry we had brought her along, but later she vindicated her presence.

It was the Fourth of July, and the Mate made preparations to properly celebrate the fact with a message from the galley. The Mate's galley is a wonderful institution, and at the risk of furnishing free advertising to a certain enterprising concern, let it be told how it differs from other galleys. At first glance you would say it was no galley at all. There is no kerosene or alcohol stove—just two small tripods, and a few small cans the size of a condensed milk can. Pry off the cover of one of these and you have a reddish, gelatine-like substance of a non-temperance odor; fit it in the bracket and touch a match to it and you have a hot flame, which will heat your coffee and warm your frying-pan, for it is "solid" alcohol. The Mate swears by it. She has used it all Summer, and has yet to find it wanting. If one can does not furnish heat enough, she places others about the tripod under the frying-pan, and things sputter merrily. And to put it out? Just put back the cover. A dozen of these cans can be bought for a dollar, and with one can an ordinary meal can be prepared.

So the Mate warmed soup over one tripod and fried steak on another, and being a good housewife, warmed the dish water while we were eating. Then, in that contented frame of mind which all sailors know when they have landed after a long cruise, we put ashore in the early evening, and crossing a long wooden bridge which connects Saybrook Point with Fenwick, the shore resort at the mouth of the Connecticut, we watched the happy kiddies of the colony set off candles and rockets.

The Hartford-New York steamer is the bugaboo of the Connecticut for the small boat. It leaves Hartford at 5 p. m., and reaches the mouth of the river about midnight. Its sister of the fleet of two leaves New



A Good Camp Site



Hiel!



On the Upper Connecticut

York at the same time, and reaches the mouth of the river shortly after midnight, and makes its way upstream in the early hours of the morning, arriving at Hartford at 7 a. m. These boats are comparatively large and swift for the river, and not a bit concerned about the wash they give small craft. If one is in deep water, and not too near, this is negligible, but if caught on one of the numerous flats, beware, for the water is first sucked from under you, and then returned with interest, and the writer has seen more than one small boat or canoe capsized in it.

We lay in good water that night, and just upstream and outside us was a string of barges waiting tide and tow, so that beyond a gentle rocking and the hoarse blast of its whistle, the "big" boat bothered us not at all. We turned out with the dawn to take advantage of the flood tide. The morning was lifeless, and the river calm. A faint breath of air drifted in from the sea, however, and we made sail and got up anchor.

And now, the tide proved all too willing, for it carried us upstream before the wind gave us sufficient offing, and presently the yacht ceased to move at all, and we realized that she had gently taken the bottom. There was nothing to do but kedge, so the Skipper carried out the light anchor and hauled out to it. Here the yawl filled her sails with a light breeze, and drifted out into the stream.

Three miles from the mouth of the river the first bridge spans it. This is a railroad bridge, with a lift. We jogged about while a long train pulled over it, and then slipped under, as the ponderous draw lifted a few feet. Less than a mile above this is the foot-bridge, higher than the other, but not high enough for the yacht's mainmast to clear, and this, in turn, gave us entrance. Then the Mate felt safe in descending to prepare breakfast.

Beautiful reaches, these of the lower Connecticut. Here it widens to nearly a mile, flowing calm and placid, with here and there a grassy island breaking its sweep, and the water, in spite of the cities above, is clear and clean-washed by the sweep of the tides.

We drifted on with the tide, the breeze furnishing little more than steerageway, until rounding a bend, Essex lay before us, with its white church towers nestling in the trees. Opposite, we saw the red barns on Notts Island. The breeze freshened, and came now forward of the port beam. We trimmed our sheets and ran up to an

anchorage off the town, as the church bells called over the quiet river.

ESSEX-HADLYME

Our crew had been augmented by two, and having introduced Skipper and Mate, we present Tyro and Maiden. And as the yawl Hist was built for two, we had added an addition in the shape of a sizable wall tent, which was stowed with its poles and pegs in the canoe, towing astern.

The prevailing winds are Southwest on the river, and we caught a prevailing wind. Again, the tide was with us, and the white church spires of Essex were quickly lost astern. The Tyro contentedly minded the helm. The Maiden made favorable comparisons between Sound and river sailing, and Skipper and Mate were happy in the enjoyment of the others. Opposite Brockways Island the chart gives an inlet marked Hamburg Cove, and a short distance above, another named Five-Mile River. The Skipper longed to explore these, but tide and wind were too inviting. The morning was gone, and a camping place must be found before night. So the yacht swept swiftly upstream, the wind now aft, now forward of the beam, according to the turns, but always fair. The Mate prepared a lunch, and no one refused to eat because of *mal-de-mer*. Tyro and Maiden were thankful, indeed, on this score. To starboard the banks grew hillier and more wooded. The Tyro's woodsman's eyes fastened upon a choice location for a camp on a level promontory at the foot of some cedars. Down went the helm and over the anchor, and Skipper and Tyro pulled ashore, ungallantly leaving behind their womankind. The Tyro's eyes had not deceived him. The foot sank soft in pine-needles; the pines afforded a grateful shade; romantic craigs furnished a background; a tiny brook babbled into the river near by. It was an ideal site for a camp. And then, in an unlooked-for spot, the Skipper stumbled upon the work of man. This was in the nature of a crude sign, and contained the warning "Keep Off." In disgust, Tyro and Skipper launched their small boat and pulled back to the yacht.

Nature has systematically placed sizable islands in the Connecticut, a half-dozen miles apart, throughout its navigable length. About that distance above Notts Island comes Eustasia, then Lords, and above that, Haddam. These islands are all very much alike—made of clay and so, changeable. Their crests rise but a few feet above



A Quiet Cove



The Narrows or Straits

the water, and they are mostly swampy or overgrown with a jungle of river growth.

Eustasia, off the town of Deep River, is a little of both. The "big" boat goes down to the right of the island, but this is doubtless because she must, to land at Deep River. The other side of the island gives a wide channel, and is used by craft generally, being the inside of the big turn the river makes at that place.

This, Hist took, and working up by the head of the island, the Skipper's eyes lighted upon a high sand bank some distance above, on the starboard hand, that promised good camping. Not only this, but it lay between two romantic-looking inlets marked on the chart Seldens Cove and Whalebone Creek. Thinking it over later, the Skipper is convinced that it was Whalebone Creek that decided him. Whalebone Creek! The early colonists, the Jolly Rogers, the Revolution, when the British descended on Essex and burned her ships, the War of 1812! A half-mile below it, at the foot of the aforesaid sand bank, whose top was turfed and shaded by a solitary oak, Hist again dropped anchor, this time to stay.

It was an ideal camping ground we had chosen, better, if not so romantic, than that other, for it gave more sun. But, profiting by our other experience, we first visited the farmhouse of the owner and obtained consent—also butter and eggs.

We pitched the big wall tent for the Mate and Maiden, and then, for they insisted on being guarded, we put up a shelter tent alongside, leaving Hist unguarded at anchor, save for a riding light which was none too bright. And then, for the owner of the premises objected to a campfire, we lighted our "solid alcohol" and prepared the evening meal.

It is reported that the geographical mile contains only 5,280 feet. This must be entirely an urban measure, for it is not recognized in the country. There, a mile equals the distance between two given places. It all came about through an inordinate love of ice cream on the part of the Maiden. We paddled up to Hadlyme landing after dinner. A dock, the ferry landing, and a few scattered houses go to make it. Among them there is no ice cream parlor.

We consulted the ferry-man.

"Yes, they sold ice cream at the village."

And how far was that?

"Bout a mile."

What was a mile? To be sure, night had fallen and man and horse shared the same path, and the ladies were pavement-shod, but then you expect to do the unusual when you are out on a lark, and we had an electric torch to show up the deeper holes.

So we started out. Of course, it was uphill; it always is in these river towns. But that hill was unusually hilly. There was one consolation—the town must surely be on the crest of it. Near the top we met with a wagon, com-

ing down, the light hanging underneath, twinkling between the horse's legs.

"How far is it to the village?" we demanded, eagerly.

"Bout a mile."

Even then, we could laugh, although the Mate had turned her ankle, and the Maiden had worn a blister on her heel. We surmounted the hill, and began a long descent into the valley beyond. Here we met two small boys trudging belatedly home in the dark.

"How far is it to the village, son?"

"Bout a mile," came the cheerful chirrup.

"At least, we are holding our own," observed the Tyro, grimly.

Once again, we put that question, this time to deaf and aged native, who, after many "Hows?" croaked, "Bout a mile."

We plodded dejectedly on, Mate and Maiden leaning ever more heavily on their escorts.

But such patience as ours is ever rewarded. We crossed a bridge, and climbed another hill (we had lost the count, so I cannot tell whether it was the eleventh or the thirteenth), and the lights of the town blazed forth—two on either side.

Aye, that was an expensive trip. The fuel consumption is enormous on these dusty river-hills for automobiles and human machines alike. While the others ate and drank (he having finished his first, they insist on my adding), the Skipper invested in a lantern and oil and so, fortified within and without, we began our march to the sea. Halfway home, out of sheer curiosity, we asked a weary wayfarer how far it was to Hadlyme.

"Bout a mile."

"How far is it to the River," demanded the Mate, suspiciously.

"Bout a mile."

"I thought so," she retorted.

* * *

Someone was prowling around the tent. The Skipper



A Fair Wind and All Sail Set



Middle Haddam

was sure of it. He had been awakened from a sound sleep by the cracking of a twig (it's always that, isn't it?). Now he heard stealthy footsteps, the quick intake of a breath. Grey dawn was stealing over the river—that was fortunate. But what was this other thing stealing?

Now a shelter-tent dweller is like an over-large woodchuck. He must come out of his hole the way he goes in. With many misgivings of a rear attack, the Skipper backed out. Then came a snort and a thunder of hoofs (at least, so it seemed) and the Skipper sank weakly back in time to see a red cow depart with a flourish of heels.

"What was it?" came the interested voice of the Tyro. Wise fellow; he, too, had heard the prowling, but cunningly restrained his curiosity.

"Cow," exclaimed the Skipper, in mingled disgust and relief.

"We need fresh milk," drowsily murmured the other, and profiting by the Skipper's absence, rolled over and went to sleep again.

Hist lay safely in the river below, her light dimming in the growing dawn. No sound came from the ladies' tent, the grass was dew-laden, and the air cool and damp, so the Skipper crawled back in his tent and did likewise.

HADLYME-MIDDLETOWN

It was so pleasant at Hadlyme that we lingered. It is astonishing how time flies in camp. There is always something to do. The meals, in themselves, consume much time, and rightly, for nowhere is eating a greater pleasure. Add to this, sailing, fishing, canoeing, and bathing, and you have a day's work laid out for you.

It was on the following day that we ascended the romantic Whalebone Creek. We took the tide at low slack water, and passing under the shadow of a high cliff on the right bank, entered a quiet stretch, deep and secluded enough to have sheltered a dozen pirate schooners. Winding in and out, and choosing devious and unexpected paths, like most of these river creeks, it led us at last to the foot of the hill on which stood Hadlyme, and there dwindled to a pretty but unnavigable brook. Again, we invaded the sleepy town, for fish was on the menu for luncheon, and as we had not caught any, we must buy some. This, the Mate left to the Skipper, and exclaimed in dismay when he rejoined the others with a two-foot herring, gently reminding the Skipper that the largest fry-pan would not hold half of this monster. The Tyro came to the rescue with a suggestion that the fish be roasted on a flat rock over a campfire. We sped downstream to put the plan into execution.

And it was successful beyond fear of criticism. Down on the beach where our landlord could not complain of

danger of conflagration, we built a little fireplace with a large flat rock across the top of it. Under Tyro's skilful management, it was not long before this was sizzling hot. First, placing plenty of salt pork to prevent it from burning on, we stretched the great fish at length upon it. Anxiously, the Tyro watched it, his reputation at stake. Savory odors arose, the juices oozed out, and added to the fire; here and there it took on a ravishing brown, and at last the Tyro pronounced it done. Carefully, he pried it off the hot rock and apportioned it around. His stock soared, for it was indeed delicious. Never will fish taste as that rock-cooked herring. The Mate even threatened to resign her job as cook in his favor. Such is the penalty of success.

Those were lazy days. After luncheon, the Mate and Maiden lazed about camp with a book or magazine. The Tyro took rod and canoe and went in search of the jumping bass. The Skipper lavished his time upon Hist. There is always something to do on a sailing yacht. Later he made sail and persuaded the Mate and Maiden to join him on a sail downstream; the Tyro had caught one fish and could not be persuaded to leave the others.

No one pretends to retire along the river until the night boat has passed. On a quiet night, its mournful, deep-throated note is a signal for the natives to assemble at the landing place. Far upstream, a high white light glides around a bend, presently beneath it glow the red and green eyes of the monster, then comes the sound of the thrust of the propeller, and out of the light, the big boat looms grey and ghost-like. Bells tinkle and her engines are silent. They tinkle again, and the water boils under her stern. A line comes hustling ashore, is thrown about a snubbing-post, and the piles groan and creak with the weight of the mighty visitor. The gang plank hurriedly bridges the gap, and passengers and cargo are rushed ashore. More passengers and cargo are taken aboard. Bells tinkle again; again the screws churn the water white under the stern. The great hulk fades in the night, and the lights in the houses go out.

From our tents on the high bank, we observed the ceremony with the other river-dwellers. The big boat swept by us at top speed, her ports blazing with light; her swell broke along the beach. Hist's riding light swung back and forth in graceful arcs as she felt the waves under her. We watched the steamer until the bend below hid her, and then turned in.

Once again, at night, would come the hoarse bellow of that whistle. It was the upstream boat feeling her



A Likely Spot

way through the early morning mists. No warm welcome for her. An expletive or two from a tired camper, waked from his sleep; the bark of a sleepy watch-dog; a grumpy dock master, and she had gone upstream on her unappreciated way.

It had come time for the Maiden and the Tyro to depart. And how different are the first days of a vacation from the last! We struck camp, for with the two of us there was no need of tents, and stowed our canvas houses again in the canoe. The camp site looked desolate enough without them, and we were almost glad to get away from it. Once more alone, the Skipper made sail, while the Mate stood by the helm, and with a fair tide and a fair, though light, breeze, the little yacht, with her two small boats following after, like a hen with chickens, drifted upstream.

Among other things ordered from the ship chandlers in fitting out that Spring had been a foghorn. It was the one thing that had not been delivered. At the bridge below, the draws had been swung at our approach. Now, as we neared the new bridge at East Haddam, with the wind picking up a bit and the tide carrying us on, the drawkeeper stood in his place, looking down at us without movement. We held the yacht on her course. There came signs of uneasiness from him. He ran to his little house and returned with a megaphone.

"Do you want the draw?" he bellowed.

"Yes," we answered.

"Then why don't you blow your horn?" he demanded.

"Haven't any," we answered, with overwhelming logic.

If he swore, it was after he had removed the megaphone. We brought the yawl on the wind until he had swung the draw and then slipped lazily through. A half-mile or so above the bridge we dropped anchor off the docks of East Haddam, and went ashore to provision up. At Goodspeed's Landing, where the bridge crosses, provisions of all kinds may be had. Here we found nothing but canned goods, which led the Mate to observe that if you wish vegetables, you must buy them in the cities, they never keep them in the country stores. Apparently, the farmer grows his own, and there is no demand for them at the "general store."

Above East Haddam the river takes a turn to the West, and the wind veers about over the high hills in every direction. We had started with a Southwest wind, but in this stretch it boxed the compass, blowing at times from the Southeast, and more than once putting the yawl in "irons." But the tide was still with us, so we beat, or reached, or sailed with a fair wind, up the long stretch, careful that the gusts that came with increasing strength should not catch us unawares and knock us down.

We had planned to meet other friends at this point. They had started on a more venturesome cruise than ours. In an 18-foot canoe, this skipper, with his wife and two small children, had set out from Hartford to journey down to meet us. Presently, we saw them, stowed away in their impedimenta, wisely keeping near shore in their frail craft. We brought the yacht into the wind, and they paddled alongside. Again the crew of Hist was increased, and the mother hen had added to her chickens, for towing astern, rubbing sides with its sisters, was a third craft.

Now heeling well over as the wind came forward of the beam, now winging swiftly on as it drew aft, the

yacht sped upstream as steadily as a motor boat, and as swiftly as some. Haddam, Haddam Neck, Higganum, and then Middle Haddam, we passed in the order named, while our friends recounted their numerous, and not all pleasant adventures.

The first day out, their mishaps had begun. A few miles below Hartford, they had stopped to bathe, and being some fifty miles from the sea, had forgotten the tide. They had hauled the canoe well out of water, and given themselves up to the delights of a swim after a hot paddle. In the midst of it an empty canoe drifted across their vision, and then, their curiosity had changed to dismay, for they recognized it as their own. The wind was carrying it across the river. The occupants of a motor boat speeding downstream laughed derisively when asked to pick it up. The canoeist, yielding to the entreaties of his wife, decided not to attempt to swim the river, which was wide at this point, and set out upstream to find a boatman to take him across. He went several miles before he found one, and then had, of course, to return several miles down the other bank. In the meantime a thunder storm of the first order was making up in the Northwest. After plunging through the mire and swamp of the other bank, the canoeist came at last upon his craft, and paddled to his bereaved family. By this time the first drops of rain were falling, and the heavens were as black as an ink pot. Hastily, the canoeist unpacked his tent and prepared to pitch it. Again fortune frowned on him. He had forgotten the pegs. Luckily, it was a new, waterproof tent, and spreading it on the ground, all four crept between the folds and kept dry in the shower that followed.

We came now to what is conceded to be the most beautiful stretch of the river, the Narrows, or, as the chart gives them, the Straits. Here the hills close in on the river, and the banks narrow at one spot, Bodkin Rock, to the narrowest point in the river between Hartford and the Sound. Down from these high hills the wind comes in all conceivable flukes. Beating up this stretch, it hauled around directly aft, nearly causing the boom to jibe at one time. We were glad to open out the reach below Middletown and leave the narrows behind. Here, to be sure, the wind headed us, but at least, it was steady. With the tide now turned against us, we tacked back and forth across the stream, intending to round Mouse Island, a long bar that eats out into the middle of the river, and drop anchor off the North shore, the river at this point running nearly East and West. Dodging boats of all descriptions in the narrow channel, we came to grief at last, grounding on the bar, and hanging there with a falling tide. This was no idle jest with a boat of Hist's type, for her narrow beam rendered it likely that she would lay over on her side when the tide went out from under her, and fill when it rose. Not only this, but we feared that the swells from the "big" boat would break over her.

So we worked furiously to get her off, shifting the "live" ballast forward and backing the jib. She hung so long that we feared the tide would leave her, but the swell of a passing motor craft lifted her, and she wore off into deep water. We took no more chances, but kept well within the boundaries of the channel until well above the bar, then we headed in for the bank, and dropped anchor in ten feet of water a few rods offshore, and a mile or two below the city of Middletown.

KING GEORGE'S CUP RACE

PANAMA-PACIFIC INTERNATIONAL EXPOSITION'S REGATTA

BY a margin of 5 minutes and 27 seconds, the Class N sloop *Westward*, sailed by her owner, Mr. John R. Hanify, won the first race for the Gold Trophy, presented by King George V of Great Britain.

It was a rather hollow victory. The five yachts in the race went over so closely together that there was but little to choose between them. Immediately after crossing, *Westward* forged ahead, and at the first mark off Torpedo Wharf, had established a lead which she maintained throughout the race, beating *Mah-Pe*, which finished second on actual time, and *Presto*, which had an

allowance of 8 minutes 28 seconds, by 5 minutes 27 seconds.

Westward was 2 minutes 50 seconds ahead of *Mah-Pe* at the weather mark, with *Presto* about a minute after the latter, *Genevieve* rounding practically alongside of *Presto*. *Challenger* rounded the windward mark 32 seconds later, and squared away for the long run to the Goat Island Shoal Buoy.

Captain Hanify increased his lead down the wind, despite the fact that he lost some time by coming about at the Goat Island Buoy instead of jibing as all the others



Westward, Winner of King George's Cup, Class N. Length O. A. 66 Ft., L. W. L. 42 Ft., Breadth 13 Ft. 2 In., Draught 8 Ft. 5 In. Mr. John R. Hanify, Owner. Designed by Wm. Gardner



King George's Cup for Class N. Won by Westward

did. Genevieve gained slightly on Presto and led the latter around the mark in third place, Mah-Pe being second, 3 minutes 30 seconds behind Westward, and 2 minutes ahead of Genevieve.

The positions did not change on the leg to the Southampton Shoal mark, which Westward rounded 4 minutes 30 seconds ahead of Mah-Pe, and 7 minutes 12 seconds ahead of Presto, which, with her time allowance, was then the only boat that had a chance to beat Hanify's flyer. However, Westward showed her fine qualities on the long beat to the weather mark, and when she rounded it and the spinnaker set in quick time, there was no question as to the winner, and she romped home, completing the 14-mile course in 1 hour 58 minutes 5 seconds.

The official times were as follows:

Yacht	Actual Time		Allow'ce	Corrected Times	
	H. M. S.	M. S.		H. M. S.	M. S.
Westward	1:58:05	*		1:58:05	
Presto	2:12:00	8:28		2:03:32	
Mah-Pe	2:07:35	*		2:07:35	
Challenger	2:18:50	8:37		2:10:13	
Genevieve	2:10:15	*		2:10:15	

*Scratch.

The terms of the deed of gift call for a yacht to win two races to gain possession of the Cup. Thus Westward won it by a margin almost double that of the first race.

The wind was light, as Summer breezes blow on San Francisco Bay, but Westward showed to even better advantage than she did in the heavier blow that prevailed during the first race.

As in the first race, she assumed a lead immediately after crossing the starting line, and maintained and increased it steadily until the finish. At the first mark she had such a lead over Presto, the only boat that was seriously considered as having a show, that there was no doubt of the result from this point on.

Captain Barneson's Genevieve won second place, beating Mah-Pe boat for boat. The light airs suited her better, and she was able to carry full sail, which she was unable to do in the first race. Genevieve was brought from Puget Sound this Summer, and she was over-sparrred and rigged for the strong trade winds which blow on the bay.

One of the features of the race was the finish between Stone's Presto and Morrow's Challenger. Challenger was behind Presto and blanketed her as much as possible, coming in from the windward mark to the finish. Stone did his best to get out from in under Challenger's blanket, but Morrow kept right after him, following Presto inshore until the boats barely cleared the lighthouse at the entrance to the yacht harbor. Challenger finished 7 seconds behind Presto and the latter having to allow her 9 seconds, finished in last place on corrected time.

The official times follow:

Yacht	Actual Time		Allow'ce	Corrected Times	
	H. M. S.	M. S.		H. M. S.	M. S.
Westward	2:04:12	*		2:04:12	
Genevieve	2:14:37	*		2:14:37	
Mah-Pe	2:15:07	*		2:15:07	
Challenger	2:24:47	8:37		2:16:10	
Presto	2:24:40	8:28		2:16:12	

*Scratch.



The End of a High Speeder

SIXTEEN-FOOT CATBOAT SEA DUCK

Fred W. Goeller, Jr.

PART I

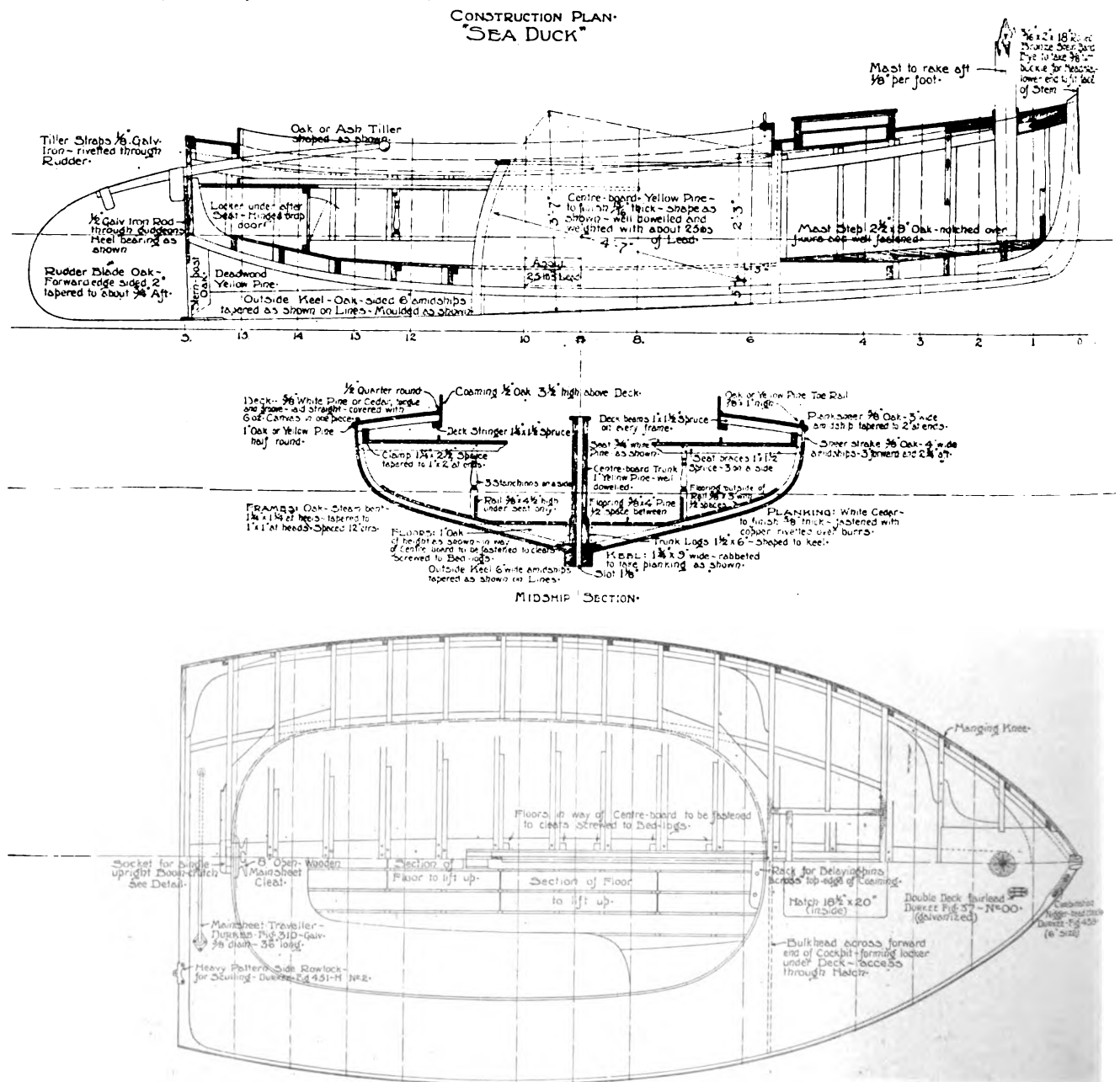
WHEN the Oldman called me aft for instructions about the next RUDDER boat, and said he wanted a 16-foot cat with 8 feet breadth, a regular boat, he did not impose a task, but rather gave me a job which was a pleasure to work on.

The result is not a beautiful (?) boat according to the opinion of the majority of modern yachtsmen. There is no fine overhang forward, nor is the stern carried out into an overhang (utterly useless in this type of boat).

But to some of the Old Timers, and those who are familiar with this type, she is all that is to be desired in a 16-foot boat.

The principal features, or rather the principal one, is of course, the great breadth. All of the data that can be obtained from years of study only goes to strengthen the proof that the proportion of "the beam equals 50% of the length" is true.

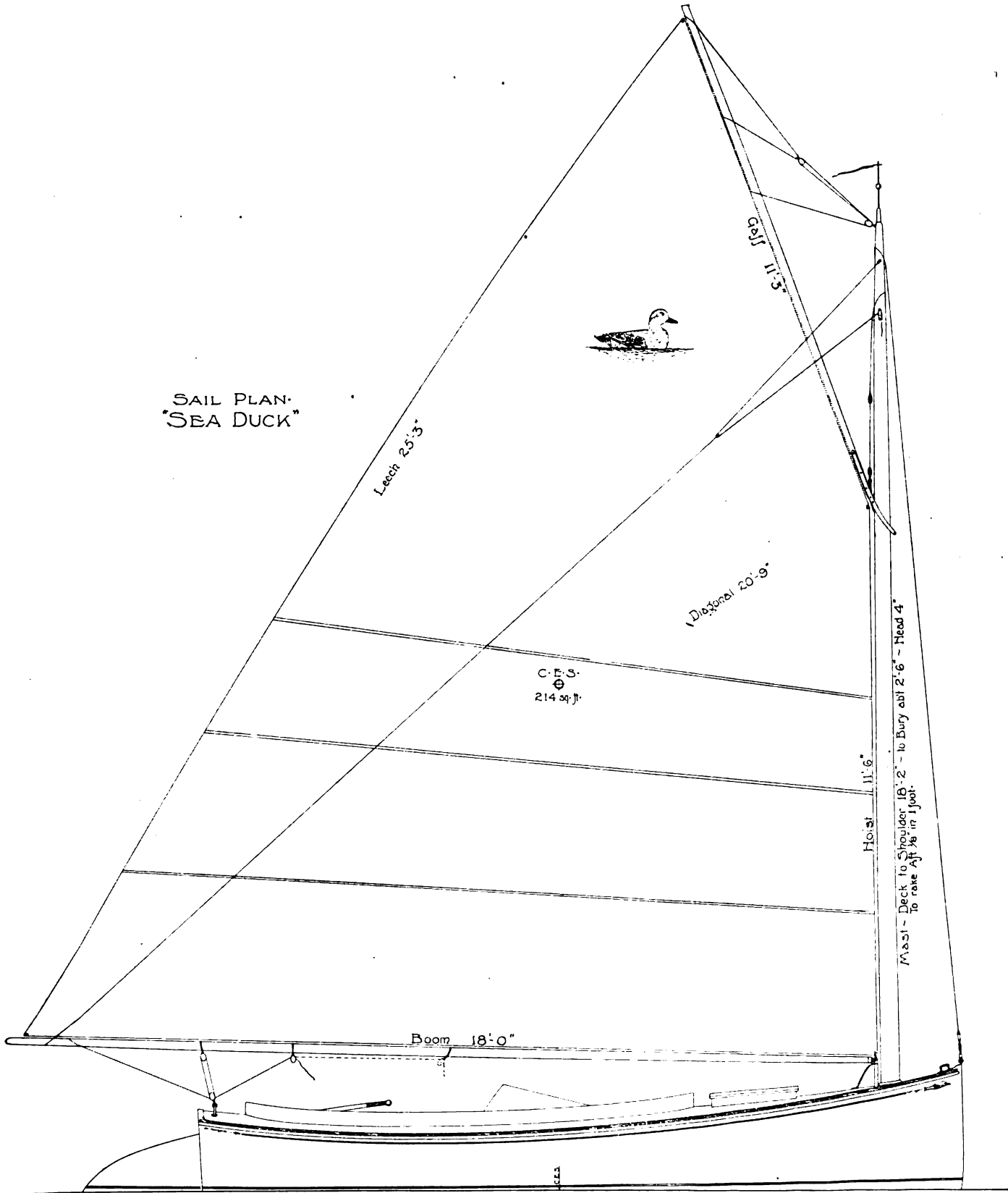
However, certain other features must be taken into



Construction Plan of Sixteen-Foot Brightwaters One-Design Catboat Sea Duck

consideration. If we were to make it practically a flat-bottomed boat, with the bilges rounded, in a breeze, when heeled, the bilge would be driven down into the water, and instead of having a bottom to sail on, you would

be trying to sail on the bilge. Another bad feature of this type is that, when heeled, the garboard is higher than the bilge, and the water rushes up to the highest point, just the same as it works out on the outside of the



Sail Plan of Sixteen-Foot Brightwaters One-Design Catboat Sea Duck

boat, and chokes up in the inverted V-shape formed by the bottom and the centerboard, and kills the speed.

Anyone familiar with wide flat boats realizes this at once, and knows that when the wind is of such a strength as to heel the boat beyond a certain angle, it is time to reef to keep her on her feet, and this is why an old catboat-man does not hesitate to reef when possibly some of the modern keel boats would scorn to do so.

By giving the bottom of the boat the deadrise shown we have eliminated to the greatest extent possible the above fault, for it will allow the boat to take a slight heel quite easily, but when down to where the deadrise and the surface of the water are practically even, it is almost impossible to heel her further, as you then have a wide flat surface to sail on.

This seems to be one of the features in the design of boats that so many people overlook. In the first place, a sail does not drive effectively when the mast is perpendicular. There must be a certain amount of heel to allow the wind to get out of the sail, as this is one of the operations necessary to make the boat go ahead. The other is that while most everyone admits that the scow-type is fastest, yet it is seldom figured to get such a section when the boat is heeled.

It was on this principle that the old sandbaggers were built, and allowing for the improvement in sails and rigging, the boats of today are no faster.

When the boat is heeled it is sailing on a wide shallow bottom, and the depth to which the water has to go in passing under it is reduced to a minimum.

Another feature is cutting off the stern square. As explained above, the water chokes up against the garboard and deadwood when the boat is heeled. Now,

carry out the stern into an overhang and then try to imagine what happens. Remember, the water is already working to escape at the garboard, which is for the time being nearer the surface of the water than the bilge. A puff comes along, and you immediately put your helm up to meet it. Result: you have shut off the water from getting clear of the boat, and the speed is cut down in the proportion of time it takes for this water to escape around the outer edge of the rudder.

By cutting off the stern square and putting the rudder outboard, this water is practically freed at once, but even with all this the pressure against the leeward side is so great that it is one of the reasons why the catboat is given the name of being such a hard-steering boat.

And last but not least—always remember this in regard to a wide-sterned boat—the stern being so wide, gives great buoyancy to the after part of the boat, and to keep her from lifting out on the quarter, the ballast has to be placed well aft. To get it in this position there must be enough boat there to carry it, and to do this instead of starting to cut up the rabbit from a deepest point forward of amidships—as is the practice in the usual type of boat—the deepest point is carried to amidships or just aft of it and carried around full as shown in the plans—not run up straight.

It is this feature as much as any other that determines a good catboat. Notwithstanding the statements of some experts to the contrary, the amount that the quarter of the sternboard is cut up has nothing to do with it. It is the bottom carried out on the same principle as the rabbit which governs, as it carries the bilge and the water-line well aft, and gives the proper bearing.

If you don't believe this, just make a careful study of the lines of some of the famous cats.

(To be Continued)



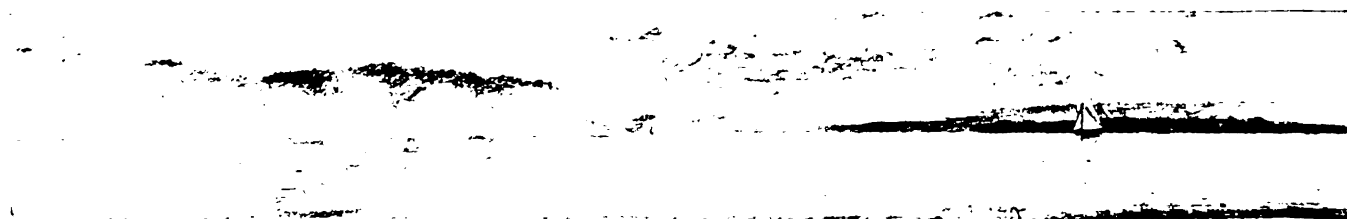
A DETACHABLE RUDDER

John W. E. Laker

THE type of rudder equipment described herein is worthy the notice of anyone, should he be building a boat himself, or having one built for him. It is very carefully and strongly built of the best of material, and has the great advantage of being quickly removed without difficulty. This is a convenience that will be readily appreciated by all boat owners who, after docking their launch, find it necessary to draw their propeller shaft. Upon these occasions, the rudder post appears to be the longest single piece of material in the boat. You anxiously await the coming of the thread that announces the end,

and think that never will you get the stern of the boat high enough. With a detachable rudder these worries are at an end, and you can dock your boat upon any level place you find convenient. The steering gear is a most important item, and this fact should not be lost sight of. A reliable outfit is a joy forever.

Details of the construction are given for those who are building their own boat. The drawings are complete to guide the professional builder, and with the exception of Fig. 1 (which is a general arrangement, and drawn with a view to clearness) the drawings are to



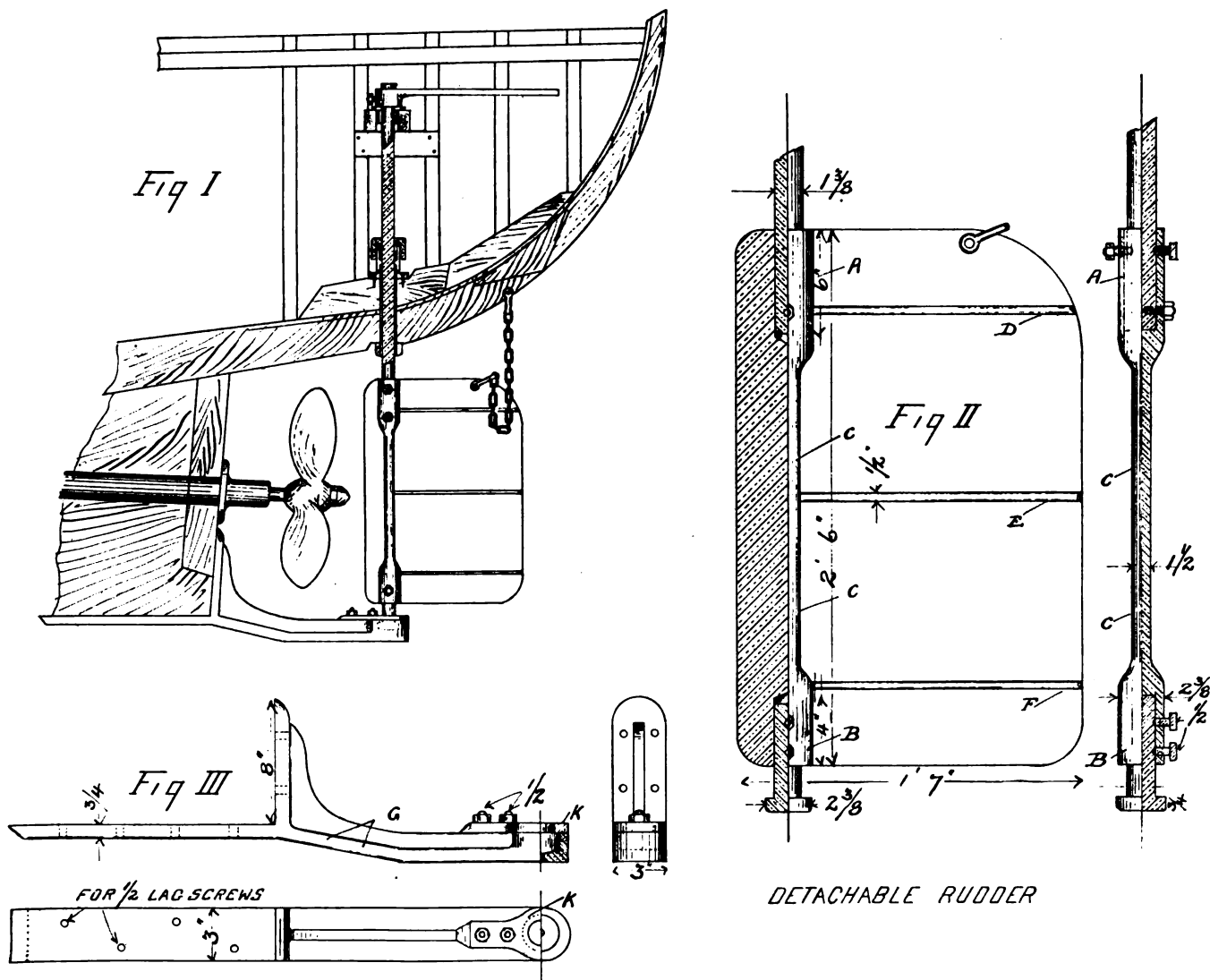
scale. It will be necessary first to make patterns for the rudder (Fig. 2), the skag (Fig. 3), and the locking piece K (Fig. 3). Procure a piece of soft wood $\frac{1}{4}$ -inch thick and cut to the shape of the rudder. The enlargements shown at A and B are half-round pieces fastened on to give material for boring the holes into which the rudder post at A and the pivot at B are fastened. These are not continued the full length as it is unnecessary; it would add weight and waste material. A much smaller half-round piece joins them as shown at C. D, E, F are small ribs level with C and act as strengthening pieces. They taper off to nothing at the outer edge of the rudder. The locking piece K is simply a flat casting cut as shown at Fig. 3. This is fitted over the pivot before it is fastened in the rudder, and remains on the rudder when it is removed. It prevents the rudder from coming out of the skag. Have these all cast in brass. The drop shown at B (Fig. 3) will, of course, depend upon what clearance you need for the propeller. Let it clear the blades by two inches or so.

Some little degree of mechanical skill will be required to do the machining of the different parts. The boring of the top and bottom of the rudder should be done first

and the rods made a neat working fit. They are fastened in with set-screws, as shown.

It will be readily seen that by disconnecting the rudder post from the rudder, by drawing it up into the boat, and releasing the locking piece at the pivot at the bottom, the rudder may be taken away and any necessary work done under the counter without interference. In making an outfit for a smaller boat, a little judgment can be exercised to alter the sizes to correspond with altered conditions. It is not advisable that the weight of the rudder fall upon the skag, as the constant vibration of the engine and the movement of the boat is liable to loosen it. Brace the post inside the boat, and let the whole weight be taken under the tiller, as shown.

The outfit will make an excellent job, and will never give you any trouble. It is a conspicuous fact that most amateurs pay altogether too little attention to the steering gear. At this stage of the building, the boat is nearing completion, and the builder is overanxious to have a trial run. The rudder equipment is slumped and often never completed. Don't forget the chain. You never know when you are going to find one of those "uncharted" rocks and Davy Jones can get on very well without this rudder as a souvenir.

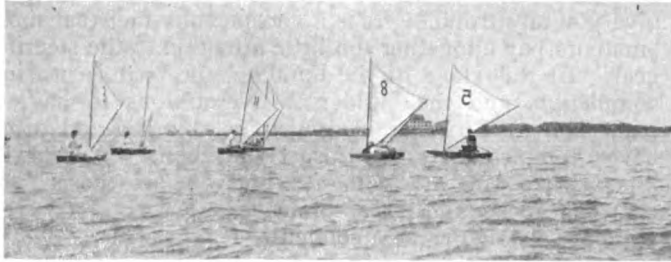


Details of Detachable Rudder. Designed by J. W. E. Laker



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



A Long Reach in a Calm



When It Really Blows—Larger Boats Carried Single Reefs That Day

SEA PEEPS

SEA PEEPS

MR. NOBLE, the father of the Sea Peeps, has sent in several pictures of these clever little boats. He also writes in to say that a large number of inquiries have



Mr. W. C. Bellinger's 30-Footer. Wee Pup on Deck

been received from all parts of the world asking about the Peeps. It is intended this Winter to build them at Kennebunkport for the market.

TWO RUDDER BOATS

DEAR FRIEND EDITOR:

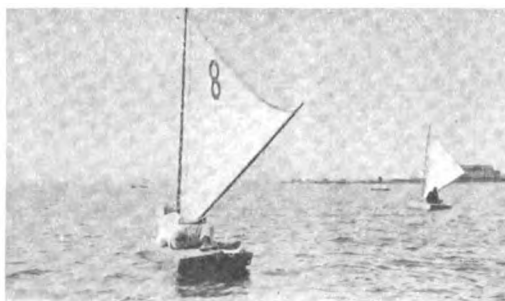
Enclosed find check for renewal, also I enclose a snapshot of my RUDDER boats, just disposed of, after three Summers' very successful use. The cruiser is a Bowes & Mower 30-footer, from designs published by you (page 399, May, 1911, issue). Guess you will recognize the Pup on top. They are a good pair to draw to. You can't beat a B. & M. boat. This boat does 8 miles per, with a 7½-h.p. Fairbanks & Morse motor (a one-lunger).

W. C. BELLINGER.

A JUNCO

ENCLOSED you will find several pictures of my Junco, which I built from plans published in THE RUDDER. She was made in the Manual Training Department of the local High School, entirely by myself (17 years), except the spars, which I found I was not carpenter enough to make at the cost of two fine pieces of wood.

In making her I adhered strictly to the dimensions given in spite of numerous suggestions to the contrary, and the result is a boat that is all that could be asked



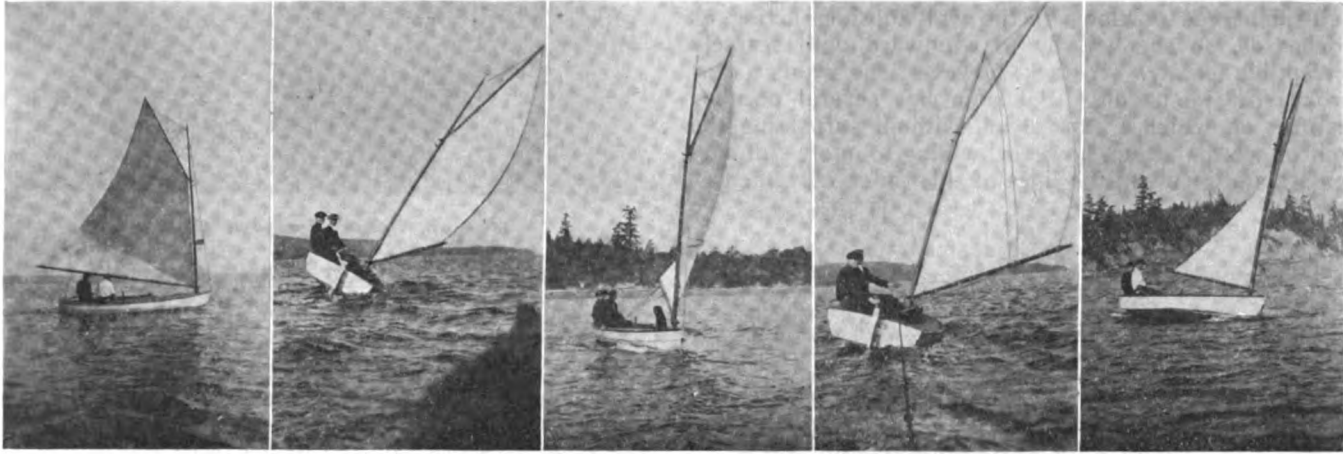
Winner of the July Cup. Note Steering with Foot



Beating Out of the Mouth of the Kennebunk SEA PEEPS



Jockeying for the Start



Several Views of the Junco, Built by Keith Belch

for. In spite of prognostications such that it would not stand up, or sail, etc., she has proved to be just the contrary, and will keep up with the best of them in most any wind and handles beautifully. Her special forte is speeding along where another boat would be becalmed.

I have taken several short cruises in her and have only one capsize to my credit, (?) which was entirely my own fault.

Ancortes, Washington.

KEITH BELCH.

• • •
**CANOEING ON THE SOLO RIVER,
 JAVA**

I ENCLOSE a couple of snaps of my canoe Balalaika, which may be of interest for Hurrah's Nest. I designed and built her myself for use on the Solo River, which,

though the greatest of Java, is very shallow in the dry season, having at many places barely 6 inches depth, with narrow, intricate passages but one foot deep.

For that reason my rather flat and wide V-bottom canoe draws only 6 inches l. w. l. She is 18 feet over all, 30½ inches breadth and has extremely sharp, fine ends below l. w. l. She is built entirely of selected teak and is copper-fastened throughout. Fore and after decks are of waterproof canvas; the 7-foot cockpit with roomy accommodation for two, is surrounded by a deck of thin teak and is protected by a strong 4-inch coaming.

The Balalaika is remarkably stiff for her type and carries with great ease her lugsail (single halyard) of 30 square feet, battened in the style of the Chinese junksail. The sail is set or stowed in a few seconds. The mast is easily unstepped and stowed with sail and all below the fore deck, completely out of the way, in a jiffy. The sailing qualities of Balalaika are quite extraordinary, the



Canoeing on the Solo River, Java

well-submerged portions of the wall topsides acting as sideboards, so she will fly to windward with scarcely perceptible leeway. To tack, however, she wants a few strokes of the paddle. Balalaika has several peculiar features on which I can't dwell without surpassing the limit of words. I am, however, willing to quote full particulars and give you the lines of this canoe if wanted.

H. SELLEGER.



Dragon Boats, Swatow, China



Ferry Landing Stage, Swatow Inland Waters

FROM SWATOW, CHINA

ENCLOSED I send you a few snapshots, which may be of some interest to your readers. Am sorry the snap at the Dragon boats was not more successful, but if not good enough for reproduction, just chuck them in the lee scuppers, with a blessing on the sender. The Dragon boat races take place on the fifth day of the fifth moon each year, and not unfrequently end up in a free fight. With best wishes for a prosperous New Year.

Swatow, China.

T. CARR RAMSEY.



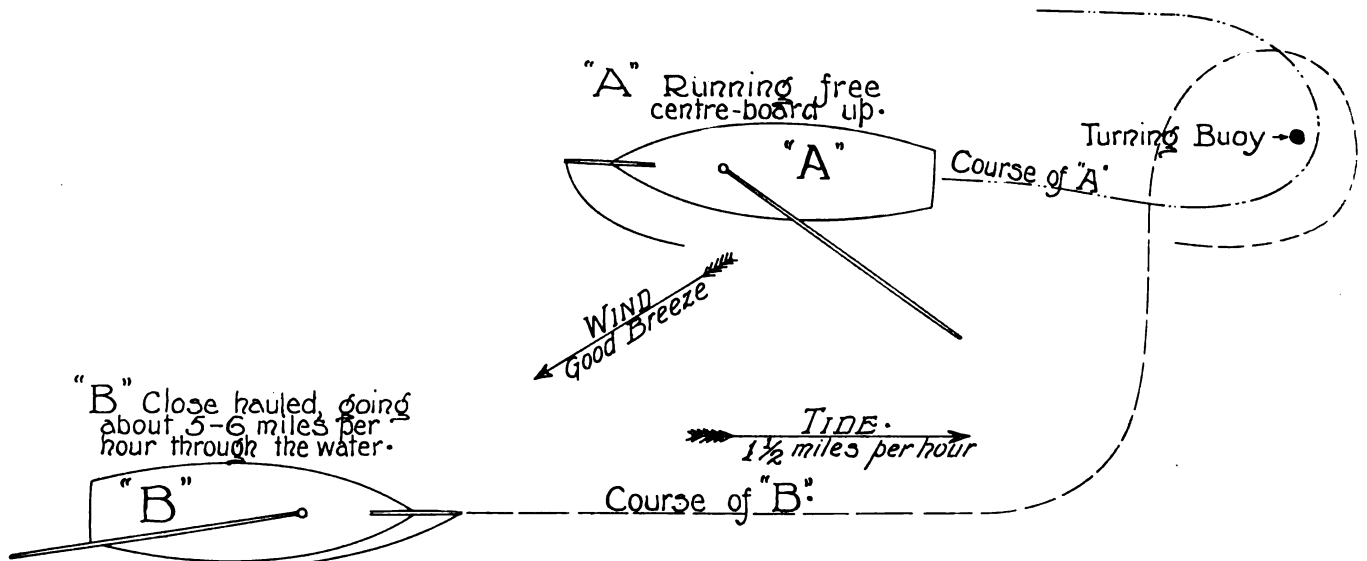
The Winning Crew on the Josephine. Left to Right: Butler Whiting, John Alden, Addison G. Hanan, Professional and Chas. D. Mower. (See Manhasset Bay Cup Races—October Issue)

ANSWER TO RACING PROBLEM

A has rounded mark and is going free. B is heading for mark on the wind. B protests A, claiming that A prevented her tacking when she wanted to. A claims that B could have come about at any time without fouling A as A would have given way.

Should A be disqualified?

[No. B, having the right of way, should have tacked and asserted it. As she made no attempt to claim her right by going about, she cannot claim that A prevented her from having it. Interference with a boat to be grounds for a protest must be an apparent actual interference, not simply a possible interference.—Ed.]



Position of Boat (Answer to Racing Problem)

ROUND THE CLUBHOUSE FIRE

PPULL up your settles, boys, and moor your heels just as close as possible to the ash-line, and we'll spin a bit of a twist while the logs crackle and sparkle and the kindly heat flows out and sends the glow into our faces and forms. Smoke, to be sure, but don't mention drink; the first man who says "rum" I'll throw him out. I don't dare to, for fear the Order of Saintly Squirts will turn on the hose and wash me out of the trenches. One day last Summer I volunteered to assist a gang of suffragettes to decorate a hall for a political rally. One of the petticoated heelers expressed a fear that the speakers and the audience might lack enthusiasm, and so, anxious to boost the cause, I promptly suggested that they provide a punch with a heavy kick hidden in its innermost bow-wows. Gee! In about two seconds I felt like a forty-mile gale being thrust through a keyhole. I was told that it might be necessary for men to seek such stimulation, but women never, never, never! I believe in letting females have the ballot; give 'em anything they want, and as long as they want it; but I don't believe in Universal Suffrage. The ballot should be given only to the educated and intelligent—not to the ignorant riff-raff, as it is in this country and some others. Give me the rule of a lion rather than the perturbation of a horde of rats.

* * *

What is there to talk about? Sometimes I feel like taking the world up by the heels, shaking it, to see if anything new would drop out of its pockets. As it is, when something does come along to shoot, either your powder is wet or else you have spent your last bullet. But here goes for the bar, and let's hope she'll bump across. Numbers of men write in and ask my advice and when they get it not only scorn it, but write and tell me so. The sore spot is that my opinion breaks tacks with their own, and what they wanted was not advice but confirmation of their own opinions. Don't I think, believe or know that a certain type of craft is the best, as they intend designing or building such a type of craft? Well, I don't know. All I know is that vessels of a certain model are good, indifferent or bad, according to the experience had with vessels of like model. As to the particular boat they intend building, I know nothing. Another poser is: Why object to overhangs? Overhangs, if of value to a vessel, should be put on her, but it depends on the purpose for which the boat is to be used whether they are an aid or a detriment. Somebody, the other day, got out plans for a pilotboat with long overhangs. If any vessel should not have overhangs it is a pilot vessel, because a pilot craft is lying-to twenty out of twenty-four hours, and overhanging bow and stern are not the most comforting of companions when stationary in a sea-way. Another is: Why object to narrow models? The answer is: What advantage has a narrow model over a wide one? Is it drier, cheaper, speedier, more seaworthy or more comfortable? If there is no advantage, why build a narrow hull? The disadvantages of a narrow craft are obvious. Show a green hand two power hulls, one wide

and the other narrow, and he'll invariably call the narrow hull the fast boat. That is because the common idea of speed in all forms of life is associated with slenderness of form. But those who have heard the mill clacking for years have learned that shape has little or nothing to do with speed; the principal ingredients being weight and power.

* * *

Back comes the boomerang and it hits with a whack—You are no authority. You needn't come close up, right out loud so all the world can hear it. I'm not, never claimed to be, and don't want to be thought one. Nothing is so ridiculous as an individual, a society or a publication to set itself up as an authority. In the first place, there is no such thing as an authority on a sport or the practice of a sport, or naval architecture, or anything of the kind. You may be skilled or experienced in such things. To be an authority the subject must be something having a permanent base of reference. A man may be an authority on Shakespeare, or Sanskrit, on the history of a sport, because his knowledge is founded on a permanent base to which reference can be made. Publications claiming to be authorities are the worst of humbugs, because a publication knows just as much and no more than the people who write for it, and if the people who write for it knew anything they would not have the gall to pose as authorities. There is nothing so true as the saying, "The more you know, the less you know," and the deeper a man understands a subject, the more chary he is of expressing his knowledge of it.

* * *

Which all puts me in mind of a yarn. A certain skipper of a steamer was a bit "hipped" on the subject of medicine and the practice of doctoring. He had a big drug-box and a shelf full of second-hand medical works, and was never so happy as when one of the crew got water-logged or sprung, and had to be fished, served and parcelled. The steamer put into a small tropic port to load, and was no sooner moored than the Consul sent word aboard that a certain disease was raging, and instructed the skipper to take precautions and warn the crew. This was nuts and wine to the oldman, and he at once sent the steward to rally all hands in the main saloon. When the crew had gathered, hat in hand, around the table, the skipper, with a pile of books in front of his nose, began a learned dissertation on the special disorder, tracing its course in graphic language, from the first symptoms to rigor mortis. He then explained how to avoid it, and how to treat it, and wound up assuring the crew that if any one was so unfortunate as to contract the plague, they could depend upon his skill and treatment. The stretch of the harangue, and the unfamiliarity of the words used impressed the crew tremendously, and on dismissal, they tiptoed up the companion stairs and clean across the decks forward, without uttering a single syllable. That night the oldman's medical knowledge was the theme in messroom and folk'sel. Next morning, the steward informed the old-

man that one of the firemen wanted to see him. "What does he want?" "'E's got the plague, sir." "Got the plague! Impossible; he's not been ashore." "No, sir, he ain't, sir, but he sez as 'ow he got it from 'earing you talk yesterday, sir." And strangely, the poor devil had the disease, and died of it. Which all goes to show it is dangerous to know too much and to unload your cargo on an impressionable audience.

* * *

There's a bottom to everything, and at the bottom of our sport is the builder. He is the foundation base on which the whole structure is erected. If there were no builders there would be no boats, and, consequently, no sport. Therefore, let me arise to ask you what are we doing for the builders, and what are they doing for us? This tremendous question being broached, let us first give a short history of the rise and present condition of the building business, trade or pas-time, or whatever you may be pleased to call it. In not far-off times, the man who was hired to build a vessel went to the waterside and picked out a bit of sloping foreshore with deep water at its foot, and adjacent to a decent grove of trees. He then brought a half-dozen men, a broad-axe, a forge and a few pounds of iron, and set to work. His office and accounts were under his hat. Today nine-tenths of the builders, except that they have substituted a more or less dilapidated shed for the blue canopy of heaven, and a lumber-yard for the aforesaid grove, carry on boat-building in the same way. No system, no capital, no credit, only a two-acre lot strewn with timber, shavings, old iron, and vain regrets. There are few of the builders who are organized, capitalized concerns, run in a business way by business men, and on them has devolved a large part of the expense of keeping up the credit of the business. But it is not possible for them to supply the needed number of hulls, under the present hand-to-mouth method of ordering. Here we have hundreds of concerns turning out motors, turning out fittings, turning out sails, ropes, spars and what not, and no hulls to put them on. Unless some large organization is perfected to combine all the smaller builders, to capitalize their efforts so as to be able to produce a large and constant stock of hulls, the bulk of the other producers might just as well shut up shop. The sport has been dwindling, going stern first, for the last few years because we have had no hulls. Why, ask yourself, has the automobile made such inroads on yachting? Is it not because a man can go any time of day, anywhere and buy a car for delivery at once, instead of having to wait from two to three months?

* * *

Now about this cat we are getting out for a one-design to be used at Brightwaters on Great South Bay. She is intended not only for racing, but as a good boat for any purpose. The two heads that designed her are pleased with the boat, and are certain she will give a good account of herself in any yachting weather; but the same two heads have this to say: If you don't like the design just as it is, don't build from it. Don't go to work and add any of your own personal improvements. We don't question your knowing more about these things than we do, but just the same, leave our design alone and make a whole new one of your own. We have been found fault

with considerable times, and our plans cursed, and nine shots out of ten, when the well has been sounded to the bottom, it is found that the trouble has arisen through some genius altering and improving on the design as printed in this here publication. If you people build from the plans as published we will guarantee that the Sea Duck will be all that anyone can expect a 16-foot boat to be.

* * *

In overhauling the dunnage, I came across a number of volumes of *The Cruiser*, containing a whole boilings of good yarns. You people might as well have these books as to let them lie here in ordinary, so why not subscribe or renew your subscription, and have one sent you as a bit of extree? Therefore, to every man who subscribes or renews before January 1, 1916, we will, if he asks for it, send a bound volume of *The Cruiser*. Besides the cruising yarns, this volume contains a number of sailors' chanties. Don't forget to say you want the volume when you send in.

* * *

In the deep sea there lives a creature called by scientists *Leptecheneis Naucrates*, by laymen "remora," and by fishermen a "shark-sucker." These remora attach themselves to the shark and let the shark tow them around, they never doing anything for the shark except to devour what he lets slip. In plain language, the shark-sucker is a miserable parasite. In our business we have a creature similar to the shark-sucker, a parasite that clings to the publications, getting free advertising and doing nothing in return. Most of these fellows are boat-builders, a mean herd, who, making their living out of the sport, do nothing to help keep it going. Lately I have been rounding up these fellows and keeping them out of this publication. I tried to get the other papers to do the same, but unfortunately, with one exception, the men running them are a spineless lot who are afraid to breach and knock the remoras off their hides. I take the ground that it is not just or honest to the builders who do advertise and who do support the publication to give these parasites free advertising. Why should people like The Gas Engine & Power Company, Elco Company, Matthews Company, N. Y. Yacht, Launch & Engine Company, who have for years helped to keep THE RUDDER going, be taxed to pay for the publicity of a concern that never spends a cent in any shape or form to help the sport? From now on, these parasites are barred from the use of these pages, and you people can do lots to help by refusing to deal with them. Spend your money with people who are helping to keep the sport alive, and not with a lot of cheap pikers whose only use for a yachting magazine is to steal the designs out of it.

* * *

In the last paragraph I pictured the boating magazines as sharks, and it's a good similitude, for the shark by his very voraciousness keeps things stirred up in the deep blue sea. Kill all the sharks, and the other fish would grow lazy, fat and contented. So it is with the publications. With their persistent avariciousness they keep our world stirred up, the dealers alive, and whole ship in an uproar, from spanker-clew to flying-jib-tack. But it is getting along towards seven bells and so, if you don't mind, we'll call it a watch and go below.

THE RUDDER

DECEMBER, 1915

Vol. XXXI

No. 12

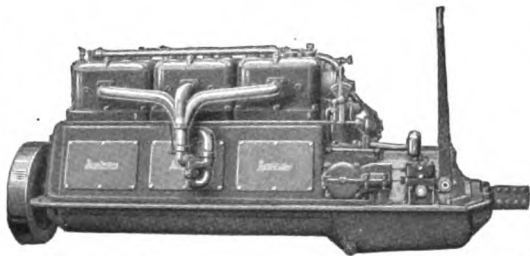


Nordug IV. Owned by the King of Denmark. Winner of President Wilson Cup on San Francisco Bay
This Summer
Photo by Walter A. Scott

PUBLISHED AT 254 WEST 34th ST., NEW YORK CITY

Price 25 Cents

Speedway Motors New Models—New Sizes



DISTINGUISHED by the latest and most advanced features, representing, as usual, the last word in marine motor design and construction.

Noiseless---Accessible---Clean

Complete list of 1916 Speedway Motors now ready. Write for details.



**GAS ENGINE & POWER COMPANY and
CHARLES L. SEABURY & COMPANY**
CONSOLIDATED

Motor Dept. E

Morris Heights, New York City



Kahlenberg

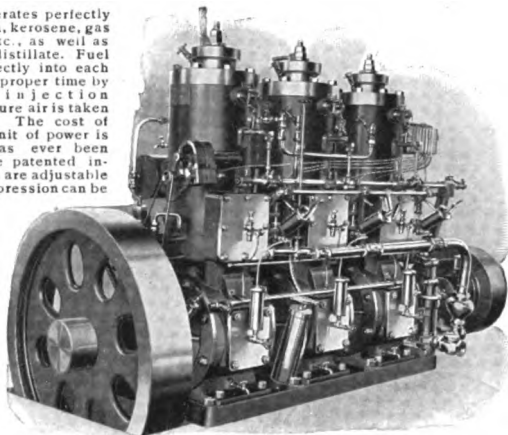
MARINE HEAVY DUTY OIL ENGINES

For severe Heavy-Duty service in cruisers, commercial boats, tugs, etc., the Kahlenberg "Semi-Diesel" type engine is so far in advance of other marine power plants, that it has no real competitor in efficiency and economy.

The engine operates perfectly on crude fuel oil, kerosene, gas oil, solar oil, etc., as well as on gasoline or distillate. Fuel is injected directly into each cylinder at the proper time by individual fuel injection pumps. Only pure air is taken in at the base. The cost of operation per unit of power is lower than has ever been achieved. The patented internal hot bulbs are adjustable so that the compression can be changed as desired while the engine is in operation.

This Semi-Diesel engine is started on gasoline or distillate and in two or three minutes when it has heated the bulbs, the gasoline or distillate is turned off and the fuel pumps turned on. Any cylinder can be operated individually if desired.

If you want a business engine, built for business, an impartial investigation of the Kahlenberg "Semi-Diesel" will convince you.



88-H.P. Semi-Diesel Type

**WE BUILD ENGINES from 2-H.P. UP.
MEDIUM DUTY and HEAVY DUTY**

No matter what kind of marine power you need, let us tell you the exclusive advantages of the Kahlenberg model which is built for your purpose. There isn't a better engine in design, material or workmanship. It isn't fair to yourself to buy another engine before you have our catalog.

Write today for catalog and booklet, "What Users Say."

KAHLENBERG BROS. CO.

Main Office & Factory 1708 12th St., Two Rivers, Wis., U. S. A.

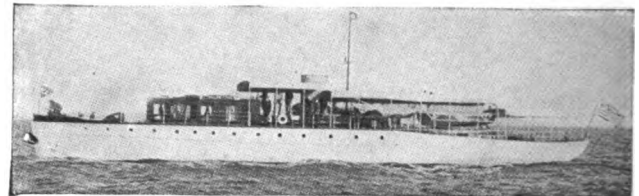


JAMES CRAIG Engine and Machine Works

807 GARFIELD AVENUE

JERSEY CITY, N. J.

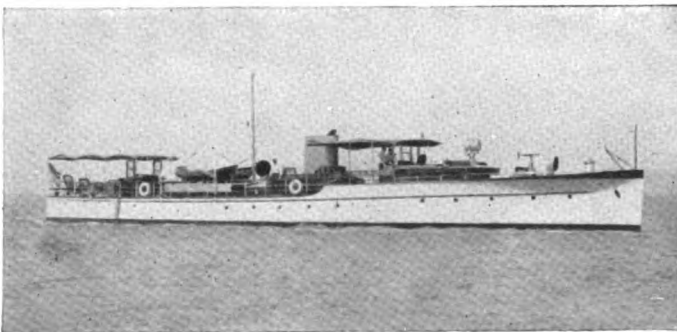
**Designers and Builders of Craig Marine
Oil Engines (Diesel Type)
Gasolene Engines**



AELDGYTHA

110 Ft. Over All, 100 Ft. Water Line, 18 Ft. Breadth, 6 Ft. Draught

Two 4-Stroke, 6-Cylinder Craig "Diesels" 9½ x 11



The Matthews' Cruiser

is built with but one goal in view—perfection. It is intended solely for those who will have nothing else. Its appeal is not to individuals who can or must be satisfied with less. Prices are in fair accordance with the satisfactory achievement it embodies.

Literature upon request.

THE MATTHEWS BOAT COMPANY
PORT CLINTON, OHIO

The Rudder

Edited by THOMAS FLEMING DAY

Vol. XXXI

DECEMBER, 1915

No. 12

TWICE WRECKED

FROM THE LOG OF A VOYAGE BY CHARLES MANTON

REWRITTEN BY CHESTER KEENE

PART I

IT was the Skipper's deal, and he had twenty holes to peg out and I had seventeen.

"Three shows to your one, Mr. Manton,—looks like my game," said the Skipper, as he picked up his cards. I had two eights, a seven, six, four and five. My only move was to hold the sequence, crib the four and five and trust to a seven or eight turning up on the pack.

"Cut 'em," said the Skipper. I did, and up came a three. No good to me. The Captain pegged four and I got a pair and a "go"—three—this left me fourteen to go, and my hand laid down twelve.

"Got you, sir, if the crib does its duty. There's nine in hand, and let's see—Good! My pair of threes, and your four and five and the three on the pack—twenty-one, all told. That's two to your one. Now, I'll go on deck for a breath of air and a look around."

Finishing off my glass, I followed the Skipper on deck. The wind was on the quarter, a whole-sail breeze; the sky overclouded, and now and then a spilling of rain. Sure sign of more wind to come. The Skipper was hovering around the binnacle, talking to the mate, so I walked forward and stood in the wake of the mizzen shrouds, holding on to a pin. The bark was under all plain sail, heeling a bit, and driving along at some eight or nine knots. She was deeply laden, and the seas, as she drove over them, crested their heads along her side and broke in over the lee and weather rail, from the fore-shrouds aft to the poop, keeping the waist constantly flooded. A white wash rushing from side to side as she rolled lazily, as a deep-loaded vessel does when running off. As I stood watching, the Skipper joined me, and we stood together for some minutes without speaking. I don't know what he was thinking, but just then I was thinking how little additional weight it would take to send the bark Paradox to the bottom, and hoping that not only her bottom but her hatches were tight.

"My mates," began the Skipper, "are good men, but they are suffering from blue funk. In a ship belonging to the same owners last year, they were running off when she broached, and lost all three sticks. Since then, to

their minds, there is not a sound spar on the Western Ocean. This breeze is going to freshen, and if I want to sleep in peace tonight, we must have some of the cloth off her. Good night, sir, I'm going to turn in."

As he paused at the slide, I heard him say to the mate: "You can take the royals and spanker off her, Mr. Coops."

"Flyin' jib, sir?"

"Yes," and his head disappeared below.

The mate came to the break and blew his whistle. A glimmer of yellow oilers came out of the dark under the mainsail, and a man stood below looking up.

"Who's that?"

"Johnson, sir."

"All right, Johnson; in flying jib and royals, and send two hands aft to stow the spanker."

"Now, Mr. Manton, if you'll lend a hand, we'll get this rag started, for to my mind, the sooner it's off the better."

I cast the outhauler adrift, and manned the brails, and the two of us managed to get a bit of it in when the two men added their weight to the job, and we soon had the sail snug. Then bidding the mate "good night," I slipped below and into my bunk.

It seemed as if I had been asleep but a few minutes, when the companion banged, followed by the tramp of heavy boots and the wish-swish of oilers through the passage. Bang! bang! on the Skipper's door.

"Well, what is it?"

"Blowin' hard, sir."

"Same place?"

"A bit further aft, sir."

Short pause: "You can take mainsail off, Mr. Ruby."

"Mainsail off, sir!"

And then came swish, swish, tramp, tramp, and bang of the doors, soon followed by the rattling and slatting of the great sail as it was being hauled up to the yard. The ship shook for awhile, and then settled down to the usual mixture of noises that accompany the travels of a running vessel.

Another bang-banging on the Skipper's door:

"Blowin' very hard, sir."

I heard the suppressed oath as the Oldman sat up in his bunk.

"What time is it?"

"Going seven bells, sir."

"Seven bells? Call the other watch, I'll be right on deck." And so saying, the Skipper stamped his right foot into the sea boot.

There was no need to go outside to learn that the second mate's estimate of the breeze was a just one, for the ship had taken a rank heel, about as rank a heel as a deep-laden vessel can without going clean over.

There was no use trying to sleep, so I made to follow the Skipper on deck, but my berth being on the lee side, my boots and other belongings had fetched away and were under the bed-place. While I was fishing these out, the vessel came up on her bottom, they evidently having gotten her dead before it. On deck I found the Skipper at the wheel and he took one hand off the spokes long enough to beckon me over.

"Take the lee wheel, will you, Mr. Manton? I've sent the man for'ard to get the carpenter and bo'sun out. The parrel is jammed and the yard won't come down," he shouted.

In a few minutes the man came staggering aft, hanging onto the pins, the water pouring off his sou'wester and coat as he caught the dashes of drift that flew over the rail. Coming around behind the Skipper he took the weather wheel.

"Sou'east, and don't let her come round on you."

"Sou'east, sir."

And the Skipper disappeared forward, leaving the two of us to wrestle with the helm. It was no boy's job, the vessel being heavily pressed by the half-bunted canvas that filled and emptied like a balloon, shaking the ship and seeming eager to tear the masts out. As soon as they got it rolled up, things came easier, and I had a chance to wipe my brow, from which the sweat and salt water was running in a stream down off the end of my nose. While engaged in this relief, the vessel gave a great heave of the head, a muffled blow, followed by a crash.

"Topmast gone, sir," said my helm-mate.

But for some reason or other it flashed at the instant through my mind that it was something more than a broken spar, and I instinctively glanced over the lee quarter. Something went by on the crest of the sea in the rain and gloom that looked like the hull of a small vessel. I only saw it indirectly, but what I did see was strongly impressed on my mind.

"See anything?" yelled the Skipper, as he came running aft.

"Yes, what looked like a small vessel." And I pointed off the lee quarter.

"My God! We went right over her," exclaimed the Skipper, jumping up on the wheel-box and holding on the spanker sheet as he searched the darkness astern. The mate, carpenter, and two or three other hands came aft and stood grouped around us, all gazing astern.

"She's gone," said the Skipper, getting down.

"Carpenter, everything fast for'ard? Get along and take a look at the doors and ports. Mr. Cupps, get the mizzen staysail on her and then send your people to the braces."

The mate and men cast the staysail adrift.

"Keep a strain on that sheet, or you'll lose the sail!"

yelled the mate. "Now, then, handy-billy, get a turn there, you. Away she goes. All right, sir."

"Now, you two," said the Skipper, turning to us at the wheel, "mind your eye, and when I say 'down,' roll her over hard."

"Aye, aye, sir."

The weather wheel took off one hand at a time and spit on the palms. When he was through, I did likewise, to give my belt a lift. We took a fresh brace of the feet and waited anxiously for the order. The mate was standing at the break. The Skipper yelled to him. The mate waved back. And then the Skipper cast his eye over his shoulder at the sea astern and waited for a good smooth.

I don't care how often you see a vessel brought to the wind in heavy weather, it is always an anxious and exciting moment, especially if she is deeply laden. You never know what is going to happen and there is always that feeling that it is a sort of touch-and-go performance. This is decidedly more so if you are the man in charge or at the helm. The fellows at the braces are usually too busy looking out for the gear and their own carcasses to be paying much attention as to her coming round or not. The braces belayed, the man in the waist jumps for a high spot, and hangs on, there being nothing more for him to do.

All my nerves were on a tingle, as I kept my eye riveted on the Skipper, every muscle screwed up to spring on the spokes the moment he made the sign. The Skipper was an old hand at the game; had played it many a time with Mrs. Sea, and was not going to be hurried into making a move until things were just as he wanted them. So we waited several minutes, letting sea after sea sweep by, great hills of greyish-green water, now visible as they mounded up ahead and disappeared in the faint white light of the growing dawn. At last, a huge one swept past. Up went the old bark's stern, a white-crested hillock rushed by on each side, then up shot her bow. There was a crashing, roaring and swishing of water amidship, then a hissing of foam and a leveling of the keel. I did not dare to look back, but, in my mind's eye, saw a half a dozen acres of white spread out astern and the chance we had been waiting for—a big smooth.

"Down with her," yelled the Skipper.

The wheel flew round in our hands and then every ounce of beef we had was put into the spokes and the helm came slower and slower to hard over and stopped; two breathless individuals—one hanging and standing on, the other with his shoulder under a spoke. Breathless, we waited—would she answer? Slowly her head began to swing. Foot by foot I could feel the wind moving forward along the rail. A sea broke over her just abaft the main rigging. Then one more plunge and heave, and the bark rode bow to wind and sea.

The Skipper waved his hand to steady the wheel, and we let it go, and it spun swiftly around to midships. Then he walked to the break of the poop, took a look along the main deck and came aft again, a smile on his face.

"Riding as nice as an old woman in a perambulator," he said, taking off his sou'wester and shaking the water off it.

"Now, then, Mr. Ruby, send a couple hands to relieve the wheel, and"—unbuttoning his oilers and fishing in his breeches pocket—"get the people aft and we'll

splice the brace." And so saying he went over to the hatch and called the steward.

"Fine little vessel, Mr. Manton. Good sea-boat," he remarked, as the steward came up with the demijohn and glasses. The crew not needing a second call to gather aft, holding their sou'westers in one hand and wiping off their lips with the edge of the other.

"Answered her helm well," I replied, at the same time wondering why, no matter of what the tonnage of a vessel, if she shows herself seaworthy and handy, is always referred to as a "little vessel" by those who control her movements.

With this thought in my mind, and leaving the master and crew at their job on the main brace, I slipped below and jettisoned my boots, turned in, all standing, with the hopes of picking up a few reaches of sleep before breakfast. Hardly had I begun to doze when the steward woke me with a cup of coffee and a couple of slices of buttered bread.

It seemed that I had slept but a few minutes when a hand on the shoulder, shaking my body, woke me: "Ot water, sir. One bell, sir. Breakfast ready shortly, sir."

"All right, steward. Skipper turned out?"

"Yes, sir; shaving, sir."

The vessel was rolling and riding slowly up and down the seas, the water sloshing out from under her stern and counter, as she settled in the trough. Now and again a big one came over the weather bulwarks and crashed up against the foreside of the house, making a splashing and roaring as it shot out again through the lee freeing ports. It was some job shaving, but I managed to get the worst of the stubble off, and out to the table where the mate and Skipper sat waiting.

The talk at the table turned on the object we had struck in the night while shortening down. Neither Skipper or mate had seen anything, and although at the time, they seemed both satisfied it was a vessel, they now expressed a different opinion, saying it must have been a small piece of wreckage, a timber raft or several spars. One of the hands aloft on the fore-topsail yard asserted positively, "it was a small vessel lying-to, and that the bark had gone clean over her," so the mate said. I could see that the Skipper and mate were trying to save their own feelings by arguing themselves into the belief that it was not a vessel, and consequently, nobody had lost their lives through an action of theirs. If it was a vessel the bark's crew could hardly be held to blame, for on a night like that you could see nothing a hundred yards ahead or astern. We had no lookout, to be sure, the man on lookout being busy in the waist, but even if he had been at his post on the head, it is unlikely he would have seen the object in time for us to dodge it. Word would have had to have been passed aft to alter the helm and with the racket and commotion it could only have been done by sending a messenger with it, for the loudest shout would have been lost in that noise of beating canvas, roaring wind and hissing sea.

Knowing how the two felt, I did not insist upon my evidence confirming what the man in the top said, admitting that it was but a momentary glimpse I had of the object as it swept by, cradled in the crest of a huge roller.

That forenoon, I went forward to the carpenter's shop, where the House of Lords was in session, the carpenter, bo'sun, second mate being seated inside and a couple of the watch hanging around the door. The shop

was on the lee side of the after-end of the fore-house, and sheltered by a heavy tank lashed amidships. In bad weather this and the cook shop was used for these sessions.

Joining the House and taking a seat on the bench, at the invitation of the owner of the box, who brushed a handful of shavings aside and lent a hand to get my body safely landed, I listened to the discussion, which was between the mate and the bo'sun, their subject being the necessity or advisability of heaving the bark to in the present state of the weather. The bo'sun, who was sour, having been routed out of his watch below, was decidedly of the opinion that there was no need to have hauled to the wind, and that the vessel was making good weather of it, and though not expressed openly, he rather hinted that the Skipper and mate had a bad dose of funk.

This was resented by the second mate, who, jealous of the reputations of the after gang, insisted that the bark being old and heavily-laden, it was the only proper thing to do, if—and then he proceeded to extol his own seamanship by saying that when consulted by the Oldman, he had given his opinion that "she ought to be let run it out."

To my knowledge, the Skipper had not consulted anybody about lying-to, and further, the second mate, who had a habit of speaking in parables, whispered to me when he relieved the wheel, "I believes in blocking the rat's 'ole while the rat's still at 'ome," which I took to mean that, in his opinion, it was best to lie-to before the gale forced the job on your hands.

"When 'im and me," said the bo'sun, pointing to Chips, "was along old left-handed Simmons in the Excelsis, we never onc't, me oath on it, Mr. Ruby, seen him 'eave 'er to exceptin' onc't when makin' twelve under bare poles, barring the fore-lower tops'l, and sturm-jib; she run past in one day, 'twixt day up and dark, two score of ones bigger, all lyin'-to. She was some bark, that one, weren't she, Chips?"

"She was," assented Chips, "and us hove her to thick time, Bos', along Ireland being under the lee and me useless with a broken shoulder, being pitched agin the 'arness cask, which, rememberin', laid me hup six weeks."

"Well, there goes seven bells," said the mate, rising to break up the session. "I 'opes as we ain't agoin' to spend the Winter hout 'ere, a-jollifying around. I've got a missus to 'ome as I ain't seen come some two months, and two pay days a-comin' to me."

"Long v'y'ges makes 'eavy purses," said the bo'sun. "I suppose we'll be squarin' away come eight bells, sir."

The mate shook his head, and watching his chance, ran aft along the deck and disappeared up the poop ladder.

That afternoon, sitting with the Skipper over a cup of tea, I told him that the crew were tired of lying-to, and wanted to square away.

"That's like sailors—never happy, no matter how or wherefrom it blows! Not a man, last night, lying belly over the jackstay, but what was cursing me," said the Skipper, "because I hadn't shortened down and a-laid her to before the breeze made heavy. My duty is first to my owners, and consequently, I want to make a fast passage if possible, but with an old vessel deeply-laden, the first thing is to get her safely across, and never mind the days she piles up in the log. These same fellows, if landed at London Dock with a lot of dead horse on their hands, would spit in my jib, and here I am trying to get them a few shillings to shake under the old

woman's nose, and they are filling the foc'sle with their growls, like a lot of sore-footed hounds."

The Captain's harangue was interrupted by the steward, who came in, and in a suppressed voice, said:

"Mate, sir, like to speak with you in the passageway."

Excusing himself, the Skipper went out, and I heard the mate's voice and then the Skipper, evidently discussing some shipnews of import, for the Captain came back with a serious look on his face, finished his cup of tea, took his hat and went on deck; and I followed him.

A group was gathered around the carpenter, kneeling at the well, including the two mates, several of the watch and the bo'sun. When the Skipper joined, they stood aside and let the Oldman through the ring.

"Have another try, carpenter," ordered the Skipper.

Chips took out his lump of chalk, wiped it on his hair, and then carefully whitened the rod. He dropped the iron down the tube and all hands waited in silence for the answer.

"Three feet, sir," said Chips, withdrawing the rod and placing his thumb nail on the water-line.

A sort of spasmodic movement went through the group when this announcement was made. I saw the Skipper's face redden a bit, and then he exclaimed in a forced jocular tone:

"Three feet! Oh, it's worked in through her topsides and deck. Rig the pumps there, and get it out." And turning on his heel, he went aft.

Not a man who stood there but had been to sea long enough to know that three feet of water never came in through the topsides and deck in such a short spell of bad weather as the bark had experienced in the last twenty-four hours. But we all grasped eagerly at the explanation and forced ourselves to accept it. So "hope springs triumphant in the human breast." If the water had come in as the Skipper said, there was no imminent danger. Of course, it had come in that way, we remarked to each other, though, as we uttered the opinion, our experience told us that for so much water to find its way in in a few hours there must be a serious leak.

I went aft, leaving the men at the pump, and found the Skipper standing beside the binnacle. He was evidently greatly disturbed.

"Mr. Manton," he said, "quietly tell the mate and carpenter I want to see them below."

I sauntered forward and gave the mate the message, and turning to the carpenter, he said:

"Chips, take a turn with me in the lazarette and see if that rudder-port coat is leaking again." And the two of them went below, to the conference with the Skipper.

It was some ten minutes before all three came on deck again and went forward, evidently going to explore the fore-peak. Both pumps were now clanging briskly, and the water gushing out, ran back and forth on the deck in a foamy mass, at last escaping through the lee ports to join the sea again. There is no work so cruel as pumping a leaking ship, an endless, useless toil, like trying to make a rope of sand or a blanket of the wind. This is a thousand times more so when you realize that your toil is only staving off the inevitable hour, and that, pump or not, the vessel is doomed. The men on the bark that day seemed to know that their toil was useless. You could see it in their shoulders and legs. The spring out of the mind, the spring is out of the body.

At four bells the carpenter dropped his rod down again and the news that he brought up was bad—very bad. Six inches more despite the pumps. The Skipper, hoping perhaps, to help things, decided to run her off and try the well again. She might leak less run before it than lying head-to.

But to sheep-shank the yarn, at daylight next day there was scant of six feet in the hold and even a landsman could see she was sinking fast. The wind and sea were going down, the men were standing in a disconsolate group with their backs against the deckhouse.

At six o'clock, the Skipper came below and told the steward to get the stores ready for the boats, and then turning to me, said:

"Manton, go and have a look in the boats and see if the breakers are full. Taste the water, be sure of that, and let me know. Then I want you for another job."

I did as ordered, found the breakers full of fresh water, took a look at the plugs and other gear, and came aft and reported to the Skipper, who went on deck and called all hands aft. In a few words he told them the ship was doomed, and that they would have to take to the boats.

(To be Continued)



The Doctor and His Friend, Mr. Fred. Stone, of Chin-Chin Fame



The Oldman Shooting the Sun and the Other Runner at the Wheel

SOUTHWARD HO!

BEING AN ACCOUNT OF THE SAILING OF THE YACHT WISDOM, HUGUENOT Y. C., ON A 10,000-MILE VOYAGE TO THE TROPICS

PART I

There's a touch of Summer in my veins,
And, Oh, I have restless grown;
My heart complains in Winter's chains,
And my thoughts are Southward blown.
Away, and away, for I long to nest
Once again in thy arms, O South!
To marry the zest of thy wanton breast,
And the kiss of thy warm, wet mouth.

AGES and ages ago, when our progenitors were birds, a habit was developed of taking wing to the South. This habit became an instinct, and despite the millions of years that have passed since we had wings, this instinct is yet strong within us. No sooner does the sun shrink its declination, the flowers fade, the leaves redden, and the spirit of Winter hang in misty threatenings over hillside, meadow and sea, than that longing for the South wakens within us. It is like the call at evening, the heart-drag the fresh young lover feels that sends him speeding with light feet towards the dwelling of his mistress, or the trysting place under the lofty elms. Why waste life in the realms of frost and snow when a few degrees South, a few days running before the good wind, and lo! the blue water is under the forefoot, the round, fleecy clouds processioning overhead, and under the lee the surf-girdled reef, the tossing fringe of palms, and at night the star-spangled heavens, a vast expanse of blue-black velvet, on which, like unset jewels, scattered by the careless hand of a drunken wanton, lie a thousand sparkling gems. Each of these flashing orbs has a counterpart in the depths, and as the forefoot breaks the ebony stretches, it seems to stir and scatter them like a boat driving its prow through a field of lilies. At such time at the helm, or leaning over the rail, the old song runs through the brain, and accompanied by sea, wind and sail, cheers the ship on her Southward course:

I'm sick and tired of the harbor's tide;
The thousand tongues of the toiling mart;
O, shape my course for the ocean wide,
Across the Gulf, to the Tropics' heart.

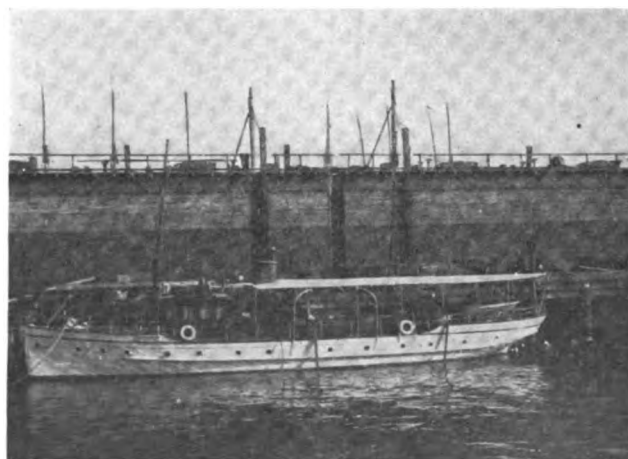
I'll have new stars to pilot my way,
I'll lose the old in the wake I throw,
For the winds that followed me yesterday
Are the winds that I used to know.

Alas, for our instincts that prompt us to fly Southward to the warmth and glow of the Tropics, when the chains that bind, the slavery of modern life, the greed for wealth, hold us to the pillar of toil. How often do we wish, that, like Samson, we could seize this pillar and with one mighty heave, pull it down and destroy the whole confining, cramping structure of our social existence, and be free to follow the old winds again.

Such were my feelings when the yacht Wisdom, bound on a 10,000-mile voyage in the tropic seas, sailed away, leaving me on the wharf to face another Northern Win-

ter. Five months of snow, frost, sleet and misery. Just think of it! Through the West Indies, across the Caribbean, along the Hondurian and Mosquito coasts; through the Panama Canal, up the West coast of Central America and into the Gulf of California. Then South again to the Galapagos and Chincha Islands, Juan Fernandez, and then the rainless peak-bordered coast of Peru and Ecuador.

The fitting out of a vessel for such a voyage is some task, and it took Dr. Salisbury and his corps of assistants nearly two months to get the Wisdom ready for her long trip. Wisdom, originally Loantaka, was designed by Bowes & Watts, for Mr. H. S. Peters, of Dover, N. J., and built by Hiram Weller's Sons, at Trenton, in 1909. Her principal dimensions are: Length over all 73 feet, water-line 67 feet, breadth 14 feet, draught 4 feet 6 inches. She is powered with a Reeves-Graef engine, four-stroke, three-cylinder, 10-inch by 12-inch, which gives her a speed of scant 7 knots. Loantaka came out the year of the Habana Race, and was enlisted for that event, but owing to engine trouble was obliged to withdraw after reaching the Delaware Capes. The vessel has some excellent features, and some very bad ones. She has a raised poop and forecastle, thus giving head-room and ventilation where needed. Her living accommodations are good, but the engine room is an awful hole. The motor takes up the whole length, and in order to get from one side of the machine to the other, you have to climb over it. The only entrance to the engine room is through a window. The galley is under the pilothouse, which is used as a dining room, and the only way to enter this in bad weather is through the dumb-waiter. The hatch to the foc'sle has a low coaming, and



Wisdom Fitting Out

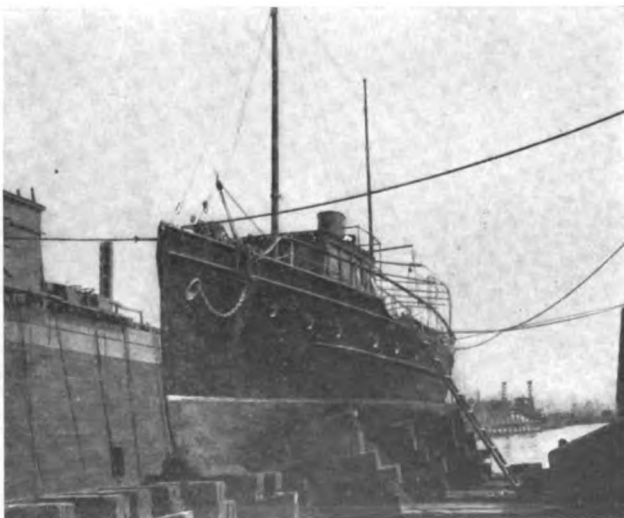
placed where a sea breaking over would flood the place. I understand the designers were not responsible for these arrangements, they being improvements added by the builders. Take the same hull with sensible arrangements of the below space, and you would have an ideal boat. The engine room, galley and crew quarters should be aft, and the whole forward quarters given up to the owner's use.

Despite what had been written and sung about using riveted tanks, Dr. Salisbury was persuaded by his skipper and some other equally wise heads to have them built to fit the skin, to hold 500 gallons. The result was disastrous. Every one of the tanks leaked more or less, even after considerable patching. At last they were thrown out on the dock and it was decided to put in cylindrical tanks. Owing to war orders, Janney & Steinmetz were unable to supply the tanks, and five were purchased from Koven Brothers. These five, holding about 450 gallons, were cradled in the engine room, the installation being done by the Gas Engine & Power Company, who made a fine job of it.

Again let me raise my voice in warning against the riveted tank, especially those built out of light sheet metal, either copper or iron. I do not deny that a reasonably safe riveted tank can be built out of heavy copper, but why go to that expense when an absolutely safe cylinder tank can be purchased for half the money?

Besides her load of full 900 gallons, giving a cruising radius of 1,500 miles, *Wisdom* was deeply laden with all kinds of stores, including three moving picture cameras and 300,000 feet of film, which Dr. Salisbury hopes to cover with pictures of beasts, birds and fishes. He is unquestionably the best animal photographer in the world; his pictures of birds, especially, are marvelous, and his films are not fake takings of prearranged stuffed or doped creatures, but the actual thing in its wild and woolly state. The Doctor has spent his life in the wilds, and what he doesn't know about the habits of fur, fin and feather is not much.

Wisdom has three boats, one being a 16-foot Toppan dory, which will be used for side expeditions of the smaller waterways. This will be driven by an Evinrude. For some time Dr. Salisbury was undecided which outboard motor he would order, but on reading of our trip to Boston in the *Sea Pup*, he decided for the Evinrude.



In Dry Dock Having Her Bottom Painted



Dr. E. Salisbury. Owner and Skipper of *Wisdom*

After a number of delays and disappointments, the *Wisdom* left New York for Norfolk, Va., her first port of call, on October 28th, at 4:30 p. m. Fine sky overhead and light West wind. On board were the owner, his two brothers, Messrs. C. and W. Salisbury; two camera men, Messrs. Dolph and Stone; a young man from Kansas City, Mo.; the navigator, Charles Earle, who was mate of Detroit on the voyage to Petrograd; four professional crew, a machinist, a cat and dog and the Oldman; in all fifteen souls.

The Oldman and Mr. C. Salisbury shipped as runners, intending to jump the ship at Norfolk, and come back to New York, having to play snowbird this Winter. I would have given a year of my life to have been able to go the whole voyage.

It was the first time for some five years that I have passed out of New York Harbor through the Swash at night, and there was never such a mess of lights. A well-lighted channel or coast is a good thing, but it can be overdone, and New York Bay is a specimen of overdoing. The result is that, instead of being a help, it is a hindrance to navigation. The same thing at the entrance to Long Island Sound—too many lighthouses. One-half could be dispensed with. Lighthouses, light-ship, light buoys, masthead lights, house lights, street lights, searchlights, all jumbled together and making a mess through which it is difficult to pick the right channel. Once clear of this junk of stuff, we put *Wisdom's* bow South and made along the Jersey coast to pass Barnegat about three miles off. It was a perfect night, light Westerly wind, cloudless sky and the moon due to rise at eight o'clock. On the bridge, that watch. I was wondering why men will choose to take their boats South, through those dirty canals, when it would be easier and safer to run the coast. Think of the saving of time and money, let alone the wear and tear on the motor and boat, by going down outside. To get to Norfolk by canal, river and bay takes from five to six days; you can do it easily outside in 48 hours. There is less danger going outside than inside, despite what the canal navigators tell you. Pick your weather and you are as safe as a swanboat on Central Park pond. When, oh when, will men lose this silly fear of the sea!

When at four o'clock we turned out again to take the watch, the wind had backed to the Sou'west and blowing strong with a bit of sea making up. The motor was running like a clock, and the vessel doing about seven knots. Some of the crew, green from the pastures of the West, were not feeling very brisk and the engineer was down-and-out. George Stone, who was in my watch.



Captain Day, Dr. Salisbury and Mr. John I. Amory. Talking About the Trip

was rather upset, but stood to his work like a major, taking his trick and lookout, and between heavens, reporting lights and sails. He was a man after my heart, one of the sort you want on an expedition of this kind. The sea, in a small boat, is no place for weaklings or quitters.

Along towards morning the sea began to get on its hindlegs, so I suggested that we put into harbor behind the breakwater at Cape Henlopen, and give the wounded a chance to get on their pins again, especially as some necessary work was to be done in the engine room, and it was impossible to work down there with the boat pitching about. The vessel carries a refrigerating plant, as chilled water is needed in developing the films. This was not running and we had a mechanic on board to overhaul and get it started. At half past one, we made the end of the breakwater and ran into the dock at Lewes.

The breakwater at Henlopen consists of two huge walls and an ice-breaker. A wall flush with the sea, having every so many feet, a raised nub to cut the frosty fields when they come, wind-and-tide-pressed, down the bay. The best entrance for vessels bound South is between the Southeast end and the pitch of the cape, this passage being full 500 yards wide. There are lights on each end of the breakwater. The dock at Lewes is a private affair and a charge is made for making fast of one cent per running foot, each twenty-four hours. But no charge is made if you remain less than two hours. Water and gasolene can be had.

We made Wisdom fast to the pier about two o'clock, having taken 22 hours to voyage from Jersey City. Lewes is about halfway to Norfolk. This town is the station for the Philadelphia pilots, who have a steam vessel off here to pick up the vessels in-and-out-bound. In the old sailing-ship days they used to keep watch at the cape and when a vessel was sighted, pull off to her. They were real pilots in those days; men who navigated with lead, marks and bearings. It is also a fishing station, and a Government proving ground.

A canal, with 8 feet high tide, is being dug, the sea entrance being West of the town, to join the Delaware with the inland waters, stretching down back of the Delaware and Maryland Beaches. It will eventually connect Rehoboth, Indian River, Assawoman and Chincoteague Bays, making a passage for small craft from Lewes to Assateague Light. The entrance at Lewes is marked by a beacon standing on a stone jetty.

Everybody was busy fishing at Lewes, there being a big run of weakfish and skates. An old fellow on the dock was catching these beauties of the sea two at a

lick, much to his disgust and our amusement. Skates are beginning to find a market, the Russian and Polish Jews and Italians eating them. The only part eatable are the wings, and these only when you understand cooking them. I ate the mess once and it wasn't bad, but all the rest that I am entitled to the children of Moses can have with compliments and best wishes.

As the engineers had not finished their job, we lay all night at the pier, and whiled away the evening hours by telling yarns. The Doctor has spent several seasons fishing and hunting in the Gulf of California, and has met with many strange adventures. These are two of his yarns, both of which, I have no reason to doubt, are founded on actual experience:

In the Gulf of California lives a gigantic ray, the largest of the fishes, measuring some 20 to 30 feet across, and weighing several tons. The natives of Tiburon Island, so the Doctor said, use this fish as a dry dock for their canoes. They make a decoction of some bark and cast it into the water to stupefy the ray, and this causes it to rise to the surface, bringing up the canoe on its back. The natives then use the fish as a platform to work on. When through with the job they revive the ray by blowing in its ear, and it sinks down and allows the canoe to float off.

Another story that greatly interested all hands was brought about by the Doctor stating that in no place in the world are there so many fish as in this Gulf. One night, when entering a small bay in the Wanderer, the anchor was let go. This hook weighed 56 lb. To the astonishment of the crew, the anchor, instead of going direct to the bottom, went flying off at an angle, the chain ripping out of the hawse pipe like mad. It was hauled in and another attempt made to cast it. Again the hook went flying off to one side. To the further astonishment of all hands, the waters were alive with great bass, who, as soon as the anchor reached the water, seized it in their mouths and ran off with it. No sooner did one tire and drop it than another fish seized the hook. For several hours they played in this way with the anchor and chain, until at last, thoroughly tired out, with one last flip of their gigantic tails, they sailed off, leaving the Wanderer to come to anchor in peace.

From bass the talk drifted over into the shark country, this always being a favorite theme with sailormen. There was the usual split, half asserting the shark to be a harmless creature with no hankering for human flesh, and



Giving the Evinrude a Look Over

the other half picturing carcharodon as a ravenous lover of raw homo. But, however we might disagree as to the shark being a man-eater, we all agreed he had no scruples as to what he swallowed. This sprang the trigger, and Bill Salisbury related one of his boyhood adventures. Somewhere near the Catalina Islands, the home of the family, one day he was filling a lantern on the side of the boat when his foot slipping, lamp and oil can went overboard, and sunk to the depths. In the clear water they could be seen going down, down, for several fathoms. The next day, while fishing, they caught a shark, and observing he was rather distended in the abdominal region, cut him open. Inside was the lamp and can, and, to their astonishment, the lantern was filled and alight. How had the shark managed to light the lamp? This was the question that kept all hands awake during the middle watch. Next morning a Jap fisherman came alongside and asked for some matches. In reply to a question he explained that, while leaning over the rail of his boat lighting his pipe, an albicore had suddenly jumped and snatched the box of matches from between his fingers. Evidently the shark got the match from the albicore, but how?

From sharks we got onto hurricanes and tidal waves, and this threw Electrician Dolph into the circuit and he told how, at Lima, Peru, they ran a rubberneck trolley car a 30-mile ride inland to see a ship that had been swept up among the mountains and left there by a great wave. This broke up the meeting.

The next morning it started to blow a gale from the Nor'west, and we had to stream the vessel off the dock, the breeze in this direction coming right down the bay and kicking up a nasty bobble. The small engine not being ready, we waited, the mechanics working on the dock where there was no danger of seasickness.

Close to a station on the Long Island Railroad is a sign which reads: "Please do not judge this town by the depot." Similarly, do not judge the town of Lewes by what you see from the dock. A quarter-mile walk up a concrete sidewalk will bring you to a fairly good village, the people being polite and interested, but I regret we can not speak highly of the youth of that locality. One of these, aged eleven, first asked for a cigarette. This being refused, he requested a "chaw of terbacker." He admitted he drank whiskey when available, and on further question, had an intimate knowledge of all the haunts of vice, even to hours of entertainment, prices, etc. I asked if he didn't want to grow up to be a President. He said no, he wanted to be a man. Remembering some of the late occupants of that exalted office, we decided our young friend showed, in this instance, a wisdom beyond his years.

It was not until nightfall that the wind dropped sufficiently to allow us to haul Wisdom alongside and get the engine aboard. This done, we let go and stood out to sea, passing Henlopen at 8:30 and heading South along the beach. This shore can be safely lined at a distance of a sea league; the only shoal extending off any distance is

at Assateague. The lights are about 20 miles apart, and you pick up the one ahead before losing the one astern. The two lightships, Winter Quarters and Fenwick, have been moved offshore in late years on account of the increasing draught of the coasting craft, but there is no need of a light-draught vessel going out to them.

When you get down abreast Hog Island, if the weather is clear, you can haul in close to the beach, but keep a good lookout for breaks, as there are several lumps or wrecks over which the sea breaks. There is a large sailing vessel ashore right under the old light tower at Cape Charles, the new light being built on the West side of the island. Both at Cape Charles and Cape Henry there are old and new towers. By keeping the lead going and not getting into less than two fathoms, you can skin Cape Charles pretty close, save distance and head up into the Chesapeake.

We passed Thimble Shoals about 4 p. m., saluting and receiving a salute from the keeper. This was the light that a schooner ran into, knocked over and set on fire. Several of these bug lights have been injured in this way. One in Dublin Bay was run down by a mail steamer and the keeper and assistant killed. The new tower is much more substantial than the old, and has one of the new-fangled sirens that come out of the roof. Don't attempt to pass North of this light as the shoal is covered with stake nets.

We got into the Elizabeth River and just at dusk made Norfolk, and came to anchor in the bight by the Norfolk Boat Club, being 44 hours steaming from New York, a speed of about 7 knots.

Norfolk is growing very fast, and the shipping has increased tremendously in the last few years, so that the harbor is alive with craft, making it a poor place to lie with a small vessel. The best anchorage is through the drawbridge, where you can either lie at the hook or go into a dock and tie up, but this place is unhandy to get to the main street of the village.

That night, I jumped the ship and came back to New York, having to waste my Winter trying to pull two dollars a head out of the pockets of a lot of miserly yachtsmen.

The Wisdom will go on to Cape Hatteras, lay there for a few days until Mr. Rex Beach, who will accompany the expedition as its historiographer, joins the ship. From Hatteras, they will run away South, visiting Charleston, Jacksonville, Miami, Nassau, Habana, and then away to the East coast of Honduras. Mr. Earle, who represents THE RUDDER, will continue the yarn of the voyage from where we now leave off.

When I feel the Winter's closing grip,
Then my veins are flushed with fire;
And my thoughts outstrip the flying ship,
To the land of my desire.
Then away, away, for I can not rest
'Till I follow the wind and greet
Those isles that crest, where the East and West,
And the old and the new world meet.





OUR FOREIGN TRADE

OVER A MILLION DOLLARS' WORTH OF BOATS AND ENGINES SHIPPED ABROAD FROM JULY 1, 1914. TO JULY 1, 1915

AMERICA'S opportunity to secure an enormous increase in her foreign business in marine motors and power boats along strictly commercial lines has now arrived, and we earnestly advise engine manufacturers and boat builders to immediately make a determined bid not only to secure the existing markets, but to create business by competition. From now onwards there is going to be a big field abroad, particularly for the sale of small commercial craft, heavy-duty engines, and accessories, and those who get in early naturally will secure the cream of the orders. All this entirely apart from huge war orders, such as several domestic concerns recently have received, and of which many more will be placed during the next year.

The United States Government intends to help manufacturers and traders in general. Elaborate plans for a world-wide campaign for trade are revealed in the estimates of the Department of Commerce expenditures for the next fiscal year, to be presented to Congress this Winter. Through the Bureau of Foreign and Domestic Commerce the Department proposes to aid American merchants and manufacturers to take advantage of the wonderful opportunities now before them and to prepare for the struggle for trade supremacy which commercial officials are certain will follow the European war.

Reorganization of the staff in Washington and an increase of the foreign commercial service to about twice its present extent are contemplated, according to a statement discussing the new estimates made public recently by Dr. E. E. Pratt, chief of the bureau. Appropriations will be sought to provide for extensive investigations of commercial conditions abroad and for tariff inquiries by the cost of production division.

In order to aid and protect the enormous number of RUDDER readers and subscribers abroad, the publishers of this magazine have established a Purchasing Bureau, the free services of which are offered to any reader outside of the United States.

Despite the sudden slump that occurred during the first three months of the great European war, the twelve months ending June, 1915, show a total export of American power boats and marine motors exceeding one million dollars. As may be expected, this amount is much less than the previous twelve months, due, of course, to the three months when orders

were cancelled right and left. However, since the date of the figures given herewith, we have reason to believe that the exports in boats and engines far exceed the exports of any previous three months in the history of motor boating, while indications strongly point to a bumper year for 1916. We draw the attention of manufacturers and builders to the fact that there is no magazine so closely in touch with devotees of the sport and industry in foreign parts as is THE RUDDER. We firmly believe that our Purchasing Bureau will be a wonderful help to the entire trade, as the man five thousand miles away will no longer be nervous about sending his hard-earned money to the United States. It is to the interests of boat builders and manufacturers to assist THE RUDDER in its campaign of obtaining foreign business.

We now append the official figures of the exports of motor boats and marine internal-combustion engines which have been furnished us by the Department of Commerce, Washington:

EXPORTS OF DOMESTIC MARINE GASOLENE ENGINES FROM THE UNITED STATES DURING THE YEAR ENDING JUNE 30, 1915.

Countries	No.	Amt.	Countries	No.	Amt.
Austria-Hungary	25	\$3,097	Santo Domingo	13	\$2,400
Denmark	71	8,710	Argentina	90	11,327
Finland	10	3,824	Brazil	102	17,428
France	81	8,661	Chile	33	3,821
Germany	16	2,557	Colombia	38	4,218
Greece	19	3,477	Ecuador	56	11,185
Italy	74	9,072	Peru	17	5,052
Netherlands	231	16,387	Uruguay	19	2,205
Norway	180	29,608	Venezuela	53	4,808
Russia in Europe	109	19,876	China	29	8,280
Spain	57	7,100	British India	179	18,208
Sweden	66	8,964	Straits Settlements	52	3,552
Switzerland	25	4,438	Japan	19	3,548
Turkey in Eur.	5	2,680	Siam	25	2,296
England	622	57,639	Australia	603	85,517
Scotland	49	6,306	New Zealand	144	20,338
British Honduras	25	9,581	Other British		
Canada	1042	147,730	Oceania	25	6,011
Costa Rica	13	3,801	French Oceania	2	2,490
Guatemala	9	4,656	Philippine Islands	91	20,137
Honduras	20	3,095	Brit. So. Africa	108	12,134
Nicaragua	13	3,300	Portug'se Africa	5	2,593
Panama	46	12,080	All other countries	136	16,513
Mexico	45	13,193			
Newfoundland	953	65,127			
Brit. West Indies	34	5,429			
Cuba	228	29,027			
			Total	5907	\$753,476

(Continued on the next page)

EXPORTS OF MOTOR BOATS FROM THE UNITED STATES DURING THE
TWELVE MONTHS ENDING JUNE 30, 1915.

Countries	No.	Amt.	Countries	No.	Amt.
Germany	1	\$110	Cuba	11	\$6,724
Netherlands	1	284	French W. Indies	2	3,960
Portugal	1	221	Haiti	1	182
Spain	1	270	Santo Domingo .	2	738
Sweden	1	200	Argentina	1	2,708
Turkey in Europe	1	1,350	Brazil	7	2,209
England	4	21,166	Colombia	9	26,810
Bermuda	1	600	Ecuador	6	1,303
Canada	45	23,387	Peru	4	14,901
Costa Rica	2	757	Venezuela	1	5,123
Guatemala	1	1,730	China	2	590
Honduras	4	2,360	British India....	5	2,073
Nicaragua	3	1,465	Dutch E. Indies..	1	2,500
Panama	6	14,184	British Oceania..	1	1,282
Salvador	2	2,003	Philippine Islands	4	5,500
Mexico	25	115,516	Belgian Kongo...	1	1,700
Newfoundland and Labrador	1	3,000	British W. Africa	2	3,600
Jamaica	1	170	British E. Africa	1	1,500
Other British W. Indies	1	240	Liberia	1	1,100
			Total	164	\$273,516

An interesting point is while trade with Germany is \$71,836 less than the previous year, our English complete motor boat business actually has slightly increased, although the number and value of separate engines sold is less. Canada still remains our best market for en-

gines, with Australia a close second, while Mexico is easily our largest purchaser of complete motor boats. South America and Central America together account for nearly \$200,000 worth of complete boats, indicating that the war has little affected those countries.

In order that American business men may be able to procure condensed, authoritative information with respect to the way in which the European nations carry on trade campaigns and organize their commercial activities at home, the Bureau of Foreign and Domestic Commerce, Department of Commerce, has been issuing pamphlet presentations of the subject, covering several of the leading European countries. Monographs on Germany, France, and the United Kingdom have already appeared, and one on Switzerland is the latest to come from the press. This booklet, entitled, "Commercial Organizations in Switzerland," reviews the history of chambers of commerce and trade, explains the independent and official types of organizations and their functions, and gives particular attention to the Swiss Commercial and Industrial Association, which comprises in its membership all Swiss commercial organizations of consequence.

Domestic firms will do well to bear in mind that establishing agents abroad and sending over capable salesmen is of little use unless previous and continuous missionary work is done by means of advertising.



MORE HUGE WAR ORDERS

125 ENGINES EACH OF 200-H.P. FOR PATROL BOATS

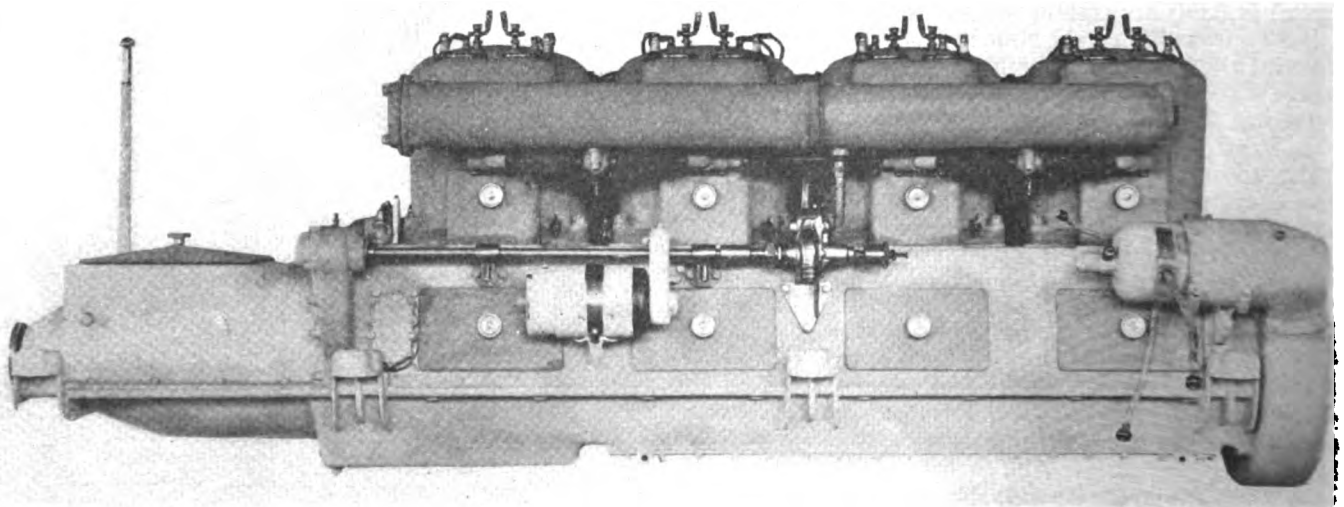
IN past issues we have referred to the large numbers of fast motor patrol boats and submarine chasers now on order with various American boat builders and engine manufacturers, and some of these have been illustrated and described. We now are able to announce that the Italian Government is to be added to the list of purchasers, with the result that the Sterling Engine Company has received orders for 125 marine gasolene engines of 200-h.p.

Each of these engines will have eight cylinders, 5½ inches diameter by 6¾ inches stroke, and the rated power is developed at 1,500 r.p.m., but as the test shows, are

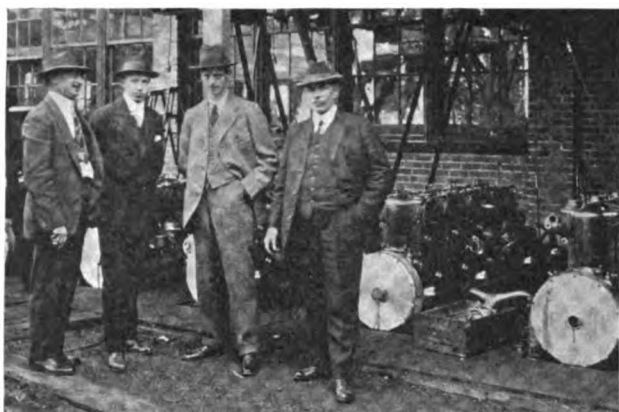
capable of developing 216-b.h.p. at 1,600 r.p.m. on a weight of 2,100 lb, the latter including electric starter generator, reverse gear, etc.

Two of these engines will be installed per boat, which are of the high-speed patrol type, 53 feet long by 9 feet breadth, with a designed speed of 30 knots (34½ m.p.h.) for two to ten continuous hours. On trials a speed of 32 knots is expected. The design of the hull will follow the wave-collecting principle.

The engines now being put out for the Italian Government are being run continuously from six to eight hours, even ten hours; then the motor is taken down, bearings



One of the 200-H.P. American-Built Engines of the Italian Patrol Boats



Representatives of Three Nations at the Sterling Works. Reading from Right to Left: Sig. Lantéruro of Italy, Mr. Geo. F. Joseph of England, Mr. Blom Furuholmen of Norway and Mr. Chas. A. Crique, President of Sterling Engine Co.

are removed and everything examined, and they have been coming out with a clean score.

Under the circumstances particular care had to be taken over the dimensions of the bearings, and the lubrication arrangements. There is a sump pit on the after end of the motor, having a large float connected with an indicator at the rear of the machine, showing at all times the height of the oil in this sump pit or reservoir. The oil is pumped from this pit with a large gear pump through a filter. From the filter it is carried through a brass distributing tube, with branches to the main bearing, thence through a hollow crank shaft to the connecting rod bearings, also in to the clutch.

At the forward end of this main oil tube there is a relief valve which is set to maintain a certain pressure on the oiling system. At this relief valve there is a con-

nection for a gauge showing the amount of pressure on the oiling system at all times. The surplus oil flows into the forward part of the motor and runs back through the base of the motor, filling the depressions that are made in the lower pan for splash lubrication. This system provides a positive force-feed lubrication in addition to a splash lubrication.

With the design and construction of this oiling system it is not necessary to maintain over 2 to 3 lb pressure, state the makers, for the reason that the oil enters the top side of the bearing and is carried around to the lower side of the bearing by the action of the shaft. The overflow oil is then carried through the shaft and thrown on to the connecting rod bearing. We understand that some of these engines are for other governments, but mostly for Italy.

The test on two of these engines is as follows:

NUMBER OF MOTOR 014			NUMBER OF MOTOR 022		
R.P.M.	Lbs. Pull	H.P.	R.P.M.	Lbs. Pull	H.P.
500	305	76	500	320	80
1,000	325	162½	1,000	320	160
1,100	328	180	1,100	320	176
1,200	320	192	1,200	305	183
1,300	305	198	1,300	300	195
1,400	294	206	1,400	288	201
1,500	277	208	1,500	286	214
1,600	265	212	1,600	270	216

It is interesting to note that these engines are very suitable for express cruiser work, being of entirely enclosed design, including the flywheel, electric starter, reverse gears, valves, etc., yet, of course, accessible immediately the casings are removed.

FAST PATROL BOAT

A 50-FOOT by 8½-foot Italian patrol boat recently has been equipped with two 150-180-h.p. Sterling marine gasolene engines. According to reports from Italy, a speed of 30 knots was obtained on the trial run.

YACHTS THAT PASS BY DAY

A NOVEL COMPETITION FOR RUDDER READERS

“BOAT Ahoy!” When the lookout man calls these two words every yachting or motor-boating man knows how, when cruising, a rush is made by all aboard for the binoculars in order to find out the name and club of the power yacht passing by. Often curiosity prompts this action, but generally real interest is the cause of the desire to know about the yachts that pass during the day, particularly if the craft happens to be attractive.

In connection with this we offer a simple competition to our readers. On the following page are pictures of five pleasure craft, from which we have removed the names and club burgees. To the reader sending the most correct list of names of the boats, owners' names and clubs we will award a prize, with second and third prizes for the next nearest. In case of more than one competitor being absolutely correct, the first opened will receive the first prize, but all competitors who are correct will receive a special prize. The Editor's decision is to be final in making awards, and all entries will be accepted only on this condition being understood.

All entries will be opened on January 1st so that all American readers will have the same chance in case of more than one being correct. Envelopes containing entries must be marked “Yachts That Pass by Day Com-

petition,” and addressed to The Editor of THE RUDDER, 254 West 34th Street, New York City.

Regarding the prizes, we have decided to offer valuable books. Back volumes of THE RUDDER are very scarce, so we could hardly offer anything more desirable to the sea-loving man. They are as follows:

FIRST PRIZE

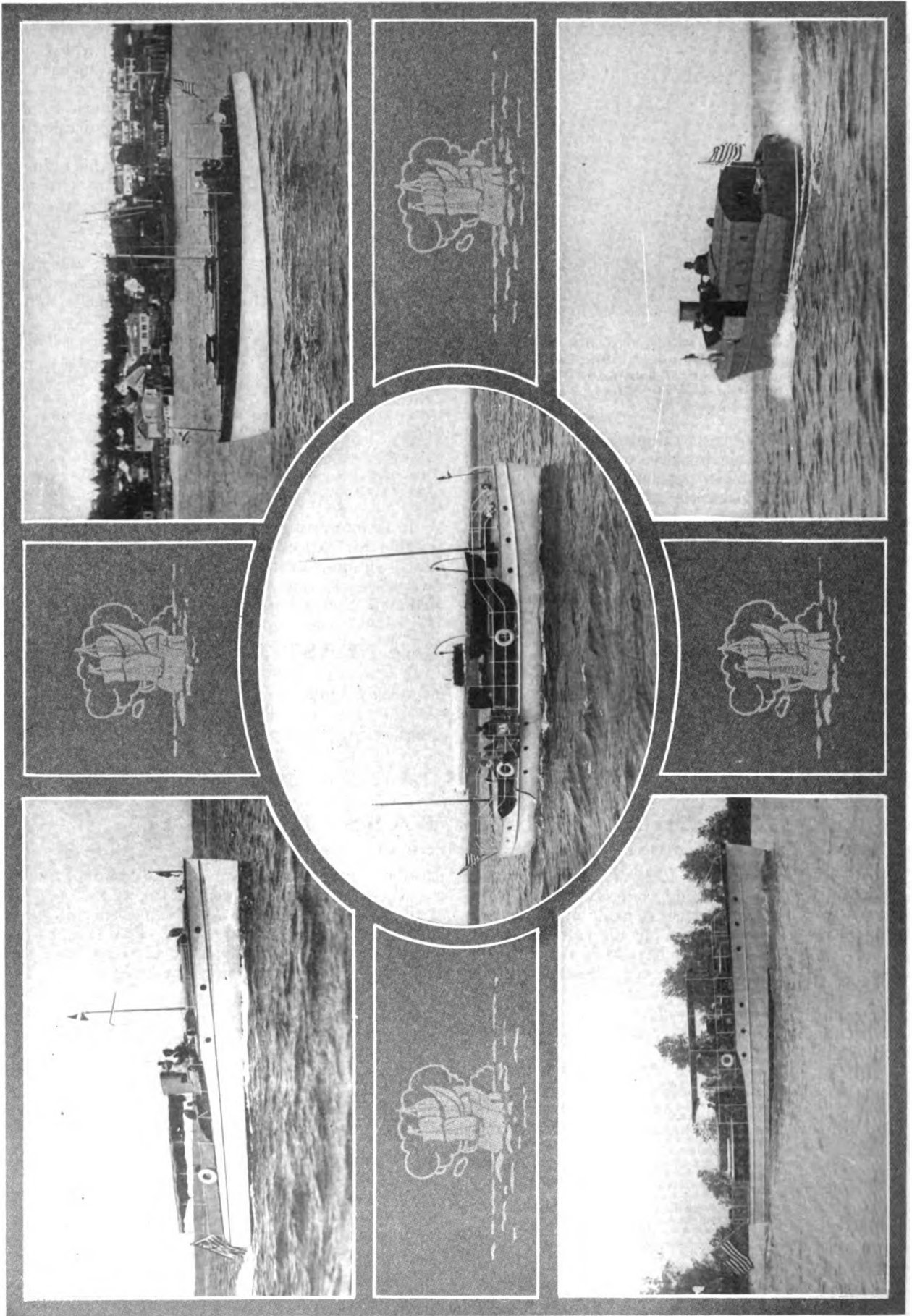
- A volume of THE RUDDER for 1910.
- A volume of THE RUDDER for 1911.
- A volume of THE RUDDER for 1912.
- A volume of *The Cruiser* for 1907.
- A volume of *The Cruiser* for 1908.
- Copy of *Five Nights in a Yacht Club*.
- Copy of *Adventures of Two Yachtsmen*.

SECOND PRIZE

- A volume of THE RUDDER for 1912.
- A volume of THE RUDDER for 1913.
- A volume of *The Cruiser* for 1908.
- Copy of *Five Nights in a Yacht Club*.

THIRD PRIZE

- A volume of THE RUDDER for 1908.
- A volume of THE RUDDER for 1913.
- Copy of *Adventures of Two Yachtsmen*.



Do You Know the Names of These Boats? See Preceding Page



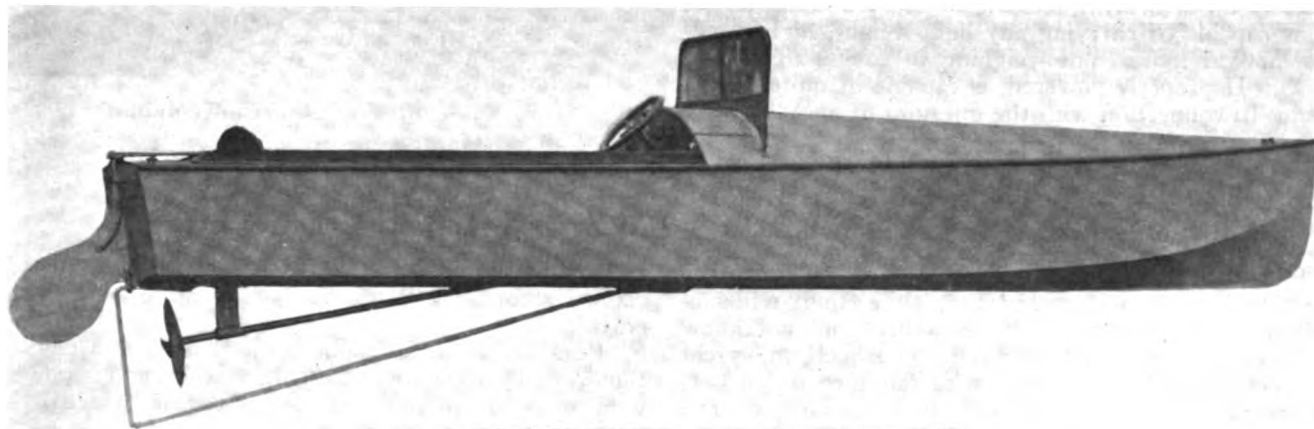
The Brooks Seventeen-Foot Stepless Hydroplane at Speed

KNOCKDOWN FRAME HYDROPLANE

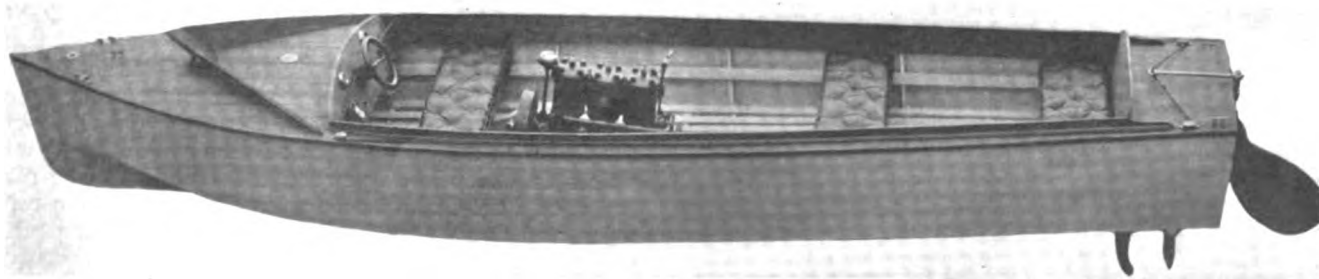
WE are enabled to give some very interesting pictures of two 17-foot stepless hydroplanes built from knockdown frames. Both of these boats were built from the same general patterns, and they show how additional seating capacity can be gained by a slight variation of the deck construction. As may be expected, two extra passengers in the one boat reduces her speed somewhat, when her performance is compared with that of the four-seater.

Frames, planking, working instructions, etc., to build these boats in your own backyard can be obtained from the Brooks Manufacturing Company, of Saginaw, Mich., who kindly furnished THE RUDDER with the illustrations.

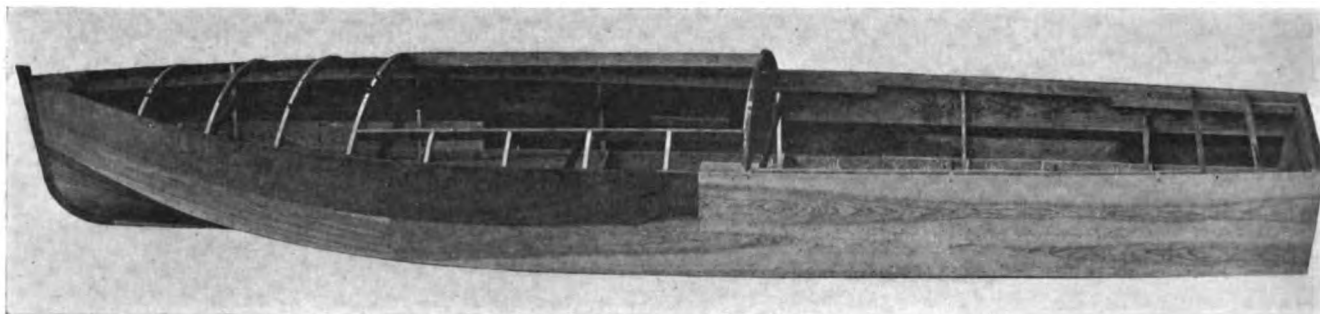
As will be noted, the hull has V-sections forward, the chime meeting the water-line a little forward of amidships, so that from amidships to the stern the bottom is nearly flat, making the boat a sort of glider, while the forward sections should keep her nice and dry in broken water. With one design the deck is carried to amidships, covering up the engine, and a spray and wind screen is fitted. With the second arrangement about five feet only of the forward part is decked, making room for an additional seat forward of the engine, which is not housed. Personally, we consider the first arrangement preferable, unless the extra seating accommodations really be required.



The Same Boat Built as a Four-Seater Racer



Showing the Arrangement of the Six-Seater



The Seventeen-Foot Brooks Hydroplane Partially Constructed

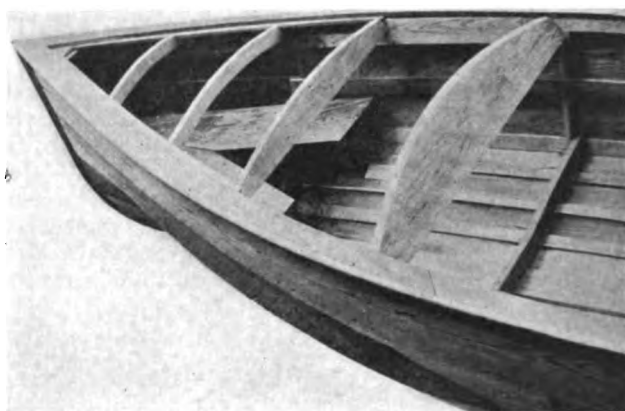
The hull is strongly constructed throughout, all frame parts being of white oak, with $\frac{3}{8}$ -inch planking of Louisiana red cypress, while the frames are closely spaced. In designing the hull particular care was taken to make the construction as simple as possible, and the makers are positive that any ordinary person, without knowledge of the handling of tools, can build this boat without difficulty. The frames are furnished completely cut to shape and notched for stringers, while planking is also shaped and ready for use.

The really surprising feature of this hull, however, is the price, which they have been able to keep very low. The 1916 price has not, as yet, been determined; however, at the present time, they are furnishing this boat knocked down complete for open cockpit at a price of \$40, and finished ready for the water at a price of \$85.

Of course, this does not include the engine; and for the deck extension, bulkhead and auto control there are extra charges.

In addition to speed qualities, this hydroplane possesses the seaworthy features of the V-bottom design, and is capable of carrying any light-weight, high-speed-type inboard motor, not weighing in excess of 600 to 700 lb. If properly powered, is capable of quite a high speed. In connection with the question of speed, it may

be mentioned that the builders fitted an old 1912 model 12-h.p. Erd motor that had seen considerable use, yet a speed of 22 miles an hour was obtained. So it will be obvious that a light-weight motor of higher power could bring the speed up to 30 or more miles an hour, but in such a case it may be advisable to doubly-plank the underbody.



A View of the Bow Construction

PEGASUS, A SPEEDY TWENTY-EIGHT-FOOTER

SOME men will build a house that is a monument of taste, beauty and practicability, while others will succeed in erecting a prison-like structure, and not know the difference. It is just the same in launch and yacht construction. There are men who can turn out a perfect dream of a hull, but others produce nightmares. The



Pegasus

speedy little runabout illustrated certainly cannot be classed among the latter, for she is quite an attractive craft.

Pegasus, as she is named, was built for Mr. F. M. Sibley, of Detroit, Mich., by J. L. Hacker, and is powered with an eight-cylinder Van Blerck engine, which is said to drive her at 33 miles an hour. For a 28-footer she is an exceptionally large boat, having more than the average freeboard, and has a breadth of almost 6 feet. This freeboard and breadth allow of a roomy cockpit, with seat backs, which from a comfort standpoint compares very favorably with that of higher grade of automobiles. A cowl-dash, similar to that of cars, is also arranged, with an extended instrument board.

The hull is constructed with an oak frame every 2 feet, and intermediate small frames every 6 inches, which are tied with a steam-bent oak frame at the chime, which makes an exceptionally strong construction. The planking is of Port-Orford cedar, having a single skin on the sides, and double on the bottom. The decks and all interior finish are in mahogany; the hull is finished in natural color and affords an excellent combination with the mahogany.

FUTURE DESIGN OF VALVE OPERATION GEAR

WILL THE OVERHEAD DRIVE SUPERSEDE THE L AND T-HEAD TYPES OF CYLINDERS FOR MARINE MOTORS?

BEFORE long we anticipate quite a change in the cylinder and valve operation design of four-cycle type marine motors, with the ultimate result of reduced cost production and greater power for the same bore and stroke. It is well known by engine designers that more power for a given piston displacement can be obtained from a cylinder with overhead valves than from L or T-headed models. The average arrangement with marine motor manufacturers up to the present time has been the L or T-head design because of reliability and because of facilitating construction, although several builders of racing engines have for some time past adopted the overhead valve gear in conjunction with push-rods and rocker-arms as intermediate transmission.

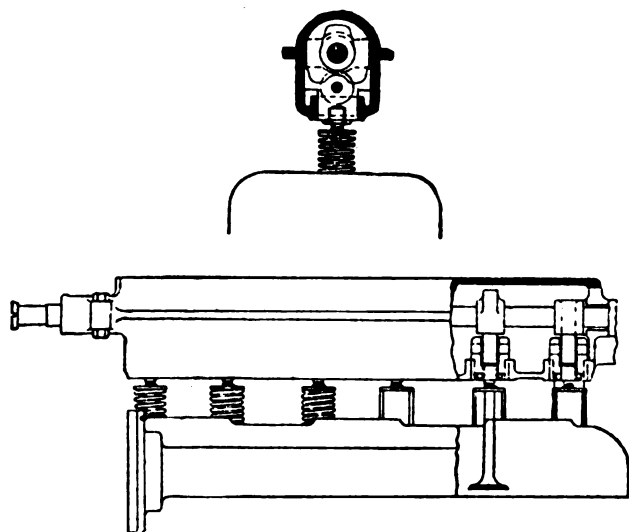


Fig. 1. Valve Operating Gear of the Maudsley Engine of 1902

The marine gasolene engine of tomorrow, we firmly believe, will have dispensed entirely with push-rods and rockers, and the valves will be mounted in the cylinder head, operated directly by cams on the valve stems, with no intermediary other than a tongue piece, or roller in the valve stem, to absorb the side-thrust of the cam. The cam shaft, of course, will be carried in an oiltight housing directly over the cylinders, and its actuation will be by a vertical shaft and gearing, driven in turn off the crank shaft. With such a design the construction is simplified, while accessibility is greatly improved, and the noise of working parts reduced to a minimum. Of course, such a change can only gradually be made, otherwise the loss on jigs and patterns to the manufacturer would be enormous, and so increase production costs, instead of decreasing them.

Several attempts along these lines have been made with a certain amount of success, but a few minor details in the design still need developing in order to make the system desirable for general adoption. As far back as 1902 the Maudsley Company, of England, produced a

marine engine (Fig. 1) along very similar lines, the cams operating directly on the valve stems, and quite good results were obtained. Again the earlier Nobel submarine Diesel engines also had their valves actuated in the same manner. In fact, this design enabled Nobel to produce the lightest heavy-oil using submarine motor ever built. Fig. 2 shows the details of the Nobel cylinder head design. As it was a heavy-oil engine, there are more valves than are to be found on the ordinary gasolene motor, namely, the fuel-injection valve and the air-starting valve, so that extra operating levers and rods were required, otherwise the inlet and exhaust valves were directly actuated by the thrust of the cam. It will be noticed that the entire cam shaft and its housing can be swung back for inspection or adjustment purposes, merely by removing the pin A, the pin B forming a hinge. This made everything very accessible.

The Austin Motor Company also employ a similar method with one model of their modern marine motors. The first instance that we can call to mind of a domestic concern using the system is with the Chalmers 1916 automobile, although there is a slight variation in the way it is employed, as the illustrations denote.

The views of Mr. Louis Coatalen, the famous French engineer and designer of the remarkable little 151-cubic inch Sunbeam engine of the International 21-foot restricted class of boats, are of great interest, he carrying a considerable amount of authority on the subject. He says:

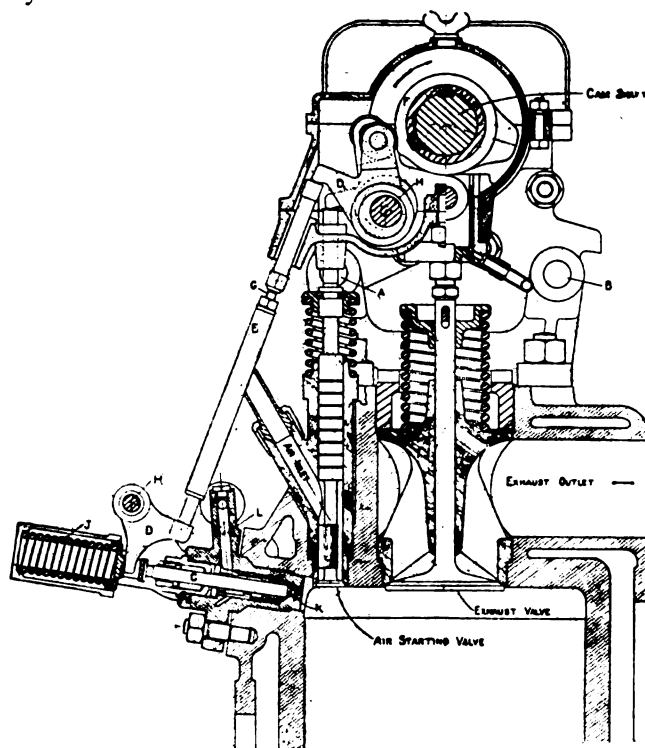


Fig. 2. The Nobel Engine

"A new field has been opened for the overhead-valve type of engine, improvements having been made in the actuating of the valves which place the system on an equal footing with the other type from a reliability point of view, which makes it interesting to inquire what changes have taken place to bring this about.

"It must be admitted that the overhead type gives more power, because, when they are employed, there is considerably less loss of heat through the cylinder wall, and the shape of the combustion head can be made so that the volume of mixture is localized, and the disadvantages of the explosion having to travel over a large area before ignition is completed are avoided. Further, valves in the cylinder head will pass more gas than the same size valves arranged side by side, because in the latter only a portion of the whole valve is working.

"After having decided to design an overhead-valve engine, the designer is confronted with many other important items which have to be decided. The number of valves per cylinder is important. It will be readily seen that there is an advantage in having four valves per cylinder. By adopting this number instead of two, which is standard practice, more valve area can be obtained for the same surface of combustion head. There is also the great advantage of the valves being smaller, and, consequently, less liable to distortion, their weight being also reduced, thus allowing the adoption of a weaker spring.

"The weight of the valve and its working mechanism is an all-important factor which, in this particular design, must never be overlooked, because it must not be forgotten that we are dealing with engines which are turning in the region of 3,000 to 3,200 r.p.m. The first overhead-valve engine that was built at the Sunbeam works had four valves per cylinder, and they were operated

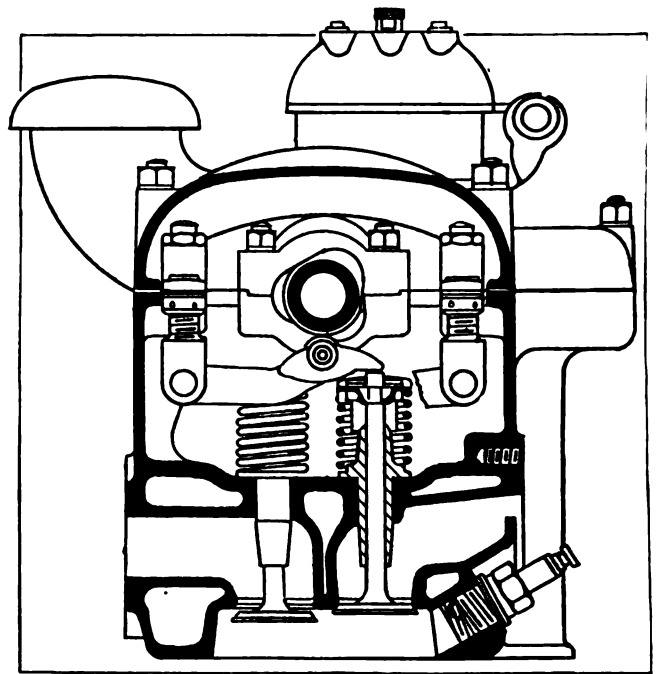


Fig. 3. Valve Operating Gear of the Chalmers Automobile Engine

by two side cam shafts in the crank case which operated push-rods and rockers. While this engine was efficient it was not reliable, and the cause of this was the weight of the valve operating the mechanism, because to return these push-rods and rockers abnormally strong valve springs had to be used.

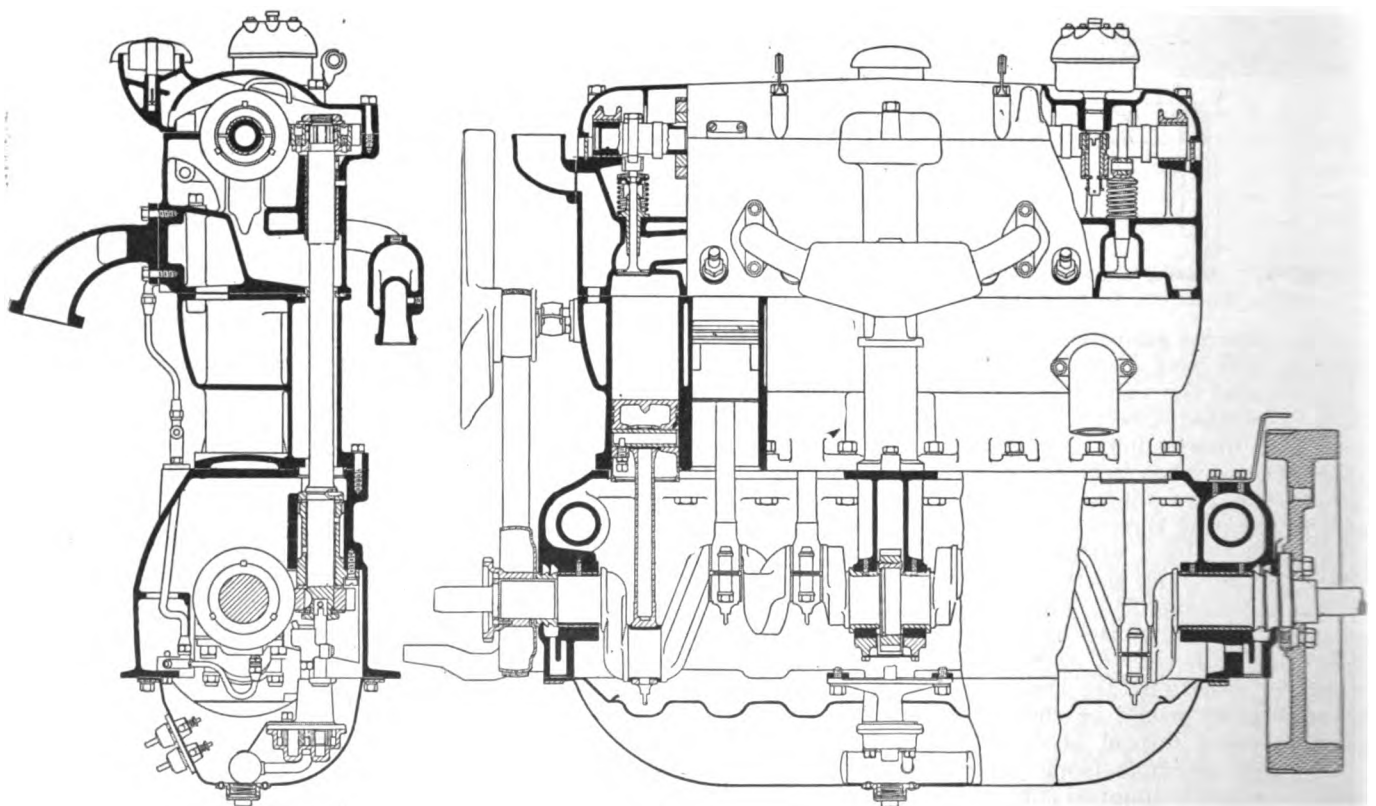


Fig. 4. General Arrangements of the Chalmers Engine, Showing the Method of Actuating the Cam Shaft. So Far As We Are Aware Only One Other American Engine Has Yet Adopted This System of Valve Operation

"To eliminate the weight of the push-rods the cam shaft was brought to the top of the engine, and driven by a chain. However, as the length of the chain caused it to flap, it was eliminated, and the cam shaft driven by a chain of spur-wheels.

"Notwithstanding the success of the above final result, the engine was re-designed for 1914 and all the small disadvantages, such as large rockers, and the pulling on the valve stem when depressed, done away with. So the result was the placing of two cam shafts directly over valve stems (as shown in Fig. 5), thus enabling the use of very light movable parts to be adopted, and the elimination of the objectional pull on the valves. A feature is the possible removal of the cam shafts without interfering with the timing of the engine in any way."

Mr. Coatalen further states that "this method of valve operation dispels all the disadvantages that hitherto have been met with, and in reality the action of operating the valves is exactly the same as in the standard type of engine, that is, literally, the cam shaft has been removed from the crank case and inverted in the same manner as the valves have been."

Mr. Coatalen, who gives the Maudsley Company full credit for being the originators of the design, finally puts forward the opinion that the side-by-side type of valve engine will disappear altogether—an opinion that we frequently have put forward for some years.

During the last few years we frequently discussed with important engineers the question of operating the valves directly by an overhead cam shaft and the only objection offered was that the stretching of the individual cylinders as they fired in turn may cause seizure of the cam shaft at the bearings, but personally, we do not think this would occur with a well-designed engine; neither have we heard of such a happening with motors already built. However, the elimination of cylinder pockets simplifies and cheapens the casting, the absence of the rockers and push-rods reduces the weight, cost of materials and machining, in addition to an increase of power being obtained, hence economy. Thus the advantages are apparent. With medium-speed engines only one exhaust valve and one inlet valve per cylinder, with one cam shaft will be required, but for racing engines two cam shafts and two sets of valves will, of course, be desirable, the reasons for this being fully explained by Mr. Coatalen.

So far as we are aware, only two domestic concerns have adopted the "directly operated" type of valve, one being the Chalmers Company in their car engine. But the method employed by them is hardly likely to offer the lowest production cost possible, neither is it as simple as it might be. The cylinder block consists of three portions, the lower in which the pistons work is as simple a casting as could well be made. On this rests the head casting which carries the cam shaft, the valves and the spark plugs, while on top of all is an aluminum cover.

With an overhead-valve motor and an overhead cam shaft also lubrication is liable to be troublesome, because enough oil must be pumped to the top and yet the supply to the cam shaft kept down sufficiently to prevent flooding the valves. In the Chalmers the cam shaft is hollow and a small hole is drilled through each cam, at the center there is a supply for the skew gear and, of course, holes for the supply to each bearing. Oil is pumped to the front end bearing direct, and thence passes along the shaft, but the size of the outlets prevents too much lubri-

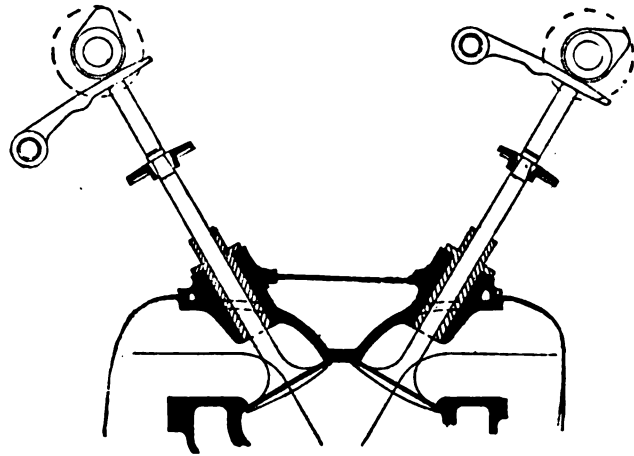


Fig. 5. Valve Gear of the 1914 Sunbeam Engine

cant reaching the valve compartment. Sundry gutters serve to catch what little drip there is and to conduct the oil back to the shaft tunnel whence it returns to the crank case.

The other American firm that has produced a very simple design of direct-actuated overhead-valve engine is the Farmack Motor Car Corporation, of Chicago. This motor is a four-cylinder model (Fig. 6) with a bore of $3\frac{1}{2}$ inches and a stroke of 5 inches, and to *The Automobile* we are indebted for the illustration and details. Space prevents a complete description, but the cam shaft is operated by a chain drive which is a two-stage drive, the first stage being a triangular chain around sprockets on the crank shaft, magneto and an idler. A secondary chain from the idler to the cam shaft sprocket carries the drive to the latter.

Accurate adjustment of the timing of the cam shaft drive is provided by an arrangement at the sprocket end of the cam shaft by which the cam shaft is driven from its sprocket through a tooth clutch which permits the adjustment to be varied to as close limits as one-tenth of the width of a gear tooth instead of the smallest adjustment being the width of a gear tooth as would be the case without this subdivision. The tungsten steel valves are $1\frac{3}{16}$ inches diameter with a lift of $\frac{1}{4}$ -inch.

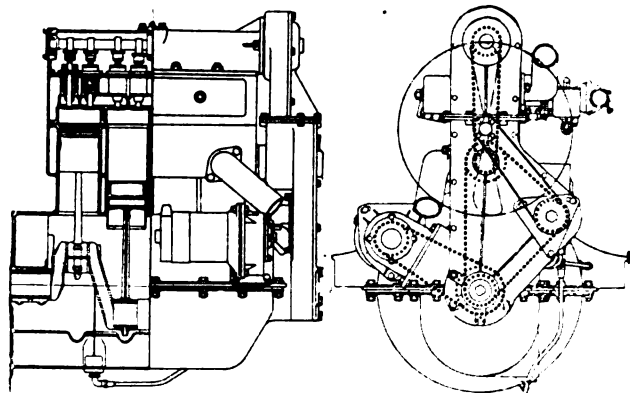
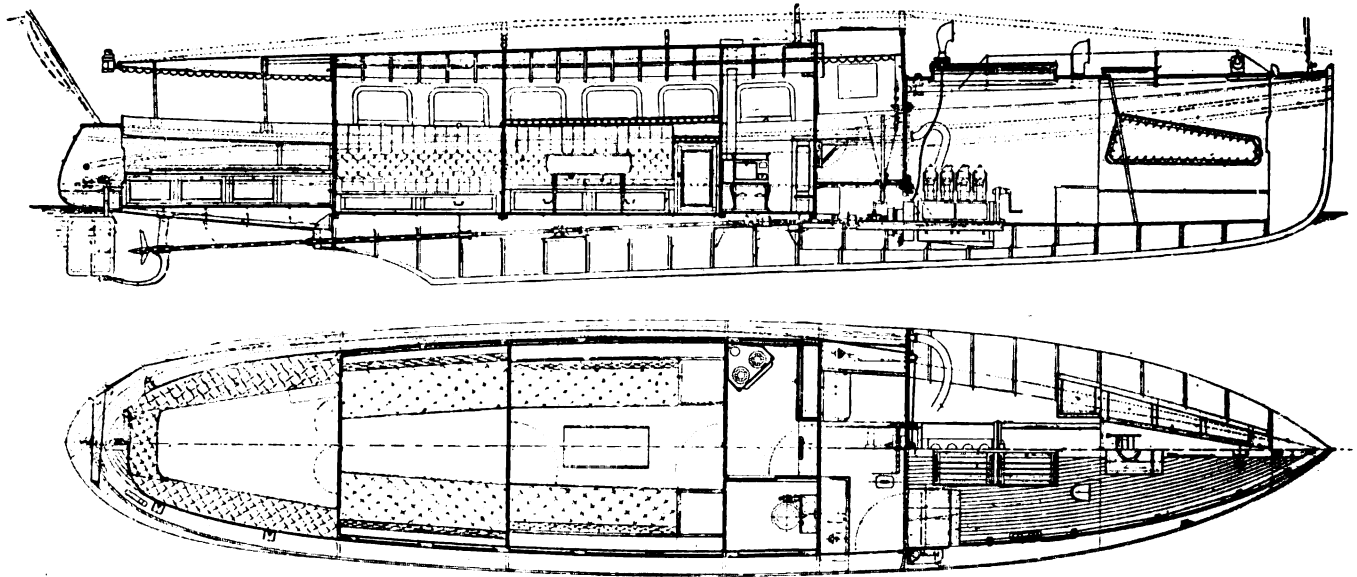


Fig. 6. The Farmack Direct-Valve-Drive Engine

We look forward to the adoption of a directly-driven valve-in-the-head type of engine by several of our best marine motor manufacturers, and we should not be surprised if such a step slowly resulted in the abandonment of the existing standard types of machines.



FRENCH CRUISER FOR MONTEVIDEO

ALTHOUGH France has more than her hands full with war material production, individual firms pluckily are doing their utmost to maintain their export business, particularly in the motor-boat industry, and it is interesting to note that several French, also German, yacht building concerns wisely have continued their RUDDER advertisements right through the depressing period. That this policy brought its own reward is shown by the fact that one of these builders, G. de Coninck & Co., of Maisons Laffitte, have recently constructed and shipped a fine 50-foot cruiser to Montevideo, South America.

The plans of this little vessel we publish on this page. She is of composite construction, having a steel hull, with mahogany topsides, white pine decks, and mahogany-lined cabins. There is sleeping accommodation for eight persons. Forward is the forecabin, followed by the engine room; then comes the control station, galley

and toilet. Next is a dining saloon $8\frac{1}{2}$ feet long by the extreme breadth of the boat, aft of which is the sleeping cabin, followed in turn by a commodious awning-covered cockpit. In the engine room is a complete, self-contained electric lighting and bilge-pumping plant, in addition to the propelling motor, which is a four-cylinder Abeille model developing 35-h.p. at 775 r.p.m. On a six-hour endurance trial run the average speed was 8.2 knots, on a consumption of $2\frac{3}{4}$ gallons of fuel per hour. Her maximum speed is 9.2 knots.



FOR AMATEUR BOAT BUILDERS

ALL build-your-own-boat bugs should get the January RUDDER, which will contain the first of a series of articles of exceptional interest to them.



TWO-STROKE-CYCLE MARINE MOTORS

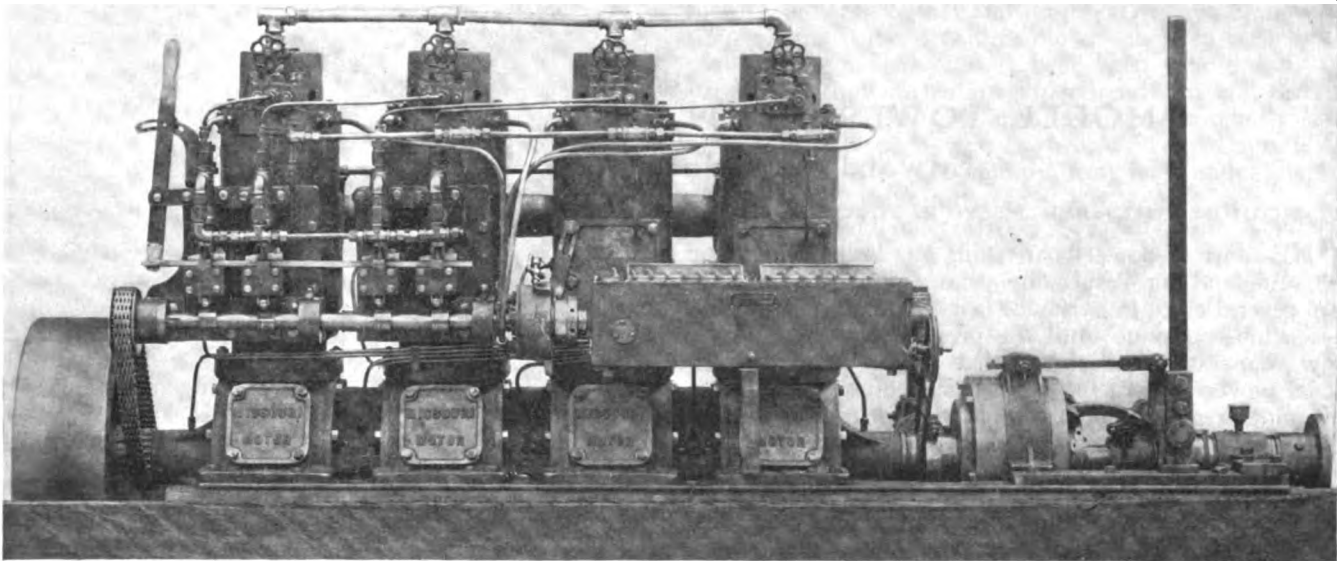
No. 6. THE MISSOURI MARINE OIL ENGINE

UP to the present time very few American yachtsmen have adopted the heavy-oil engine for the propulsion of their craft, the general impression being that the oil motor, particularly the hot-bulb type, is dirty and unreliable and gives a lot of trouble. With a well-manufactured engine the reverse to this is actually the case. Of course, any engine is dirty if not properly designed or attended to, and the better class of hot-bulb engine is no dirtier than the gasolene motor, provided the fuel is not allowed to be distributed about the engine room through leaky joints and pipes. Being much heavier than gasolene, fuel-oil does not evaporate in atmospheric temperature, consequently if allowed to leak it soon spreads over the engine room. This frequently occurs in fishing and other commercial boats, where the crew either are careless or have no time to bother keeping the engine room clean. Yachtsmen who have inspected such

installations naturally have come away with a bad impression.

With yachts, the saving in fuel is not so important as with the business boats, particularly in low powers, because few pleasure boats cruise over one or two thousand miles in a season. But for pleasure craft the greatest reason for the adoption of the heavy-oil engine is the absence of the danger of explosion and fire, of which disasters many are due solely to the use, or rather we should say, mis-use, of gasolene, because this fuel, like powder, is quite safe when handled with reasonable caution. Unfortunately, it is next to impossible to make the average paid crew respect gasolene, so those who are nervous of fire in a yacht should seek the heavy-oil engine for propelling machinery.

One of the exceedingly few concerns that have taken up the hot-bulb type of marine oil engine in the United



The 30-H.P. Missouri Marine Hot-Bulb Engine

States is the Missouri Engine Company, of St. Louis, Mo., and they have not adopted any European license, but have proceeded ahead on their own initiative. At present four models are built, a single-cylinder 7-h.p., a twin-cylinder 14-h.p., a 22-h.p. three-cylinder, and a four-cylinder 30-h.p. model. All of these are of the same bore and stroke, namely, 5 inches by 6 inches, and so the cylinders of all four models are standardized, which reduces the cost of construction.

Being of the two-cycle hot-bulb type, there is hardly any need to describe the working operation of this engine, but for the benefit of those who still are unacquainted with this class of marine motor, we may say that there is no carbureter, vaporizer, or electrical ignition whatever, neither is gasolene used as fuel.

In the usual manner the crank case is enclosed and air is compressed by the down-stroke of the piston for scavenging the combustion chamber. The air, which is compressed to but 3 or 4 lb per square inch, passes to the combustion chamber through ports uncovered by the piston when at its lowest point, just as with a two-cycle gasolene motor, but no fuel is mixed with the air in the crank case.

But now comes the difference: The air left in the cylinder by the scavenging operation is compressed, on

the up-stroke of the piston, to about 120 lb per square inch. On top of the cylinder head and connected by a clear passage is a small chamber, termed hot-bulb, because it is heated by a blow-lamp for starting and by explosions when the engine is running.

When the piston reaches the top of the stroke, a cam, or eccentric operated plunger pump forces an injection of fuel into this bulb. This fuel, spraying into the hot air, mixes, and instantly explodes. With the Missouri engine a small quantity of water is taken in with the scavenging air in order to prevent pre-ignition, and to prevent the accumulation of carbon.

We give an illustration of the Missouri four-cylinder 30-h.p. model, and it will be noticed that there is a separate fuel pump for each cylinder, all pumps being controlled as a unit by means of one hand lever, or else individually adjusted in order that each cylinder shall be receiving exactly the same quantity of fuel. These fuel pumps are operated by cams, the cam shaft itself being driven by silent chain off the forward end of the main crank shaft, with its speed controlled by a governor. Lubrication is by a Detroit multi-sight feed lubricator, driven by belt off the after end of the crank shaft. Water cooling of the cylinders is by an eccentric-operated plunger pump arranged at the after end of the motor. Reversing is carried out by a mechanical gear and clutch.



Betty M. a 48-Ft. by 9 Ft. by 2½ Ft., Raised Deck Cruiser. She is Powered with Two Six-Cylinder 100-H.P. Van Dierck Gasolene Engines. Commodore Chas. W. Kotcher, Owner

MODEL POWER-BOAT RACING IN ENGLAND

Edward W. Hobbs, A. I. N. A.

FOUNDER MEMBER M. Y. R. A. OF ENGLAND AND AUTHOR OF "MODEL POWER BOATS"

THE sport of power-boat racing has been followed in England for very many years; in fact, there have been several clubs in existence in London since 1850, and these clubs continue until the present date; but it was only comparatively recently that model yachting and model power-boat racing were placed on a proper basis and under regular control, for it was not until 1910 that the M. Y. R. A. was started. It is instructive to consider the general state of affairs in English model boating circles before this date, to estimate properly the work that the Model Yacht Racing Association did in organizing the sport on a proper basis, as before its inception every club was a law unto itself, each having different rules and building boats of any size and type, quite regardless of rating rules.

The result was that any attempt at proper interclub racing was foredoomed to failure, as no system of handicapping can possibly place on a par such diverse types, as, say, a model of an Atlantic liner 8 or 10 feet in length, with a tiny Picket boat of 24 inches or so. Consequently, the first object of the M. Y. R. A. was to formulate a rule that would be universally acceptable, bearing in mind the consideration of vested interests as well as with an eye to the future.

Working on the basis of the highest common factor, it was discovered that an average of all the boats would

produce a craft about 40 inches in length with a displacement of about 12 lb and, therefore, it was decided to take this average as the basis upon which to build up a rule. Obviously the first thing to do was to limit the length, and as model power boat users on the Continent, both in Paris and Antwerp, were using the meter ($39\frac{1}{8}$ inches) as the standard length, and bearing in mind that the development of international racing was one of the objects of M. Y. R. A., it was decided to adopt two classes, Class A being limited to boats of one meter in over-all length, and the displacement 12 lb, the breadth not to exceed 20% of the actual length of the hull, and Class B length not to exceed $1\frac{1}{2}$ meters over-all length, displacement not to exceed 25 lb, in proper working order, and breadth not to exceed 20% of the length.

As regards these three factors, the chief reason in specifying the length was to insure all the new boats being built to a uniform size as regards their over-all length. The limit of displacement was inserted for the express purpose of improving the constructional and technical ability of the builders and owners, as at that time there were very few successful boats this size that weighed much less than 12 lb. The much discussed restriction of breadth was introduced for the purpose of eliminating freak boats, the tendency then, and now, being to build models with an excessive breadth, thus producing an un-



A Model Yacht and Power-Boat Exhibition at the Olympia, London



Some of the Competitors at a Model Power-Boat Regatta Held in London Under the Auspices of the M. Y. R. A.

wholesome type of vessel which could have no possible utility in actual sailing conditions, and practically automatically, the restrictions of breadth limited the draught.

The rules were well discussed at several meetings of representative members from over forty clubs from all parts of England, Scotland, Ireland and Wales, and they were adopted almost universally, as it was felt that a universal all-round vessel would be produced under such a rule. In the light of the past five years' experience this view has been more than justified, the increases

in speed are phenomenal, while the improvement in motors, boilers, engines and machinery generally, is quite noticeable. At the same time the vessels from the point of view of the naval architect have been very greatly improved, the hull forms are altogether better and the rule has thoroughly justified itself in every way. In fact, all the fastest speeds and the world's record speeds for model power boats are held by boats built under Class A of the M. Y. R. A. rules.

In the September, 1915, issue of THE RUDDER a writer condemns the English practice of adopting a low freeboard, but the latter is done for two reasons, namely, first of all, to reduce the wind resistance, which is very considerable at speeds of 18 to 20 miles per hour, and also to reduce the weight of the hull, the great idea being to obtain the lightest possible outfit with the least possible resistance. Although the M. Y. R. A. rules do not lend themselves to a "record breaking" purpose as such, they do admirably serve their purpose of producing an all-round fast, reliable vessel, that is almost perfect from a club racing point of view—that is to provide a boat which is reliable, fast and a steady performer, that can be raced week after week against every vessel of her class without constant tinkering to keep her in tune. The accompanying photographs are of various incidents connected with power-boat racing in England and perhaps will help to stimulate sport in the States.

[To promote International model yacht racing, President Poincaré of France has presented a trophy, in the form of a beautiful Sevres vase, to the M. Y. R. A.—EDITOR.]



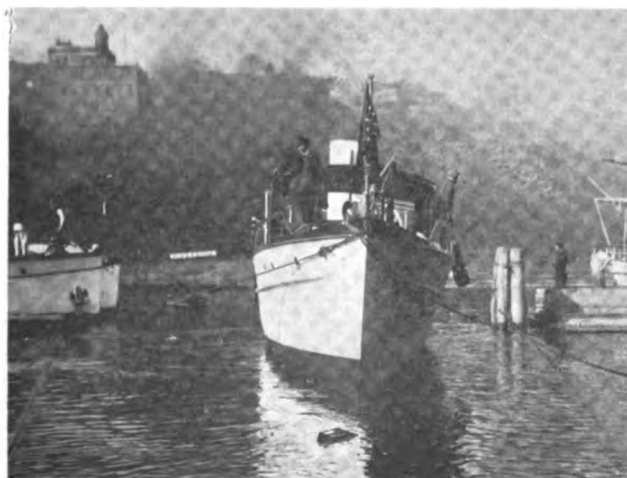
L'APACHE, A NEW SEVENTY-TWO-FOOT MOTOR YACHT

ABOUT the end of the year there will be completed and delivered, Mr. James H. Snowden's new twin-screw motor yacht L'Apache, which was launched on October 25th at the yards of the Gas Engine & Power Company and Chas. L. Seabury, Consolidated, Morris Heights, New York City. L'Apache is designed for use in the South, and is 72 feet long over all, 71 feet 6 inches long on the water-line, with 12 feet breadth and 3½ feet draught.

One of her chief features is the speed, which is guaranteed at 19 miles an hour. This being quite considerable for a yacht of her size, she will rank among the leading power boats of next season. To obtain this speed

she is being installed with two six-cylinder, 7-inch by 8-inch Speedway gasolene motors, each developing 125-h.p. at 750 r.p.m., and driving solid propellers through reverse gears. In the engine room also is installed an electric lighting plant, driven by a small auxiliary motor. This supplies the usual lighting equipment, and a searchlight. The fuel tanks have a capacity of 700 gallons.

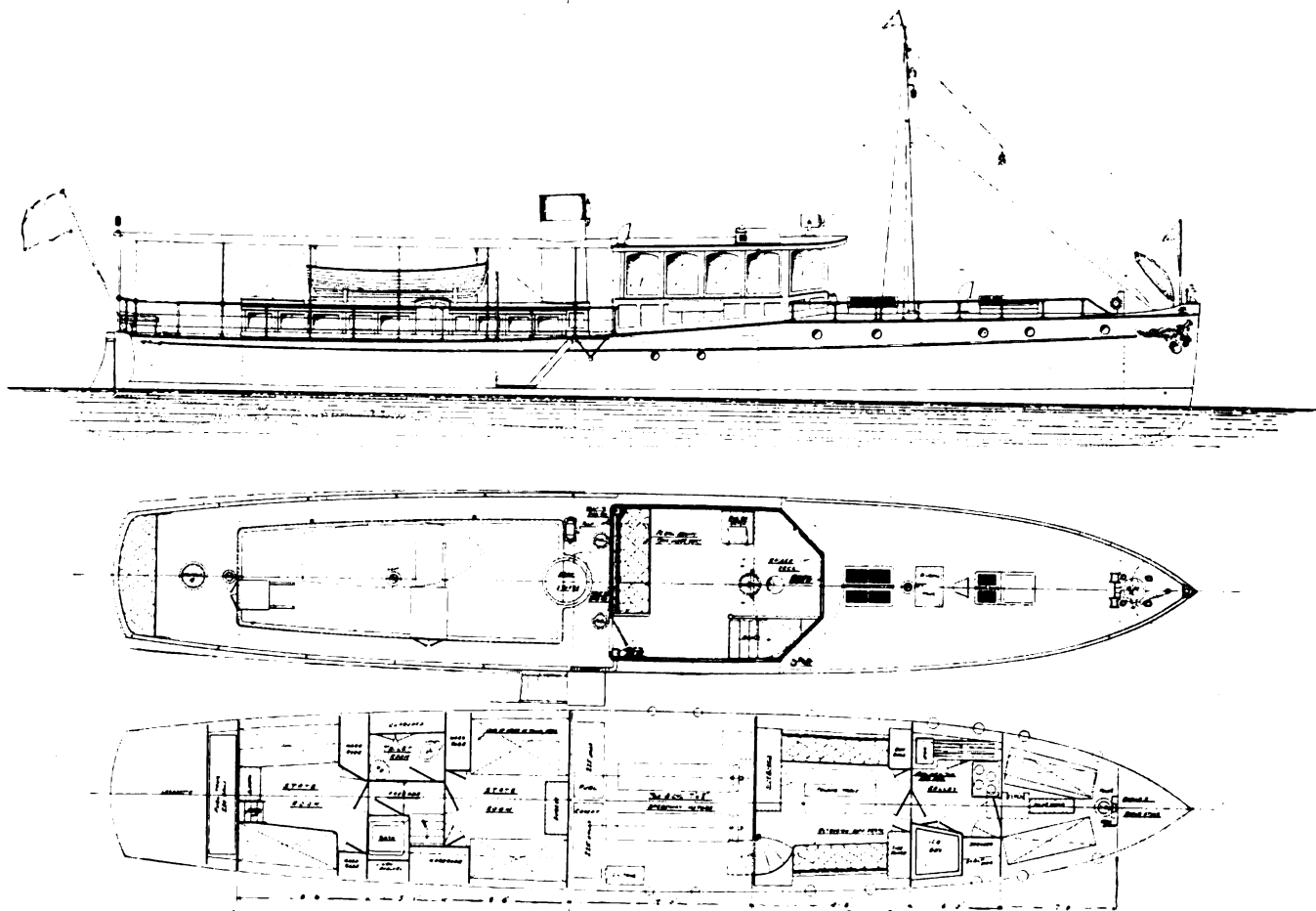
The hull is constructed of wood, the planking being of mahogany painted white, with all outside joiner work of teak. The interior arrangement is complete in every detail. The crew's quarters are forward, followed by a galley equipped with the Speedway alcohol ranges, ice-box, sink, etc. The dining saloon is next aft, followed



L'Apache Immediately After the Launching



The Owner (on the Right) and Friends. On the Left Mr. John J. Amory, Pres't of the Gas Engine & Power Co.



Profile, Deck and Accommodation Plans of L'Apache

by the engine room. Next aft is a stateroom with the toilet room next again on the port side, while a bathroom is located on the starboard side. Another stateroom follows the toilet and bathroom, so that for her power, speed and size she is quite a roomy boat and very comfortable for long-distance cruising.

large main saloon, with the owner's stateroom and bathroom aft, and a stateroom and toilet room forward on the port side, a captain's cabin on the starboard side, and a forecabin and crew's toilet forward.

SEAGOING AUX. YACHT STARLING

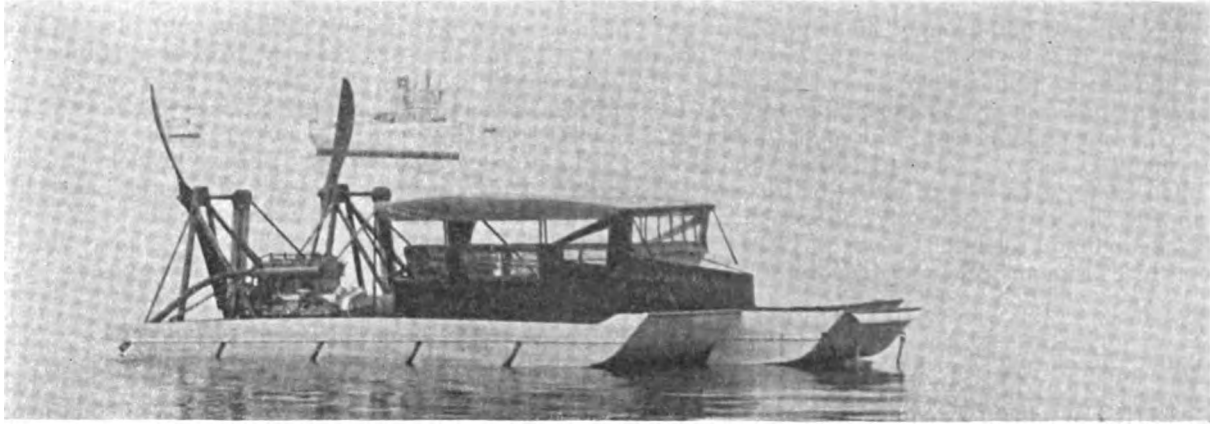
THERE has recently been built for Mr. Geo. F. Tyler, of the Corinthian Y. C., of Philadelphia, a seagoing auxiliary yacht with a number of attractive features. The boat in question is the Starling, built by the Smith & Williams Company from designs by Mr. J. Murray Watts. Her general dimensions are 83 feet long over all, 62 feet long w. l., with 18 feet breadth and 8 feet draught.

She is equipped, as auxiliary power, with a four-cylinder, 7½-inch by 9-inch Automatic gasoline engine of 50-60-r.h.p., and this drives a 40-inch diameter Thompson feathering propeller. With power alone, a speed of 8 knots is expected when the engine is fully tuned up. Under the circumstances, the sail plan has been kept quite moderate, there being only a little over 3,000 square feet. The mainsail was kept small so as to be easily handled.

The general lines of the boat, with good sheer and freeboard and moderate overhangs, are of a type which make for a comfortable seagoing yacht; most of the ballast being inside, there being only 5 tons of lead on the keel. Her accommodation arrangements show a very



Starling



Bow View of Yolanda II

MAIL CARRYING SKIMMER

PROBABLY the most unique boat launched in the vicinity of New York this year is the one illustrated herewith. Strictly speaking, this is not a boat at all, and is a much nearer relative to a skimmer than she is to a displacement motor boat, and she is described by the owner as a gliding boat. This craft is 30 feet long by 14 feet wide, and consists of ten pontoons, over which is built a deck, which carries the cabin and two six-cylinder Van Blerck motors, the latter being direct connected to aerial propellers, the engines operating at 1,000 to 1,400 r.p.m. The boat is steered from the interior of the cabin by a forward rudder, and we are advised that speeds of from 35 to 38 m.p.h. have been recorded on trips made on the Hudson River during the past sixty days.

When running, this skimmer draws less than 3 inches of water at any part of the boat, and, in fact, it actually glides on top of the surface of the water at all times when running above 15 or 16 m.p.h. She steers very easily, indeed, and is controlled even more easily than is an ordinary motor boat. The sensation of riding in this boat is entirely different from that enjoyed in a motor boat, and in many respects is very pleasant, as it very closely resembles the sensation experienced in an actual

aeroplane, especially in smooth water. In many ways she reminds us of the skimmers tried by Count de Lesseps and several other French inventors several years ago.

The owner of this boat is Mr. Gonzalo Mejia, of Bogota, Colombia. Mr. Mejia, for four years, has been endeavoring to perfect such a boat as this one is. He has a contract from the Colombian Government to carry mail from the port of Barranquilla, on the East coast of Colombia, to the capital, Bogota, which is some 600 miles inland, and the only means of getting there is by traversing the Magdalena River, which river has an average depth of $2\frac{1}{2}$ feet and is full of weeds; consequently, it can be readily understood that the ordinary motor boat is not practical for navigation on this river. At the present time it takes from ten to twelve days to make the run from Barranquilla to Bogota, this run being made by steamers burning wood, and when they run out of wood they simply tie up to the river bank and go out into the forest and cut some more, which partially explains the long length of time necessary to make this trip. With the skimmer it is hoped to do the trip in twenty hours.

Mr. Mejia spent over three years in France experimenting with different types of gliding boats, just prior



Copyright Photo

Stern View Showing Chain Drive to Air Propellers

Underwood & Underwood

to the war, and had brought his experiment to so near a completion that he could almost positively say that in a few months he would have a successful boat. But when the war broke out it was impossible for him to continue his experiments in France, consequently Mr. Mejia, with his engineer, Mr. D. La Chapelle, came over to the United States. He placed an order for two six-cylinder Van Blercks, and rented the old Seabury boat-shop at Nyack, and built the hull that we illustrate. It is a radical departure from any other form of hull that has previously

been seen in this country, and just as soon as the first two runs are made at Bogota a number of these boats will be built at Nyack, so that a regular schedule can be put into effect. Of course, this boat is by no means a sea-boat, and was not designed, or built, for such purposes, as it will be used exclusively on a broad, shallow river where waves are practically unknown, and for the conditions under which it will have to work there is absolutely no doubt but that this boat is of great value.



A LAND RUNABOUT OF NAUTICAL DESIGN

CRUISING down Broadway recently, the lookout man megaphoned that there was a peculiar-looking craft at anchor on the port bow, so we instanter put over the helm and drew alongside. She proved to be the Silver Bird, a neat little runabout of about 12 feet length, specially built for the C. T. Silver Motor Company, on an Overland six-cylinder chassis. Seeing that her appearance, while not strictly shipshape, was of elegance and along nautical lines, we decided to give her a berth in the December RUDDER.

Her hull is planked, not painted, in alternate layers of white holly and mahogany, while she is decked forward for three parts of her length with the same wood, this also forming a housing for the engine, which is installed right forward. The cockpit and after deck is railed off. The spare wheel aft is held in position by a real bronze, 14-inch diameter propeller, and she carries an anchor on either bow. On the forward deck is a searchlight and electric signal bell.

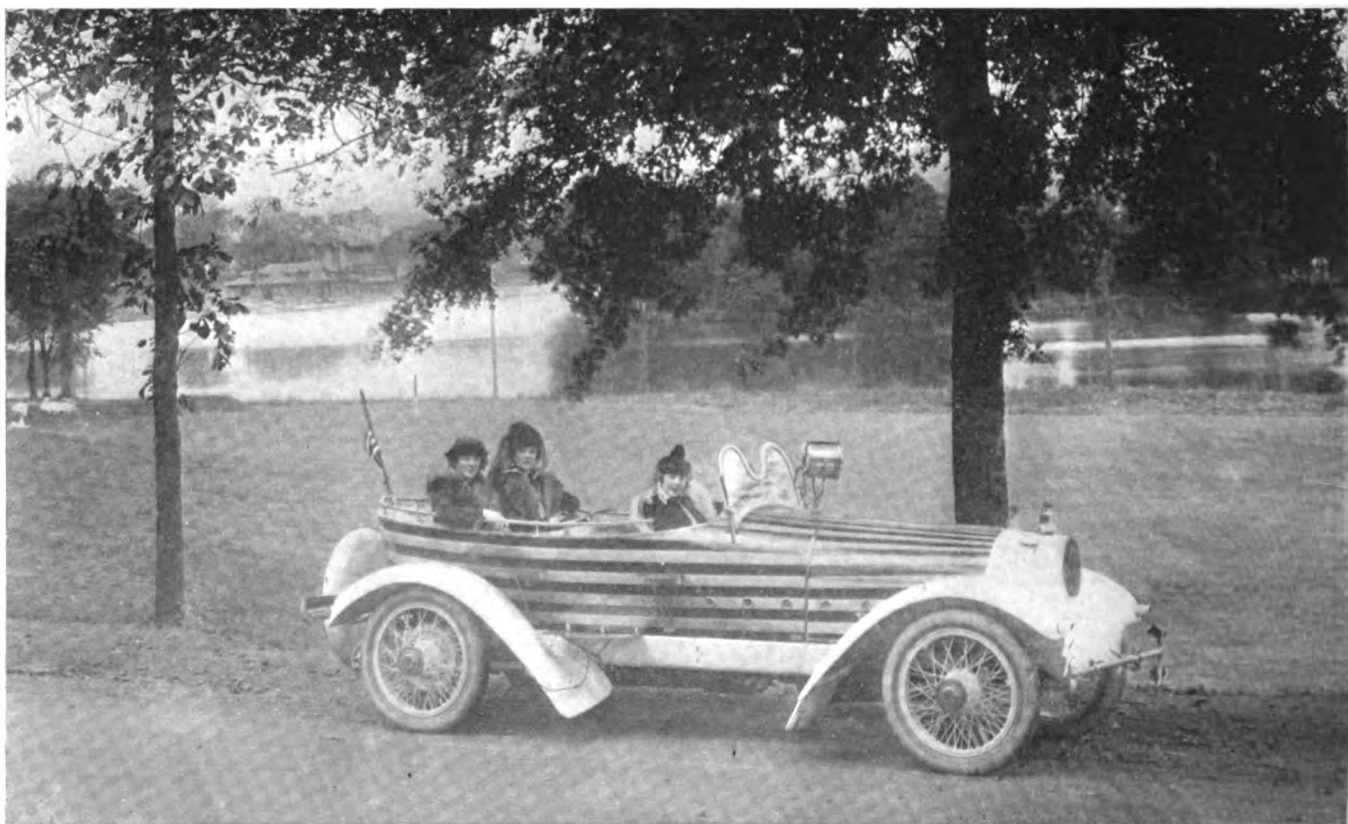
Putting all joking to one side, it occurred to us that an automobile along these lines would interest yachtsmen,

particularly power owners. With the detachable wheels removed, she would not altogether look out of place in davits, in cases where the owner of a long-distance cruiser desired to tour the district when putting in to strange ports and thus combine automobiling with the pleasure of yachting. So, in future, we can expect one sport to help the other in this manner, instead of throttling each other.



SECOND MIAMI REGATTA

It is interesting to record that the success of the first Miami Regatta has caused the principal promoter, Mr. Carl G. Fisher, of Miami and Indianapolis, to decide to hold a second regatta on February 19th, 21st and 22d, in Biscayne Bay, Miami, Fla., and thereafter make it an annual power-boat meeting. Mr. Fisher is building a new Hand V-bottom 36-footer; Commodore C. W. Kotcher's cruiser, Betty (illustrated on another page); Commodore Blackton's Baby Reliance V; Miss Detroit; Tech Jr.; Peter Pan V, and Presto are all expected to be present, so good racing should result.



Silver Bird—a Nautical Automobile

SIXTEEN-FOOT CATBOAT SEA DUCK

Fred. W. Goeller, Jr.

PART II—(Concluded)

THE construction of the Sea Duck (see November issue, page 498) while at first sight may appear beyond the ability of the average amateur to build, has been made as simple and straightforward as possible and still make a solid, workmanlike job of it.

The first step is, of course, to lay down the lines, shown herewith, full size. This should be done either on a clean smooth floor, or if not available, glue some heavy manila, or building paper together, the proper size, and draw it out on that.

In either case it will be found advisable to draw the sections by themselves; if possible, do them as shown, both sides of the bow sections in one place and the after sections separately.

This will greatly facilitate getting out the moulds, and also enables one to get both sides exactly alike.

In taking the offsets from a scale drawing it is often impossible to give the dimensions to the smallest fractions and in the Table of Offsets it will be noticed that there is a small "s" or "f" at the upper right-hand corner of some of the figures. The "s" means that it is just a little scant of the eighth-inch given and the "f" that it is full.

In laying down the lines, mark off the dimensions as given. When the batten is sprung through the points, if the batten springs fair a shade to one side or the other of the mark draw it in true and do not try to force the batten to come exactly through the points, for the latter may be the thickness of a line out. On the other hand, if there is a wide discrepancy between the way the batten lies and the mark, check up the latter carefully and if it is correct you will undoubtedly have to use a batten that is more pliable.

There should be three or four battens to use at any rate—a wide, fairly stiff one, tapered at one end, for the sheer and bottom of keel; a narrower one for the buttocks and rabbet; and a couple of thin ones for the forward end of the buttocks, the stem, and the sections. In practically every case, the batten is tapered at one end, for there is hardly a curve in a boat that does not either run into a straight line or into one fairly straight. For instance, look at the sections through the middle of the boat: the lower part is practically a straight line and all the curve comes at the bilge. It will be seen at once that it would be impossible to bend a batten which was even throughout its length to a curve of this sort. It would either break at the turn of the bilge or bulge out at the lower part of the section.

The lines are laid down to the outside of the planking. These should be marked in lightly, for it is necessary to mark off inside of them, particularly the sections, the thickness of the planking ($\frac{5}{8}$ -inch) for the moulds, rabbet of stem, keel, etc. These inner lines may be made heavier so as to be permanent, for they are really the lines to which most of the work is taken from.

It is, of course, supposed that the one building this boat has had sufficient experience to take off the quantities of lumber necessary, and to order them far enough ahead so that when the lines are finished the material will be on hand to proceed with the work.

Anyone not familiar with this proposition should take the plan to the yard where the material is to be bought, and most all of them are willing to give what assistance they can in this matter. In the case of the planking, remember to allow at least one-third more than will actually cover the surface, for waste, and if you have never done any wood-butcherer before, allow more to save yourself an extra trip to the lumber yard.

It would have been the usual practice among the old-time boat builders to build this boat with a log keel—that is, one piece straight along the bottom from the stem to the sternpost, and the deadwood built up on top of it.

To greatly simplify the construction, it is proposed to use what is known as a plank keel. This is gotten out of an oak plank the necessary length, $1\frac{3}{4}$ inches thick by 9 inches wide amidships, and tapered forward and aft as per the dimensions in the table of offsets for the half-siding of the rabbet at the different stations. To the dimensions given should be added $1\frac{1}{2}$ inches and this total is marked on the top surface of the keel; on either side from a center line drawn along its entire length. On the underside a center line should also be drawn, and the dimensions exactly as given marked out from it on either side, at each corresponding station.

The depth of the rabbet and the angle at which it lands on the keel may then be obtained from the full size sections. The best plan is to cut out the correct bevel at each station with a chisel and fair up between them with a rabbet plane.

The bevels for the stem are also found from the full-size drawing on the floor and are worked out with a chisel. It will be noticed that the lower part of the stem, where it scarphs on to the keel, projects below the latter. This is to protect the forward part of the outside or false keel. It should be left unfinished until the outside keel is put on and fastened, when the whole may be finished up together.

The bottom of the keel is flush with the rabbet line. Cut this shape out of a wide board $1\frac{1}{2}$ or 2 inches thick, and block it up rigid on the floor to form the backbone on which the boat will be built. In setting it up, see that it is in such a position that when the keel is put on it the water-line will be level.

Before proceeding with setting up the keel, cut out the centerboard slot and put in the head-ledges, the upright posts at either end, and fasten the bed-logs both to the keel and head-ledges. The shape of the lower edge of the bed-logs may be found from the full-size lines.

Before fastening the bed-logs and keel together put a piece of canvas, spread thickly on both sides with white lead, between, to insure a tight job. It will be noticed that the bed-logs extend beyond the forward head-ledge to the frame between stations 3 and 4. The reason for this will be seen later when the mast step is put in.

The stem and sternboard are then fastened on the keel and the whole set up on the stock. It should be thoroughly fastened down so that there is no possibility of its shifting. This also applies to the stem and sternboard as well, which are braced so that they remain perfectly plumb until the boat is all planked up.

The moulds can be made of most any material, not too hard to work, $\frac{7}{8}$ or 1-inch thick. It may be a little more work but it will pay to get out all seven moulds—on stations 2, 4, 6, 8, 10, 12 and 14—to insure a fair job.

To do away with beveling the moulds to the proper angle they may be cut square and set as follows: those forward of amidships are set with the forward face on the stations, and those aft of amidships, the after face is placed on the stations.

They should also be well braced so as to be absolutely rigid and also tied fore-and-aft, either with ribbands around the outside or with braces, so that they remain perfectly square across the center line, and also perpendicular. There should be at least half a dozen ribbands—say $1\frac{1}{4}$ -inch by $1\frac{1}{2}$ -inch spruce or pine, bent around each side, screwed to each mould and at the stem and stern. They should be so placed as to come at the points where the most bend comes in the various sections. Do not be afraid of getting too many on.

In bending the frames, at least two moulds will have to be used—one cut to take care of the frames in the after part of the boat, which may be blocked out to take care of all frames to just forward of amidships, and another for the forward sections.

Always remembering to bend the frames a little more than will be required, for they straighten out a little anyway when taken off the mould, and you can straighten them further when cold, but you can never bend them to a sharper curve.

The frames are made of straight-grained oak, $1\frac{1}{4}$ -

inch by $1\frac{1}{4}$ -inch at the heels, tapered to 1-inch by 1-inch at the head, and are spaced 12 inches center to center.

By starting them as shown, beginning either from the middle or at either end, they do not in any instance interfere with the moulds and the latter may be left in until the boat is planked up. It will be noticed that the last frame at either end is spaced 9 inches forward and 10 inches aft, the rest are even—12-inch centers.

In putting on the planking, always start with the top plank on the side, or sheer-strake, as it is properly called. This should be of oak, the same thickness as the rest of the planking, $\frac{5}{8}$ -inch thick finished, and is 4 inches wide amidships, tapered to 3 inches wide at the ends. Two or three more planks, of cedar, are then put on under the sheer-strake and to insure a fair-looking job, should be kept to as near the same width at the various stations as the sheer-strake.

This part is then left, and we start working up. The garboard, or plank next to the keel, is then put on. Make a template of the lower edge and at the stem, with some light wood which can be easily bent into position, and when this fits closely, mark it on to the plank to be used. This plank should be anywhere between 7 inches and 9 inches wide in the middle and about 4 inches or 5 inches at the sternboard, and 9 inches or 10 inches, or as wide as possible, at the stem. It will be necessary to steam the forward end to bend it without breaking. When it is steamed clamp it into position and let it set thoroughly over night if possible, so that when it is removed, to fit the bevels and get the seam absolutely right, enough of the twist remains in it so that no difficulty will be found in putting it on finally.

As this boat should be copper fastened, that is, copper nails riveted over burrs to fasten the planking to the frames, it will be best to use brass screws for the planking at the ends, at the stem and sternboard. This should be done carefully so as not to twist of the screws. Bore the hole for the shank of the screw the same size through the planking, but for the thread use a gimlet bit about the same size as the diameter at the bottom of the thread. In this way the screw does not stick and split the planking, but pulls it up tight against the stem or sternboard.

TABLE OF OFFSETS.
"SEA DUCK"

NOTE: Dimensions given in Feet, Inches and Eighths to outside of Planking—Planking finished $\frac{5}{8}$ thick.

STATIONS.		1	2	3	4	6	8	10	12	13	14	15	Stern-board.
HEIGHTS.	Top of Sheerstrake.	3-11-1	3-8-5	3-6-3	3-4-4 ^s	3-1-3	2-11-2 ^f	2-10-1	2-9-7	2-10-2	2-10-7 ^f	3-0-1	3-1-6
	Buttock N ^o 3.					1-7-8	1-4-4	1-4-1	1-5-5	1-7-0	1-9-0 ^f	2-0-1	2-4-2 ^f
	Buttock N ^o 2.			2-1-7	1-7-3 ^s	1-2-4 ^f	1-0-7	1-0-7 ^s	1-2-0	1-3-2 ^s	1-5-2	1-8-1	2-0-0 ^f
	Buttock N ^o 1.	3-7-1	1-9-5	1-3-7	1-1-3 ^f	0-10-7	0-9-6 ^f	0-9-6	0-10-7	1-0-1	1-2-1	1-5-0 ^f	1-9-1
	Rabbit Line	1-1-7	0-11-2 ^f	0-10-3 ^s	0-9-4 ^f	0-8-2	0-7-4	0-7-4	0-8-4 ^f	0-9-6	0-11-5	1-2-4 ^f	1-6-4 ^s
	Bottom of Keel.	0-11-1 ^f	0-9-6	0-8-6	0-7-6 ^f	0-6-1	0-4-7	0-3-7	0-3-0	0-2-5	0-2-3	0-2-1	0-2-0
HALF-BREADTHS.	Top of Sheerstrake.	1-0-7	1-10-5	2-6-1	2-11-6	3-7-1	3-10-6	3-11-7	3-11-2	3-10-1 ^f	3-8-6 ^f	3-6-7	3-4-4
	Water Line 12" Above.	0-8-5	1-6-4	2-3-2 ^f	2-10-3 ^f	3-7-0	3-10-7	4-0-0	3-11-2	3-10-1	3-8-5 ^s	3-6-4	3-3-3 ^f
	Water Line 6" Above.	0-6-4	1-3-1	2-0-0 ^f	2-7-4	3-5-2	3-9-7 ^f	3-11-3	3-10-3	3-8-7	3-6-5 ^s	3-3-0	2-6-7
	Load Water Line.	0-4-1	0-10-4	1-6-0 ^s	2-1-0 ^f	3-0-1	3-6-2 ^f	3-8-0 ^f	3-5-6	3-2-4	2-9-0	1-11-3	0-7-2 ^s
	Water Line 6" Above.	0-1-5	0-4-6 ^s	0-8-6 ^s	1-1-2	1-10-4 ^s	2-4-0	2-4-4	2-0-0	1-7-1	1-11-4		
	Half Siding of Rabbit.	0-1-4	0-1-6	0-1-7	0-2-1	0-2-5	0-3-0 ^s	0-3-0 ^s	0-2-5	0-2-2 ^f	0-1-7	0-1-4 ^s	0-1-0
Base Line 20" below Load Water Line ~													
Stations spaced 12" and 24" apart.													
Stem sided 3"													

FRED'K. WM. GOELLER, JR.
DESIGNER.

10-12-15

As this is to be a first-class job, the heads for the nails and screws should be carefully bored, so that when everything is riveted up the holes may be plugged with wooden plugs.

It is the usual practice in this sort of work to just drive in the copper nails as the work progresses and do all of the riveting when all of the planks are on.

The first and second board as the two planks next to the garboard are called, are then put on. It may be found necessary to steam the forward half of the first and even the second to get them in position without splitting. When these are both on, on each side, enough of the boat will be planked for you to determine a place remaining where a plank will go on easiest and with the least twist. Keeping this in mind, then plank up from

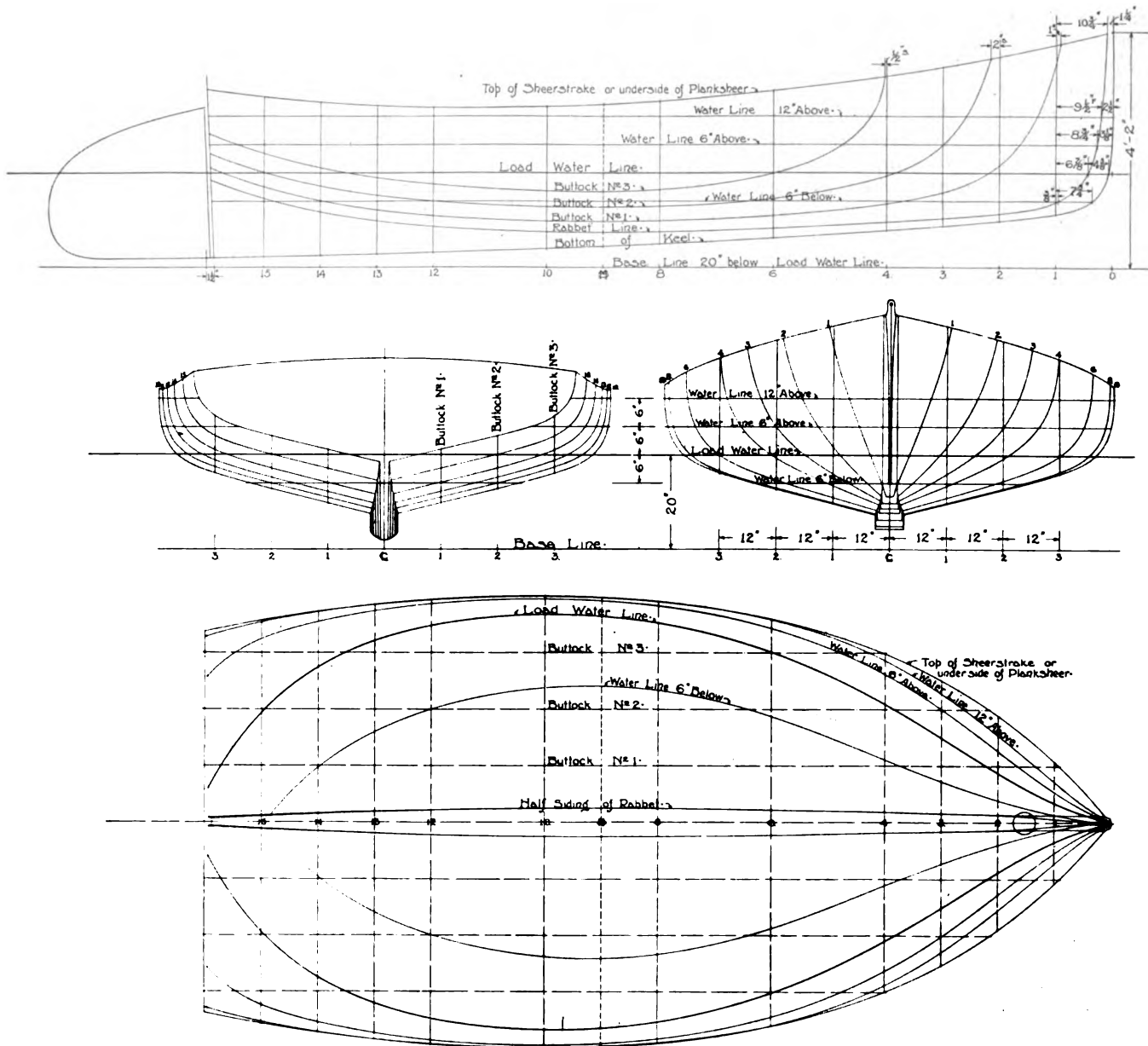
below and down from the topsides, until this place is reached. This will then leave one plank yet to go on. It is called the shutter, and is usually made to fit pretty tight. When it is put on and the fastenings all in the riveting is then done. Starting with the garboard, finish it up and work up to the topsides. With this done, you have passed the crisis and the balance of the work will be mere child's play compared with what you have just accomplished.

When the riveting is completed, nail several tie pieces across the boat to the frames, to hold the shape and then remove the moulds. You will then realize what the inside of the boat is like and how much room she has.

Before proceeding with the deck it will be well to finish up the centerboard trunk. This is of 1-inch yellow

LINES-
"SEA DUCK."

FREDK. WM. GOELLER, JR.
DESIGNER.



Lines of Sixteen-Foot Brightwaters One-Design Catboat, Sea Duck

pine about 7 inches wide, and should have dowels half in one plank and half into the one next to it. Also it is well to put a thread of calking cotton, with plenty of white lead between each joint. The ends are riveted to the head-ledges. In doing the latter, it is a good plan to clamp them together and drive them down as hard as possible before putting in the rivets.

The next step is to put in the clamp. This is of spruce, $1\frac{1}{4}$ inches by $2\frac{1}{2}$ inches in the middle, tapered to 1-inch by 2 inches at the ends. It is a good plan to bolt this in, using, say, a $\frac{1}{4}$ -inch galvanized-iron bolt through the frames and sheers-trake, nuts on the inside, one bolt at the top edge and at the next frame at the lower edge. It is fastened aft to the hackmatack stern knee which holds the sheer-strake to the sternboard. Forward, it butts up against the stem.

The breast hook, also of hackmatack, is then put in with filling pieces between the clamp and sheer-strake so that bolts may be put through all of the above and the whole drawn up solidly.

The deck beams may then be put in. They are of spruce, 1-inch by $1\frac{1}{2}$ inches, on every frame, and are sawn out to a crown of 4 inches in 8 feet.

Forward the hatch shown will have to be framed for as indicated, and also the partner to take mast, and the lodging knees—those that are placed horizontally—should be placed as shown and thoroughly fastened.

In the way of the cockpit, where the beams are short, a deck stringer is bent around as shown. This is of spruce $1\frac{1}{4}$ inches thick by $1\frac{1}{2}$ inches wide, and is carried forward and aft of the ends of the cockpit. Braces may be put in from the deck stringer down to the frames to support the deck beams until the deck and coaming are in, when they may be removed.

At the forward and after ends where the coaming rounds to the center line it will be found necessary to fill in blocks as shown in order to have something solid to fasten the coaming to.

In putting on the deck, the plank-sheer, the outside plank around the edge of the boat on deck, is first put on. Probably the easiest way will be to take a piece of oak $1\frac{1}{2}$ inches thick by 3 inches wide amidships, and tapered to 2 inches at the ends, and after thoroughly steaming it, bend it to the required shape edgewise. When it is cold and thoroughly set, it may then be sawed in two—edgewise—and it will give a piece for each side. Of course, by using wide boards, it would be possible to saw this out, making it up of two or three pieces, but the former method is strongly recommended on account of the great additional strength it gives to the boat. The edge is screwed down all around to the sheer-strake, and the rest screwed down to the frames.

The balance of the deck, $\frac{5}{8}$ -inch tongue-and-grooved white pine or cedar, is laid straight fore-and-aft. These planks should not be over $2\frac{1}{2}$ inches or 3 inches wide, and are nailed down to the deck beams with galvanized wire nails, and also to the plank-sheer where they land against it—a nail in edgewise between beams is also a good scheme.

The deck is, of course, laid starting from the outside, against the plank-sheer, so care should be taken to have the inner edge parallel with the center line, so that when both sides are done the middle seam or the last plank to go in will be parallel and not a tapered wedge. Where the deck is cut out for the coaming, the ends may project over until all the deck is laid, when the curve is again marked carefully and cut out evenly all around.

I think I have run ahead of the natural sequence and omitted to mention the mast step, which should have been put in before the deck beams, right after the centerboard trunk was finished. It is of oak $2\frac{1}{2}$ inches thick by 8 inches wide, and extends from the forward edge of the trunk to against the floor of the first frame.

It is notched over and thoroughly fastened to the bedlogs, the floors on the second and third frames and to the stem. The mast step is cut out of it and a rivet put through both forward and aft of the step to prevent splitting.

Now to get back to the deck: The decking is, of course, cut out around the inside edge of the hatch forward. To avoid any weakness around the mast it is best to put in a wide plank along the center line so that the hole may be cut out of this and thus do away with any short ends and cutting planks through—this wide plank is called a king plank and should be of oak, the same thickness as the deck.

With the deck on, each seam should be calked with a thin string of cotton.

It is a good plan at this stage when the most of the heavy hammering is through with, to calk the planking of the boat. It is not done before, as the continual hammering is likely to work the calking out.

The deck is then planed off smooth and fair and all nail holes and seams puttied up. It is then given a thin coat of paint, which should be allowed to dry thoroughly, after which it is covered with a coat of very thick paint and the canvas (8-ounce) stretched over it while still wet and thoroughly tacked down—all around the outer edge and around the openings in the middle. When it is thoroughly fastened, so there is no chance of its shifting, rub your hand over it to bed it down into the thick paint.

Never wet the canvas either before or while putting it on the boat. This is only done after it is all fastened and ready to put a coat of paint on top, and merely serves to allow this top coat of paint to thoroughly soak into the canvas, not to stretch it or shrink it up.

All around the edge of the deck and across the stern a toe rail is put as shown to protect the edge of the canvas from being ripped up and also as a protection from slipping overboard while walking on the deck.

Around the cockpit and mast openings the canvas should be tacked as closely as possible and then cut out neatly all around.

The coaming is the next job, and this may cause some anxiety, but it is only of $\frac{1}{2}$ -inch oak and a little steaming will do the trick. There are two ways of doing it, both using two pieces, the simplest of which is to make the butts at the forward and after end. In this particular case it is best as the butt blocks can be made to serve a double purpose. Aft to fasten the socket for the single boom crutch to and forward as a rest on which to put the rack for the belaying pins, this rack also furnishing an additional means of holding the ends of the coaming along the top edge.

The other way is to make the butts in the middle of the sides, using one piece from side to side around the forward end and the other around aft. The coaming is fastened with galvanized nails into the ends of the deck beams and either nails or screwing into the decking and deck stringer.

The seats, flooring, etc., are such a simple matter as not to require any instructions, although it might be well to leave out the middle sections of the flooring until after the outside keel is put on.

zontal across it. It is not show but the usual practice to cut out a piece an inch or an anch and a half across the bottom and put a piece across the ends, lengthwise, to act as a tiepiece and also to protect the bottom of the rudder when going aground.

The spars should be made to the sizes on the spar plan and while in certain cases we have known of amateurs to make a perfectly good job of the hull and fall down when it came to the spars. There seems no reason for this, but if it is really beyond one, the best plan is to get someone familiar with this class of work to do the job.

Putting on the deck fittings does not require any great amount of skill. The main thing is to place them as shown and if there is any fear of their not being solid

enough, put a block under the deck and use bolts through it.

The blocks and rigging are easily taken off from the sail plan. We recommend bronze blocks and good yacht rope. The headstay is, of course, plow-steel. The stem band a piece of rolled bronze—not cast—with an eye in the top to take the pin from the turnbuckle—the latter of bronze similar to Durkee's Fig. 328A.

One of our old subscribers who has just built a Sea Gull, the 15-foot cat turned out in 1911, says, that if the Sea Duck is as good she will be a credit to us. If she is not the finest little boat of her type and far ahead of anything ever published along these lines, we are away off on our dope—time will tell. Just remember this prediction.



RACE FOR THE PRESIDENT WILSON CUP PANAMA-PACIFIC INTERNATIONAL EXPOSITION REGATTA

TO Denmark goes the credit for winning the only International yacht race held in America this year.

The two boats, Lady Betty, the American contender, and Nordug IV, owned by King Christian, of Denmark, are 6-meter boats built to the British rule.

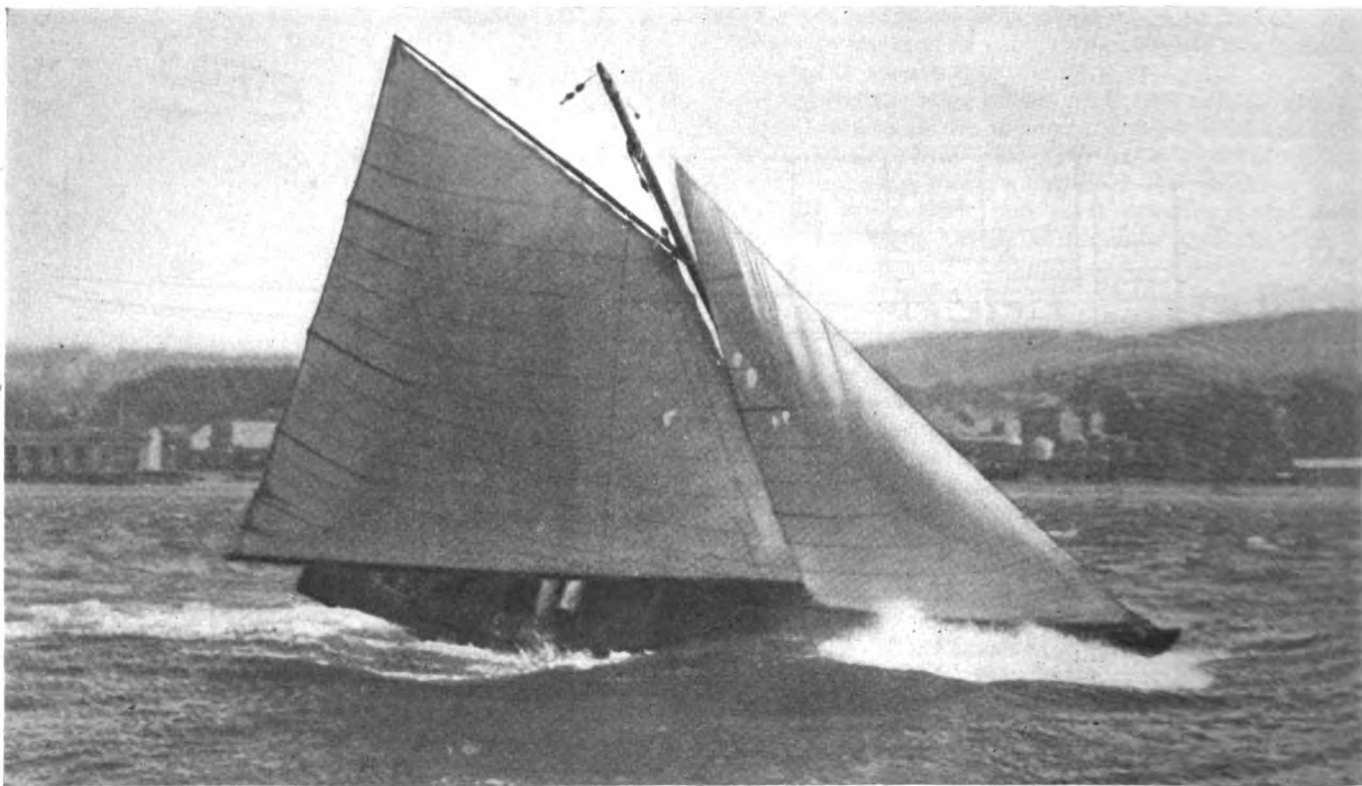
According to the Coast yachting experts the Nordug's superiority was due to her narrower breadth as the seamanship exhibited by both skippers was not featured by an error in any of the three races.

We cannot agree with this as exponents of wider

craft, and are backed up to a large extent by the performance of the Eastern Class P Champion, Josephine, turned out in 1913 by our Designing Editor. She was the widest boat, and has been the champion in her class since she was launched.

However, while the comparison may not seem fair as the boats were not built under the same rule, we do not believe that this feature was the cause of her winning.

The first race was won by the Nordug by a little over 4 minutes. The second race went to the Lady Betty



Lady Betty. Owned by Capt. J. D. Barneson. Beaten in the Race for the President Wilson Cup by the Nordug IV. Shown on the Cover
Photo by Walter A. Scott

when the Nordug cracked her 40-foot mast. The final and deciding race went to the Nordug and with it the President Woodrow Wilson Cup.

The weather was more to the Lady Betty's liking than in the two previous races. A heavy blow continued throughout the afternoon.

The Nordug IV, with her roller reefing gear, reduced her sail to suit the breeze, while Captain John Barneson lugged full sail on the Lady Betty, and it is a question whether it paid him to do it.

Both boats crossed the line practically together, the Danish boat about a second to the good.

At the windward (Presidio) mark Nordug rounded 1 minute and 10 seconds in the lead. This was increased to 2 minutes and 5 seconds when she passed the starting mark on the run back down the channel.

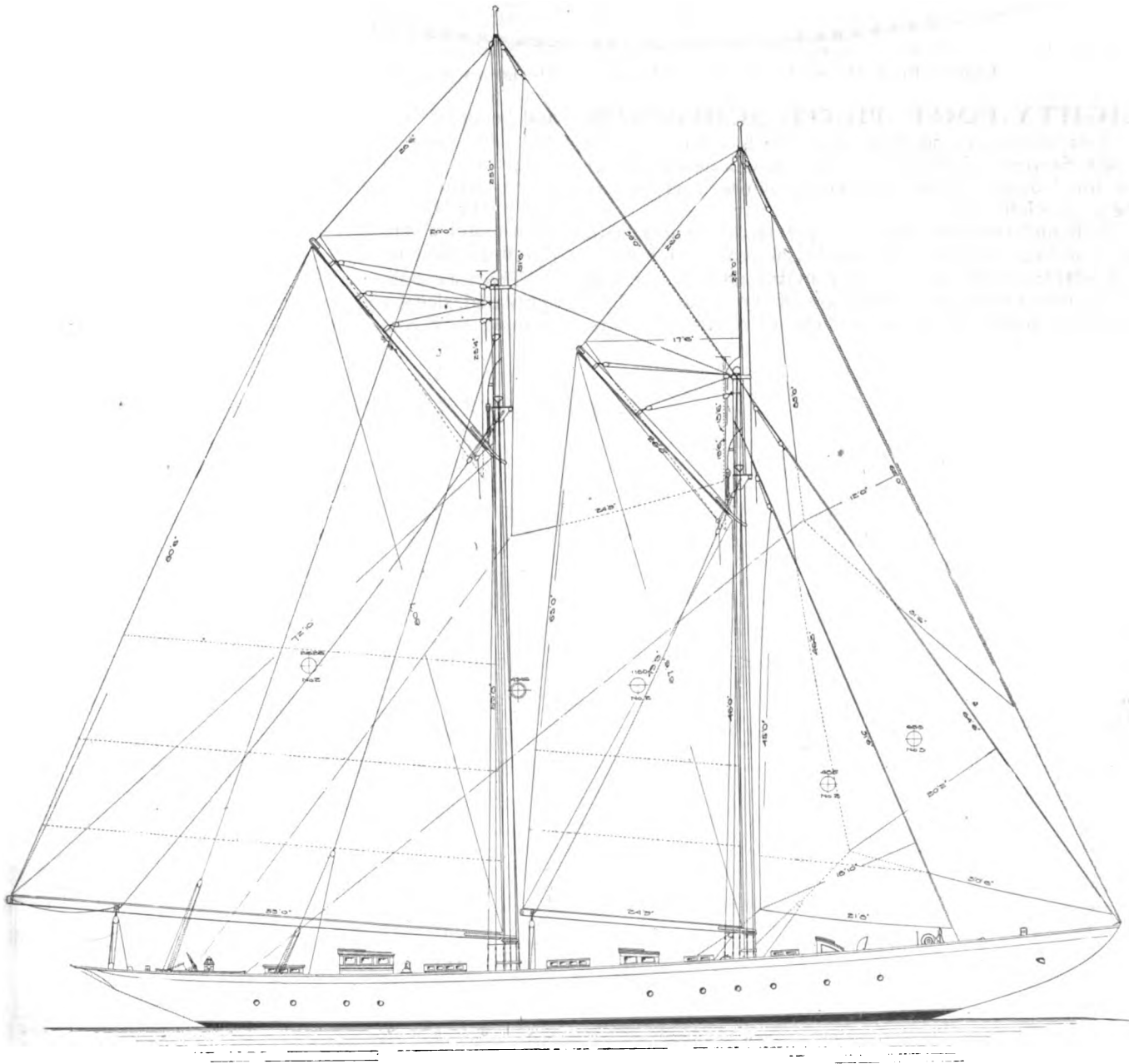
At the Goat Island Shoal mark an additional 50 seconds had been added to the Dane's lead. The run

from Goat Island to the Southampton Shoal was disastrous for the Lady Betty, and practically decided the race. The Nordug rounded this mark with a margin of 5 minutes and 25 seconds. This lead was increased to 5 minutes and 58 seconds at the starting line in the beat to windward, up the channel.

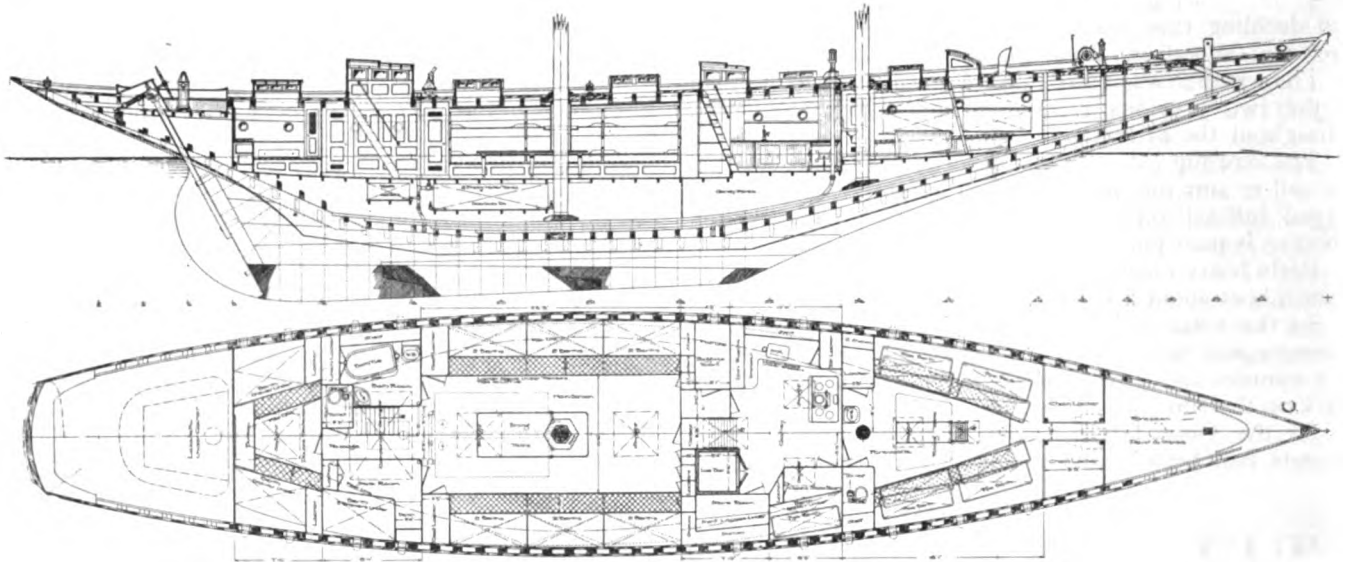
On the next round the Lady Betty did better, and when the pair had rounded the last turn to beat back to the start, the Nordug's lead had been reduced to 3 minutes and 55 seconds.

The Nordug's final time for the 14-mile course was 2:24:08, and that of the Lady Betty was 2:50:26.

This was the first International yacht race on the Pacific Coast. The Nordug IV was very well sailed by Captain H. Heulengracht Madsen, of the Royal Danish Navy, and the Lady Betty by John Barneson, who after the races frankly admitted that "the Nordug is the superior boat."



Eighty-Foot W. L. Pilot Schooner. Designed by Messrs. Cox & Stevens



Eighty-Foot Water-Line Pilot Schooner. Designed by Messrs. Cox and Stevens

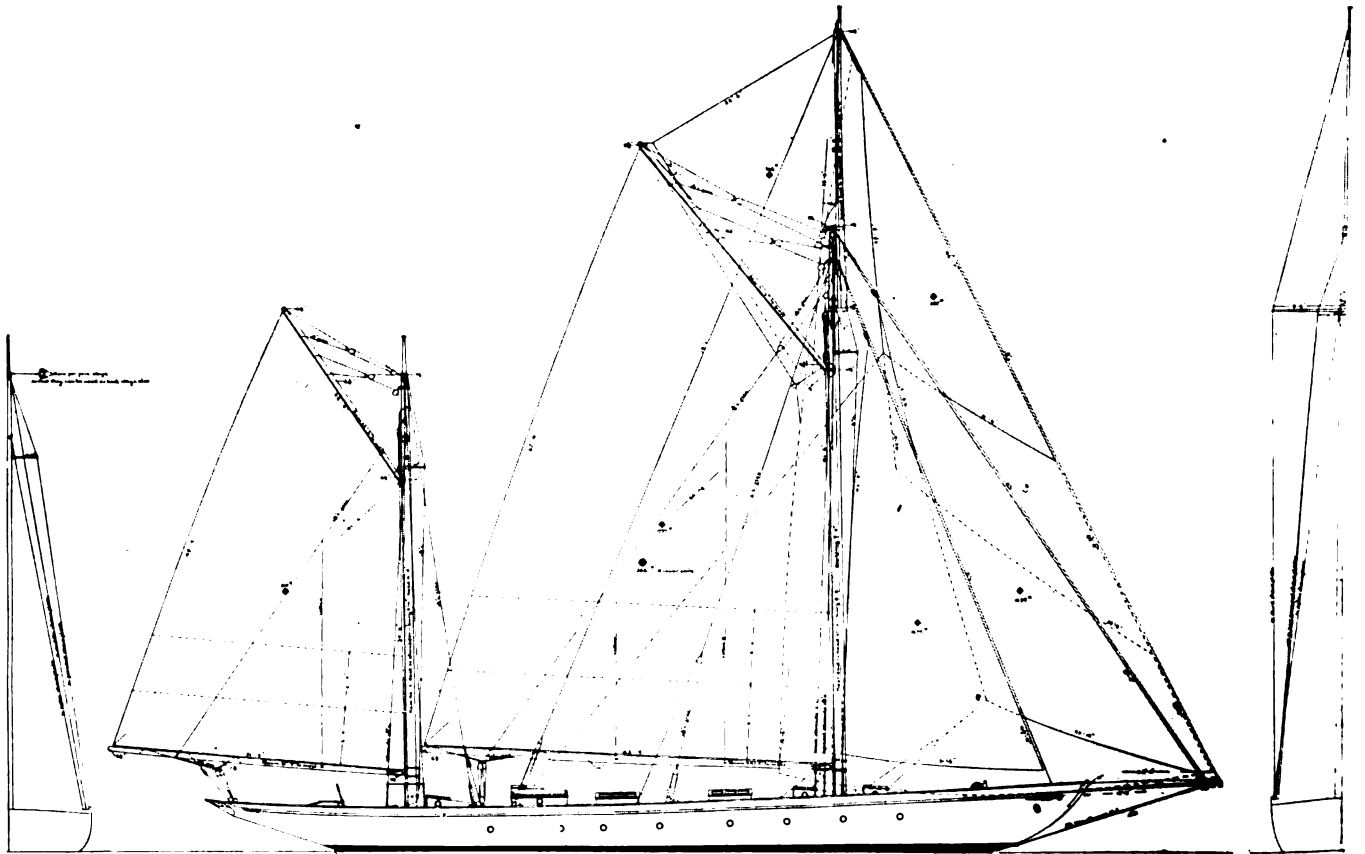
EIGHTY-FOOT PILOT SCHOONER

THE accompanying plans from the board of Messrs. Cox & Stevens, of New York City, show a new schooner for the Virginia Pilot Association, whose headquarters are at Norfolk, Va.

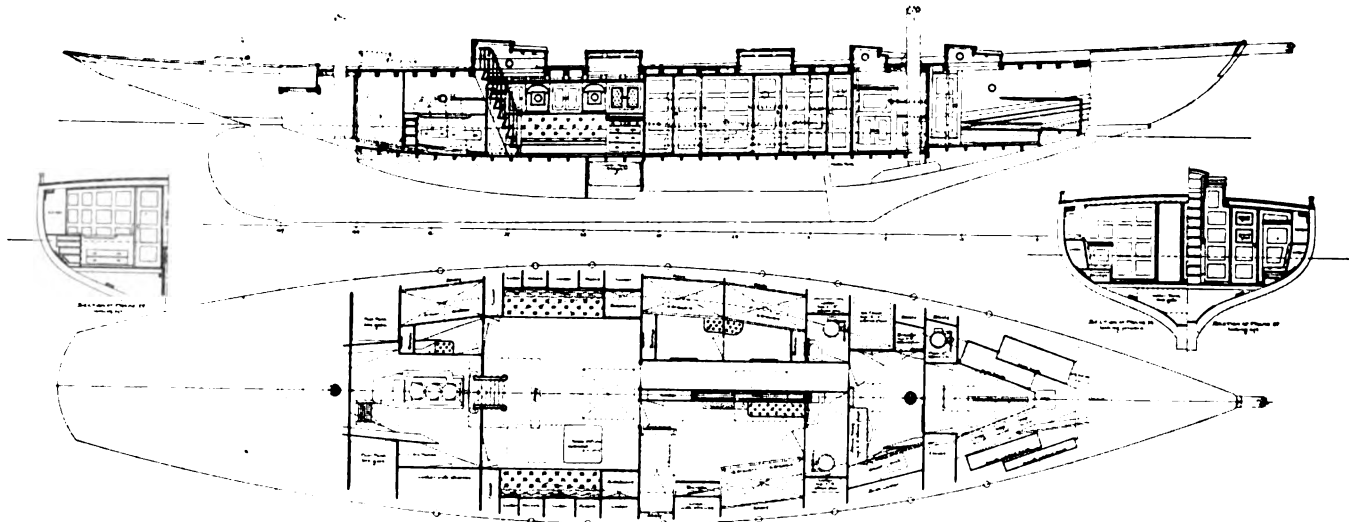
In model, the new schooner is practically a yacht, with the scantling of a New England fisherman. Her rig is well adapted to the service. It contains 4,800 square feet in the four lower sails, which are of No. 2 duck. This spread is ample for speed in light to moderate winds,

and being all inboard, is easily handled to shorten down and keep clear of ice during the Winter work off the Virginia capes. The sparring, running and standing rigging is rather heavy, and the model is such as to make a fairly stiff boat. She will carry over 120 tons of outside ballast and about 20 tons inside. The accommodations are ample and roomy.

The forecabin, which is exceptionally large and well ventilated, sleeps eight men, part of whom may be seamen training to become pilots. The cook and messman are



Ninety-Four-Foot Auxiliary Ketch. Designed by B. B. Crowninshield



Accommodation Plan of Ninety-Four-Foot Auxiliary Ketch. Designed by B. B. Crowninshield

quartered off the galley. The main saloon takes care of twelve pilots, with a stateroom for captain or senior pilot, as well as a double stateroom for guests. Making 25 men all told.

Water and food capacity is sufficient for a three-months' cruise. An auxiliary heavy-oil engine of about 150-h.p. has been contemplated, but no provision has been made for its installation at the present time.

The vessel, which is now partially completed at the yard of A. C. Brown & Son, Tottenville, S. I., is 118 feet over all, 80 feet l. w. l., 22 feet breadth, with a normal draught of 13 feet of water.

NINETY-FOUR-FOOT AUXILIARY KETCH

SHOWN herewith are the plans of a very interesting ketch designed by B. B. Crowninshield for cruising from New York to the Eastward. To enable her to enter most of the harbors along the Sound, the draught was kept just under 8 feet.

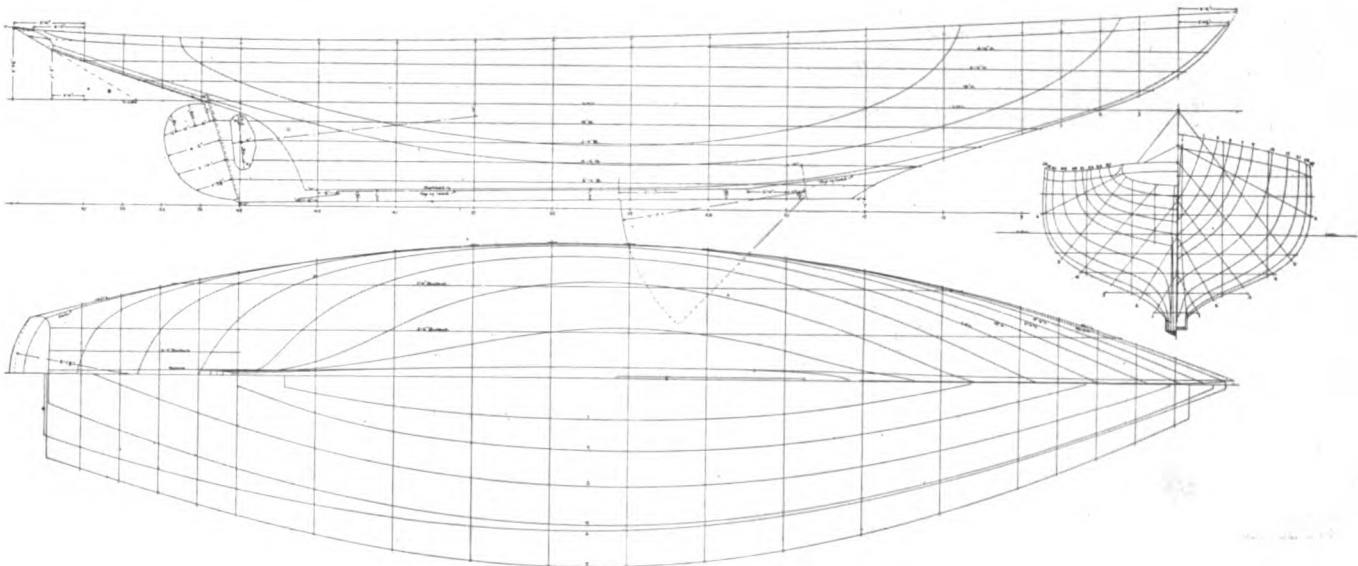
The lines were worked out with the object of securing generous accommodations for the owner and his wife and three guests, under a flush deck. The result is a fine-looking, wholesome boat, which will undoubtedly attract considerable attention wherever she goes.

The ketch rig was adopted to reduce the crew to a minimum. It has been found that four professionals are ample to handle her under all conditions.

The auxiliary power is furnished by an 80-h.p., three-cylinder Wolverine engine, installed in a separate engine room aft, with a separate entrance from the deck. It drives Zahma, as the boat is called, 9 knots in smooth water which, with the ample tank capacity, gives her a generous cruising radius.

The principal dimensions are:

Length o. a.....	94 feet 0 inches	= 28.651 meters
Length l. w. l.....	69 " 0 "	= 21.031 "
Breadth	20 " 6 "	= 6.248 "
Draught of hull.....	7 " 9 "	= 2.362 "
Draught with board down	17 " 0 "	= 5.181 "



Lines of Ninety-Four-Foot Auxiliary Ketch. Designed by B. B. Crowninshield



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 254 W. 34th St., N. Y., U. S. A.



ANOTHER SEA GULL

I AM enclosing you a few snap photos of my Sea Gull which are the best I was able to get, owing to want of time. The little craft was launched late in July, and tried out against a one-design dinghy of English design. I had no difficulty in beating her whenever we met, in either light or heavy winds. Generally speaking, I can truthfully say she is a successful little craft, she handles well under full or reefed sail, and under two reefs she will eat out to windward at a surprising rate of speed.

The only alteration made in building was to raise the freeboard 3 inches all round, as we have to meet very nasty water here at times.

Thanking you for past favors, and wishing you every success.

Victoria, B. C.

ANDREW MULCAHY,

Capt. (D. O.),

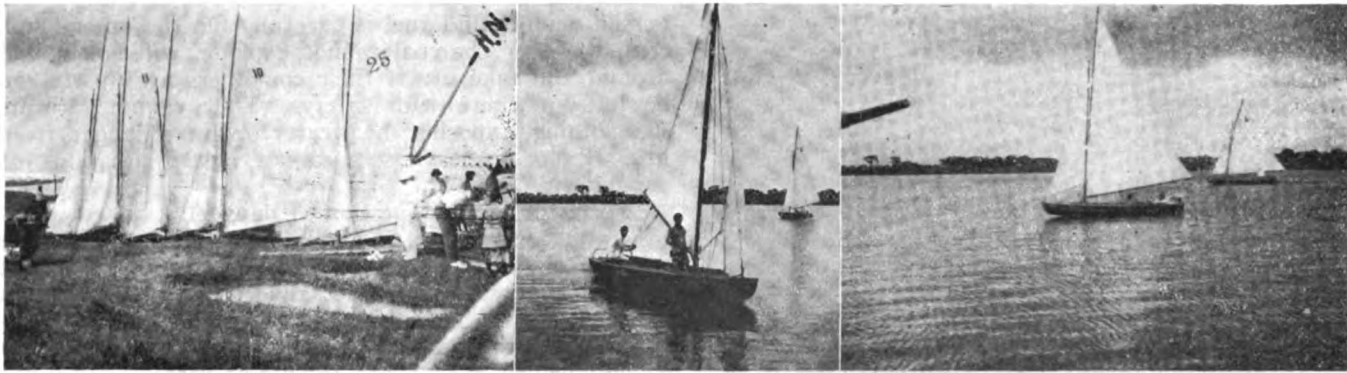
Royal Can. Arty.

FUN AT SHANGHAI

I WAS in Shanghai over the Fourth of July and managed to win three races in one day up at a place called Henli, where all the crowd of Shanghaiites that are fond of sailing go over the week ends. It is quite a wide river or canal, with very little current in it, about a quarter of a mile wide and about 12 miles long. It is the home of the Shanghai Houseboat Club, with about thirty active members. They all have houseboats there and a class of sailing sampans about 15 feet on the water-line, and shaped like the old Chickencoop, if you remember her, with a sail like the Stars (about the same sail area), and an iron centerboard. The crowd are very enthusiastic and they have great fun. You leave Shanghai in the noon train on Saturdays, and are up there in time for tiffin. Have tiffin aboard one of the houseboats where you are going to stay. Then you have a race; usually a windward and leeward race, as the river



Sea Gull, Built by Capt. Andrew Mulcahy, Royal Can. Arty. at Victoria, B. C.



Getting Ready for the Handicap Race Tango Tommy in the Background Beating Up to the Windward Mar
Fun at Shanghai

is too narrow to make a triangular course, but it winds a little, to make it fairly good sailing. Then after the race, which is about 5 miles, they have swimming races, and all sorts of sports in the water. Then the usual round of calls on all the other boats in the place; then dinner. After dinner there is another race by moonlight, if there is any; if not, by starlight. One very peculiar and nice thing, there is always a small breeze there at this time of the year, as the wind blows from the sea up country and is very steady all day and all night.

Then on Sunday the gun goes off at eight o'clock and everybody goes in for a swim and the day starts off with breakfast. Then the handicap race starts, which is a novel idea; all the boats are lined up against the bank, which is very steep, with the sails up; then you start according to your handicap, push off from the bank and sail around the course. Then before tiffin comes the boat polo match, which is great fun. Two men in a boat; one stands at the bow with an ordinary polo mallet and the other fellow sails the boat. The ball is an ordinary kid's rubber football. Then you take sides—four boats on a side; the ball is thrown in the middle and you sail for it and try to drive it over the other fellows' goal. The only fouls are that you can't hit another boat when he is broadside on or directly run him down, and you can't get out of your own boat. As the boats tip over on the slightest provocation, it is great fun, and you are in the water before you know it. Of course, then you are out of it till they call time; then you are allowed to get your boat up again and go to it. The boats are all padded on the rails, so you can't do much damage to them. They only cost about \$45 gold to build complete, and they usually get a new boat every year. I am enclosing some pictures taken up there to give you an idea of the fun.



A Small Sea Bird—The Only Sailboat on Lake Tahoe, Calif.

A CANVAS CANOE

I AM mailing to you herewith for the Hurrah's Nest, photographs of something unusual in the line of sailing craft. It is a 14-foot, flat-bottomed, canvas boat which can be folded up, rig, leeboards and rudder excluded, into a cylindrical bundle 4½ feet long by 10 inches in diameter. In this condition, it weighs about 50 lb.

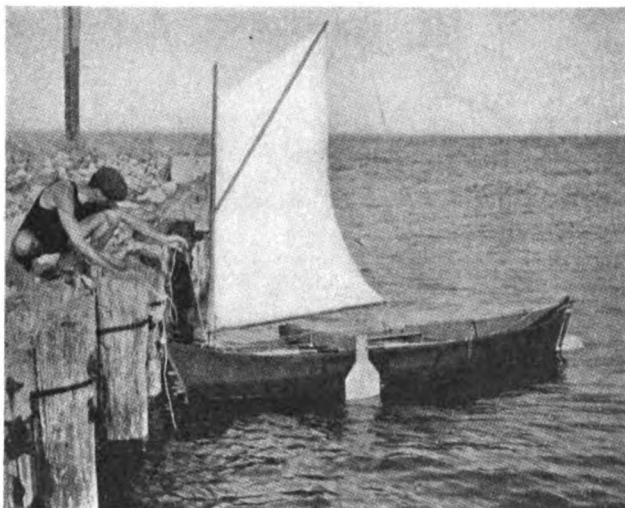
I have sailed a number of times on the treacherous waters of Lake Michigan in this boat, on one occasion being struck by a nasty squall, and have been very much surprised at its seaworthiness. Being as light as a canoe, yet of an infinitely safer design, with a broad breadth and high freeboard at the ends, she rides the waves as prettily as a gull.

As to her sailing qualities, however, I cannot speak in terms of such high praise. She carries only 40 square feet of sail, which is about half of the amount that she should carry. In beating to windward against high waves it is necessary to make use of the oars, and under the most favorable conditions she is not fast, except when sailing before the wind.

JOHN KRUTTSCHNITT.



Canvas Canoe, Built by Mr. Kruttschnitt



Mr. Kruttschnitt's Canvas Canoe

COMFORT AFLOAT

THE article in Hurrah's Nest in THE RUDDER of October headed "Comfort Afloat and No Crew," it seems to me, was likely to be misleading, although I have not thought that the writer intended it to be so.

For some years I have felt a keen interest in cooking apparatus for boats, and as a consequence have been interested in the items of news appearing in the daily papers concerning accidents to boats from the use of liquid fuel; and the impression produced upon my mind by such articles, which, of course, were entirely disinterested, so far as stoves go, was that a person really runs a great risk in using on board a boat a liquid fuel cooking apparatus. Of course, I cannot recall all of them, but some notable ones recur to me. One appeared in the *New York Herald* some years ago in the account of the Isolt's trip to Bermuda:

"The oil stove on board gave out and for six days those on board had nothing but cold luncheons."

One account of this same trip said that the Isolt's oil stove upset and set fire to the cabin, and that the fire was with great difficulty extinguished. Another instance was on the boat Kid McCoy in the Hudson River, the details of which I do not now recall, further than that the affair was serious. A bad explosion took place on Mr. Leonard Richard's yacht while it was lying in New London Harbor. I believe the explosive was alcohol.

An oil stove exploded on a coal barge in New Haven Harbor and a two-year-old baby was killed, while other members of the family were seriously burned. About a year ago an account appeared in the *New York Times* of the death of Mrs. Maria Markert from burns caused by the explosion of a gasolene stove on a boat on which she and her husband were cruising.

I will not extend my enumeration further.

Without doubt, I shall be met with the statement, "But liquid fuel stoves have been greatly improved of late."

Let us admit that; but the liquid fuels themselves have not changed, and where a leak occurs, or a stove or receptacle containing liquid fuel is upset, a bad explosion or dangerous fire is almost sure to result. Constant care is necessary to prevent accident; and not every

person using liquid fuel is careful. On the other hand, coal, wood or charcoal cannot explode, will not spread around and take fire if their containers are upset; can be left anywhere with safety. They cannot saturate the clothing, exposing the wearer to grave danger from fire. Even careless users cannot create situations of danger with them.

So much for the question of danger.

As to convenience, if all kinds of cooking are to be done, or if only frying, boiling and baking, the solid fuel stove in its complete, compact, rigid form is preferable to a liquid fuel stove, with its detached oven, its susceptibility to drafts and its lack of stability, and its liability to derangement of flame by tipping of boat.

Boatmen lay great stress upon the importance of having the cabin kept warm and dry; as between the liquid fuel stove and the solid fuel stove in this connection there can be no comparison.

Some boat owners attach so much importance to the superiority of solid fuel stoves in this connection that it seems almost controlling.

JOHN C. TURNER.



TO BUILD ENLARGED SEA BIRD

A SHORT time ago I wrote you for information as to where I would be able to purchase a knockdown frame for a Sea Bird. You were kind enough to refer me to several builders who quoted prices, but on account of high freight rates on the 30-foot length of boat, I have decided to have the boat built by a local man. Now, the 25-foot model would be smaller than I would like, and I wish to increase the boat to 30 feet, but as I have had no experience in designing, don't know just how to go about it to still keep all other dimensions in proportion. Shall I increase all other dimensions one-fifth, or 20%, or will it take entirely new measurements? I am going to build the frame from "natural crook" cedar, with pine planking and finished with white pine deck and cabin.

Thanking you for past favors and assuring you of my hearty appreciation of any information regarding sheer and floor plan of a 30-foot model.

R. I. DUNTEN.

[We advise building Seagoer, an enlarged Sea Bird, as the easiest way out of the quandary. Seagoer plans are in THE RUDDER for June, July, August, 1913.—Ed.]



TO BUILD SEA DUCK

SEVERAL of the members of this club are very much interested in the cat Sea Duck, and should like to get a little information in regard to what these boats will probably cost. I understand from your article in the October RUDDER that six will be built and that if more are ordered, the price will be lower. There is a possibility that two or three can be sold here, and we should be glad to have you ask the builder to give us full information in regard to price, f. o. b. cars, etc., or else give us his name so that we may write to him direct.

Lincoln Park Y. C.

E. W. BROECKL,
Secretary.

[We have written to the builders in all parts of the country and asked for estimates. When received will publish the figures.—Ed.]

ROUND THE CLUBHOUSE FIRE

JUST about as happy as a sore-footed hound after an unsuccessful chase, I got back to this chamber of horrors from a short voyage, to find the boiler out of commission and the temperature nearly at freezing. Writing spongy paragraphs, wrapped up in an overcoat, and having to dodge clouds of congealed breath in order to dot your i's and cross your t's, is not amusing or inspiring. But, Ahoy! To cheer this lonely hour, came in a large packet of pictures from one of my readers resident on an island in the Central Pacific. These pictures showing waving palms, green cocoanuts, ripe pineapples, and young native ladies clad in the latest style of too little below and not much above, disporting themselves beside the glad waters on white, pebbly beaches. The pictures of the palms and pineapples will appear in later numbers, the ladies' photographs not being passable by the Board of Censor, will be only displayed in our private gallery. There is some romance left in us old battered hulks, high and dry on the shore, even if we are ultimately designed for firewood, and I'd give a leg for a six-months' sojourn on that island. That makes me think of something in the last issue. The stories by Harding, Wright and Dickenson had a charm because a bit of romance was mingled with their words. How tiresome this continued matter-of-fact, dust-dry stuff about Bill Little's engine or Jack Big's boat! I don't wonder that some readers kick, but we have to print it because all animals don't fodder on the same veldt. But for me, the green grass every time—the succulent herbage of the Plains of Fancy.

* * *

One day, standing on the bridge of a steamer West bound, halfway across the Western Ocean, holding on while she pitched and rolled in a steep sea, the result of three days of heavy head winds, the massive banking of slaty cloud suddenly split open a hand's breadth above the horizon and the sun burst out in all its powerful magnificence. Instantly the sheet of heavy gray sea with its tossing plumes of white froth was changed to crimson and purple. Ahead, and on both sides, flashed and glowed a myriad iridescent lights, then the horizon in the rear took up the glamour and the ship rode centered in a circle of living, leaping flame. For a space above the sun, the cloud belt held intact, but higher it was rifted from side to side, and through this chasm a host of streamers shot up and spread across the vault, painting it from horizon to zenith a deep, gorgeous orange. The wind, as if awed by this riot of color, softened its fury for awhile, and the sea lost its harried fierceness, and seemed to rejoice in the beautiful changes of light that now followed one upon one for some minutes, until the great orb, like a red-hot ball, dropped behind the Western line, leaving the ship, sea and sky again to put on a cloak of weird, stormy gray. As I stood watching this entrancing spectacle, the thought came how like was that visit of the sun to the windy gray sea to the coming of romance to our dull, samely existence. What the scent is to the flower, the song to the bird, the stars to the night, romance is to our lives. Its spirit breathes

everywhere. No place is too lofty, no place too lowly, but what it enters and cheers and inspirits the dwellers. It pilots the explorer, it guides the traveler, it hides with the soldier in the trenches, and haunts the seaman in his long night watches under the tropic moon. And if it does all this without extra charge, why not have a little of it in our magazines?

* * *

Some time after the war broke out, a writer, who knows about as much about vessels as I do about poultry, contributed an article to one of the frothy magazines, in which he declared that the submarine was immune to all attacks, and that it had made obsolete the navies of the world. At the time the learned Juglans was penning this weighty article, submarines were being put out of business by divers methods at the rate of one or two a week. It is the old story that whatever man can make, man can break. All offensive ever devised has been promptly met with defensive, and in the end the defensive is invariably successful. This is one of the fundamental laws of Nature, and life exists largely through its exposition. If the attack was invariably successful, the destruction of the other form would follow, and the ultimate result be the existence of but one form. It is the same with things human, as it is with plants and animals. In the struggle for existence we are all under sway of the same law. Go back into history and you will find that every advance in arms has been hailed as the ultimate destroyer of war by preventing its successful waging. Gunpowder was to prevent war by doing away with skill and courage as factors in fighting. Armored ships made naval fights impossible. Shell fire made fortresses obsolete. Rapid rifle fire made the bayonet a useless appendage. None of these things have happened. Every new move of the offensive has been met and countered by the defensive. So it is with the submarine, and today its offensive activities have been thoroughly checkmated by the employment of very simple but effective devices. One of my readers, who has been chasing these pests, says in a letter which I am forbidden to print, that they are as harmless as whales, and at the mercy of any craft smaller and swifter than themselves. Once on the surface, and they must come up, they can be easily destroyed. He laments that the scarcity makes submarine hunting a tiresome job; if there were plenty about, the work would be more fun than sword fishing. A whole year's hunting only gave him a chance to be in at the death of two.

* * *

A crazy car builder and a no less eccentric professor lately undertook to modify the whole art of naval warfare by producing a miniature submarine. Small underwater boats are no new thing; the first I ever saw was 40 feet long. No doubt, a small submarine is just as effective a weapon as a large one, but how about the men who live on and operate these devil machines? If the crazy car builder and the looney professor would go out to sea and spend a few days, or even hours, cooped up in the cabin of a small boat they would sing a very different lay. The wear and tear on a human is bad

enough in a big submarine; no man could stand being imprisoned in a small one for any length of time, and time and patience are the two essentials to successful submarine warfare. Want of exercise, bad air and noise soon stupefy the mind, and cramp the intellectual activities. I have always believed that living continually in noise accounts for the stupidity of so many motor boat engineers. One time a man came to me with a design for building a boat to make the race to Bermuda. This craft was to be completely battened down, steered from below, and the air for lunging to come in through a pipe ventilator. In this unsinkable and unswampable craft he was going to drive through sea and wind from Sandy Hook to St. Georges. I suggested that before building this vessel, he spend a few hours off Coney Island, battened down in the engine room of a power boat, and then come back and talk it over. He never came back.

* * *

The following is taken from a late copy of the *Yachting World*:

Resolute and Vanitie, two of the three yachts that were built in connection with the defence of the America Cup, have recently been laid up after a season's trials, which resulted in favor of the former. In the course of the Summer, ten formal races were sailed between them, of which no fewer than nine were won by the Herreshoff vessel. The much disputed question as to which is the better of the two has therefore now been settled beyond a doubt, and it may be assumed that when the belated contest takes place, the fortunes of the New York Y. C. will be carried by Resolute. This, no doubt, is very satisfactory from the point of view of the holders of the Trophy, but we cannot help thinking it a pity that the trials ever took place. The impression left upon the minds of British yachtsmen is that of a march having been stolen upon Sir Thomas Lipton while he was engaged in the noble work of carrying succor to the disease-stricken Serbians, and we fear that impression will not be readily removed. It was understood, on this side of the Atlantic at least, that all of the yachts would be laid up and not placed in commission again until such time as the political situation warranted the contest being held. Had that course been followed, neither side would have reaped any advantage nor suffered any undue handicap from the unavoidable postponement. But those responsible for the defence of the Cup thought fit to commission Resolute and Vanitie, and put them through a further series of trials. It may be urged that the yachts were brought out with the sole object of ascertaining which should be selected as defender, and not for further experimenting and tuning up. But, even so, we still think that the New York Y. C. ventured beyond the bounds of good sportsmanship in adopting the policy they did. Every time a new racing yacht is sailed something is learned and the oftener she is underway, the better her prospects of ultimate success. The holders of the Trophy have, no doubt, learned much in the course of these trials that will prove of value to them, and the knowledge thus gained may make just the difference between winning and losing.

* * *

Now, if the little boy who wrote the above epistle will come and sit on my knee I will give him a bun, and while licking the sugar off the top, he can listen to my story. When the owners of the two Cup-boats raced last Summer, they hadn't the slightest intention of taking advantage of Sir Thomas Lipton being in Serbia, or anywhere else. The boats were matched to settle a private doubt. The men handling Vanitie believed that with different sails, different trim, different helmsmen or different luck, they could beat Resolute, and that is why the boats met last Summer. Am I not right, Mr. Owners? And moreover, I don't believe Resolute was raced last season with the approval of her designer. The boat was thrown together for one season's racing, and it certainly did her no good to be knocked about as she was last

Summer. Sir Thomas Lipton knows as well as I do that constant racing of these lightly-built boats does them no good, because several years ago, when Shamrock was lying for days idle in the Horseshoe, I suggested that she be taken out and her crew drilled in sailing the course. Sir Thomas' reply to this suggestion was that the designer was opposed to the boat being sailed more than was absolutely necessary, and that was why she was kept idle at moorings. As to there being anything new, Resolute's crew at the close of 1914 knew their boat and could gain no further knowledge by racing against an out-distanced craft like Vanitie. But aside from all this, the Editor of the *Yachting World* ought to have more sense than print such slush charging people with being unsportsmanlike. Nobody who knows the owners of the Cup boats would for one moment credit such a charge, but unfortunately, landsmen and marine motorists who know nothing about racing and racing men, are likely to accept the mush and to give it wide circulation. Several times when in Britain, I have had to ride down writers who have accused our yachtsmen of taking advantage of Lipton, and Sir Thomas will bear me out when I state he and his boats have never received any but the squarest treatment in this country, and besides concessions of great advantage to him have been made more than once by the New York Y. C.

* * *

To my knowledge, the bulk of the men advertising in the magazines never read them, but now and then, somebody does and we have a word out of the gloom. One of my old readers, who always reads this magazine is Mr. Everett Hunter, of McHenry, Ill. Mr. Hunter is one of the few successful boat builders. His output being the largest of all the Western concerns turning out small craft, he is a man who knows what he is talking about, so that we are pleased to print the following letter in reply to some remarks of last month, made in front of this fire.

* * *

Your article in the November issue of THE RUDDER is timely and the advice good, and wish more magazines would take up the question and keep pounding it into the buyer's nut, that it is necessary to order early if he wants to get the best of service from the boat builders. Personally, I consider a man who orders in March, is a late buyer, but it is almost impossible to make a customer see it that way. They think we can turn out the hulls in a few hours, and drop an engine in the same way, but never take into consideration the delays that are caused, which the builder cannot control, such as waiting for motors, delays in the freight and a thousand other reasons, which is very annoying, all of which the boat builder has to stand the blame.

Also your article on the builder is very interesting, but I don't think there is much fear of any one investing very heavily in organizing a large company to turn out hulls in enormous quantities. We carry hulls in stock the past five years in the following sizes: 16, 18, 19, 21, 23, 25, 27, 30 and 35 feet in the family type, and 21, 25, and 30 feet in the speed types, and as a rule we can deliver the same day the order is received, providing, of course, we do not have to install some particular make of engine, and it is a question in my mind if it pays to carry so much stock, as we carry a great many hulls over each year. I want to tell you, I don't think there is enough boats sold in any given locality to make it pay the builder with a large plant; there is too many of these hand-to-mouth fellows building hulls and turning them out at a price no reliable factory can afford to compete, but the owners seem to think they are getting a bargain, and they fill the bill for their use.

I would also like to add another paragraph regarding these fellows who turn out a couple of hulls a year. Last July I visited several lakes and rivers around here and investigated on the quiet, and examined the local output of a lot of these fellows, also their prices, and it really was remarkable

the tubs they turned out, and then sold them to men who would really think would know better than to invest in such craft; no lines, crooked sheers, poor workmanship and material, without any exception. No wonder the boat-building business is at a low ebb, and so many pulling away each year, for it is impossible to keep men interested in such worthless craft. The owners soon become disgusted, and think, no doubt, that all boats are alike.

Where are all the large builders gone to that were in business ten years ago in this vicinity? We are the only one left, and so far as I can see, we are the only one who have made it go and come out with a living profit, but as stated before, I don't think there is enough boats sold to make it a very profitable investment for any firm to load on to many hulls unless they are satisfied to carry them a number of years, when the insurance and interest will eat up all of the profits.

Excuse the length of this letter, but I am always interested in your magazine.

EVERETT HUNTER BOAT COMPANY,
EVERETT HUNTER, *President.*

* * *

The cat Sea Duck has caught on everywhere and the correspondence regarding this little packet has blown in from all quarters. The reason is that Sea Duck is first and last a real boat, not an apology or freak. There is nothing novel about her. She is an old-fashioned, straight proposition that appeals at once to every man who really is a sailor. The chief argument held against one-design boats is the boats themselves. Most of these boats are freaks, designed by boy-designers, and built by reckless boat butchers who take the job as a last gasp for salvation. Outside of racing they are of no use, hang together for a short time and have no second-hand value. Take a boat like Sea Duck and she is useful for fishing, party-sailing, short cruises and hunting. If the wood and metal is put into her catboat fashion, she will last twenty years and sell at any time for what she cost. Catboats built twenty-five years ago bring the original cost today. Of what other type of boat can this be said? We have a few estimates come in and from these it may be stated that the cost of these boats, rigged and equipped, will be \$300, and I don't advise building them for less. No builder can do a good job on this boat for less money and make anything, and if he don't expect to make anything, he won't do a good job.

* * *

— That's where a lot of you people make a mistake—grinding the face off a builder. Let the man live; let him make a fair profit and you will get a decent-built boat. Instead of doing this, you shop around until you find some miserable wretch facing bankruptcy or starvation, and taking advantage of his state of woe, grind a price out of him that hardly pays for the lumber and nails. What's the consequence? Ask of the wrecks that for miles around strew the beaches. Then these same builders have a number of disagreeable traits which it may not be out of place to mention. One of these in particular is a wild desire to build from their own plans or models, or imagination, instead of building from the design which the customer carries to the shop. Nine-tenths of the nightmares that haunt the seas are the children of this mania. A man may be a very good boat carpenter, but slantendicularly his conception of form may be altogether preposterous. Mr. Hunter's remarks on this question are exceedingly to the point. Already one reader has written in that on presenting the plans of Sea Duck to a builder for an estimate, the builder suggested adding a tail and bill to the design, or else letting him make a complete new up-to-date plan, having all the attachments left off

of our drawing. Will the gentleman, for the sake of future generalisms, kindly tell us of what use an after overhang is to a cat, and what use a full overhanging bow is to the same type of craft? The majority of boat builders never go out in the boats they build, and the only knowledge they possess is shop knowledge. If they would go out and handle the monstrosities they turn out it might effect a reform in their methods.

* * *

I had thought that my three-years' voyage was not up until December, but on consulting the papers, I find that the purser is right, and it is time to sign the articles again, but before doing so I am going to accept the Oldman's invitation to "come aft and have a growl." When I last shipped in THE RUDDER, three years ago, she was a handsome sailing craft, and there seemed a fine prospect for a landlubber like myself to learn some seamanship; for, although there was a little engine way down aft, it was intended merely as an auxiliary, to be used only in calms. Once, at sea, and the pilot over the side, the topmasts were sent down and the engine exalted. The crew were mustered daily for drill in mastering the internal, and infernal, workings of the engine, to the neglect of instruction in seamanship. This engine has since been replaced by larger and still larger sizes, and the rig reduced, until now all amidships is given over to the motors, and THE RUDDER has become a bald-headed schooner with scarcely enough sail left to go to windward in a breeze. Instead of the Oldman calling us aft for instruction in seamanship, based on his own valuable and varied experiences with wind, wave, and tide along the United States coast, where most of us must sail, we are harangued by a fellow from a machine shop, who gives us a lot of stuff about thousand-h.p. gas engines, which we could get any time, if we ever wanted it, by sending a post card to the manufacturers. What does the owner of a 30-foot sloop or yawl care about pages of description of fifty different makes of engines, in all of which there isn't a word of advice as to which engine is best for his use, or a syllable that will help him start his own little kicker when it balks some day in a calm, or as he is using it to get into harbor at evening against a light breeze. Such stuff ought to be paid for at advertising rates, and kept among the "ads" where it belongs. It is fine to have a small engine tucked away in a sailing yacht to be used when wanted, and there are few without it nowadays; many power boats carry a little canvas to steady them or to enable them to hobble into a harbor if the engine quits; but the craft that can go to windward in a breeze in fine shape under either method of propulsion is indeed a rarity. It looks as if THE RUDDER, in the attempt to emulate this rare craft, were likely to founder from the weight of machinery that is being taken aboard. The past year I have also made a voyage on *Yachting*, but find that I cannot ship on both vessels for 1916, much as I would like to do so. I am now signing on for another voyage in THE RUDDER, but if the sail area is any further reduced, I shall ship in some other craft, or turn farmer in disgust, as soon as we make port.

OLIVER P. WATTS.

* * *

That's right; don't stand for'ard growling at the foremast bits; come aft and have it out with the Oldman. If more of you people would ride me down it would be better for all hands, but for Mr. Watts' growl I am not to blame. The blame lies with the sailing men; right in their own harbor. For years I have pleaded for support to keep the sail alive, not only in this magazine, but on the water. And how much support has been given me? There are today in the United States and Canada, roughly estimating, 5,000 sail craft, and each one of these boats has an owner. Now then, if these 5,000 owners will come forward and subscribe, I will add sixteen pages to each issue of the publication and devote the whole sixteen from deck to truck, to sail. And furthermore, I will hire the best man in the world in that line to run these pages. Let the sailing men who do subscribe get to work and see if they can ship the slackers and whimperers, and then I'll do my share.



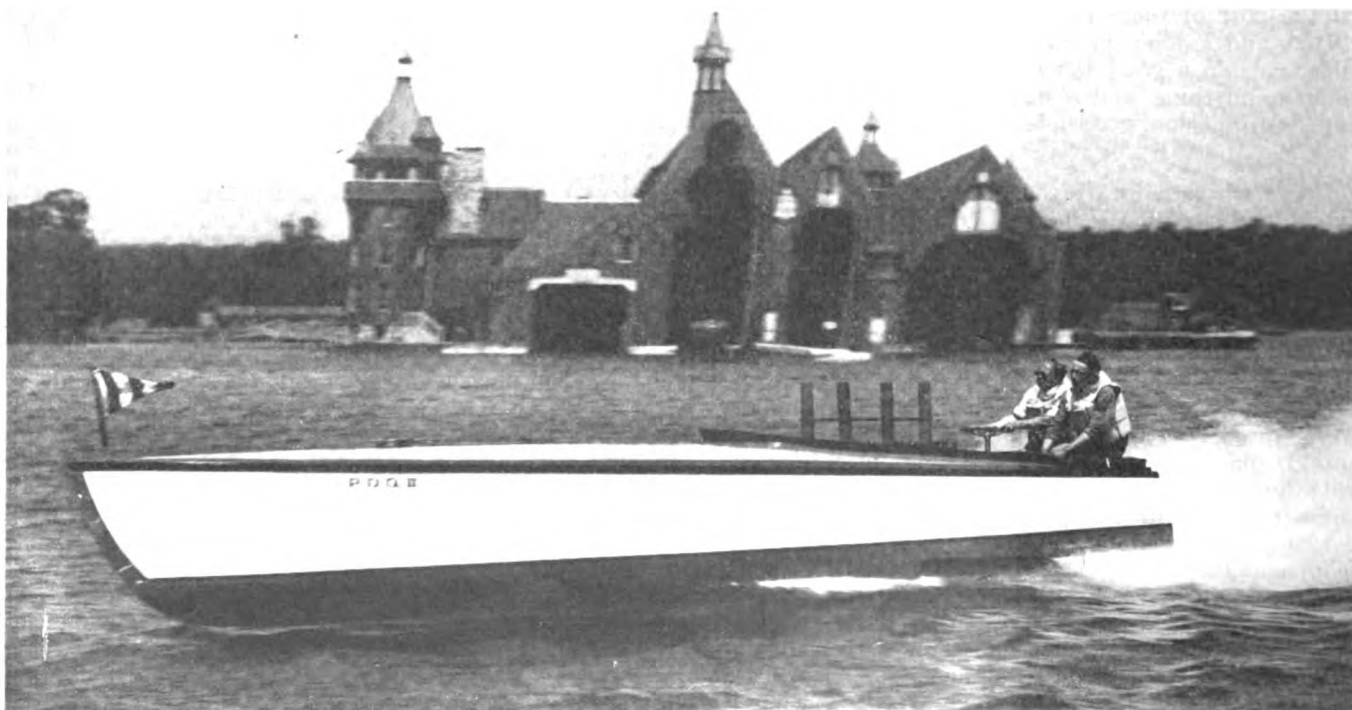
Ovidio. Workboat. Designed by Morris Whitaker

The merry Germans have forbidden the circulation of **THE RUDDER** in Belgium, so we are keeping copies for our Belgian subscribers, and we'll send them on after the fight is finished. We are also keeping copies for our Austrian subscribers who are at the front, and any others who, owing to the war, cannot receive their numbers. The foreign yachting papers are making a bold struggle to live it through, and they have my best wishes and sympathy. If there is anything we can do to help out just hail and we will gladly stand by.

* * *

This being the last number of the volume, we will not meet again until Old Time has turned his glass and cut off another stalk to bind in his sheaf of ripened years. If the Water Rats will just for this one evening allow us to have a wee drink, say something mild, like Evans' ale or Jamaica rum, it will add much to the festivity. I'd hate to start young 1916 off with a slop of tea or

lemon soda, or grape juice. It would be enough to give the kid the rickets. Heaven knows, 1915 was weak-kneed enough—let us hope the new fellow will show more spring and verve. But, let that be as it may, so don't make any vetitive remarks—let's toast 'em all in a rousing old good-night drink. Glad to say the outlook for the sport is better than in several years, and it is the dawn of a new era—an era in which yachting will flourish as it never flourished before. But that doesn't mean that we can sit down and watch the grass grow. Every man in the sport must keep awake and working. Shake up your clubs; shake up your officers; shake up your members; and above all, get after the boys and girls and bring them into the sport. So here's to all hands: God bless you! Whether on salt or fresh water, under pine or palm, the Oldman, with a tremor in his voice and a shake in his hand, wishes you all a Healthy, Happy and Prosperous New Year.



P. D. Q. II. In the Background Are Boathouse into Which All Classes of Yachts Are Kept at the Thousand Islands

THE RUDDER

Vol. XXXI
No. 12

Published Monthly at
254 W. 34th St., New York, U. S. A.

BY
THE RUDDER PUBLISHING CO.
THOMAS FLEMING DAY,
President.

I. TORRENS,
Vice-President.

JOHN B. TAYLOR,
Secretary and Treasurer.

*Entered at New York Post Office
as Second-Class Matter*

Contents for December, 1915

Twice Wrecked. Part I.	507
Southward Ho! Part I.	511
Modern Marine Motors and Boats. <i>T. Orchard Lisle, A. M. I. Mar. E.</i>	515
Sixteen-Foot Catboat Sea Duck. Part II—(Concluded). <i>Fred. W. Goeller, Jr.</i>	531
Race for the President Wilson Cup	536
Designs	538
Hurrah's Nest	540
Round the Clubhouse Fire	543

SUBSCRIPTION RATES

Around the World

One Year	\$2.00
Six Months	1.00
Single Copy	.25

No Free Copies

INDEX TO ADVERTISERS

A	O	G	M	S
Abeking & Rasmussen. 22	Craig, James, Engine & Machine Works, 2d page cover	Gray & Prior Mach. Co., The 15	Marine Art Co. 8	Sanford, Harry W. ... 23
Almy Water-Tube Boiler Co. 7	Crowninshield, B. B. . 23	Griffin, Wm. H. 2	Mathis Yacht Bldg. Co 17	Scripps Motor Co. ... 15
American Engineering Co. 7	Curtiss Aeroplane Co., The 18		Matthews Boat Co., The 2d page cover	Seaman, Stanley M. ... 31
Anderson Engine Co.. 21	Curtiss Co., Inc., The J. H. 8	H	Merriman Bros. 5	Sherman, E. M. 5
Annin & Co. 2		Henricks Magneto & Electric Co. 18	Mianus Motor Works. 19	Skaneateles Boat & Canoe Co. 18
Apple Electric Co. 5		Hunter Boat Co., Everett 23	Mills, R. S. 3	Snow & Petrelli Mfg. Co., The 18
Automatic Bilge Bailer Co. 8			Missouri Engine Co.. 13	Stamford Foundry Co., The 5
Automatic Machine Co. 15, 31	D		Murray & Tregurtha Co 19	Standard Co., The ... 9
	DeConinck & Co., G. ... 14	J		Standard Motor Cons. Co. 3d page cover
	Durkee & Co., C. D., 2, 4, 7, 8	Jeffery's Glue 6	N	Stanley Co., The ... 12
B		Jones, F. B. 31	Negus, T. S. & J. D.. 6	Sterling Engine Co., 4th page cover
Barker, C. L. 17	E	Jones Co., S. M. 18	N. J. Paint Works ... 6	
Bevin Bros. Mfg. Co.. 4	Edmonds & Sons, J. W. 6	Jordan Bros. Lumber Co. 23	N. Y. Yacht, Launch & Engine Co. 32	T
Binney, A. 23	Elco 3d page cover		Nock, Fred 23	Tarr & Wonson 7
Blount Engineering Co. 15	Emery, V. J. 18	K	Noyes Machine Co., The 17	Toppan Boat Co. 19
Bolinders Co. 21	Evans Stamping & Plating Co. 14	Kahlenberg Bros. Co., 2d page cover		
Bonney, J. C. G. 23	Evinrude Motor Co. ... 23	Kermath Mfg. Co. ... 21	P	V
Bosch Magneto Co. ... 17		Kuhls, H. B. F. 6	Palmer Boat Co. 23	Vulcan Engine Works. 19
Boston Yarn Co. 2	F		Palmer Bros. 21	
Bowes & Mower 23	Fogg, M. W. 4	L	Paragon Gear Works. 14	
Brennan Motor Mfg. Co. 21		Lathrop Co., J. W. ... 21	Peerless Marine Motor Co. 17	
Bridgeport Motor Co.. 17	G	Leece-Neville Co., The 14	Phosphor Bronze 6	
Briggs & Beckman ... 2	Gardner & Co., W. ... 23	Lobe Pump & Machinery Co. 18	Planten, H. 4	
Buffalo Gas. Motor Co. 32	Gas. Eng. & Pow. Co. and C. L. Seabury & Co. 2d page cover	Loew-Victor Engine Co 21	Prest-O-Lite Co., Inc., The 12	
	Gielow & Orr 23	Luders Marine Construction Co. 23		W
	Goblet, Wm. H. 6	M		Watts, J. Murray ... 23
	Goss & Co., J. C. 2	MacRae, H. 18	B	Wells, Theo. D. 23
	Grand Rapids Gas. Engine & Yacht Co. ... 32	McClellan, C. P. 2	"Balaco Engines" ... 18	Werkspoor Co. 11
	Gray Motor Co. 13	McFarland Foundry & Machine Works ... 21	Red Wing Motor Co. 13	Wilcox, Crittenden & Co. 3
			Regal Gasolene Eng. Co. 21	Willcox, H. H. 8
			Roelker, H. B. 7	Wilmarth & Morman Co 19
				Wilson & Silsby ... 2
			S	Wisconsin Motor Mfg. Co. 17
			Salvation Army Ad. ... 8	Woolsey Paint & Color Works 7
			Sands & Son 5	Wolverine Motor Works 19

"A YACHT IS KNOWN BY THE FLAG SHE FLIES"

YACHT ANNIN & CO FLAGS

EST 1847 "OLD GLORY CORNER" FULTON & WILLIAM STS N.Y. CITY 1847 BEEKMAN PHONE 1847

PRIVATE SIGNALS * CLUB SIGNALS * CODE SIGNALS * YACHT ENSIGNS * REGATTA DISPLAY FLAGS * U.S. JACKS ETC. ETC.

The lightest, strongest, longest-wearing sail fabric made. Holds every ounce of the wind and reefs close and easy.

TRADE MARK

LOWELL DUCK

REG. U.S. PAT. OFF.

THE STANDARD YACHT SAIL CLOTH

For years used by the defenders of the American Cup. Regular for cruising. Special for racing.

BOSTON YARN COMPANY, BOSTON, MASS.

BRIGGS & BECKMAN

Yacht Sailmakers

NEW BEDFORD MASS.



THE RELIABLE FIRE EXTINGUISHER



Was designed for special efficiency in extinguishing of gasoline, electric and acetylene fires. Made to meet the immense demand for such an efficient device. Sells at a price within the means of every motor-boat man. Its merit and worth proved times innumerable. Fills Federal requirements for fire-fighting equipment on motor boats. The extinguisher without a defect.

BEST BY TESTS

C. D. DURKEE & CO., INC.
2 & 3 South St., New York. Factory, Gramere, N.Y. City
MANUFACTURERS MARINE HARDWARE

1100-page Catalog will be sent anywhere on payment of 25 cents to cover cost of delivery.

CHAS. P. McCLELLAN YACHT SAILS

One-Man Boat Tops, Spray Hoods, etc.

FALL RIVER - - - MASS.

WILSON & SILSBY

Yacht Sails

ROWE'S WHARF BOSTON, MASSACHUSETTS

What is the Distance from Stratford Point to Falkners?

Find it in the **POCKET COURSE BOOK.** Price Twenty-five Cents.

THE RUDDER PUBLISHING COMPANY
254 W. 34th Street, New York

William H. Griffin CITY ISLAND, N. Y. **Yacht Sailmaker**

En répondant aux annonces veuillez mentionner **THE RUDDER**

YOU want the BEST? USE a "CHELSEA"
For your AUTOMOBILE—the 8-day, High-Grade
"CHELSEA" AUTO CLOCK

Over 100,000 in use—many thousands in constant use for over 10 years and now as always—giving excellent satisfaction to users.

For your YACHT or residence, or as a present to your friend or club, the justly celebrated 8-day, high-grade

CHELSEA REPUTATION THE HIGHEST and WORLD WIDE
STRIKING
SHIP'S BELL
CLOCK

On Sale by Leading High-Class Jewelers and dealers in Nautical Instruments
CHELSEA CLOCK CO., 16 State Street, Boston, Mass.

Makers of exclusively High-Grade Clocks—for Residences, Steamships, Clubs, Yachts, Motor Boats and Automobiles. Ship's Bell, Marine, Engine Room, Switch Board and Recording Clocks.

Perfect Engine Control



Is assured by the use of spark and throttle control and control cranks. The lever cannot be jarred from place by vibrations. If you should desire to lead the connecting rods at an angle and not parallel to the bracket, you simply loosen a single screw and move the toothed arc to a position allowing full swing of the levers. This is an exclusive feature of the Control.



The Mark of Quality On Marine Hardware

The value of this trade mark has been established by a 67 years' record for highest quality and best workmanship. It is your guide to marine hardware that looks well and lasts long. Look for it when buying anchors, steering wheels, deck plates, pumps, rowlocks, compasses, chains, port lights, or any other article of marine hardware. Ask your dealer. Write for descriptive literature.



WILCOX, CRITTENDEN & CO., Inc., 6 So. Main St., Middletown, Conn.
ESTABLISHED 1847
World's Largest Manufacturers of Marine Hardware
Manufacturers of the Famous Maxim Silencer for Motor Boats

Draw on Us!
for your
Marine Supplies and Motor-Boat Accessories
Central Location Complete Stocks
Thorough Organization

Our 500-page Marine Catalog, No. 102, is ready for distribution, send 20c to cover postage—it will be refunded on your first order.

GEO. B. CARPENTER & CO.
430-440 Wells St., Chicago
"The Great Central Market!"

THE J. H. CURTISS CO.
2 SOUTH STREET, NEW YORK

Marine Water Closets

Yacht Pump Closet \$85



Very Highest development of marine water closets for use above or below water line, 4-inch cylinder, discharges contents at third stroke, suitable for heavy work or owner's room. Will outwear any other closet; the gear makes it very easy-working.

Fig. 1412

CURTISS MOTOR-BOAT WATER CLOSET



We built this Motor-Boat Water Closet after carefully considering the designs and requirements of small cruising boats and the demand for a low-priced fixture, suitable for above or below water-line use.

When installed above the water line it only requires a sea-valve on suction pipe. Its simplicity and ease of installation enable anyone to install it.

Fig. 1395
\$19 with seat only
\$20 with seat and cover

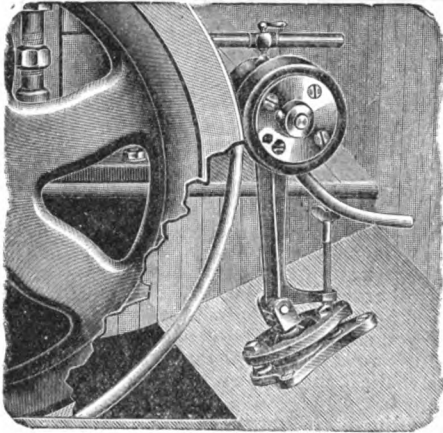
ELECTRIC BOAT LIGHTING

A perfect system within your means. Running and cabin lights, dynamos, storage batteries, switchboards, automatic cut-outs, and engine-room signals.



Send for 1916 Cat.—Full of Information—136 Liberty St., New York

Bei Bestellungen beziehen Sie sich bitte auf **THE RUDDER**



BILGE PUMP

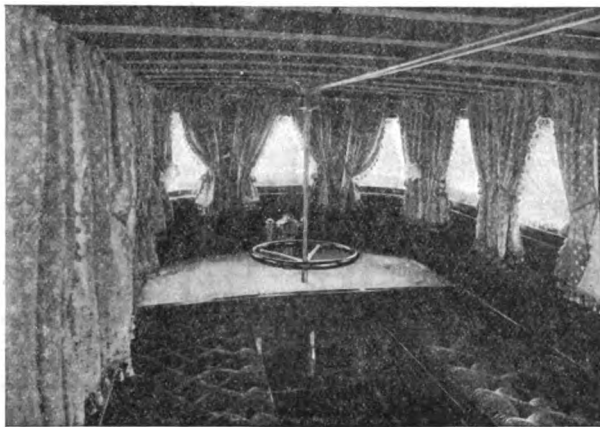
No. 1, All Brass, \$8. No. 2, Iron and Brass, \$6.

FOG BELLS

We are the original manufacturers of the Merry Widow Fog Bell. This illustration represents our improved Merry Widow, which is the best bell of the kind we have made yet. Order through the nearest dealer

BEVIN BROS. MFG. CO.
East Hampton Connecticut

FOG BELLS



FOGG QUALITY CUSHIONS

Mattresses, Pillows and Upholstery

Since 1845 we have developed the above line, and today offer yachtsmen many suggestions and designs for blending colors that are harmonious and artistically correct. FOGG cushions, mattresses and pillows are built on scientific lines and will hold their shape for years. That's why they are cheaper in the end.

Send for Booklet

M. W. FOGG, 202 Front Street, New York City

HOW TO BUILD An Ice Yacht

BY H. PERCY ASHLEY

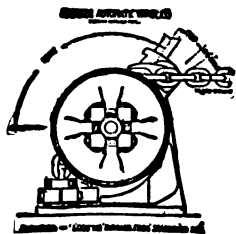
CONTENTS

- A Cat Ice Yacht, 350 Sq. Ft. Class.
Also plans for Sloop rig.
- A Party Ice Yacht, 300-330-350 Sq. Ft. Class.
- A 165 Sq. Ft. Class Yacht.
- A 110-Ft. (Mosquito fleet) Ice Yacht.
- Full Building Plans of a Scooter.
- How to Measure and Classify Ice Yachts.

Full details and Drawings of all boats are given, enabling any one to build from the plans.

Price 75c

THE RUDDER PUBLISHING COMPANY
254 W. 34th Street New York City



The Andrade Automatic Windlass

For boats 25 feet long and over
(Patented)

By simply moving the handle you can heave in, let go or break the chain at will. The first and only automatic windlass. Has but four moving parts. Gives one man absolute control of his ground tackle at all times and under all conditions. The

Andrade Windlass makes a one-man boat out of a 60-footer.

C. D. DURKEE & CO., Inc.

2 & 3 South St., New York. Factory, Gramere, N. Y. City
MANUFACTURERS MARINE HARDWARE

1100-pg. Catalog will be sent anywhere on payment of 25c to cover cost of delivery.



APELCO

THE PIONEERS OF
MOTOR BOAT
ELECTRIC LIGHTING SYSTEMS



A complete new line of dynamos is being furnished for marine lighting work, and the various component parts have been improved, making them more compact and serviceable.

The APELCO Systems are furnished in three different sizes, known as Model B-1, B-2 and B-3.



Apeelco B-2 Motor-boat Electric Lighting System

APELCO STARTING UNITS, suitable for certain motors, can be supplied. If writing for information, send with your letter bore and stroke, h.p., r.p.m. and number of cylinders of motor for which starting units intended.

THE APPLE ELECTRIC COMPANY
Factory, NEWARK, N. J., U. S. A.

"SANDS" Sanitary Fixtures

THE LAST WORD IN MARINE PLUMBING EQUIPMENT

PLATE S-127

The "Granby" Round W. Sea Cock for use on discharge pipe of closets and lavatories.

1 in.	\$4.00
1 1/4 "	5.50
1 1/2 "	7.00
2 "	11.00
2 1/2 "	16.00

This Pump Closet is suitable for owner's quarters on largest yachts. Has powerful 5-in. pump. One of the finest closets yet produced.




The "HURON" Pump Water Closet has new style extra heavy Vitro-Adamant flushing rim hopper bowl fitted with 5-in. combined supply and waste pump, powerful and easy acting. The supply is controlled by a hand grip on a long wood handle. The discharge is protected by "SANDS" patent back-water check valve. This is a very high grade fixture. Absolutely sanitary and suitable for owner's and guests' quarters on largest yachts. It may be used with perfect safety above or below the water line.

Price with pump white enameled, with N. P. trimmings, Mah'y seat and cover. Dimensions, 21 in. front to back, 27 in. wide, 21 in. high. Weight, 80 lbs. net, 140 lbs. gross

"HURON"—Plate S-2035
(Patented—Copyrighted)

Large Assortment of Closets, Lavatories, Deck Plates, Ventilators, Portlights, Basin and Galleys Pumps, shown in CATALOG "B," free upon application.

A. B. SANDS & SON COMPANY
1849 "Sixty-six Years of Quality" 1915
LARGEST MANUFACTURERS IN THE WORLD OF
MARINE PLUMBING SPECIALTIES
22-24 VESEY STREET NEW YORK, U. S. A.



Fast Blocks

Ours are that kind. They handle rope fast, save seconds, and make fast boats.

Send for 1916 Catalog showing Blocks, Turnbuckles, Stanchions, and other Yacht Fittings.

MERRIMAN BROS.
185 Amory St. BOSTON, MASS.

Trade- **DELINEOGRAPH** -Mark



Here is an inexpensive instrument for taking bearings in a manner similar to a Pelorus. So simple to operate that an inexperienced person can get accurate results. Several bearings may be taken in a moment's time. With the sights removed the Delineograph becomes a most efficient protractor. A large number of courses may be taken without moving plate when once positioned. No inch worming. The dial is movable to allow for variations and deviations and the hand indicates the course in both points and degrees. Outfit includes felt lined mahogany case. Patent allowed. Liberal introductory offer.

Avoid disaster by using a *Dirigo* compass on that boat. All materials first-class. No rubber gaskets to rot. Navy Degree Circle dial. A very hard pivot and high-grade jewel assure accuracy and long life. Special 2-in. Dial, Oil Compass sent on approval for \$4.25. Send for new complete catalog of all sizes.



Manufactured by
EUGENE M. SHERMAN
Box 6, Bellevue P. O. Seattle, Wash.



SHIPMATE RANGES

11 Sizes 14 Numbers

A sailor may swallow the anchor and stay ashore, but many a sailor will go to sea again for the privilege of swallowing a meal cooked on a SHIPMATE. You can't anchor him when such an inducement is held out.

The sailorman's range. Always reliable—fair weather or foul.

Made by
THE STAMFORD FOUNDRY COMPANY,
Established 1830 Stamford, Conn.

Si prega far menzione del RUDDER quando scrivete

ELEPHANT BRAND
"Phosphor-Bronze."

WIRE ROPES

for **STANDING RIGGING, TILLER ROPES, Etc.**

RICH BRONZE COLOR

ELEPHANT BRAND



THE PHOSPHOR BRONZE SMELTING CO.
 2200 WASHINGTON AVENUE, PHILADELPHIA, PA.
ELEPHANT BRAND "Phosphor-Bronze"
 INGOTS, CASTINGS, WIRE, SHEETS, RODS, Etc.
— DELTA METAL —
 IN BARS FOR FORGING AND FINISHED RODS
 ORIGINAL AND SOLE MAKERS IN THE U. S.

VERY STRONG AND RIGID

REQUIRE NO ARTIFICIAL COATING. DO NOT SOIL HANDS NOR SAILS. TESTED BY TWENTY YEARS SERVICE ON SALT WATER.



Electric Metal Polish

Used by Engineers, Sailors and Yachtsmen, and all desiring a first-class polish.



CLEAN, QUICK, LASTING, NO DIRT, NO GREASE

SAMPLE UPON APPLICATION For sale by Grocers, Yacht Supply, Hardware, Harness Dealers and all First-class Stores

Manufactured by **J. WESLEY EDMONDS & SON, Office, 214-A Franklin St., N. Y. City**

Factory, Arlington, N. J.



ELASTIC SEAM COMPOSITION
 TRADE MARK
 REG. U. S. PAT. OFF.

and **ELASTIC SEAM PAINT**

For deck seams. Remains Elastic and Flexible, adhering to the sides of seams and keeping the deck tight for ten years.

1, 2, 5-lb. cans, 18c lb., 12½, 25, 50-lb. kegs, 15c lb. White, Gray, Yellow and Black. To order in any color 3c per pound extra.

ELASTIC GLOSS YACHT WHITE
 Pure White works under the brush, dries dust free in from 2 to 6 hours, and retains its gloss all season. Price \$4.00 a Gal.

ELASTIC FLAT YACHT WHITE
 Pure White, in spreading and wearing unsurpassed. Price \$3.00 a Gal.

ELASTIC SPECIAL BRIGHT GREEN and RED COPPER PAINT
 The best that can be made, no matter what the price be. \$3 per gal.

ELASTIC SPECIAL BRIGHT GREEN OR RED BOOTTOPPING
 Will dry in 1 to 2 hours, allowing a second coat, \$3.50 per gal. and is Anti-Fouling.

ELASTIC GRAY TROWEL CEMENT \$3.00 per gal.
 It hardens in one to two hours so that a second coat may be applied; will not crack or peel off.

ELASTIC WHITE TROWEL CEMENT \$3.50 per gal.
 Has same qualities as the Gray; will save two coats of white paint.

H. B. FRED. KUHL'S
 Sole Manufacturer
 3d Ave. & 65th St.
 Brooklyn, N. Y., U. S. A.

For bedding and glazing skylights, and all other sashes. Also for side and bottom seams. 1-2-5 lb. cans, 15c lb., 12½-25-50 lb. kegs, 12c lb.

Inquire of your dealer or send for booklet, giving your nearest Agent.



NEGUS Compass Specialists
 Charts
 Logs
 Marine Glasses

140 Water St. New York City



Midget 6 in. high

GOBLET Bronze Ball-Valve **GLOBES**
 Mfd. Solely by WM. H. GOBLET, 32 Old Slip, New York City

"New Jersey" Copper Paint
 THE BEST AND MOST USED (SPECIAL RED)

Yacht Copper and Green Copper for Yachts

YACHT WHITE AND YACHT BLACK

MANUFACTURED BY
HARRY LOUDERBOUGH
 PROPRIETOR
 NEW JERSEY PAINT WORKS
 JERSEY CITY, NEW JERSEY, U. S. A.



A Copper Paint that Protects



JEFFERY'S MARINE GLUE

Use No. 1 Extra Quality for filling deck and hull seams of Yachts and Motor Boats.
 Use No. 2 First Quality Ship Glue or No. 3 Special Navy Glue for filling deck and hull seams of merchant vessels.
 Use No. 7 Soft Quality or Waterproof Liquid Glue for filling and waterproofing canvas for covering boats and canoes, cabin tops and decks. No canoeist should be without an Emergency Can of our Special Canoe Glue.

For Sale by all Yacht, Boat and Canoe Supply Houses and Sporting Goods Dealers

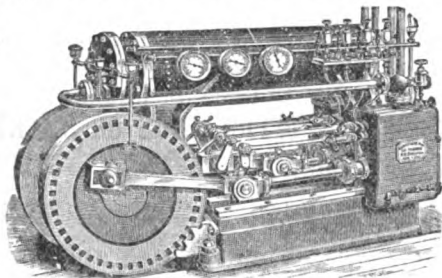
Send for New Booklet "Marine Glue, What to use and how to use it."

L. W. FERDINAND & CO. 152 Kneeland Street, Boston, Mass., U. S. A.

Ved Henvendelser til Annoncerende bedes De referere til **THE RUDDER**

The Allen Dense-Air Ice Machine

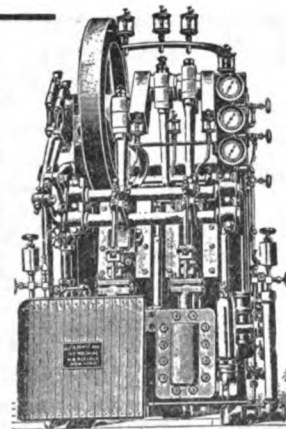
contains no chemicals. It is placed in the engine room, while the ice-making box and meat rooms are at distant places of the steamer



STEAM YACHTS—Atalanta, Constant, Riviera, Emeline, Apache, Electra, Nourmahal, Josephine, Virginia, Thespia, Dorothea, Alcedo, Enterprise, Felicia, Aloha, Attaquin, Nydia, Alvina, Margaret, Kanawha, Pantooset, Rheclair, Aztec, Rambler, Surf, Sultana, Emrose, Guinevere, Cyprus. Nearly three hundred in daily service in the tropics on men-of-war, steam yachts and mercantile steamers.

H. B. ROELKER

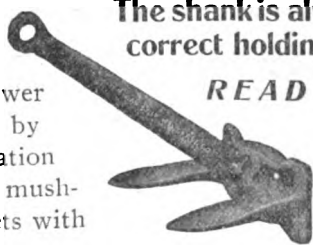
Designer and Manufacturer Screw Propellers
41 MAIDEN LANE, N. Y.



The "Providence" Anchor

The Unexcelled Holding Power is obtained by the combination of the four mushroom pockets with the two flukes.

The shank is always in the correct holding position



READY FOR INSTANT USE.

CATALOG?

AMERICAN ENGINEERING CO., Philadelphia, Pa.

15-325

We are the Largest Marine Paint Manufacturers in the World

WOOLSEY'S COPPER BEST PAINT

FOR WOODEN BOATS' BOTTOMS IN FRESH OR SALT WATER



Trade-Mark

BRIGHT RED AND BRIGHT GREEN

COPPER YACHT PAINT

MAKE THE SMOOTHEST SAILING BOTTOM

WOOLSEY'S SPAR VARNISH



Guaranteed to stand under the most trying circumstances, as on yachts, boats and vessels of any kind for either inside or outside work, also front doors, store fronts, wagons, etc.

Yacht White Yacht Black Deck Paint
Engine Enamel Seam Compound
Canoe Enamel
Lt. Sea Green and Copper Bronze Bottom Paints

Send for our new Marine Booklet
C. A. WOOLSEY PAINT AND COLOR COMPANY

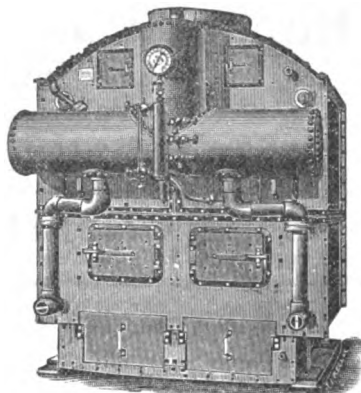
Jersey City, New Jersey, U. S. A.

The following are a few of the well-known yachts equipped with our

Boilers

- | | |
|----------|-----------|
| Viking | Rambler |
| Noma | Hauoli |
| Ranger | Aloha |
| Emrose | Peregrine |
| Atlantic | Elgrudor |
| Florence | Sigma |
| Irene | Atreus |
| Rheclair | Walucia |

ALMY WATER-TUBE BOILER CO.
Providence, R. I.



THE PAINT you have used so long, always reliable when properly applied, 50 years the leader.

Tarr & Wonson's Copper Paint,

for wooden Vessels' bottoms, prevents boring of worms, and all marine growth.

Racing Compound, for wooden yachts' bottoms, bright and smooth.

Priming coat A. Laczone, Finishing coat B,

for bottoms of IRON and STEEL Vessels of every description, to prevent corrosion and all Marine growth. THE GREAT SPEED INCREASER.

THEY EXCEL ON EVERY POINT.

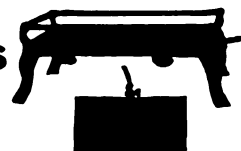
For sale everywhere.

8 Highest Medals. Manufactured only by TARR & WONSON, Limited, Gold, Silver & Bronze. Beware of Imitations. GLOUCESTER, Mass., U. S. A.



PYRO MARINE ALCOHOL STOVES

Made in 1, 2 and 3 Burners



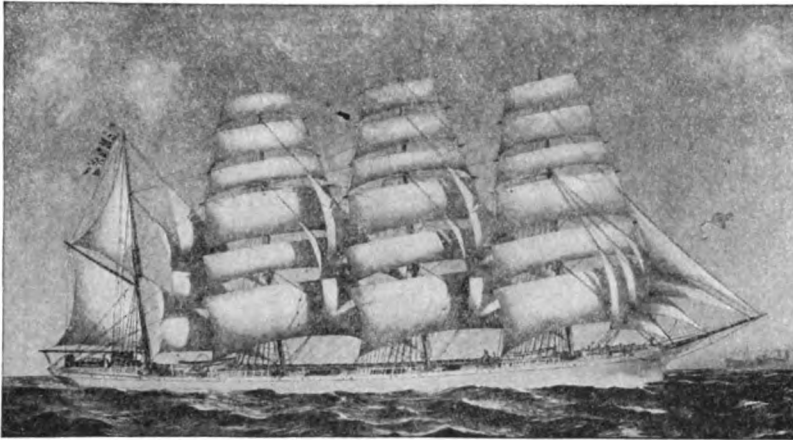
Two-Burner Stove

This stove has been made to fill a general demand for a Marine Stove with separate tank. Copper tank holds 1 1/2 gallons, with gauge showing contents. With each tank is furnished 3 ft. of flexible copper tubing so that tank can be placed either inside or outside of galley. Weighs 20 lbs. Height, 14 1/2 in. Over all 12 x 22 in.

C. D. DURKEE & CO., Inc.

2 & 3 South St., New York. Factory, Gramere, N. Y. City
MANUFACTURERS MARINE HARDWARE

1100-pg. Catalog will be sent anywhere on payment of 25c to cover cost of delivery.



THIS PICTURE SENT ON APPROVAL

This beautiful picture of a modern four-masted barque at sea, under all sail. Reproduced in full colors, size 12x20 inches, from original oil painting, printed on heavy coated art paper, suitable for framing

FOR YOUR DEN, OFFICE, CLUB OR YACHT

This half-tone illustration gives only a fair idea of the beauty and life of the colored reproduction. We will send you a copy on approval upon the receipt of your name and address. If, after examination, you decide that you do not wish the picture, you may return it to us. If you wish to add it to your collection of pictures of sailing craft, remit \$3.00.

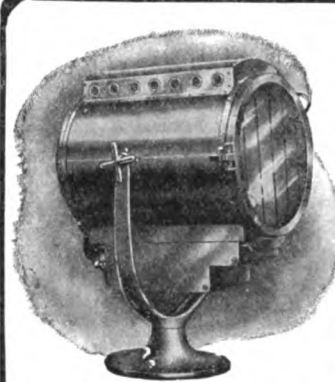
AN UNUSUAL CHRISTMAS GIFT
Address MARINE ART CO., P.O. Box 85, Fenway Station, Boston, Mass.

Finished in antique green for bayberry candle. Price with candle, 75c. Entire profit for the wounded French and Belgian soldiers. A good Christmas present for owner of boat, bungalow or cottage. Sent postpaid on receipt of price with privilege of return and refund of money.



ANCHOR CANDLE-STICK

H. H. WILLCOX
Newtownville, Mass. "THE ANCHOR THAT HELD"



Electric Searchlights

For any size Yacht or Launch. Direct-Connected Lighting Plants. Electric Arc Searchlights, all sizes.

Write for Catalog and Prices

THE CARLISLE & FINCH CO., 230 East Clifton Ave., Cincinnati, Ohio

STEERING GEARS

and MARINE FITTINGS for

POWER and SAIL YACHTS

Edson Manufacturing Co.

Established 1859

272 Atlantic Ave., Boston, Mass.

YOU WANT THE BEST

Hitchcock's Automatic Bilge Bailer

Price \$5.00

ALL DEALERS

AUTOMATIC BILGE BAILER CO., 999-A Beacon St., Brookline, Mass.

STEBBINS' COAST PILOT, By Mail, \$1.25

THE RUDDER PUBLISHING CO., 254 W. 34th St., N. Y.

Crescent Ball-Bearing Anchor

(Patented)

Galvanized with Drop-Forged Shank constructed right from the right material and on right principles. The slightest pull on cable sends shank into position. Shank has ball socket and is cast into head, doing away with need for pin to keep shank from backing out. Can be furnished with round shank to swivel, but we do not advise the use of a Swivel Shank Anchor. All weights from 5 to 300 pounds.



C. D. DURKEE & CO., Inc.

2 & 3 South St., New York. Factory, Gramercy, N. Y. City
MANUFACTURERS MARINE HARDWARE

1100-pg. Catalog will be sent anywhere on payment of 25c to cover cost of delivery.

Will you give one family a

MERRY XMAS DINNER?

We are but your agents—you are the host.

300,000 poor people cheered last Xmas in the U.S. by The Salvation Army.

Help us in this way to get close to these people. Give them at least one happy day in the year.



\$2.00 Feeds a Family of Five

Send Donations to Commander Miss Booth
118 West Fourteenth Street, New York City
Western Dept., Commissioner Estill, 108 N. Dearborn St., Chicago

Var god Aberopa The Rudder när annonsörerna tillskrifvas

You Buy Service With Every "EAGLE"

EAGLE Engines are built for continuous hard service, and with this idea in mind, we have exerted our best efforts in producing a line of engines, which will render dependable service under the most adverse conditions.

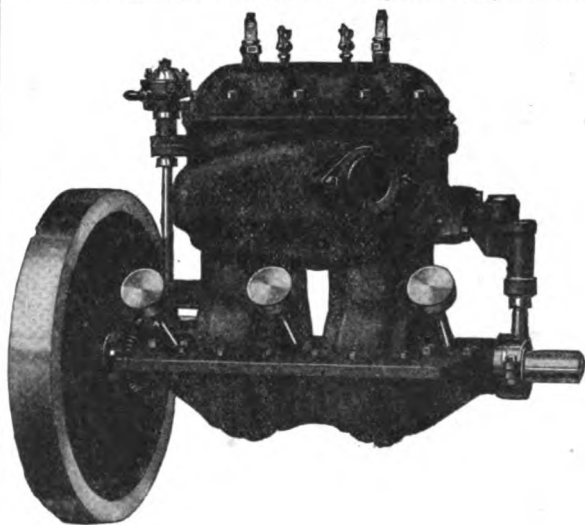
Our fifteen years' experience in the manufacture of marine engines enables us to offer a line of 2-cycle engines representing the highest development in this type of engine.

The simple design, careful selection of materials, modern factory equipment, accurately machined parts, expert assembling and rigid tests contribute toward making every EAGLE Engine an IDEAL POWER PLANT.

For fishing boats, work boats, pleasure boats, cruisers, and any other type of boat in which extreme speed is not a requirement, we can supply an efficient and economical engine from our

assortment of 15 Medium and Heavy-Duty Models, from 1½ to 25 H.P., equipped with either Make-and-Break or Jump-Spark Ignition.

Provision is also made for using kerosene.



EAGLE HIGH-SPEED ENGINES

Our High-Speed Models are not only without an equal but without even a close rival in their class. Our claim that they are the most powerful for their bore and stroke is amply confirmed by the results of competitive tests which have induced several prominent boatbuilders to adopt them as regular equipment for their stock models.

The unusual power development of the Model 2-O especially allows an extremely wide range of usefulness, and has driven light-speed boats, from 14 to 22 feet in length, at speeds varying from 12 to 22 miles per hour.

Before buying 2-cycle engines, be sure to investigate the EAGLE. Besides being made as well as high-grade materials and modern methods will allow, they are sold at extremely low prices, and we have a very attractive proposition for boatbuilders and dealers.

EAGLE Engines are manufactured by a concern having the greatest financial strength of any concern in this business. Why is this important? Because, it means that we are able to invest enormous sums of money to make up and carry in stock a large number of all models, so that we can ship immediately upon receipt of orders calling for catalog equipment. Also we can promptly supply repair parts for any EAGLE Engine ever built. This means SERVICE.

Special attention is given to export orders. All are carefully boxed and delivered f. o. b. steamer at New York.

SEND FOR OUR CATALOG AT ONCE

THE STANDARD COMPANY

Torrington, Conn., U. S. A.

QUARTER-DECK TALK

THE A. P. B. A. ANNUAL MEETING

On October 27th, the American Power Boat Association held its annual meeting in New York City, and a considerable number of delegates from affiliated clubs were present, and many important questions discussed. Mr. H. T. Koerner resigned after having held the president's office for six years, and Mr. Albert L. Judson was elected president in his stead, with Mr. Thos. B. Taylor, secretary; Mr. Geo. C. Krusen, treasurer; Mr. F. K. Lord, measurer and Mr. R. B. Clark, official timer.

Among the changes decided upon the following are the most important:

No craft with planes or wings above the racing water-line can compete against straight hydroplanes. This rule will, of course, "kill" any attempt to make an aeroplane out of a boat.

The 20-ft. and 32-ft. classes have been dropped, thus leaving only the "under 26 ft." and "under 40 ft." classes.

It was decided that a cruiser is a power boat whose rating does not exceed nine times the square root of her load water-line, etc. The word "nine" has been substituted for the word "twelve." Although not obvious at first sight it puts Flyaway III and other cruisers over 15 m.p.h. into the class with Runaway and makes it impossible for a 20-mile cruiser to race with a 9-miler, and so should produce more entries in cruiser racing next year.

It now is no longer possible to obtain a large midship section for rating purposes by ballasting, but so long as the ballast is permanently stowed everything will be all right.

Boats that exceed their declared engine revolutions by more than 10% will no longer be disqualified by ruling, and the decisions in such cases will be in the hands of regatta committees.

Unless the course exceeds 50 sea miles, no A. P. B. A. titles will be granted to a cruiser or express cruiser race. When such craft are measured there shall be three men aboard.

Each boat in a race, unless otherwise specified, must be steered and navigated wholly by an amateur member of a club belonging to the A. P. B. A. We can see many entries in cruiser races, especially long-distance events, either fall through, or become disqualified because of this rule, for many crews are made up of non-club-member friends of the owners, who naturally occasionally relieve them at the wheel for short whiles. In the past the A. P. B. A. has built coffins for long-distance races, and now they have driven another nail in the lid.

Except in races of over 50 sea miles, all handicaps are to be taken at the start. Provided the handicapping works out well, this is all right, but in cases where the handicapping is not exact, such as when the rating is used, it works out very badly, because it means that boats start singly and finish in the same manner, and at no time does a bunch of boats get together, making the necessary exciting and spectacular contests that attract new comers to the sport, and keep old hands to the game.

One other decision that we much regret is that it was decided not to include a member of the National Association of Engine and Boat Manufacturers on the Council. This strict barring-out of the "trade" is, because of the special peculiarities of the sport, a foolish attitude. The expert advice of the heads of several of the leading boat builders, naval architects and engine manufacturers would be most valuable to the A. P. B. A.

UNRESTRICTED RACER TROPHY

The Thousand Islands Y. C. has put up a valuable perpetual cup for an annual contest to be known as the "Championship of the St. Lawrence River," but open to any American boat. The races will be run similarly to the Gold Challenge Trophy event, and there will be no restrictions as to the size and power of the competitors, but every year the races will be run on the St. Lawrence River. It is expected that the first series of contests, which will be under A. P. B. A. rules, will be held next August, and will last three days.

GOLD CUP RACES

The days selected for the annual Gold Challenge Cup contests are Saturday, September 2d, Monday and Tuesday, September 4th and 5th, with the probability that the One-Mile Trials will take place on Wednesday, the 6th. The present holder is Miss Detroit, and it is rumored that Mister Toledo has serious intentions of wresting the coveted trophy from her.

ASKED AND ANSWERED

Q. What made more noise and accomplished about as much as the guns at the Dardanelles?

A. The Motor Boat Club of America!

DOINGS AT THE CLUBS

Lake Charles Y. C., of Lake Charles, La., figure on a two-days' motor-boat regatta for next year, and are planning the same to be an annual affair.

Cold weather is reported to have interfered with the racing activities of the Sheboygan Motor Boat Club during the past Summer, and only one race was held. Shall really have to talk seriously to old Sol.

Spring Lake Motor Boat Club are figuring upon a new clubhouse and we wish them every success. For the coming year the following officers were elected: Claude C. Hopkins, Commodore; David M. Cline, vice-commodore; Lorimer Dunlevy, secretary; John W. Landman, treasurer; Harris F. McNeish, fleet captain; D. R. Mulder, assistant fleet captain; Dr. C. P. Brown, fleet surgeon; Lyman W. Welch, G. A. Kusterer, J. H. Riemenschneider and Chauncy M. Blakeslee, directors.

At the annual meeting, August 12th, the Minocqua Motor Boat Club, Minocqua, Wis., elected the following officers: D. H. Jenkins, Commodore; A. J. Bolger, vice-commodore; L. A. Linsey, rear-commodore; Gus Nolan, treasurer; James Malloy, Jr., secretary.

It is said that the Maumee River Y. C. is going to build a Mister Toledo to race Miss Detroit next season.

The Riverside Club of St. Louis are building a new yacht club at the cost of \$30,000. Shows that the sport is going ahead out in the Middle West.

21-FOOT RESTRICTED CLASS FOR NEW ZEALAND

On the recommendation of the special committee, the New Zealand Power Boat Association has adopted the following rules for its new 21-foot speed class, but owing to the war, very little is likely to be done in the way of building boats this season.

Breadth not to be less than 3 ft. 9 in. (This must be the greatest breadth wherever found outside of planking.)

Hydroplanes as defined by the British Motor Boat Club not eligible in the class.

Planking throughout to be of wood, not less than 1/4-in. finish; two-thirds of the boat to be decked in with wood not less than 3/16-in. finished.

Only petroleum oil or petroleum spirit to be employed, and only atmospheric air to be used for the combustion of these fuels.

All races to be held under the racing rules of the N. Z. P. B. A.

A certificate stating that the boat and engine conform to the rules of the class shall be submitted to the secretary or officer of the day before the boat takes part in her first restricted class race.

An official measurer or measurers will be appointed to issue certificates.

The following fixed handicaps will be enforced in the succeeding race or races: 8 seconds per knot for winning first prize; 4 seconds for second; 2 seconds for third.

A non-starter will be penalized 5 seconds per knot, the penalties to be cumulative.

Watertight compartments to be built in to carry weight of engine.

A crew of one or more allowed aboard a launch when racing.

The motor to be an internal-combustion engine, any number of cylinders. The total piston displacement not to exceed 251 cu. in.

A cost limit of £275 (\$1,346) to be placed on the whole outfit.

A method of reverse gear to be installed.

The shield shall be for inter-provincial or inter-colonial competition between boats complying with the above restrictions.

NEW OFFICERS OF THE GRAVESSEND BAY Y. C.

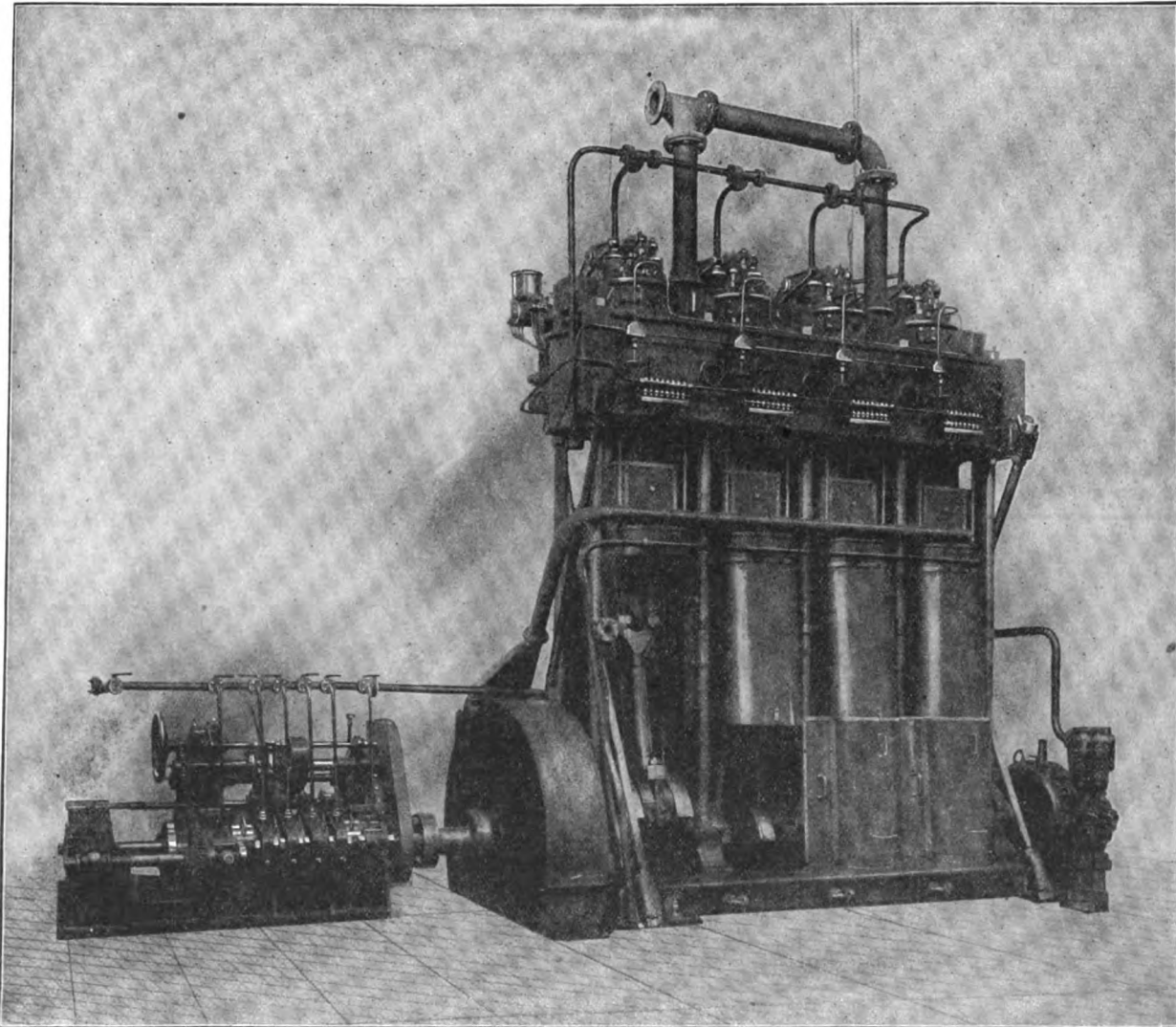
At a meeting of the Gravesend Bay Y. C., held at the clubhouse, foot of 25th Avenue, Brooklyn, N. Y., on Wednesday, October 20th, the following officers were elected: Commodore, Thomas C. Cardwell; vice-commodore, H. A. Guilmar; rear-commodore, George W. Roff; treasurer, John Metcalfe; secretary, Fred C. Kengeter; measurer, Chris Myck; board of governors, A. L. Madison, Wm. C. Lindner, Jr.

ADVERTISING SECTION

WERKSPoor

AMSTERDAM

HOLLAND



DIESEL ENGINES for MARINE PURPOSES
DIRECT REVERSIBLE and with FEATHERING PROPELLERS

Prices lower than American-built Steam Engines and Boilers

250 I.H.P. to—

ECONOMY—RELIABILITY

2,000 I.H.P.

*Ask for special
catalogs*

MORE THAN 33,000 I.H.P. IN ACTUAL SERVICE

*Ask for
quotations*

Sole U. S. A. Representative

THOMAS LISLE

108 Morningside Drive
New York City

Please mention THE RUDDER when writing to advertisers

KNOX MARINE MOTORS

Built for heavy-duty and successfully used in the Family or Cruising Launch and Commercial Boats. Known the world over for its

RELIABILITY, DURABILITY AND POWER

Owing to the power it develops at slow speeds it is the best proposition on the market today for the Auxiliary Cruiser or Working Boat, and it will operate on Kerosene equally as well as Gasoline. Our customers tell interesting stories of Knox Economy and Reliability.

Our Model D-Knox—Now ready. Note the new Ignition—No Batteries or Spark Coil required. Write for particulars. Sizes—3 to 40 H.P., 2 and 4 cycle.

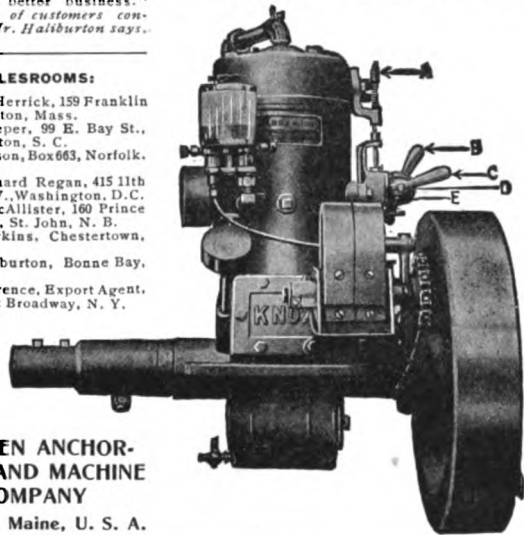
Mr. J. P. HALIBURTON, of Bonne Bay, Nfld., writes:

"I am pleased to advise you that the Knox Motors we have bought of you and which are operating in this vicinity, are giving the best of satisfaction, and I consider them the most reliable and durable motor for our work that I know of in these waters. Furthermore, the Knox burns kerosene better than any motor in this vicinity, which makes them by all means the most economical motor to run, as gasoline on our Island is very high in price in comparison with kerosene. I trust you will soon see your way clear to give me more territory, as I am confident that I can give you much better business."

Hundreds of customers confirm all Mr. Haliburton says.

SALESROOMS:

Chas. H. Herrick, 159 Franklin St., Boston, Mass.
W. H. Pieper, 99 E. Bay St., Charleston, S. C.
H. C. Dobson, Box 663, Norfolk, Va.
Wm. Maynard Regan, 415 11th St., S. W., Washington, D. C.
Kaye & McAllister, 160 Prince Wm. St., St. John, N. B.
E. F. Perkins, Chestertown, Md.
J. P. Haliburton, Bonne Bay, Nfld.
A. M. Lawrence, Export Agent, 221 West Broadway, N. Y.



CAMDEN ANCHOR-ROCKLAND MACHINE COMPANY

Camden, Maine, U. S. A.

Prest-O-Lite

Makes Motor Boat Engine Starting Easy

By priming your engine with Prest-O-Lite ready-to-use acetylene, you can start the heaviest cold motor boat engine with ease and certainty on the second or third quarter turn.

A Most Reliable Lighting System

Prest-O-Lite is ideal for any size boat. It is simple, economical, and trouble free. Every boat owner should have full information on the many convenient uses of Prest-O-Lite.

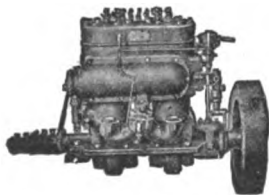
Send for Free Boat Literature

THE PREST-O-LITE CO., INC.

The World's Largest Makers of Dissolved Acetylene

243 Speedway Indianapolis, Ind.
Prest-O-Lite Exchange Agencies Everywhere

Stanley Motors



A motor highly developed for power and economy of Gasoline

Made in sizes from 3 h.p. to 15 h.p.

Single and double cylinder

Our Catalog with full information sent on request

THE STANLEY COMPANY

48 Loring Avenue

Salem, Massachusetts

VICTORIA (N. S. W.) CRUISING CLUB

The 16th annual meeting of the Victoria Cruising Club was held in August last, and it was reported by Commodore Swales that up to that time 140 members had joined the British colors, and of these 5 had been killed and 17 wounded. In view of this the committee would recommend that a roll of honor be prepared and hung up in a permanent place in the club room. The loss of active members naturally affected the racing, but the club had reason to congratulate itself on the fact that it had still a substantial credit balance.

A post card was received from Gunner Jack Mackay, a member of the committee who is at the front, wishing the club every success and donating a trophy for the coming season. Since the card has been received Gunner Mackay had been wounded. A number of new members were elected, and about twenty-five trophies were promised for the coming season. The election of officers resulted as follows: Patron, Mr. E. Davis; Commodore, Mr. A. Swales; vice-commodore, Mr. W. Clarebutt; rear-commodore, Mr. F. Scott; hon. secretary, Mr. E. Culhane.

* * *

QUESTIONS ANSWERED

Water at Miami, Fla.:

The depth in the dredge channel is said to be 11 ft., but 8 ft. can be safely taken in. The channel is narrow, but well marked.

Key West to Habana:

The distance is 90 miles. Allowance must be made for a two-knot current. Advise making the run at night so as to arrive at early morning off Habana. Usually less wind and sea at night.

Distance, New York to Boston:

From Battery, New York, through East River, Long Island Sound across shoals and around Cape Cod to the pier at South Boston, is 281 sea miles.

Southward Route:

You will have to go outside from Beaufort, N. C., to Charleston. There is no danger if weather is chosen. Consult pilot at Beaufort for advice when to start.

Canal from Norfolk South:

These canals are private waterways and canalage is charged. The toll is small. Write to Lake Drummond Canal Company, Seaboard Bank, Norfolk, Va.

Ice Boats:

Ready to sail ice boats can be purchased from the Duluth Implement Company, Duluth, Minn. A book giving complete directions for building ice boats can be had from this office. Price 75 cents.

Handling a Schooner:

There is no particular book covering this subject, but a chapter will be found in Dixon Kemp's *Yacht and Boat Sailing* that gives some information. Anyone who has sailed a yawl or ketch can sail a schooner. The one thing to learn different is that your largest sail being aft, that is the first to be reefed or handed.

21-Foot Sailing Dory:

Plans for building this boat are in March, 1911.

Racing Rules:

Rules governing the racing of the different classes can be found in Book of the Long Island Y. R. A. Price, 50 cents.

Canals:

Except in very severe weather, the artificial waterways between the Chesapeake and the North Carolina Sounds are always open.

* * *

SUBMARINE DISTINGUISHING AND WARNING FLAG

The submarine distinguishing and warning flag is hoisted on the tender or parent ship of submarines to indicate that submarines are operating in that vicinity. Launches accompanying submarines also fly this flag. The submarine warning flag consists of a rectangular red flag with white center, on which is the profile of a torpedo in black. Vessels seeing this signal should give the escorting vessel a wide berth and keep a good lookout for submarines.

* * *

OFF TO THE WAR

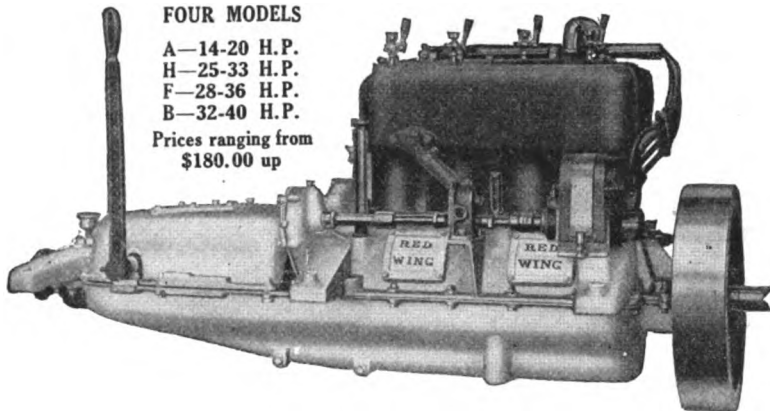
Messrs. Curtis & Freedman, who raced the Disturber in New Zealand waters last season, have gone to England to endeavor to join the Flying Corps. We wish these plucky sportsmen a safe and speedy return to the game of all games.

Hagan el favor mencionar el RUDDER cuando escriben

FOUR MODELS

- A—14-20 H.P.
- H—25-33 H.P.
- F—28-36 H.P.
- B—32-40 H.P.

Prices ranging from \$180.00 up



The 1916 Unit Power Plant Model "F" THOROBRED
28-36 H.P., 4 1/16 x 5"

Red Wing Thorobred

THE MOTOR WITH POWER TO SPARE

INVESTIGATE THE NEW 14-20 H.P.—\$180

THE NEW MODEL A "THOROBRED" is going to be the greatest seller on the marine engine market for 1916.

It has plenty of power for the average high-class runabout and cruiser, can be operated at slight cost, is small and compact, perfect in design, materials and workmanship, and is sold at a price below the selling cost of any similar motor ever placed upon the market.

There's just one way possible for us to turn out such a motor at such a low price. We have installed special machinery for its manufacture. We will build hundreds of them. Quantity manufacture is economical manufacture. The buyer reaps the benefit.

BOAT BUILDERS AND DEALERS will do well to investigate this new Thorobred. It is going to be the 1916 winner, and you will find your customers calling for it. We furnish it with reverse gear on cast extended base, forming unit power plant when desired.

The 1916 Red Wing Catalog contains a valuable fund of information containing all of our models, and the service given throughout the world by Red Wing Thorobred motors. Let us send you a copy today.



RED WING MOTOR CO.

Dept. R

Red Wing, Minn., U. S. A.

GRAY MODEL "D" 4 CYCLE

The Universal Engine



Made Good in Every Case—Speed boat, Workboat, Cruiser and Houseboat.

Manufactured and backed up by an old established and responsible concern.

10-12-H.P. MODEL "D"

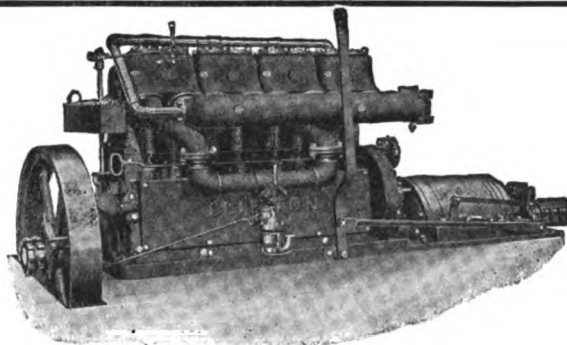
Designed especially for fishing boats or any other boats where reliability, strength and endurance are the chief factors. Fine for trolling.

Model "D" 4 Cycles **\$178** and up

Write for new catalog

GRAY MOTOR CO., 12104 Gray Motor Bldg., Detroit, Mich., U. S. A.

Gray 2 Cycles Recognized all over the world as the standard 2-cycle marine motor, 3 to 36 H.P. —1 to 3 cylinders.



HEAVY-DUTY

CLIFTON MARINE ENGINES

IN SIZES UP TO 90 H.P.

POWERFUL STRONG RELIABLE

LET US EXPLAIN TO YOU WHY THE CLIFTON IS THE BEST ENGINE FOR HARD, CONTINUOUS SERVICE. WE WILL SEND YOU COPIES OF SOME INTERESTING TESTIMONIALS WRITTEN BY SATISFIED OWNERS.

THE CLIFTON IS AN ACCESSIBLE ENGINE. THIS MAKES IT EASY FOR THE MAN WHO HAS ANY REPAIRS TO MAKE. PISTONS CAN BE REMOVED THROUGH THE SIDE COVER PLATES WITHOUT DISTURBING THE CYLINDERS.

Write for Complete Catalog

The Clifton Motor Works

230 EAST CLIFTON AVE.

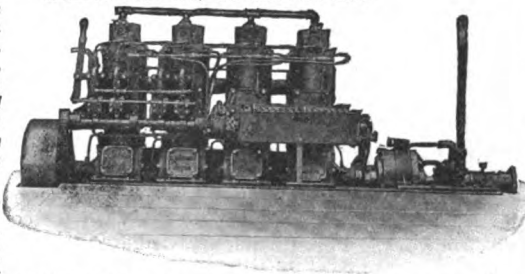
CINCINNATI, OHIO

GET AWAY FROM HIGH-PRICED GASOLENE A MISSOURI OIL ENGINE

Starts on Oil, Runs on Oil

Will do the work with Kerosene, Fuel, Oil, or Crude Oil and Save You Its Cost in a Year's Time.

No Batteries, Wires, Switches, Magnets, Carburetors, No Troubles.



MISSOURI ENGINE COMPANY, 2810 N. 11th Street, St. Louis, Mo.



The Model

by which all reverse gears are judged.

PARAGON REVERSE GEARS

for years have set the standard for all marine reversing devices.

The better grade of Marine Engine builders use thousands of PARAGONS a year. They know good motors deserve good gears. When you buy your motor ask that it be Paragon geared.

SEND FOR BOOKLET



PARAGON GEAR WORKS

Evans Stamping & Plating Co.

Box 882

Taunton, Mass.

Always exceptionally good—
Better for 1916—the

—LEECE—
ELECTRIC
STARTING-LIGHTING
SYSTEM
NEVILLE

100%
Efficient

QUALITY FIRST
SERVICE ALWAYS

100%
Efficient

THE LEECE-NEVILLE CO. Cleveland, Ohio

G. De Coninck & Co. Maisons Laffitte
near Paris
Largest Yacht Yard in France



TORPEDO AUTO-CANOT

Length 21 ft., breadth 4 ft. 8 in., draught 20 in. Motor 12-H.P. Speed 15 miles. The best boat built for the money; safe, speedy, silent, comfortable. Price, \$1,480.
We also build Sailing and Steam Yachts, Working boats of all kinds. Steel and wooden hulls. Motor boats a specialty; also with aerial propeller. Write for catalog.

Ved Hevndelser til Annoncerende

PREVENTING FOG WITH OIL

At the suggestion of the officer in charge of the Branch Hydrographic Office, New Orleans, attention is called to the possible value of oil as a preventive of fog. It is reported that experiments have been made in France with variable success to prevent the fogs in river valleys, the best results being obtained by employing vegetable oils. This covered the surface with a thin film of oil which kept the air from coming in direct contact with the warmer water and thus hindered the condensation of the water vapor.

It may well be that a ship which has to stop or anchor off a fog-bound coast can create a clear zone around her by distributing storm oil for a time.

The Hydrographic Office would be glad to hear from those who make the experiment and from any who may already have had experience in this line. Careful note should be made of all the conditions, such as the character of the fog, temperature of air, temperature of sea water at surface, state of the sea, direction and force of the wind, method of employing oil, kind and amount of oil used, and how much headway, if any, the ship had; then report whether the oil appeared to spread well, how long it was applied, and what effect it had on the fog. [From Hydrographic Bulletin No. 1356, of August 25, 1915.]

* * *

VOYAGE OF DIESEL YACHT

Mr. C. Parry Vauclain, son of Mr. Samuel M. Vauclain, vice-president of Baldwin Locomotive Works, accompanied by Mr. Wainwright Abbott, son of Mr. William L. Abbott, president of Southwark Foundry and Machine Company, sailed October 18th on the yacht Southwark for an extended trip, intended to include the West Coast as far North as Seattle, provided that upon arrival at Panama the yacht is able to get through the canal.

The Southwark is 98 ft. by 16 ft. by 7 ft., and is equipped with a Southwark-Harris valveless engine, Diesel principle—the third yacht in this country to have a Diesel engine installation, and the second to have a directly-reversible Diesel type engine. She was recently fully described in *THE RUDDER*.

The itinerary of the yacht includes Newport News, Savannah, Key West, Havana, Cuba, Kingston, Jamaica, Colon, and various points on the West Coast.

The engine in this yacht uses any grade of crude or fuel oil, and on a recent trip to New York and return, the cost for fuel was \$8.20, and for lubricating oil, \$1.84—a total cost of \$10.04. The progress of the yacht will no doubt be watched with a good deal of interest by yachtsmen and others interested in Diesel-type engines, as it is the most extended trip ever made by a yacht in this country equipped with a Diesel-type engine.

* * *

WHAT DURKEE'S FACTORY TURNS OUT

How many readers of *THE RUDDER* are aware of the fact that half an hour from New York City Hall there is located the latest equipped marine hardware factory—complete in every detail—even to owning their own power plant. Since the opening of the completed plant, ten weeks ago, it has been kept running twenty-four hours a day, and with every prospect of this being continued for some time to come.

As mentioned in our last issue, since the opening of the first factory buildings four years ago, three additions have been made and business came rushing along with each enlargement.

Captain Day used one of Durkee's alcohol stoves crossing the Atlantic and thought it perfection, but the stove now being turned out puts that old-timer in the shade completely.

More marked, however, speaking of changes, is the Reliable fire extinguisher of today and one year ago—it shoots under any and every condition—cannot get airborne like other makes so often do, and with two fingers, any child can empty the contents in thirty seconds. Durkee's catalog, 1,100 pages, will be sent anywhere providing 25 cents is sent with order to cover cost of delivery, and there is nothing like it, as a compendium of information on marine hardware, especially to our friends abroad. Get one; it's well worth the quarter.

* * *

TO BOAT BUILDERS

The Brightwaters one-design committee would be pleased to have your estimate for building six catboats for use at Brightwaters, Great South Bay. Plans of these boats are in November and this issue of *THE RUDDER*. Estimates to cover hull, spars and ironwork. For further particulars, address Brightwaters Committee, care of *THE RUDDER*.

Estimates are also wanted for building fifty Sea Pups, design in May and June numbers of *THE RUDDER*.

bedes De referere til *THE RUDDER*



The "Automatic"

THE four-cycle engine known the world over—because it gives economical, efficient service. It is built in sizes ranging from 3 to 250 H.P., with one to six cylinders. It assures not only a low cost of operation—but the practical elimination of repair bills. **AUTOMATIC** service means thorough satisfaction.

The Automatic Machine Company

BRIDGEPORT

CONNECTICUT

Motors Completely Enclosed

Series B Booklet

SCRIPPS MOTOR COMPANY
632 Lincoln Avenue Detroit, Michigan



Building a Launch? You Need This Book

It's the **Caille Marine Motor Blue Book**. It shows the most complete line of motors at the most economical prices in sizes ranging from 2 to 30 H.P. Every one is of highest grade, simple, sturdy, easy to operate, thoroughly guaranteed. This book has saved boat owners thousands of dollars. It will save you money. Get a copy. It's free.

The Caille Perfection Motor Co.
1545 Caille Street
DETROIT MICH.

BLOUNT ENGINES

Any Size Any Service

Clean, Quiet and Reliable

BLOUNT ENGINEERING CO., 100 High Street, Boston

The FISHERMAN SAYS: I Prefer

HARTFORD MARINE MOTORS

BECAUSE THEY GIVE

Real Power All the Time

Fishermen, Oystermen, Lobstermen and all other Commercial Boatmen who use open boats in salt water in all kinds of weather, will find the Model X Motor the ideal power for boats from 16 to 36 feet in length.

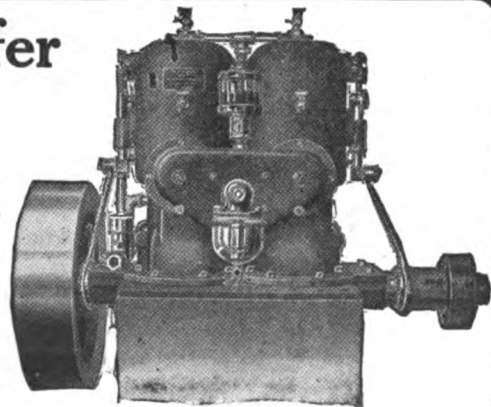
ASK FOR OUR CATALOG "M" AND PRICES

THE GRAY & PRIOR MACHINE CO.

Corner Windsor and Suffield Streets

HARTFORD

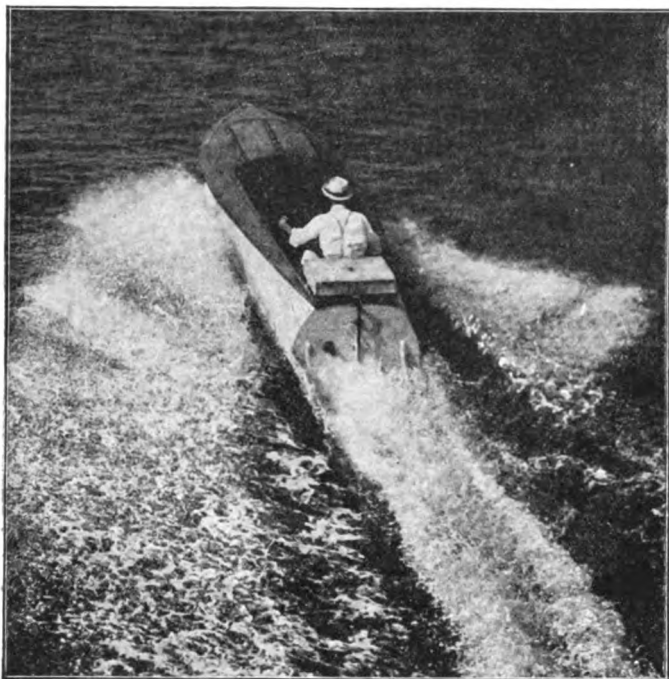
CONNECTICUT



HIGH SPEED WITH SMALL POWER

Every now and then some one "puts over" a new hull design that gets unusual results. The latest accomplishment of this kind hails from Elizabeth City, N. C., where Captain Thomas M. Hayman designed and built the Slide, a little V-bottom, 16 ft. and 8 in. long, with 5 ft. 6 in. breadth, which is said to have made a speed of 31.5 statute miles an hour with a 28-h.p. motor, but had not the motor been very light for the power this could not have been done.

Captain Hayman was inspired to undertake a design of his own when the little Flying Eagles invaded his territory and cleaned up on most of the local boats. The captain didn't say



anything to his friends, but went quietly to work. When the Slide was launched, it was surrounded by a curious crowd, but its important features were kept dark by the designer, who applied immediately for a patent on his special design. Since then, the Slide got into action, and very promptly defeated everything else in Eastern North Carolina waters. The U. S. chart shows $1\frac{3}{4}$ miles between a red buoy at the inner harbor of Elizabeth City and the beach of Coll's Point. Over this course, the Slide makes it in 3 minutes and 20 seconds, which figures out at a trifle better than 31.5 miles an hour.

As a speed boat, the Slide certainly seems to be "different." She looks a good deal like a Hand V-bottom. In the Eastern

Carolina Races at Manteo, July 5th, the Slide took all honors. Handicapped $1\frac{1}{2}$ minutes in a two-lap, 4-mile course, with Herbert Creef's Flying Eagle and William Foreman's Flying Eagle, the Slide romped home 1 minute and 35 seconds to the good on the first lap. Carrying three passengers, the boat does not lose more than 20 seconds to the mile. The Slide carries as a power plant one of the well-known Model F four-cylinder, four-cycle, 28-h.p. Red Wing Thorobred motors, manufactured by the Red Wing Motor Company, Red Wing, Minn.

* * *
BOSCH CONTRACTS

Contracts have just been signed with three very prominent concerns in the motorboat field to use Bosch magnetos for the coming season. They are the Scripps Motor Company, Detroit, Mich.; Continental Motor Manufacturing Company, Detroit, Mich.; Gray Motor Company, Detroit, Mich.

* * *
ANOTHER HAND TO THE WHEEL

Mr. P. P. Hinckley, of Chicago, has joined the sales force of the Connecticut Telephone & Electric Company, and will handle the jobbing trade East of Chicago. Their jobbing connections in Chicago and the West will be managed by Mr. J. W. Fulton, with offices at No. 1100 Karpen Bldg., Chicago.

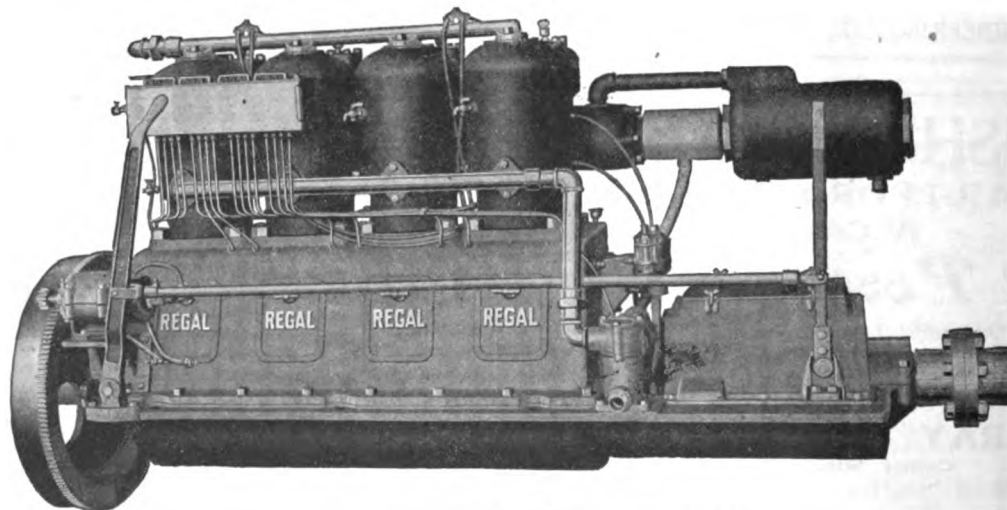
* * *
A NEW REGAL

The Regal Gasoline Engine Company has just shipped to Buenos Aires two 50-h.p. heavy-duty Regal engines and Regal electric lighting plant. These engines and the lighting plant are to be installed in the Presidential yacht, Adhara, belonging to the Argentine Government. The 50-h.p. engines are the first ones of this exact description that have left the factory. They are of more or less special construction to cover the specifications under which the contract was accepted.


The installation is of the twin-screw type, with the engines having the manifolds on the outside and the control levers upon the inside. It will be noticed from the illustration that the electric starting motor is attached to the forward end of crank case and gears directly with the steel gear that is shrunk upon the balance wheel.

The Regal electric lighting plant which is installed in the boat for operating the cabin and searchlights, will also charge the storage battery from which the starting motor takes its current. This installation eliminates the separate generating sets for each engine.

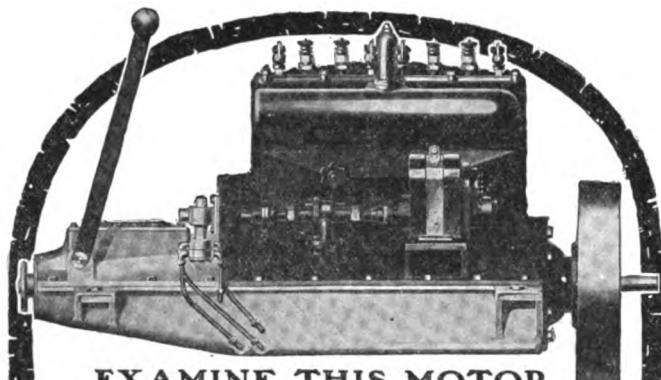
The cylinders of the 50-h.p. engine have $7\frac{1}{2}$ -in. bore by 9-in. stroke. The cooling water pump is driven from the cam shaft and has inlet and outlet valves both contained in the pump barrel. This construction makes an exceptionally quiet pump action. The bilge pump and water-cooled air compressor are driven directly from the crank shaft. The magneto is installed on the opposite side of the engine to that of the starting motor. Both of the 50-h.p. engines were subjected to a very rigid test at the Regal factory, where they were inspected by the agent of the Argentine Government, who placed the orders for these engines. The final run lasted ten hours with the engines pulling 55-h.p. at 450 r.p.m. They held this power continually without any appreciable variation.



The New 50-H.P. Regal Described Above



BOSCH
 The ignition that is used by the world's fastest boats because it is the most reliable and efficient.
 Be Satisfied Specify Bosch
Bosch Magneto Co.
 221 West 46th St., New York



EXAMINE THIS MOTOR
 Light and compact, yet with surplus power and endurance; running smoothly and with almost no vibration; getting full power out of every gallon of gasoline, this Type QM Wisconsin Motor, at \$375, f. o. b. Milwaukee, will give you all the power and speed for which you call upon it.

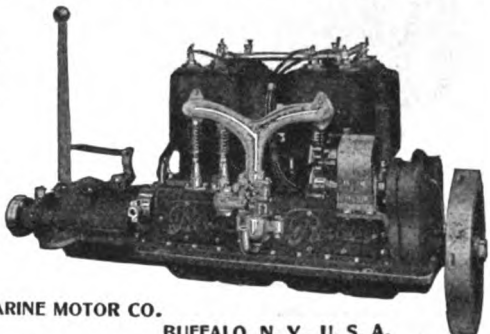
Wisconsin Motors

are "sweet running," because they are correctly designed, with all reciprocating parts accurately balanced, and because of the materials and workmanship that go into them.
 Write for specifications of different types.

WISCONSIN MOTOR MFG. CO.
 Station A, Dept. 303 Milwaukee, Wis.
 New York Branch: 50 Church St., T. M. Fenner, Representative

PEERLESS ENGINES

4-cycle sizes
 8 to 50 H.P.




PEERLESS MARINE MOTOR CO.
 BUFFALO, N. Y., U. S. A.



BARKER MOTORS
 "Imitated, but Not Equalled"
 Fine mechanical features.
 Honest power ratings.
 Reasonable prices.
 Manufactured by
C. L. BARKER,
 Norwalk, - - - Conn.

Mathis-Built 43-Ft. Cruiser Houseboat
 for high-class design and construction with speed and comfort. Reasonable in first cost, economical in upkeep. Well-lighted and ventilated. Easily handled by one man. An efficient sea boat. Will make 9 miles an hour with 20 or 24-H.P. motor. Built for summer and winter use. Ready for delivery on one week's notice.



43 ft. x 12 ft. 2 ft. x 10 in. draught

Write for particulars.
MATHIS YACHT BUILDING COMPANY
 COOPER'S POINT CAMDEN, N. J.

THE
Thompson Automatic Feathering Propeller
 HAS NO SUPERIOR FOR THE AUXILIARY


NOYES MACHINE CO.
 257 Front Street So. Portland, Me., U. S. A. 31 Nelson Street St. John, N. B., Canada

THE BRIDGEPORT
 Non-Backfiring MOTORS for 1916 embody exclusive, practical features, that guarantee reliable and economical operation.

Our new "high-power" motors, for yacht tenders and semi-speed boats, are ably demonstrating Bridgeport Quality. All models are offered with Bridgeport positive Built-in Magneto.

SEND FOR NEW CATALOG

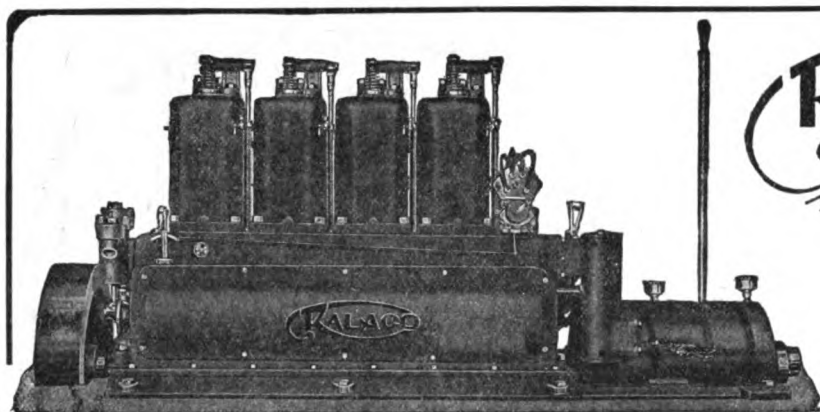
THE BRIDGEPORT MOTOR CO., Inc., 112 Kossuth Street, Bridgeport, Conn., U. S. A.



THE INSPIRATION OF CONFIDENCE AND ABSOLUTE SATISFACTION EXPERIENCED BY TWENTY THOUSAND OWNERS

SAY "BRIDGEPORT" TO AN OWNER AND NOTE THE INSTANT REFLECTION

Please mention THE RUDDER when writing to advertisers



RALACO

THE SILENT ENGINE

Not an Engine for Every Boat but an exceptionally high grade machine for the better class of cruising and working boats.

Extremely Economical in Fuel Consumption and Upkeep
10 to 75-H.P. 2-4-6 Cylinders

We will be glad to send descriptive matter

THE S. M. JONES COMPANY

Main Office and Factory: 604 Segur Ave., TOLEDO, OHIO

Representatives:

Power Boat Engineering Company 136 Liberty St., New York City
A. W. LePage Gasolene Engine & Supply Company, Vancouver, B. C.

"I HAVE been using a **JOE'S GEAR** for the last six months and have abused it in every way, as I was sure it was too small for my motor, but I can't break it, and it is absolutely noiseless and perfect in every way."

IN STOCK AT

- GASOLENE ENG. EQUIPMENT CO.
85 Liberty St., New York
- CANADIAN MOTOR & SUPPLIES CO.
107 Inspection St., Montreal
- L. H. COOLIDGE CO.
66 W. Marion St., Seattle, Wash.
- J. KING & CO.
119-3 Colt St., Limehouse, E., London, Eng.
- The FAIRBANKS CO., Hamburg, Germany
- RAPP-HUCKINS CO., Boston, Mass.



SNOW & PETRELLI MFG. CO., New Haven, Conn.

CHAMPION EQUIPMENTS

Are Easy To Install



It is not too late yet to put a safe, dependable electric lighting outfit in your boat. "Champion" outfits are made in five sizes. The "6-150" Battery, Dynamo and Switchboard complete costs \$120.00 net. This battery will burn ten 16-c.p. lamps for eight hours on a charge. Large enough for any 50-ft. boat. Send for Bulletin "W".



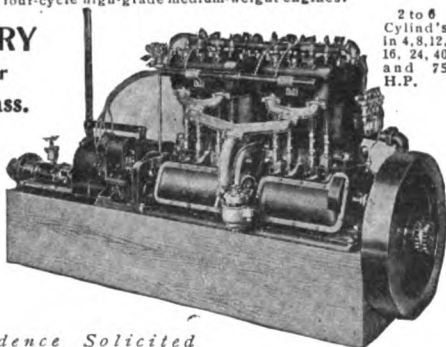
Manufactured by Hector MacRae, 316 St. Paul St., Baltimore, Md.

"IDEAL" QUALITY

We build four-cycle high-grade medium-weight engines.

V. J. EMERY
Manufacturer
Wollaston, Mass.

2 to 6
Cylinders
in 4, 8, 12,
16, 24, 40
and 75
H.P.



Representative
California
166 Pacific Building
San Francisco

Correspondence Solicited



PATENTED

If you want good circulation on your Automobile, Launch or Motor Boat, use a **LOBEE PUMP**

Lobee Pump & Machinery Co.
17-21 Parish Street, Buffalo, N. Y.

MORE BOATS in stock, MORE MATERIAL machined and ready for assembling, than we have ever had at this season of the year; we MEAN to make the season of 1916 our most SUCCESSFUL, in point of SERVICE TO THE BOAT BUYER. Let us know your requirements.

SKANEATELES BOAT & CANOE CO. - - - Skaneateles, N. Y.

GASOLINE

MOTOR OIL, GREASES, AND OIL SOAP
SOUTHPORT, NORTH CAROLINA

PURE WATER SUPPLIED

RUDDER STATION
Cape Fear Oil Company

FOR HIGH-SPEED WORK

CURTISS FLYING BOATS, used everywhere; speed 60 to 80 miles per hour. Safest, most comfortable, fastest. CURTISS HYDROPLANES, 35-50 m.p.h., moderate cost. CURTISS MOTORS, 40-h.p. to 200-h.p., 5 models; used and accepted as best by 6 leading governments.

Illustrated Literature Free on Request

THE CURTISS AEROPLANE COMPANY
32 Lake Street - - - Hammondsport, N. Y.



THE COMET

Henricks Magnetos and Lighting Outfits

Durability and Efficiency Guaranteed
Over 50,000 in Service

Ask your dealer or write us

HENRICKS MAGNETO & ELECTRIC COMPANY, 1500 St. Paul Street, Indianapolis, Ind.
Eastern Office 136 Liberty Street, New York City



En répondant aux annonces veuillez mentionner THE RUDDER

WOLVERINE for MARINE SERVICE

THE MOTOR WITH THE BORE *and* STROKE

FUELS { KEROSENE (PARAFFIN)
GASOLINE (PETROL)
DISTILLATE
SUCTION PRODUCER GAS

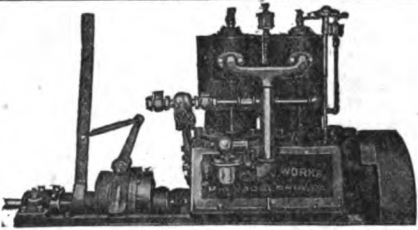
Write for Catalogue No. 43

WOLVERINE MOTOR WORKS BRIDGEPORT CONN. U.S.A.
formerly GRAND RAPIDS, MICH.



VULCAN ENGINES

Vulcan Engine Works
1827 Bainbridge St.
Philadelphia, Pa.
*Agents Wanted in U. S.
and Abroad*



H.P.	No. Cyl.	Bore	Stroke	Rev.	Weight	Dia. Flywh.	Dia. Prop.	Price.	H.P.	No. Cyl.	Bore	Stroke	Rev.	Weight	Dia. Flywh.	Dia. Prop.	Price.
4	1	4 3/8	6	500	300	18	18	\$145	22	2	7 1/2	8 1/2	425	1,850	23	30	\$750
5	1	5 3/4	6 1/4	500	375	20	20	190	22 1/2	2 1/2	6 1/2	7 1/4	475	1,700	21	28	800
7 1/2	1	6 1/2	7	450	450	21	22	220	30	4	6 1/2	7	450	2,050	21	30	940
8	3	4 1/2	6	550	650	18	22	340	35	3	7 1/2	8 1/2	425	2,800	23	34	1170
10	3	5 1/4	7	475	900	20	23	400	40	6	5 1/4	7	525	1,800	20	28	1175
15	4	6 1/2	7	475	1,050	21	26	530	45	4	7 1/2	8 1/2	425	3,400	23	36	1500
18	4	4 3/4	6	550	900	18	24	570	70	6	7 1/2	8 1/2	425	4,500	23	40	2250
20	4	5 1/4	7	475	1,200	20	26	700	75	4	8 3/4	10 1/2	400	5,800	26	42	2400

TOPPAN

SAILING and POWER BOATS

SAFE RELIABLE HIGH-GRADE

Our 1915 Line of Winners

DORIES—18, 20, 22 and 30 Ft., \$220 and up

SAILING DORIES—14, 16, 18 and 21 Ft., \$55, \$90, \$110 and \$200

14 x 4 Ft. HYDROPLANE BULLET

V-RUNABOUTS, 21, 24, 27 and 30 Ft.

THE NEW GOVERNMENT MODEL LAUNCH
22 x 6 Ft. and 25 x 6 1/2 Ft.


FULL LINE OF ROWING SKIFFS AND DORIES

Also 21 x 6 Rudder Club Dory, Design by C. D. Mower, for \$200.
As an Auxillary, with 3-H.P. Motor, \$275

Power Dories— ALL SIZES \$175 AND UP Used in all Dept. of the U. S. S. and in all parts of the world. Also furnished K. D.

WE INSTALL ANY MAKE MOTOR

Special 16 Ft., \$175 Sportsman. A Wonder



SEND FOR NEW CATALOG

TOPPAN BOAT MANUFACTURING COMPANY
9 Haverhill Street, Boston, Mass.



W & M REVERSING PROPELLERS

GUARANTEE—SPEED, STRENGTH, CONTROL
Catalog Free—Send Now
Wilmarth & Norman Co., 1168 Monroe Ave., Grand Rapids, Mich., U. S. A.

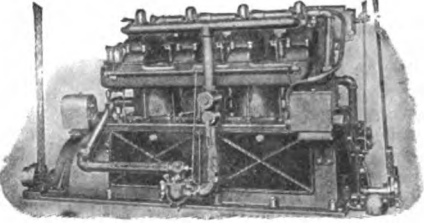
MIANUS MOTORS

GUARANTEED FOR LIFE

The Mianus Motor Works, Stamford, Conn.

GASOLENE YACHTS AND ENGINES

Noted for Reliability



30-40-H.P. Special Engine Built for U. S. Govt.

Tregurtha Water-Tube Boilers

Electric Light Outfits

Steam Engines

MURRAY & TREGURTHA CO.

340 West First Street

South Boston, Mass.

Bei Bestellungen beziehen Sie sich bitte auf THE RUDDER

A SIMPLE DIVING HOOD

For motor boats and yachts a simple diving hood, suitable for use in waters up to 30 ft. depth, has been produced by the Miller-Dunn Company, and taken up by the Chas. D. Durkee



Company, of New York. Naturally, many questions arise concerning its use and construction, so we append a few of the more important:

Q. How is it fastened to you and what holds it on?

A. It is not fastened to you. It sets on your shoulders like the hat on your head and lead weights on the front and back of the Divinhood keep it from floating off.

Q. What keeps the water from filling the Divinhood?

A. The air that is pumped from above displaces the water and the head and neck remain dry.

Q. Do you have weights on your feet? What holds them down?

A. There being no air in a suit the feet are heavy enough to sink without weights. Your buoyancy is in your body and not your limbs. The weights on the front and back of the hood overcome the buoyancy and you have the same use of your limbs as at the surface.

Q. What happens if there is too much air pumped to the man below, or not enough?

A. There being no valves to hold back the air you can't pump too much. The surplus air escapes through small holes in the lower edge of the Divinhood or around the shoulders. If the man at the pump does not send enough, give him the signal for more air and if he stops entirely throw off the Divinhood and the buoyancy of your body will bring you to the surface and you can find out what is the matter. You are not fastened in a diving suit, risking your life in the hands of the man attending you.

Further details can be obtained from Messrs. Durkee & Co.

* * *

DIESEL ENGINES—A NEW BOOK

A new work on Diesel engines has just been published by Spon & Chamberlain, the author being Mr. A. H. Goldingham, who is well known in the oil engineering world, his previous works being, *The Design and Construction of Oil Engines*, and *The Gas Engine in Principle and Practice*.

We have before us, hot from the press, a copy of Mr. Goldingham's latest book, entitled, *Diesel Engines—Stationary and Marine*. We have seen quite a number of books on Diesel engines, and apart from those by German, Dutch and Italian authors, most of them have consisted of a rehash of makers' catalogs. But this is not the case with the work in question, which contains some valuable theoretical and technical information on the subject, in addition to descriptions and illustrations of a very large number of American and foreign stationary and marine Diesel engines. Some of the illustrations are very fine, and the whole production is right up-to-date, which is very necessary when one considers the rapid development of the Diesel type of engine.

While the price of this book is higher than most books on internal-combustion engines, the field covered in this particular work is large and no expense has been spared to produce big and clear plates. Among these splendid illustrations special mention must be made of the plates of the Burmeister & Wain marine engine, the valve-operating gear of the Werkspoor marine engine, and the 1,500-i.h.p. engine of a Dutch gunboat. To those interested in the heavy-oil engine we recommend this

book, and we have made arrangements to supply the same to our readers at the cost price of \$3.00, so those desirous of purchasing a copy should write to The Manager of THE RUDDER, 254 West 34th Street, New York City.

* * *

SPLITDORF GETTING FOREIGN BUSINESS

The Splitdorf Electrical Company, of Newark, N. J., are making giant strides in the ignition field with their Dixie magneto. Equipment contracts for the English Daimler, the Italian Fiat and Isotta and the French Renault have been secured, and deliveries are being shipped.

* * *

MOTOR BOATS AND CARS FOR PERSIAN GULF DISTRICT

Consul James Oliver Laing, of Karachi, India, foresees a demand for American motor boats and automobiles in the Persian Gulf district at the close of the present European war. He suggests that catalogs and price lists be sent to his office, in order that they may be ready for use as soon as contraband conditions make it possible for the consulate to assist importers and exporters of these lines.—*U. S. Commerce Reports*.

* * *

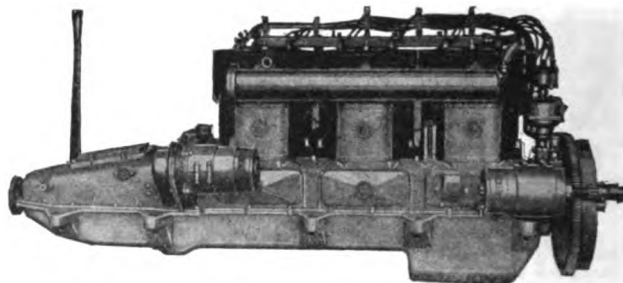
DEATH OF MR. A. S. GILLESPIE

With profound sorrow Chas. H. Gillespie & Sons, of Jersey City, N. J., announced the death of their esteemed president, Mr. Alanson T. Gillespie, on Monday, October 11th, aged 47. Our sincere condolences are with Messrs. Gillespie over their great loss.

* * *

THE VAN BLERCK MOTOR COMPANY OF MONROE

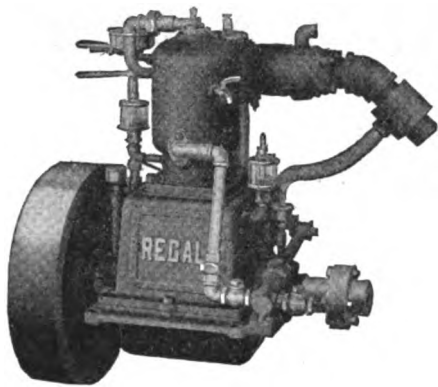
The Van Blerck Motor Company, of Monroe, Mich., announce a new six-cylinder engine for the 1916 season, an illustration of which is given herewith. This motor is somewhat similar to their 1915 engine, the difference being in minor changes which have been found possible and which materially add to the general efficiency. It has a bore of 5½ in. and a stroke of 6 in., and weighs 1,280 lb. It is manufactured in three speed ranges, the low-speed motor being capable of operation from 650 to 1,000 r.p.m., and developing from 60-h.p. to 85-h.p.; the medium-speed motor being capable of operation from 1,000 to 1,500 r.p.m., and developing from 100-h.p. to 135-h.p.; the high-speed motor being capable of operation from 1,500 to 1,700 r.p.m., and developing 150-h.p. to 165-h.p.; the only difference in the engines being



the compression, timing, and other necessary minor changes to take care of the different variations in speed. It being the ideal of the manufacturer to deliver to the owner an engine adjusted at the factory to operate at the most efficient speed for the boat in which it is to be installed.

The motor illustrated herewith is shown equipped with a two-unit Leece-Neville electric starter, the generator of which is driven by a gear and not by a silent chain, as is the usual marine practice. This, the makers consider, is quite a radical improvement, and eliminates the old trouble of noise and avoids the breaking of chains.

This six-cylinder motor is one of the three standardized engines that the Van Blerck Company are turning out for the 1916 season. They make but one cylinder size, 5½ in. by 6 in., and manufacture it in the three units, four, six and eight-cylinder. In this way, they are able to standardize all tools, jigs, equipment and shop procedure. Each man in the Van Blerck Motor Company's plant has just one set of things to do, and does that same set of things day after day and week after week, obtaining efficiency impossible to obtain under any other method. This standardization on one cylinder size enables the Van Blerck Motor Company to have one size of cylinder, one cam shaft size, one connecting rod size, etc., down the entire list of parts, thus enabling them to make jigs and tools for every operation in the machining of the various parts that enter into the construction.



THE NEW 5-H.P. REGAL

Medium-duty engine is now ready for immediate delivery. Cylinder 4½-inch bore by 5½-inch stroke. Normal speed 600 R.P.M. Net price, without propeller equipment, f. o. b. cars factory—\$128.00.

This 5-H.P. four-cycle engine makes ideal power for a launch or small fishing boat.

Write for 1916 catalog, just out, describing this engine and the many other new Regal engines

REGAL GASOLINE ENGINE CO., 59 W. Pearl St., Coldwater, Mich.

COMPAÑIA NAUTICO MERCANTIL

Amargura, 23,
Havana, Cuba

IMPORTERS

SHIPS, BOATS, LAUNCHES, MARINE
HARDWARE AND ALL
ACCESSORIES

Palmer Engines for 1916 PRICE REDUCED OUTPUT INCREASED

Quality remains the same. Horsepower ranges from 2¾-h.p., model Q1 for \$48.00 to a 50-h.p. heavy-duty four-cycle for \$1,600. Our leader for 1916 is a 10-h.p., four-cycle, bore 5, stroke 6, multiple disc clutch built on as a unit, price \$300, known as model NR2. Remember the Palmer motor is a high-grade motor manufactured from the best of materials, and sold at a reasonable figure on a quantity basis. Your boatbuilder will install a Palmer motor if you ask him to. Some good territory for reliable dealers. Write for our reduced price sheet.

PALMER BROS., Coscob, Conn.

Branches: BALTIMORE BOSTON NEW YORK PHILADELPHIA PORTLAND, ME. PROVIDENCE, R. I.

LOEW-VICTOR ENGINES

Loew-Victor Engine Co.
Oakley and Oakdale Aves.
Chicago, U. S. A.

BRENNAN STANDARD MOTORS

Medium and Heavy Duty, 15 to 100-H.P.

When you buy a Brennan Motor you get a complete outfit ready to run. The unusual size of the bearings, large valves and long stroke insure power and continuous service under all conditions. Very economical in fuel consumption.

Our New Model B Unit Power Plant is one of the finest engines ever produced. No expense has been spared in developing it to the smallest detail and we honestly believe its equal does not exist. Let us send you further details.

BRENNAN MOTOR MANUFACTURING COMPANY, SYRACUSE, N. Y.

ANDERSON ENGINES ARE GOOD ENGINES

Ask any Customer

ANDERSON ENGINE CO., 4038 N. Rockwell Street, Chicago

J. W. Lathrop Co.

Mystic, Conn.
Manufacturers of

MARINE GASOLINE Engines

AMERICA'S STANDARD FOUR-CYCLE ENGINE

Four-Cycle

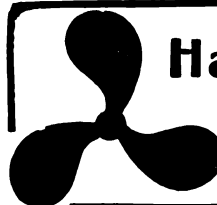
KERMATH

Four-Cylinder

12 to 20
H.P.

\$180.00 and up

KERMATH MFG. CO.
Dept. 9, Detroit, Mich.



The Harthan Propeller

HAS NO SUPERIOR for both
speed and cruiser work

SEND FOR PARTICULARS

McFarland Foundry & Machine Co.,

DEPT. 2 Trenton, N. J., U. S. A.

BOLINDERS OIL ENGINES

30 Church St.

BOLINDERS COMPANY

New York

Si prega far menzione del RUDDER quando scrivete

ABEKING & RASMUSSEN YACHT YARD

LEMWERDER near BREMEN, GERMANY

SAIL AND MOTOR BOATS of every size and description for Sport and Commercial Purposes Designed and Built

SURPRISING NUMBER OF SALES AND CHARTERS RECENTLY EFFECTED BY COX & STEVENS

Messrs. Cox & Stevens report that their brokerage office has been unusually busy, and that they see every indication of a great renewal of interest in yachting.

The following sales and charters of steam vessels have recently been effected by this office:

The steam yacht Vanadis has been sold for Mr. C. K. G. Billings, N. Y. Y. C., to Mr. Morton F. Plant, N. Y. Y. C. Vanadis is one of the most successful of the large seagoing steam yachts, having been built in Scotland in 1910. Her dimensions are: l. o. a., 277 ft.; l. w. l., 233 ft.; draught, 14 ft.; breadth, 32 ft. 8 in. Her machinery consists of a combination of turbines and reciprocating engines.

The steam yacht Columbia has been sold for Mr. J. H. Ladew, N. Y. Y. C., to a Canadian yachtsman, who is now using the vessel in Canadian waters. Columbia is 196 ft. over all, 165 ft. water-line, 33 ft. 7 in. breadth, and draws 12 ft. of water. She was built in 1899 and has cruised around the world several times.

The famous steam yacht Kanawha, formerly owned by H. H. Rodgers, has been sold for Mr. Morton F. Plant, N. Y. Y. C., to John Borden, of Chicago. Kanawha is 227 ft. over all, 192 ft. water-line, 24 ft. 6 in. breadth, and draws 10 ft. of water. She was built in 1899 and holds the reputation of being the fastest steam yacht of her type and size afloat.

The steam yacht Isabella has been sold for Mr. George H. Runk, N. Y. Y. C., to Mr. George H. Macy, who has renamed the vessel Kasha. This steam yacht is 145 ft. over all, 117 ft. water-line, 17 ft. 6 in. breadth, and draws 7 ft. 6 in. of water.

The steam yacht Surf has been chartered for a portion of the season for Mr. J. H. Hanan to Mr. H. S. Black. The Surf is a seagoing steam yacht built in Scotland in 1898. Length over all, 200 ft.; water-line, 165 ft. 6 in.; breadth, 24 ft. 6 in.; draught, 13 ft.

The 176-ft. steam yacht Margaret has been chartered for I. E. Emerson, of Baltimore, to a New York yachtsman who has used her in and around New York.

The 136-ft. auxiliary steam yacht Speedwell, formerly the Intrepid, has been sold for Mr. T. N. Vail to a Western yachtsman.

The 202-ft. steam yacht Mousquetaire has been chartered for Mr. P. E. DeFere, of New York, to Mr. F. G. Thomson, of Philadelphia, who has used the vessel for coastwise cruising.

The 124-ft. steam yacht Florence II has been chartered for Mr. J. W. Alker to a New York yachtsman, by whom she has been used along the Atlantic coast.

The 94-ft. steam yacht Roamer, sold for John K. Robinson, Jr., N. Y. Y. C., to T. R. Hodges, Shellfish Commissioner of the State of Florida, for service on West coast of Florida.

The same firm have also recently consummated the following sales and charters of auxiliary vessels, motor boats, houseboats and sail vessels:

Invader, steel auxiliary schooner yacht, sold for John Borden, of Chicago, to Henry D. Whiton, N. Y. Y. C. Dimensions: l. o. a., 136 ft.; w. l., 95 ft.; breadth, 25 ft. 6 in.; draught, 14 ft. 3 in. She was built in 1905, is fitted with a 100-h.p. Murray & Tregurtha gasolene engine, having feathering propeller, and is an exceptionally fine vessel in every respect.

Savarona, steel, auxiliary schooner yacht, sold for C. Howard Clark, Jr., N. Y. Y. C., to Col. C. L. F. Robinson, N. Y. Y. C. Dimensions 114 ft. over all, 80 ft. water-line, 23 ft. breadth, 10 ft. draught. She was built in 1906, fitted with 125-h.p. reversible gasolene motor, and is one of the finest craft of her type.

Windward, steel, auxiliary schooner yacht, sold for Henry D. Whiton, Larchmont Y. C., to George Bullock, N. Y. Y. C. A well-known craft, 93 ft. over all, 65 ft. water-line, 19 ft. 6 in. breadth, 11 ft. draught.

Awa, 95-ft. modern gasolene houseboat, chartered for A. DeWitt Cochrane to a Western yachtsman.

Lodona, 77-ft. twin-screw gasolene houseboat, sold for James Godfrey Wilson, Larchmont Y. C., to Edwin A. Richard for use in Florida waters. Yacht is now enroute South.

Ariel, 80-ft. gasolene yacht, sold for Harrison S. Morris, of Philadelphia, to a New York yachtsman, for Long Island Sound service.

Winsome, well-known racing sloop yacht, sold for Phillip H. Johnson, of Philadelphia, to Peter W. Rouss, N. Y. Y. C. Her dimensions are 85 ft. over all, 63 ft. water-line, 16 ft. 7 in. breadth, 11 ft. draught.

Maris, 77-ft. twin-screw gasolene yacht, chartered for George T. Lippincott, of Atlantic City, to a prominent New York yachtsman.

Kosagaas III, 75-ft. raised deck cruiser, sold for Charles H. Baker, Columbia Y. C., to Charles Coryell, of Bay City, Mich. Now in service on Lake Michigan.

Beluga, 73-ft. twin-screw gasolene cruiser, chartered for A. W. Stanley, to a local yachtsman.

Ahmakola, one of the well-known Stamford Y. C. one-design schooners, sold for Howard C. Smith, N. Y. Y. C., to Edward T. Davis, for service in Narragansett Bay.

Mustang, 65-ft. bridge deck cruiser, chartered for H. S. Beardsley, Columbia Y. C., to B. G. Work, of New York.

Cassandra, 55-ft. high-speed power boat, sold for Harry P. Whitney, N. Y. Y. C., to August Heckscher, N. Y. Y. C., for ferry service.

Nepsi, N. Y. Y. C. 30-footer, sold for Johnston De Forrest, N. Y. Y. C., to Gherardi Davis, of New York.

Grayling, 50-ft. raised deck cruiser, sold for Dr. E. J. Thomas, of New York, to Henry L. Blum, of Baltimore.

Arvia, well-known Class Q sloop yacht, sold for Peter W. Rouss, N. Y. Y. C., to Geo. C. Molloy, New Rochelle, N. Y.

Chipper, 67-ft. bridge deck cruiser, chartered for Isaac L. Hunt, of Rahway, N. J., to Charles Percival, of New York.

Messrs. Cox & Stevens also state that their designing department is exceedingly busy, and that in all departments they see a great improvement in volume of business.

YACHTS CHANGE HANDS

The Hollis Burgess Yacht Agency has sold the 40-ft. motor boat Gertrude, owned by F. A. Newman, of Melrose, Mass., to Commodore H. A. Vose, of the Savin Hill Y. C., Savin Hill, Mass.; the 35-ft. water-line sloop Sakuntala, owned by E. G. Young, of Lynn, Mass., to Howland Twombly, of Newton, Mass.; the 34-ft. water-line yawl Diamond, owned by W. H. Bartlett, of Boston, to P. J. Tierney, of Fall River, Mass.; the 24-ft. water-line Ebusu, owned by John Lee Merrill, of Hamilton, Mass., to Alanson Bigelow, Jr., of Boston; the 30-ft. motor boat Olga II, owned by Dr. F. W. Hovestadt, of Boston, to W. F. Halsall, of Winthrop, Mass.; the 25-ft. water-line Lawley sloop Tarpon, owned by S. M. Fox, Jr., of Forrestdale, Pa., to John Lee Merrill, of Hamilton, Mass.; the 25-ft. w. l. racing sloop Sally VII, owned by George B. Phelps, of New York, to Walter D. Lane, of Boston; the 50-ft. water-line auxiliary sloop Louise, owned by Mrs. A. L. Poole, of Belmont, Mass., to Joshua Crane, of Westwood, Mass.; the 22-ft. water-line auxiliary yawl Samoset, owned by H. P. Willett, of Waldoboro, Me., to W. R. Whiting, of Hingham, Mass.

Model Yachts and Boats

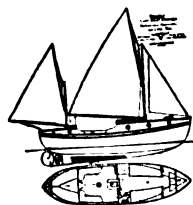
By J. du V. Grosvenor

Their designing, making and sailing. Illustrated with one hundred and twenty-one designs and working drawings.

Price \$1.00 Postpaid

THE RUDDER PUBLISHING CO., 254 W. 34th St., N. Y. City

Ved Henvendelser til Annoncerende bedes De referere til THE RUDDER



BONNEY
Auxiliary Lifeboat Cruisers
 Removable Sailing Rig, Non-Sinkable, Non-Capsizable,
 Four Full Berths, Toilet, Running Hot and Cold Water.
 Prices and Specifications on Application.
J. C. G. Bonney, Builder and Designer
 60 John Street, New York

Evinrude DETACHABLE Motor
ROWBOAT
 Attaches to any rowboat or dinghy in less than one minute. Exclusive features: Built-In Reversible Magneto, Maxim Silencer, Compensating Spring Shock Absorbing Device. Write for booklet and prices.
EVINRUDE MOTOR COMPANY, 20 Evinrude Block, Milwaukee, Wis.
Largest Manufacturers of Rowboat Motors in the World

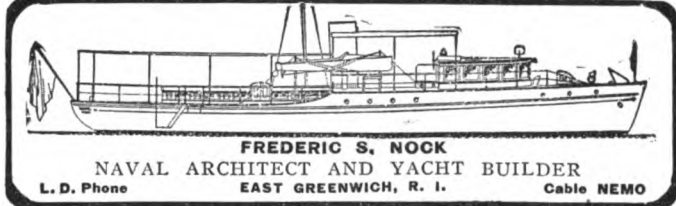
Naval Architects,
 Engineers, Yacht Brokers

COX & STEVENS

15 William St., New York
 TELEPHONES: 1375-1376 Broad

Complete particulars, plans and photographs promptly submitted on receipt of inquiry. State your requirements. Large list of yachts of all types for sale or charter.

Hunter Quality Launches
 Declared by experts the best value ever offered—
 Prices \$150 and up.
Everett Hunter Boat Co.
 McHENRY ILLINOIS



ARTHUR BINNEY Long Distance Telephone Naval Architect
 70 KILBY STREET and Yacht Broker
 Successor to Edward Burgess Mason Building BOSTON, MASS.



LÜDERS MARINE CONSTRUCTION CO.
 Designing and Building of all Types of Power Boats a Specialty
 Stamford, Conn.

QUICK RESULTS
 Should you desire to Buy, Sell, Charter or Insure a Sail or Power Yacht, communicate with
 Tel. 6119 Bryant **HARRY W. SANFORD**
YACHT BROKER 500 5th Ave., N. Y. C. Corner 42nd St.

THEODORE D. WELLS
 Naval Architect and Marine Engineer
 32 BROADWAY, NEW YORK
 Telephone Broad 6737

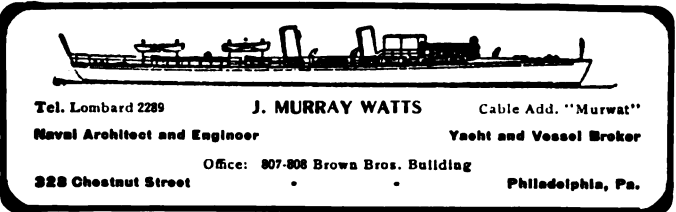
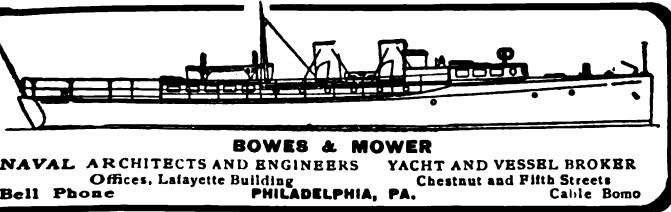
GIELOW & ORR
 Naval Architects, Engineers and Brokers
 52 BROADWAY, (TELEPHONE, 4873 AND 4874 BROAD) NEW YORK
 Plans, Specifications and Estimates furnished for Construction. Alterations and Repairs. Large list of Yachts For Sale, Charter or Exchange; also Commercial Vessels

CAPE COD POWER DORY COMPANY
 Cabin Cruisers, 22-35 Ft. Open Power Dories, 20-24 Ft. Lake and River Boats, 16 Ft. Sailing Dories, 17 Ft. Rowboats, 10-14 Ft. Special Boats for Outboard Motors.
 453 MAINE STREET Dept. C WAREHAM, MASS.

WILLIAM GARDNER & CO.
 Naval Architects, Engineers, Yacht & Vessel Brokers
 Yachts, Launches and Vessels of All Kinds
 No. 1 BROADWAY, NEW YORK
 Telephone 3585 Rector

Electric Wiring, Diagrams and Switchboards
 By Newton Harrison, E. E.
 Price \$1.50 Prepaid THE RUDDER PUB. Co., 254 W. 34th St., N. Y.

HOLLOW SPRUCE SPARS PALMER BOAT COMPANY
 Fontana, Wis. ON GENEVA LAKE Formerly at Highland Park, Ill.



B. B. CROWNINSHIELD
 R. N. BURBANK
 Naval Architects and Brokers
 75 State St. Boston, Mass.

Cedar Lumber CEDAR MOORING BUOYS
 ANY QUANTITY—ANYWHERE We pay freight anywhere in the United States
AT ONCE JORDAN BROS. LUMBER CO. Norfolk, Va.

Ved Henvendelser til Annoncerende bedes De referere til THE RUDDER

BOOKS for the YACHTSMAN'S LIBRARY,

TECHNICAL AND PRACTICAL

Astronomy for Everybody. By S. Newcombe. \$2.00; by express paid. \$2.10	
Audel's Gas Engine Manual.	2.00
Boat-Building and Boating. By Beard.	1.00
Boat-Building Book for Boys.	1.75
Boat Sailing, Fair Weather and Foul.	1.00
Boat Sailor's Manual. By E. F. Qualtrough.	1.50
Book of Sights Taken in Actual Practice at Sea. . . . .	.75
British and Colonial Flags. . . . .	.60
Brown's Signal Reminder; All Methods. . . . .	.50
Brown's Winds and Currents.	1.00
Building Model Boats. By P. N. Hasluck. . . . .	.50
Calculus for Engineers. By Larkman.	2.00
Canoe Handling. By C. B. Vaux.	1.00
Canvas Canoes—How to Build Them. By Field. . . . .	.50
Capt. Pugsley's Course Protractor.	1.00
Coast Pilot for Atlantic Coast, Illustrated. By Stebbins.	1.25
Coast Pilot for the Lakes. By Scott.	2.00
CRUISER, Bound Volumes, 1907, 1908, 1910 (red cloth) Short Sea Stories. each 75c; 3 Volumes	2.00
Dry Batteries. By a Dry Battery Expert. . . . .	.25
Eldredge's Tide Book. . . . .	.60
Electric Bells and Alarms. . . . .	.75
Electrical Boats and Navigation.	2.50
Electrical Circuits and Diagrams. By N. H. Schneider. . . . .	.75
Electricians' Handy Book.	3.50
Electric Wiring, Diagrams and Switchboards. By Newton Harrison.	1.50
Elements of Gas Engine Design. . . . .	.50
Elements of Navigation. By Henderson.	1.00
Elements of Yacht Design. By N. L. Skene.	2.00
Epitome of Navigation. Norrie.	6.40
Ex-Meridian, Altitude, Azimuth and Star Finding Tables. By Rust.	5.00
Fore-and-Aft Seamanship. . . . .	.50
Gas Engine Handbook. By Roberts. 7th edition.	2.00
Gas Engines. Lieckfeldt.	1.00
Gas Engines and Launches. By F. K. Grain.	1.25
Gas, Gasoline and Oil Engines. By Gardner D. Hiscox.	2.50
Gilliatt's Star Maps for Amateurs.	1.00
Handy Jack Book of Navigation Tables. . . . .	.75
Houseboats and Houseboating. By Albert B. Hunt. \$2.00; by mail.	2.34
Induction Coils. By P. Marshall. . . . .	.75
Kedge Anchor. By Patterson.	1.00
Knots, Splices and Rope Work. By B. Verrill. . . . .	.60
Knots and Splices. By Capt. Jutsum. . . . .	.75
Know Your Own Ship.	2.50
Learners' Compass Card. . . . .	.50
Lloyd's Yacht Register.	7.00
Lucas' Questions and Answers for Marine Engineers.	2.00
Machinery for Model Steamers. . . . .	.25
Magnetism, Deviation of the Compass and Compass Adjustment. By Capt. A. P. W. Williamson, F. R. G. S.	1.25
Manual of Marine Engineering. A. E. Seaton.	8.00
Manual of Yacht and Boat Sailing and Yacht Architecture. By D. Kemp.	12.00
Manual on Rules of the Road at Sea. By Hayne.	3.25
Marine Electrician. By Brown.	1.50
Marine Engineers—How to Become One. By E. G. Constantine.	2.50
Marine Gas Engines. By Clark.	1.50
Marine Propellers. By Sydney W. Barnaby.	4.50
Masting and Rigging. By Robert Kipping.	1.00
Mechanics' and Engineers' Pocketbook. By Charles H. Haswell.	4.00
Mechanism. Schwamb.	3.00
Model Engines and Small Boats. By Hopkins.	1.25
Model Library. By Schneider.	1.00
Model Power Boats. By E. W. Hobbs, A. I. N. A.	2.00
Model Sailing Yachts. . . . .	.50
Model Yachts. By Grosvenor.	1.00
Modern Practice of Shipbuilding Iron and Steel. By Thearle (2 vols.)	5.50
Modern Seamanship. By Knight.	7.50
Motor Boats. By Durand.	1.50
Motor Boats, Construction and Operation.	1.50
Nautical Charts. By G. S. Putnam, M. S.	2.00
Nautical Science. By Chas. Lane Poor.	2.00
Nautical Telegraph Code. By D. H. Bernard.	1.00
Naval Architects' Pocket Book. By MacKrow.	5.00
Naval Architecture. Peabody.	7.50
Naval Architecture. A Manual on Laying-Off. By Watson.	5.00
Navigation and Nautical Astronomy. By E. L. Richards.	1.00
Navigation and Nautical Astronomy. By F. C. Stebbins.	2.75
Navigators' Pocket Book. By Capt. Howard Patterson.	2.00
New York Pilot and Guide to the U. S. Local Inspectors' Examination of Masters and Pilots. By Capt. R. M. Pugsley.	1.00
Night Signals of World's Shipping. cloth	2.00
Oil Engines. By A. H. Goldingham.	2.50
Pocket Course Book Chesapeake Bay. . . . .	.25
Pocket Course Book Long Island Sound. . . . .	.25
Pocket Course Book New England Waters. . . . .	.25
Pocket Course Book Portland to Halifax. . . . .	.25
Pocket Course Book Race Rock to Boston Light. . . . .	.25
Practical Aid to the Navigator.	2.00

Practical Boatbuilding. By Neison.	\$1.00
Practical Boat Sailing. By Davies.	2.50
Practical Boat Sailing. By Frazar.	1.00
Practical Marine Engineering. By Prof. W. F. Durand.	5.00
Practical Seamanship. By Todd & Whall.	7.50
Practical Shipbuilding. By A. C. Holmes. 2d edition.	10.00
Questions and Answers on the Rules of the Road. . . . .	.25
Questions and Answers from the Gas Engine.	1.50
Questions and Answers for Marine Engineers.	2.00
Resistance of Ships and Screw Propulsion.	10.00

RUDDER HOW-TO SERIES—

How to Build a Cruiser (Seabird). . . . .	.75
How to Build a Knockabout. . . . .	.50
How to Build a Model Yacht.	1.00
How to Build a Motor Launch. . . . .	.50
How to Build a Motor Launch from Plans.	1.50
How to Build a Racer for \$50.	1.00
How to Build a Racing Sloop.	1.00
How to Build a Shoal-Draught Sloop.	1.00
How to Build a Skip Jack.	1.00
How to Build a Small Cruising Power Boat. . . . .	.25
How to Build a Speed Launch.	1.00
How to Build a Viper. . . . .	.25
How to Build a 3-H.P. Motor.	2.50
How to Build a 32-Ft. Power Cruiser. By N. L. Skene.	1.00
How to Build an 18-Foot Racing Cat.	1.00
How to Build an Ice-Yacht. By Ashley. . . . .	.75
How to Design a Yacht. By C. G. Davis.	2.00
How to Design and Construct a Power Boat. cloth, \$1.00; paper. . . . .	.75
How to Make a Sextant.	1.00
How to Run and Install a Gasoline Engine. By C. Von Culin. . . . .	.25
How to Swim. By Captain Dalton.	1.00

RUDDER ON SERIES—

Hints to Young Yacht Skippers. By T. F. Day.	1.00
On Navigation Simplified. By McArthur.	1.00
On River and Canal to Lake Champlain.	1.00
On Yacht Etiquette. By Patterson.	1.00
On Yacht Sailing. By T. F. Day.	1.00
On Yachts and Yacht Handling. By T. F. Day.	1.00
Southward in the Roamer. By H. C. Roome. . . . .	.50

RUDDER WHAT-TO SERIES—

Cabin Plan Book. cloth \$1.00. Cat Book. paper	.50
Power Cruiser Book. cloth 1.00. Racer Book. cloth	1.00
Schooner Book. cloth 1.00. Yawl Book. paper	.75

RUDDER SEA WAVE SERIES—

The Adventures of Two Yachtsmen. By T. F. Day. . . . .	.25
The Four and the Fire. By Thos. Fleming Day. . . . .	.25
Rules and Regulations for Construction of Yachts [Lloyd's].	2.00

Sailing. By Knight.	1.00
Sailing Ships and Their Story. By E. Keble Chatterton.	3.75
Sails and Sailmaking.	1.25
Ships and Boats. By William Bland.	1.00
Signal Cards. . . . .	.50
Signal Reminder. By D. H. Bernard. . . . .	.50
Signalling International Code Signals. . . . .	.75
Signalling Made Easy. By Capt. Bernard. . . . .	.50
Small Accumulators. By Marshall. . . . .	.25
Small Boat Sailing. By Knight.	1.50
Small Dynamos and Motors. By F. E. Powell. . . . .	.25
Songs of Sea and Sail.	1.50
Star Atlas. Brown's.	1.50
Steamships and Their Story. By R. A. Fletcher.	3.75
Study of Electricity. By Schneider. . . . .	.25
Supplements to Small Yachts. By Stephens.	4.00
Tables for Constructing Ships' Lines. By Hogg. . . . .	.75
Tait's New Seamanship. 5th Edition.	1.25
The Helmsman's Handbook. By B. Heckstall Smith.	2.50
The Landsman. By Ensign L. Edson Raff, First Bat. Nav. Mil., N. Y. . . . .	.50
The Log of the Snark. London.	2.50
The Marine Oil Engine Handbook. . . . .	.60
The Marine Steam Turbine. By J. W. Sothorn. 3d Edition.	5.00
The Motor Launch. By Hartford.	1.00
The Practical Gas Engineer. By E. W. Longanecker, M. D.	1.00
The Professor on Shipboard.	1.00
THE RUDDER—Monthly, a year.	2.00
THE RUDDER, Bound Volumes: 1908, 1910, 1911 and 1912, 2 Volumes to the year. \$5.00. 1913, 1914, 1915, 1 Volume.	3.50
THE RUDDER Covers for Binding.	1.25
The Small Yacht. By E. A. Boardman. \$2.00; by mail	2.13
Theoretical Naval Architecture. By Atwood.	2.50
Useful Tables. Bowditch.	1.25
Uses of Electricity on Shipboard. By J. W. Kellogg.	1.00
Wrinkles in Practical Navigation. By Lecky. \$8.00; by mail	8.50
Yacht Log Book, Negus.	1.00
Yacht Sails. By Patterson.	1.00
Yachtsman's Guide and Nautical Calendar. \$1.00; by mail	1.25

HOW TO REMIT: Send post-office or express money order, payable to THE RUDDER PUBLISHING CO. If bank check is more convenient, include ten cents for bank exchange; if postage stamps or bills, letter must be REGISTERED, OTHERWISE AT SENDER'S RISK.

Any of the above sent prepaid in the United States on receipt of price. Foreign Countries in Postal Union add 25 per cent for Postage.

The Rudder Publishing Company, 254 W. 34th St., New York, N. Y.

CLEAR THE DECK SALE

Of Slightly Shelf-Worn Volumes of

THE RUDDER THE CRUISER

AT HALF THE REGULAR PRICE

Purchaser to Pay Express or Mail Charges

5 Copies of Volume 19, 1908 Part I The Rudder						\$1.50	
10	"	"	20,	"	Part II		"
7	"	"	21,	1909	Part I		"
12	"	"	23,	1910	Part I		"
7	"	"	24,	"	Part II		"
11	"	"	25,	1911	Part I		"
10	"	"	26,	"	Part II		"
13	"	"	27,	1912	Part I		"
10	"	"	28,	"	Part II		"
20	"	"	29,	1913			
24	"	"	30,	1914			

a volume at this office;
by mail or express 25
cents additional in U.S.
and Canada.

11 Copies of Volume 2, 1907 The Cruiser						50c	
15	"	"	3,	1908	"		
10	"	"	5,	1910	"		

a volume at this office;
by mail or express 25
cents additional in U.S.
and Canada.

☞ This is an opportunity to obtain a stock of good reading, fine illustrations, and dozens of interesting designs for the price of the binding. One of these volumes will give you many happy hours beside the fire when Winter winds are whistling down the chimney, and keep alive the glorious memories of the sport.

☞ Send in your order at once. If you want us to prepay the mail or expressage add 25 cents to the price for each volume ordered. If not otherwise directed, the books will be sent you by express.

☞ *We guarantee each of these volumes to be complete and perfect except for a slight shelf-wear.* ☞

Address Book Department **The Rudder Publishing Company** 254 West 34th St. New York, U. S. A.

LIST OF

Books for a Yachtsman's Library

Published by THE RUDDER PUBLISHING CO., 254 West 34th St., New York, N. Y., U. S. A.

Technical and Practical Technical books are tools. No man can excel in a trade unless he has good tools, neither can a man expect to excel in a sport unless he has at hand ready for reference a good collection of books relating to its theory and practice. We have in this list, gathered for the first time, all the obtainable books on the subject of yachting and its kindred sports. The yachtsman will find here those books which are invaluable as guides to a higher knowledge of yachting, and which no yachtsman's library is complete without. Any book not here listed, if in print, we will obtain, no matter in what language or land it is printed.

How to Remit The cheapest way is to send post-office or express money order, payable to THE RUDDER PUBLISHING COMPANY. If bank check is more convenient, include 10 cents for bank exchange; if postage stamps or bills, letter must be REGISTERED, OTHERWISE AT SENDER'S RISK. Prices include express charges in the U. S. except where otherwise stated.

Instructions to Foreign Buyers When ordering books from this catalog add 25 per cent to price to cover cost of foreign carriage. For example, when ordering one of our How-to Books, What-to Books or On Series that are listed at Fifty Cents, add 13 cents for carriage or Sixty-Three Cents in all. Get a Post-Office Money Order, made payable to THE RUDDER PUBLISHING CO., 254 WEST 34th STREET, NEW YORK, U. S. A., and forward it with your order. Be sure and write your name and full address legibly. If you do not receive the book ordered in 30 days notify us giving date of former letter and number of money order.

Rudder HOW-TO Series

The most valuable set of yacht and boat-building books ever published. Thousands of boats have been built from the lines printed in these books. Successfully sailed in every clime and upon every sea. Full detail drawing of all parts, showing what it is and how to make it. Text is extremely simple.

THE POWER BOAT

Its design and construction. We have just gotten out in book form a very complete work by E. B. Schock, and it is the only book on the subject. Powerboatmen will find it invaluable. Reprinted from back numbers of The Rudder, and very carefully illustrated throughout with lines, plans and working drawings of boats in various stages of construction. Contents: Displacement, Midship Section Coefficient, Trim, Propulsion of Yachts, Powering, Patterns of Curves, The Design, Prismatic Coefficient, Center of Buoyancy, Resistance, The Screw Propeller, Trial Trip, Tools and Instruments, Construction, Designs of Various Types. Price, 75c.

HOW TO DESIGN A YACHT

By Chas. G. Davis. A simple, yet comprehensive treatise on the art and practice of designing yachts. Illustrated with several score of pictures and plans. A child understandable book, giving every detail of the work, from spreading the paper to calculating the displacement. Lines and plans of twenty characteristic boats. Diagrams of the different rigs. How to begin. What to use. Paper and tools. Nothing omitted that will make an understanding of the art easy; nothing inserted that will complicate or confuse the beginner. Price, \$2.00.

ELEMENTS OF YACHT DESIGN

By Norman L. Skene, S. B. A simple, satisfactory explanation of the art of designing yachts. Contents: General Discussion, Methods of Calculations, Displacement, The Lateral Plane, Design, Stability, Ballast, The Sail Plan, Construction. Fully illustrated with diagrams and tables. Price, \$2.00.

HOW TO BUILD A MOTOR LAUNCH

A simple and practical work in every detail, showing how to construct a launch hull suitable for use with any description of motor. Each step of the work is clearly and thoroughly explained, both by text and drawings, so that a man who has never seen a boat built will have no difficulty in understanding the process. The author, a self-taught boat-builder, thoroughly comprehends what a novice does not know, and is, therefore, able to point out the hard places, and to show the amateur builder how to get over or around them. In the after part of the book are given the designs of several launches, from 18 to 50 feet in length. The whole is heavily illustrated, and is the most complete treatise on launch building yet published. Bound in paper; size of page 9x12 inches. Large, clearly-drawn plans. Price, 50c.

HOW TO BUILD A SPEED LAUNCH (DOLPHIN)

Complete plans for building a launch that will out-speed any other model of the same length. Cheap and easy con-

struction. Length over all, 25 feet; water line, 23 feet; beam, 4 ft.; draught, 22 in.; displacement, 1,400 lb. \$1.00.

HOW TO BUILD A 3-H.P. MOTOR

By E. W. Roberts. With full working drawings and explanatory text for the construction of a small gasoline marine engine, illustrated with working drawings. Intended for driving a launch from 20 to 25 feet in length. \$2.50.

HOW TO BUILD A 32-FOOT POWER CRUISER

Full details and construction plans for building a simple, seaworthy, hunting-cabin type cruiser. The boat has been built by amateurs, from the plans, in all parts of the country, and is unusually successful as a cruiser. Price, \$1.00.

HOW TO BUILD AN 18-FOOT RACING CAT

Simple construction, easy to build, and very fast. Full working drawings and plans. Suitable for one-design classes or afternoon sailing. Have been tried out in all parts of the country and proven successful. Price, \$1.00.

HOW TO BUILD A CRUISER

Full working plans of the yawl Seabird. 25 ft. o. a., 20 ft. w. l., 8 ft. beam, 2 ft. draught, also plans of a 38-ft. Seabird. Price, 75c.

HOW TO BUILD A KNOCKABOUT

A fine all-around cruising boat; excellent sailer; suitable for shallow water. 20-foot water-line, 32 feet over all, 10-foot beam, 20 inches draught. Price, 50c.

HOW TO BUILD A RACING SLOOP

Most successful racing machine ever designed; a prize winner in America, Asia and Australia; easy to build; sure to win with. 24 feet over all, 14½-foot water-line, 7-foot beam. Price, \$1.00.

HOW TO BUILD A SHOAL-DRAUGHT SLOOP

A clever little sailing boat, with moderate overhang and small sail plan. 24 feet over all. Price, \$1.00.

HOW TO BUILD A MODEL YACHT

A complete description of how to build a model; also lines of a skiff used in sailing model. Price, \$1.00.

HOW TO BUILD A RACER FOR \$50

16-foot scow-catboat Lark; easy to build; frames all in one sweep; good racing boat for a boy to learn the business in. Price, \$1.00.

HOW TO BUILD A SKIPJACK

Fine boat for afternoon sailing or knocking about in shoal water. Been successful wherever built, sloop or cat rig. Full plans and pictures of completed boats. 19 feet over all. Price, \$1.00.

HOW TO BUILD AN ICE YACHT

By H. Percy Ashley. Contains detail and construction plans for building ice yachts of various sizes, also specifications and plans for building a scooter. Price, 75c.

HOUSEBOATS AND HOUSEBOATING

By Albert Bradlee Hunt. Contains plans and descriptions of every known type of houseboat. Sail, steam and gasoline power houseboats, stern-wheel houseboat, buckeye

ADVERTISING SECTION

Rudder HOW-TO Series—Continued

and dory houseboats, and, in fact, every known type of houseboats found at home or abroad. 216 pages, handsomely illustrated. The chapter with distances and various matter relative to the inside passage to Florida, is worth the price of the book itself. Price, \$2.00. By Mail, \$2.34. Foreign countries subject to express charges. This book too heavy for foreign mailing.

Rudder ON Series

A series of technical books that will be an invaluable addition to every yachtsman's library.

ON YACHTS AND YACHT HANDLING

By Thomas Fleming Day. Contents: On Seamanship, On Boats in General, On One-Man Boats, On Sea-going Boats, On Sails as an Auxiliary, On Reefing, On Anchors and Anchoring, On Rigging, On Stranding. The first volume of a series of technical books that will be an invaluable addition to every yachtsman's library. In this book Mr. Day has dropped all technical terms that are apt to be confusing to the novice, and has made a simple explanation of the handling and care of a boat. The book is written in a most interesting way. The chapter on anchors alone is worth more than the price of the book. Price, \$1.00.

ON YACHT SAILING

By Thomas Fleming Day. For the green hand. A simple explanation of the art of sailing small craft, fully illustrated with diagrams and plans. Price, 50c.

HINTS TO YOUNG YACHT SKIPPERS

By Thomas Fleming Day. Hints on buying, rigging, keeping, handling, maneuvering, repairing, canvassing and navigating small yachts and boats. Experience compounded with common sense and offered in a condensed form. Illustrated with drawings and plans. Price, \$1.00.

ON NAVIGATION SIMPLIFIED

By Capt. C. E. McArthur. The author has worked out and explained in this book all the problems required by the United States Local Inspectors' examination of masters and mates in a simple, understandable way, that anyone can grasp. Illustrations of the shortest sea methods of practical branches of navigation and nautical astronomy. Price, \$1.00.

HANDY JACK BOOK OF NAVIGATION TABLES

Especially prepared for use with "Navigation Simplified." Price, 75c.

ON SIGHTS

The Book of Sights taken in actual practice at sea, by Warren Sheppard. In this work Mr. Sheppard has gotten up a carefully compiled book, that is especially prepared for use of yachtsmen and its value lies in the fact it was prepared from actual sights at sea on well-known racing yachts and commercial vessels. Contents: Latitude by meridian, altitude of the Sun, Moon and Stars. Latitude by the Polar Star at any hour of the night. Longitude by Chronometer time sight. Longitude at Sunrise and Sunset. Latitude and longitude by Sumner's method, and very simple and clear directions for selecting logarithms. 75c.

ON YACHT ETIQUETTE

By Captain Howard Patterson. This is the second edition of Captain Patterson's highly appreciated work containing everything in relation to courtesies, discipline, ceremonies and routine for any and all circumstances; valuable alike for the owner, captain and crew. Price, \$1.00.

SOUTHWARD IN THE ROAMER

Southward in the Roamer will give you complete instructions as to courses; important points and how to get there. Invaluable to any one making the Southern passage. Price, 50c.

STEBBINS' COAST PILOT

What light is that? Read your answer in Stebbins' Coast Pilot. Over four hundred illustrations from Eastport to Rio Grande. Price, \$1.00. By Mail, \$1.25.

SCOTT'S NEW COAST PILOT

For the Lakes. Both American and Canadian shores, harbors, breakwaters, courses and distances. Tables of distances of the lakes. Price, \$2.00.

ELEMENTS OF NAVIGATION

By W. J. Henderson. This little book, a very clever abridgement and compilation of the heavier work of several authorities, is one that has had quite an extensive sale, and has met with universal approval. It is very clearly and very carefully written, and the explanations of the problems are so lucid that no man should be forgiven who fails to understand them. I have seen many books of this kind intended for beginners, but to my mind this is the best of the lot, and I recommend it to those who are anxious to study navigation.—Editor, The Rudder. Price, \$1.00.

KNOTS AND SPLICES

By Captain Jutsum. How to make them; showing various strands in different colors in course of construction. Also tables of strength of ropes, wire rigging, chains, etc. Price, 75c.

Rudder COURSE-BOOK Series

Just what we have all been looking for. No more bothering with charts at night. It is all here in a handful—the courses at a glance. The helmsman's always ready watch mate.

POCKET COURSE BOOK OF LONG ISLAND SOUND

Compiled by Horace Barclay, master mariner. Specially prepared for the use of yachtsmen. Price, 25c.

POCKET COURSE BOOK OF NEW ENGLAND WATERS

From Cape Cod to Portland, Maine. By Wilfrid O. White. Specially prepared for the use of yachtsmen. 25c.

POCKET COURSE BOOK—Portland, Me., to Halifax, N. S.

By Wilfrid O. White. Specially prepared for the use of yachtsmen. Price, 25c.

POCKET COURSE BOOK—Chesapeake Bay and Tributaries

By Horace Barclay, master mariner. Specially prepared for the use of yachtsmen. Invaluable aid to any one making a trip on this famous cruising ground. Price, 25c.

POCKET COURSE BOOK—Race Rock to Boston Light

Including Buzzards and Narragansett Bays, Vineyard, Nantucket and Block Island Sounds. Specially prepared for the use of yachtsmen, by Horace Barclay, Master Mariner. Price, 25c.

Rudder RULES Series

QUESTIONS AND ANSWERS ON RULES OF THE ROAD

Especially prepared for the instruction of yacht and power-boat skippers. Completely covering the subject of Lights, Whistles, Fog Signals, etc. Every yachtsman should buy and study this book. Price, 25c.

Rudder WHAT-TO Series

THE SCHOONER BOOK

Containing the designs and plans of twelve schooner-rigged yachts. Reprinted from The Rudder. Price, \$1.00.

THE CABIN PLAN BOOK

Containing the accommodation plans of twenty sail craft from 20 to 100 feet over all. Price, \$1.00.

THE RACER BOOK

Containing the designs and plans of twelve small racing craft. Reprinted from The Rudder. Price, \$1.00.

THE YAWL BOOK

Containing the designs and plans of twelve yawl-rigged boats. Reprinted from The Rudder. Price, 75c.

THE POWER CRUISER BOOK

Containing the designs and plans of twelve cabin power boats. Price, \$1.00.

THE CAT BOOK

Containing the designs and plans of twelve cabin cats. Reprinted from The Rudder. Price, 50c.

THE CRUISER

Stories of cruising in the waters of the world. Always interesting reading, handsomely bound in red cloth. A useful addition to a yachtsman's library. Volumes 1907-1908-1910. Each, 75c. 3 Vols., \$2.00.

THE RUDDER PUBLISHING CO., 254 WEST 34TH ST., NEW YORK, U. S. A.

RUDDER ON SERIES

ON NAVIGATION
SIMPLIFIED

By C. E. McARTHUR
Late United States Licensed Master Steam and Sail Ships
Also British Certificate of Competency as Master



THE author has worked out and explained in this book all the problems required by the United States Local Inspectors' examination of masters and mates in a simple, understandable way, that anyone can grasp.

Illustrations of the shortest sea methods of practical branches of navigation and nautical astronomy.

Price \$1.00 Postpaid, Foreign \$1.25

THE RUDDER PUBLISHING COMPANY
254 West 34th Street New York City

The
Power Boat

Its Design and Construction

We have just gotten out in book form a very complete work by E. B. Schock, and it is the only book on the subject. Powerboatmen will find it invaluable. Reprinted from back numbers of The Rudder, and very carefully illustrated throughout with lines, plans and working drawings of boats in various stages of construction.

CONTENTS:

Displacement	Prismatic Coefficient
Midship Section Coefficient	Center of Buoyancy
Trim	Resistance
Propulsion of Yachts	The Screw Propeller
Powering	Trial Trip
Patterns of Curves	Tools and Instruments
The Design	Construction

Designs of Various Types

Price 75c

Send for Complete Catalogue of Books for the Yachtsman's Library

THE RUDDER PUBLISHING COMPANY
254 West 34th Street New York City

Rudder HOW-TO Series

How to Build a 32-
Ft. Power Cruiser

Full details and construction plans for building a simple, seaworthy, hunting-cabin type cruiser.

The boat has been built by amateurs, from the plans, in all parts of the country, and is unusually successful as a cruiser.

Price One Dollar, prepaid

THE RUDDER PUBLISHING COMPANY
254 W. 34th Street, New York

Model Power Boats

Just Published—1915

The most valuable treatise on the Designing, Building and running of all kinds of working power craft ever produced

By E. W. HOBBS, A. I. N. A.

328 Pages 381 Illustrations 8 Vol. Cloth

PRICE \$2 NET. POST FREE

Contents of Chapters. Introduction. Historical Survey of model power boating. 1. The sporting and social aspect of model power boating. 2. Types of models, including 30 different classes. 3. Theoretical considerations and the qualities of a model. 4. Resistance and propulsion. 5. How to design a model boat. 6. Construction of model hulls. 7. Model steam machinery explained and illustrated in every detail. 8. Steam boilers and burners. 9. Flash boilers and pumps. 10. Model gasoline motors. 11. Electric motors and accessories. 12. Deck Fittings, illustrated. 13. Fitting out a model. 14. Power boat racing. 15. Glossary of technical terms used in model naval architecture. Appendix. Index.

Order your Copy Now from

THE RUDDER PUBLISHING COMPANY
254 West 34th Street New York City

A NEW BOOK IN THE RUDDER "ON" SERIES

Handy Jack Book of Navigation Tables

ESPECIALLY PREPARED FOR USE WITH "NAVIGATION SIMPLIFIED."

ALL books and instruments employed in navigation are made in large sizes. In the ordinary vessels upon which they are designed to be used this is no drawback, as there is usually space to be obtained in which to work of such ample dimensions as will permit the employment of large-sized charts, books and instruments. But in small vessels where room is restricted, both for storage and working, large and cumbersome apparatus is a hindrance and a nuisance. It is difficult enough to navigate upon a small vessel, without adding to the difficulties by using heavy instruments and bulky books. Only those who have worked, jammed in a corner of a yacht with the vessel in a heavy sea pitching and rolling, can understand how the mere weight and size of the books and charts used add to the burden of the work.

To in some measure decrease this cause of trouble, we have reduced the principal volume employed in navigation to a handier size than that supplied by the Government by curtailing its dimensions and by leaving out a number of unnecessary tables. This book is in such shape that it can be carried in the pocket and be had for quick reference, so that the small-boat navigator can sit down and work his problems in the most convenient spot."

Price, Prepaid **75c** Bound in Cloth

Address THE RUDDER PUBLISHING CO., 254 W. 34th Street, New York

How to Run and Install Gasoline Engines

By C. VON CULIN

This small booklet is the best work on the subject ever published for the beginner.

NOT a gas-engine treatise, but a very useful reference book for the busy man. It does not explain volumes of air and gas necessary for the most powerful charge—but it does tell you what to do when your engine pounds or squeaks, and how to stop it. How to start it and a hundred other items of interest to gas-engine users.

Buoys, beacons, signals and their meaning, rules of the road, engine installation, tanks, propellers, etc. Simply crammed full of useful information written in a way anyone will understand.

Price 25 Cents

THE RUDDER PUBLISHING CO., 254 WEST 34TH STREET, N. Y.

Elements of Yacht Design

By NORMAN L. SKENE, S. B.

A simple and satisfactory explanation of the art of designing yachts

CONTENTS

General Discussion	Design
Methods of Calculations	Stability
Displacement	Ballast
The Lateral Plane	The Sail Plan
Construction	
Fully Illustrat'd with Diagrams and Tables	

Price postpaid

\$2.00

FOREIGN
\$ 2.25

THE RUDDER PUBLISHING COMPANY
254 W. 34th Street New York City U. S. A.

Houseboats and Houseboating

By Albert Bradlee Hunt

Contains plans and descriptions of every known type of houseboat. Sail, steam and gasoline power houseboats, stern-wheel houseboat, buckeye and dory houseboats, and, in fact, every known type of houseboats found at home or abroad. 216 pages, handsomely illustrated. The chapter with distances and various matter relative to the inside passage to Florida, is worth the price of the book in itself.

PRICE **\$2.34** DELIVERED IN U. S. OR CANADA

FOREIGN COUNTRIES SUBJECT TO EXPRESS CHARGES
This book too heavy for foreign mailing

Send for Complete Catalogue of Books for the Yachtsman's Library

THE RUDDER PUBLISHING COMPANY
254 West 34th Street, New York City

ADVERTISING SECTION

HOW-TO ARTICLES

Published in Back Numbers of THE RUDDER

These articles contain full instructions, detail plans and drawings for building. The designs are from the boards of the leading designers, and are for practical boats, not experimental craft. Thousands of boats have been built from *The Rudder How-To Articles* by men of every race in every part of the world.

In ordering, mention the title of the article and send the amount given, being 50c for each issue in which the article is contained. The numbers will be sent, post free, to any port in the world.

List of How-To Articles

How to Build a Power Snow Yacht.	January, 1912
“ “ “ a 20-Ft. Power Cruiser.	February, 1912
“ “ “ a 9-Foot Skiff.	March, 1912
“ “ “ a Shoal-Draught Launch.	May, 1912
“ “ “ a 12-Ft. Collapsible Boat.	July, 1912
“ “ “ a 20-Foot V-Bottom Speed Boat	August, 1912
How to Make a Shaft Log & Shaft Hole.	September, 1912
How to Run Jump Spark Gas Engine.	October, 1912
Southward Route. Aug., Sept., Oct., Nov., Dec.,	1912
How to Build a Flying Fish, 35-Foot Fast Cruiser.	Feb., March and April, 1913
“ “ “ a Catamaran.	April, 1913
“ “ “ a 16-Foot Hydroplane.	May, 1913
“ “ “ a 34-Foot “Seagoer.”	June, July, Aug. and September, 1913
Gas Engine Efficiency.	July and August, 1913
Outlines and Midship Sections of Bermuda Power Racers.	July, 1913
Boat Building Details (The Skylight).	January, 1914
“ “ “ (The Keel).	February, 1914
How to Make and Use a Sea Anchor.	June, 1914
How to Build a Flattie “Junco.”	December, 1914, and January, 1915
“ “ “ a 9-Foot Skiff “Pollywog”.	Mar., 1915
“ “ “ a 12-Foot Outboard Motor Dinghy Sea Pup.	May and June, 1915
“ “ “ a 16-Foot Cat Sea Duck.	November and December, 1915

List of Designs

38-Foot Power Cruiser.	Aug. 1911
65 “ Power Cruiser.	Sept. 1911
33 “ Auxiliary Yawl.	“ “
35 “ Power Tender.	Oct. 1911
46 “ Power Cruiser.	“ “
55 “ Southern Power Cruiser.	Nov. 1911
35 “ Aux. Fishing Schooner.	“ “
18 “ Sloop	“ “
41 “ Powef Cruiser.	Dec. 1911
24 “ Sloop	“ “
40 “ Launch	Jan. 1912
45 “ Auxiliary Schooner.	“ “
31 “ Power Cruiser.	“ “
48 “ Auxiliary Yawl.	Feby. 1912
40 “ Schooner	“ “
45 “ Raised Deck Cruiser.	“ “
35 “ Power Cruiser.	“ “
177 “ Steam Yacht.	May 1912
50 “ Fast Cruiser.	“ “
12 “ Power Tender.	“ “
31 “ Standard Race Boat U. S. Navy.	June 1912
18 “ Runabout	“ “
43 “ Raised Deck Cruiser.	“ “
125 “ Auxiliary Brig.	“ “

36-Foot Auxiliary Yawl.	June 1912
47 “ Power Cruiser.	“ “
21 “ Catboat	“ “
43 “ Auxiliary Sloop.	“ “
12 “ Dinghy	“ “
53 “ Power Cruiser.	July 1912
30 “ Power Cruiser.	“ “
71 “ Power Cruiser.	“ “
20 “ Speed Boat.	Aug. 1912
55 “ Long Distance Power Racer.	Sept. 1912
26 “ 1000 Island One-Design Class.	“ “
52 “ Sloop	“ “
110 “ Power Cruiser.	“ “
50 “ Power Cruiser.	“ “
20 “ High Speed.	Oct. 1912
32 “ Cruiser	“ “
32 “ Sloop	“ “
350 “ Ice Yacht.	Nov. 1912
50 “ Power Houseboat.	“ “
62 “ Schooner	“ “
72 “ Twin Screw Schooner.	Dec. 1912
68 “ Power Cruiser.	“ “
21 “ Catboat	“ “
22 “ Catboat	“ “
41 “ Power Cruiser.	“ “
32 “ Auxiliary Yawl.	Jan. 1913
79 “ Viking Ship.	“ “
33 “ Power Cruiser.	Feby. 1913
75 “ Power Cruiser.	“ “
48 “ Power Cruiser.	“ “
21 “ V-Bottom Runabout.	“ “
60 “ Auxiliary Ketch.	“ “
30 “ Yacht Tender.	“ “
35 “ Fast Cruiser Flying Fish.	Feby., Mar. 1913
30 “ Auxiliary Cruiser.	Feby. 1913
17 “ Cape Cod Cat.	Mar. 1913
15 “ Sloop	“ “
36 “ Ketch Rigged Cruiser.	“ “
58 “ Schooner Yacht.	“ “
38 “ Auxiliary Schooner.	“ “
38 “ High Speed Runabout.	“ “
60 “ Raised Deck Cruiser.	“ “
41 “ Sloop	Apr. 1913
34 “ Power Cruiser.	“ “
45 “ Auxiliary Yawl.	“ “
25 “ Auxiliary Yawl.	May 1913
33 “ Raised Deck Power Cruiser.	“ “
25 “ Auxiliary Cat.	June 1913
32 “ Auxiliary Yawl.	“ “
57 “ Day Boat.	“ “
45 “ Dutch Yacht.	July 1913
30 “ Auxiliary Knockabout.	“ “
39 “ Power Cruiser.	Aug. 1913
350 “ Racing Cat Ice Yacht.	Nov. 1913
12 “ Racer	Nov. and Dec. 1913
30 “ Cargo Sloop.	Jan. 1914
21 “ High-Speed Wave-Collecting Runabout	Apr. 1915

Address THE RUDDER PUBLISHING CO., 254 West 34th St., New York, U. S. A.

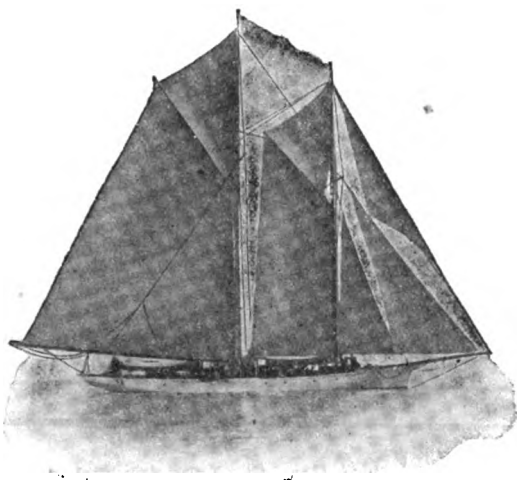
Wanted Second-Hand Boats For Sale

Wanted-and-for-sale ads. 1c. a word each insertion, minimum charge 25c. Heavy-faced type double price
 Money must accompany copy. Forms close 15th of the month preceding

For \$5 we will from photograph furnished by you, prepare a half-tone plate of your boat, measuring 3¼ inches wide by 2½ inches deep, and print same with a 100-word description. **Reach 30,000 Men**
 This is an opportunity for boat sellers to reach a large and wide-spread market, to every one of whom is either a boat buyer or a boat seller. THE RUDDER is read only by those interested in yachts, and, therefore, every one of its readers is a probable investor. By advertising in other publications, not one in ten of those who see your advertisement are yachtsmen. But THE RUDDER reaches no blanks. Money must accompany copy and photographs, and must be in our hands by the tenth of the month preceding.

I have all the best yachts for Sale and Charter—every size and type. Full particulars sent immediately upon request. Send for my new 1916 Illustrated Yacht List.
 MARINE INSURANCE **STANLEY M. SEAMAN, Yacht Broker** (EST. 1900) CABLE BRITISH
 TELEPHONE CORTLANDT 8476-2171 220 BROADWAY, N. Y. "HUNTEA," N. Y. CORRESPONDENT

FOR SALE—Auxiliary steel schooner yacht Priscilla. Flush deck, 98 ft. o. a., 85 ft. 7 in. w. l., 22½ ft. beam, 10½ ft. draught; 7 ft. cabin headroom; Craig 4-cylinder engine, normal h.p. 60; Wilson sails, used one season. Has five state-rooms, elegant saloon, electric lights, naphtha launch and three small boats.



Priscilla has always had the best of care and is one of the most complete auxiliary yachts afloat. Price reasonable. Apply on board to Capt. Chas. T. Webster, care Schweikarts Boat Works, Detroit, Mich.

FRANK BOWNE JONES, Yacht Agent
 29 Broadway New York
HIGH-CLASS YACHTS OF ALL TYPES
 Let me know your requirements

BARGAIN—Auxiliary Crosby Cabin Cat Snoozer. Fast, able and roomy, 20 ft. x 10 ft. x 2 ft. 4 in. Built 1910, and in A-1 condition; cabin, cockpit decks and coaming finished bright; 3½-h.p. Eagle engine, new 1913; complete new inventory. Hauled out at Ulmer Park, Brooklyn, N. Y. Write for photo. Walter Keller, 1850 49th Street, Brooklyn, N. Y.

FOR SALE—Mietz & Weiss kerosene marine engine, 3 cylinders, 22-h.p.; guaranteed in perfect condition; \$400. A. MacInnes, 85 Cortlandt St., New York.

Use **"Snapper" Engines** for your small boats
 They are a big little engine, built by The Automatic Machine Co., Bridgeport, Conn.

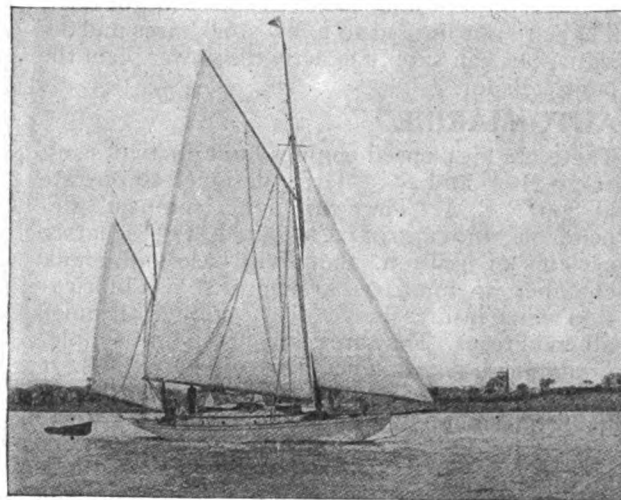
FOR SALE—Modern, auxiliary yawl, 41 ft. over all; construction, oak, cedar, mahogany, copper riveted; comfortable, able cruiser; beautiful and absolutely solid. Rambousek, care of Clark Mfg. Co., 221 Fulton St., New York.

CASH OFFER wanted for bound volumes of Rudder for years 1904 to 1906, inclusive. Perfect condition. M. Black, 370 East 15th Street, Brooklyn, N. Y.

FOR SALE—Watercar, four-passenger mahogany runabout, can do better than 20 miles per hour all day long in any weather. \$25. Bronx Boat Works, foot of Cypress Avenue, New York City.

FOR SALE—Cabin boat with pilot house, 46 ft. x 14 ft. x 30 in., pilothouse control, speed 10 miles. For further particulars address A. G. Chappell, P. O. Box 392, Jacksonville, Fla.

FOR SALE—30-foot water-line centerboard yawl, lead ballast on keel with centerboard passing through it, 50 ft. over all length, 13 ft. 6 in. beam, 4 ft. 6 in. draught. Built by Lawley in 1902. Beautifully finished in mahogany throughout. Roomy cabin with 6 ft. 3 in. headroom. Comfortable stateroom.



Easy to handle, very stiff, and an ideal yacht for cruising along the Atlantic coast, her moderate draught enabling her to go anywhere. One of Lawley's best built yachts. May be seen in Boston by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

ATHOROUGHLY competent boatbuilder, who is erecting a shop and starting a small yard in a N.E. seacoast village, would like to take a partner who has some capital, and who is experienced in boat work and could give his time to the business. This is an exceptionally good opportunity for an investment of a few thousand dollars, where a man can watch it all the time, and it will bear the closest investigation. Box 99, care of The Rudder Publishing Co., 254 West 34th St., New York.

FOR SALE—Van Blerck type "C" eight-cylinder high-speed motor, practically better than new, as valves have not been reset since purchased from makers. Installed in speed boat that has not been run over 600 miles. Equipped with patented self air-starter, pilot throttle, time and Paragon clutch controls all brought forward. One-man control. Price of engine, complete \$1,000, F. O. B., Cincinnati, Ohio. Address E. S. Herancourt, Glenrose, Ohio.

FOR SALE—\$2,700, 53-ft. absolutely new \$6,000 power yacht, \$900.00 cash. Also new 18-mile cruiser, \$475.00. Nine-passenger mahogany launch, \$39.00. Modern Yacht Co., Bath, Me.

FOR SALE—Motor Boat; 95 feet; fine model; 18-ft. saloon in mahogany; 6 state-rooms; every comfort for long cruise. Small sail or motor boat in part payment. Address or see vessel, care of Capt. D. Morrell, Rowayton, Conn.

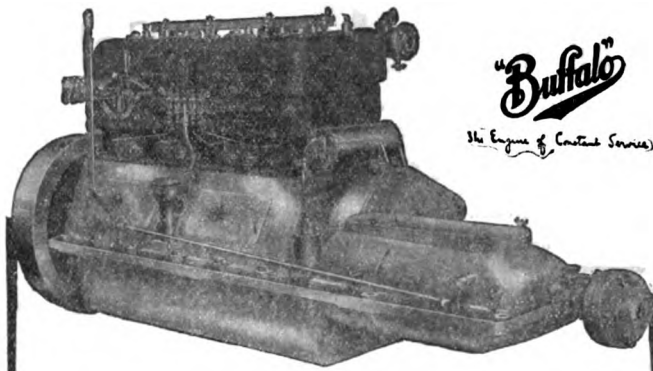
GASOLINE MARINE ENGINEER, any capacity, open for situation down South. First-class references. Address communications to G. Maund, Morrisburg, Ont., Can.

WANTED—Six copies of Patterson's Nautical Encyclopedia: must be in fair shape. Address Day, care of The Rudder Publishing Co., 254 West 34th St., New York.

WANTED—Copy Dixon Kemp's Yacht Architecture or Watson's Manual of Laying Down. Must be in good condition. M. A. Gundy, 855 42d St., Brooklyn, N. Y.

WANTED—Bound or loose copies of The Rudder for years 1890 to 1895. Send full particulars and price to Jahneke, care of The Rudder Publishing Co., 254 West 34th St., New York City.

Koukokusha ni otegaml onsashidashi to saiva doso RUDDER nlte goran no mune onkakisoeg negalmasu



Buffalo
The Engine of Constant Service

An Engine for Any Sort Or Size of Motor Boat

IT is the boast of the builders of Buffalo engines that they are able to supply steady, reliable, economical power for any size or type of motor boat. They are not limited to a few stock sizes and designs, but can supply exactly the power plant the boat calls for.

AUTO MARINE

These are high-speed engines built in two sizes, 16-20-H.P. and 25-30-H.P., designed to operate at 800 R.P.M. They are light, compact, dependable; moving parts, enclosed, two separate systems of ignition, aluminum base and crank chamber, an improved system of splash lubrication which insures perfect distribution of oil under all conditions. They are easily accessible, simple, economical, dependable. This model is the best power plant for runabouts, displacement speed boats and small light cruisers.

HEAVY-DUTY

The Slow-Speed Heavy-Duty models are the sturdy work engines of the Buffalo line. They are built in two, four and six cylinders, and in these sizes: 10-12-H.P., 13-15-H.P., 20-22-H.P., 20-24-H.P., 26-30-H.P., 40-45-H.P., 60-70-H.P., 85-100-H.P. and 125-150-H.P. The smaller sizes have a speed of 400 R.P.M. and the larger 350 R.P.M. These heavy-duty engines are the best power plant for yachts, and cruisers of substantial design, and all kinds of work boats.

CRUISER AND RUNABOUT

There is a new type of Buffalo engine built in two four-cylinder sizes, 40-60-H.P. and 50-80-H.P. It was specially designed for powering fast cruisers and the largest class of runabouts. These are light, powerful engines, compact and reliable, built specially for two classes of boats of similar requirement, the latest word in marine engine design.

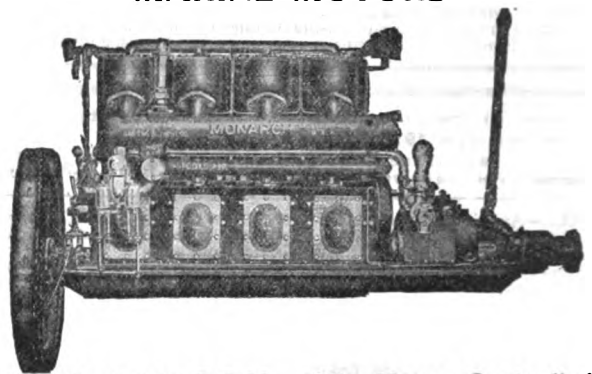
We also build two small medium speed models, 3-4-H.P. and 5-6-H.P., operating at 600 R.P.M. and 800 R.P.M. respectively.

Shall we send you "The Buffalo Book"?

BUFFALO GASOLENE MOTOR CO.
1311-1323 Niagara Street - - Buffalo, N. Y.

MONARCH

Paraffin, Petrol or Kerosene, also Gasolene
MARINE MOTORS



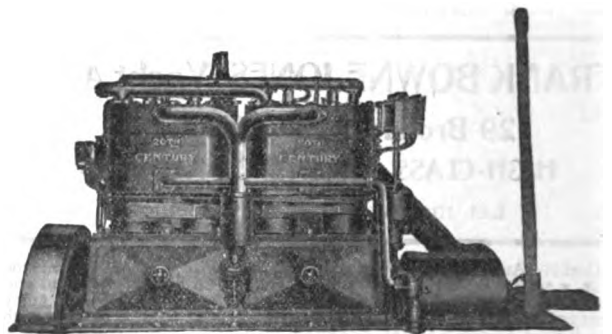
80 H.P. at 325 R.P.M. Pilot House Controlled
Four-Cycle Type 5 to 160 H.P. Four Sizes
Reliability and durability secured by slow speed,
perfect lubrication, large bearing surfaces, and
ample strain-resisting material.

Ask for Catalog 11

RESPONSIBLE SALES AGENTS WANTED

Grand Rapids Gas. Engine & Yacht Co.
100 FRONT STREET GRAND RAPIDS, MICH.

The 20th Century



2, 3, 4 and 6 Cylinders 10 H.P. to 300 H.P.

Marine Gasolene Engine

means just what the name implies. It is the engine of the 20th century. Some of the many advantages are

Neatness of Design, Ease of Operation, Simplicity of Construction, Absence of Vibration and Noises, Economy of Fuel, Moderate Revolutions and Ample Bore and Stroke

To sum up, the 20th CENTURY ENGINE embodies all the latest improvements, together with a standard of construction that will take others years to equal.

MANUFACTURED SOLELY BY

THE NEW YORK YACHT, LAUNCH & ENGINE CO.
Morris Heights, New York

Builders of Yachts, Launches and Business Boats of all descriptions.

High-class Workmanship a Specialty
Design and Construction Unsurpassed—Joiner Work Unequaled
Prices Phenomenally Low

Call or write and give us a chance to prove it

21 minutes from Grand Central Depot

PHONE 246 TRUNK

Var god Åberopa The Rudder när annonsörerna tillskrifvas

THOMSON & CO., PRINTERS
9 Murray St., New York

Digitized by Google

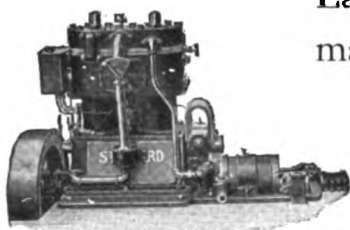
"Norma"
16-18-H.P. Standard



Tunnel Stern River Boat for
South America

Priceless Sub-Conscious Security is Yours With The Standard Engine

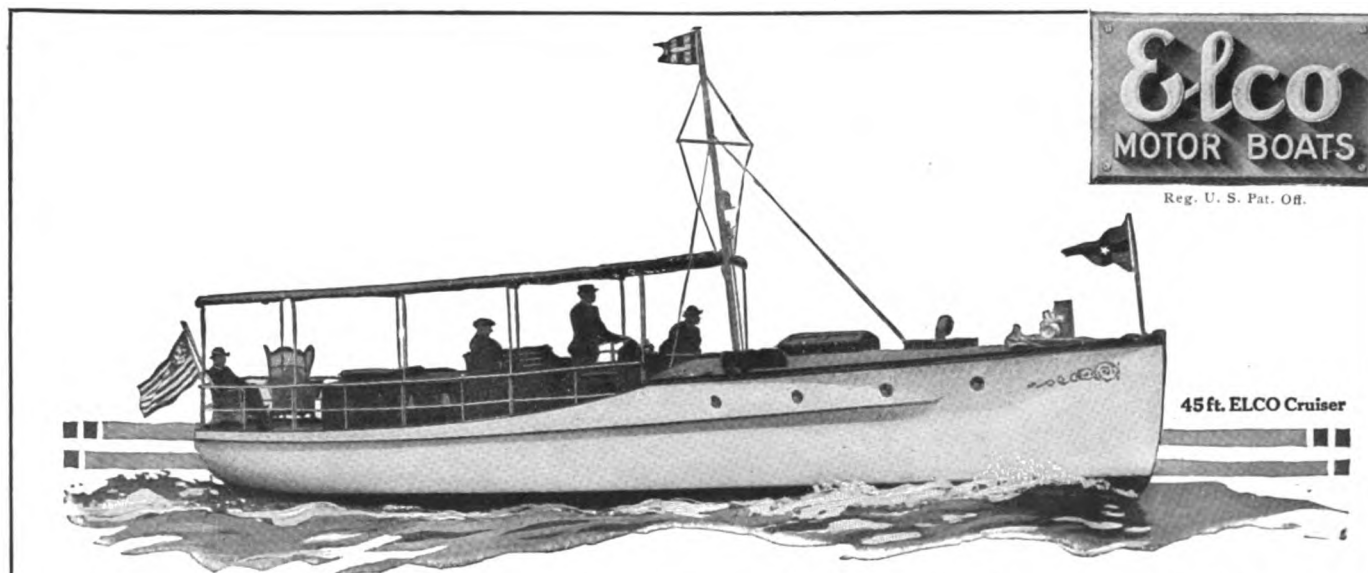
The World's most favored marine engine.
Early ordering is advisable for early delivery, as present demands tax our factories' capacity. Send for catalog and prices.



Back of the STANDARD guarantee is the

Standard Motor Construction Company

127 Pine Street, JERSEY CITY, N. J.



Elco
MOTOR BOATS

Reg. U. S. Pat. Off.

45 ft. ELCO Cruiser



Standardized Elco Models Reliability, Seaworthiness and Speed Guaranteed

Sturdy, luxuriously appointed Cruisers. The handy, smaller, reasonably priced Cruisette and the swift Elco Expresses. "Boats that serve you on the water as the automobile does on land." Whatever your requirement there's an Elco Boat to fit your needs—and every Elco Boat has built into it the guarantee of Elco quality, and the knowledge that comes

with twenty-five years of experience in boat building. It is a fact that Elco Boats command highest prices when you decide to sell; for the name Elco has the same distinction and means as much as the hall mark on silver. Send for "Marine Views" and a copy of "The Cruise of the Cruisette"; you'll really enjoy reading them.

THE ELCO COMPANY

Main Office and Works, 185 Ave. A
NEW YORK OFFICE, 17 PINE STREET

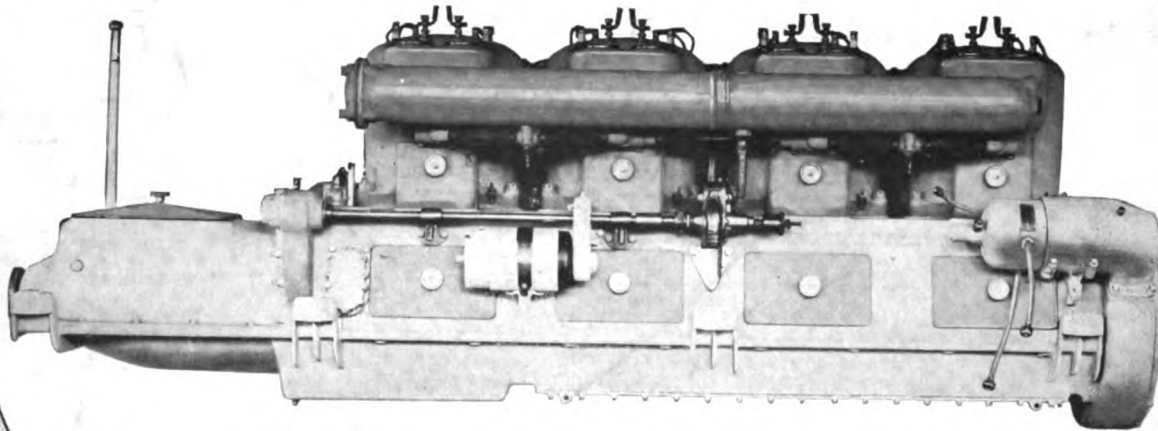
BAYONNE, N. J.

Sterling

THE ENGINE of REFINEMENT
*For the
finest boats that float*

The New Sterling Model F

A Heavy-Duty Speed Engine for Express
Runabouts, Cruisers and Naval Scout Craft.
An eight-cylinder all-enclosed motor of the greatest
refinement guaranteed to develop 200 H.P. at 1500 R.P.M.



This motor has a bore and stroke of $5\frac{1}{2}$ in. x $6\frac{3}{4}$ in. and weighs 2100 pounds. Its exceptionally large bearing surfaces and great intrinsic strength enable it to emerge with a clean score from the most severe Navy tests ever given a marine motor.

For specifications, power curve sheet, and other data on this engine or on the other Sterling models address

Sterling
ENGINE COMPANY
1270 - NIAGARA ST.
BUFFALO, N. Y., U. S. A.

