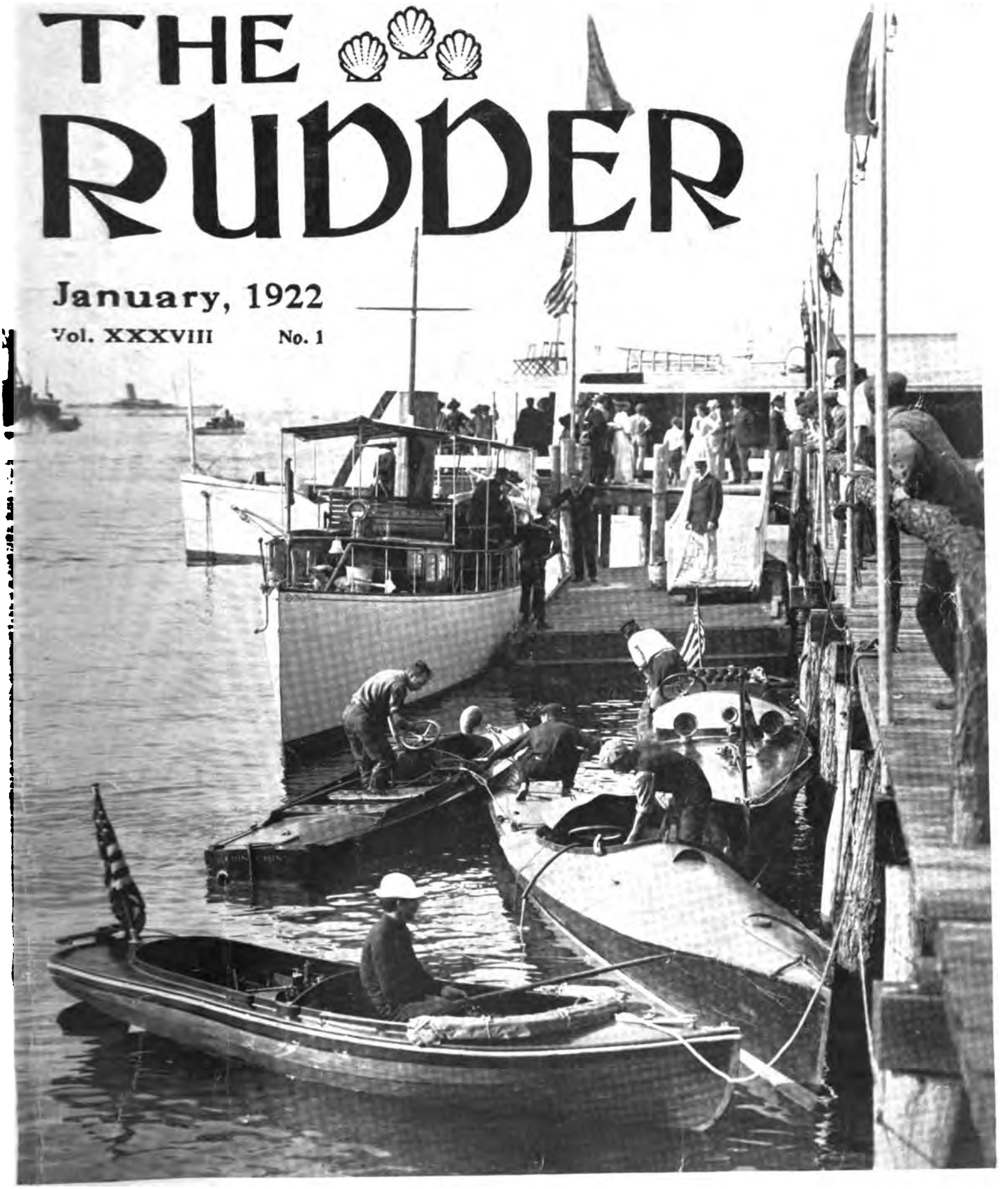
THE RUDDER

January, 1922

Vol. XXXVIII No. 1



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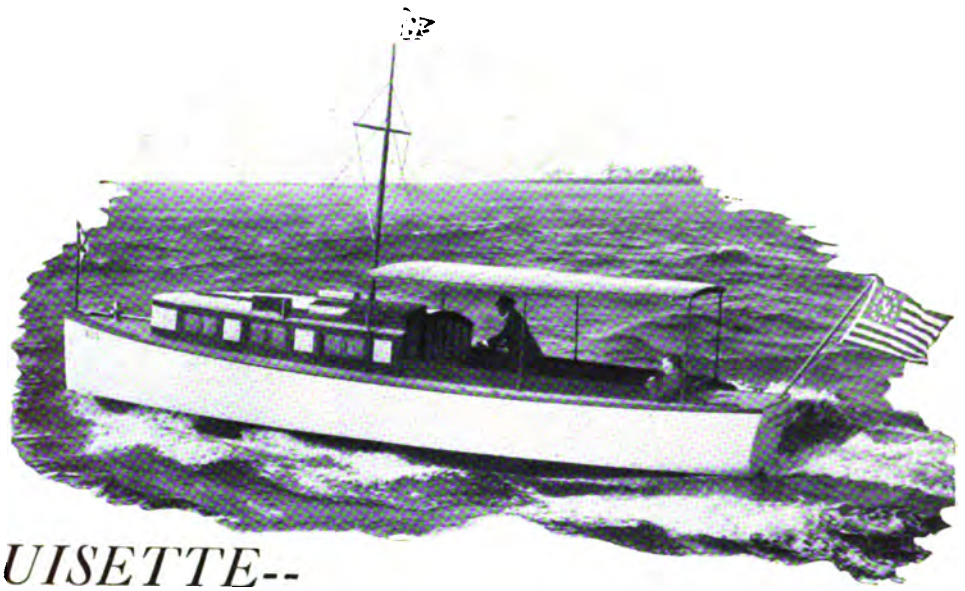

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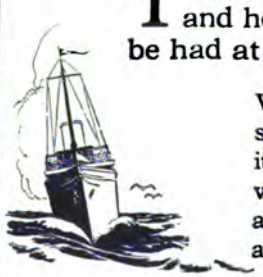

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Vol. XXXVIII

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No. 1

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Plotting the Course

THE leading article for February, naturally will be the advance description of the exhibits which will be shown at the New York Power Boat Show to be held in Grand Central Palace, February 17th to 25th inclusive. That it will be a good show, goes without saying. The public are turning more and more towards the water, for the roads on Sundays and holidays are clogged with dirty and dusty cars. In writing up the Show we are taking a great deal of pains to get authoritative information from the various manufacturers as to exactly what their exhibits will be. Our readers therefore will be able to judge the Show even before the doors are opened. In this way they will rapidly acquaint themselves with the various exhibits and note the particular exhibits which have displays of greatest interest to them.

In this issue you will see pictures, and read a description of the small schooner Mary Jane. At the time she came in we thought she was about the smallest thing in the schooner line that we had ever seen. No sooner do we set her in print than along comes a chap named Gale, from Bristol, with Stormalong, a 16-foot over all schooner. When you read this you will probably snort and say, "impossible". Wait and see,—that is all we can tell you now. Oh! By the way; Stormalong has a cabin. In case you are a schooner enthusiast,—and what real yachtsman is not—you may think Stormalong too small. In that case you will find a description and photographs of Cynthia, a 40-odd foot schooner from Down East. Cynthia is 30 years old, but she is as trim and neat as anything fresh from the builder's yard.

We will also show you photographs of two of the latest power boats; craft in which every comfort and convenience has been worked out. Every owner of a cruising power boat will be interested in the article on "Sails for Power Boats". All cruising men agree that every power cruiser that makes long trips in the open sea should be fitted with steadying sails. Designers know however that these sails cannot be haphazard creations, hung from any existing spar. They should be laid out with care and so rigged that they are not only of value to stop rolling, but also to help out with the speed and save fuel.

The How-to-Build article will feature a small, V-bottom cruiser, simple to build, easy to drive and cheap to maintain. We know you will like her.

Keeping up the high standard of our cruising stories, we got Gordon E. Mayer to write you a story of the wonderful cruising grounds in and about the Bahamas. Incidently you are given directions for the trip from Miami to Bimini, Mecca of Brothers of Thirst. Of course we'll have our Designs and other departments. THE RUDDER wouldn't be THE RUDDER without those.

The Editor.

The FAMOUS BOAT-FOR-SALE ISSUE

The MARCH ISSUE of THE RUDDER has for 24 years featured the sale of used boats. Yachtsmen throughout the world await this number with interest. Those who wish to buy, use it as a guide to what is best in the field. Those who wish to sell find it the logical medium for advertising the fact that their boat is on the market.

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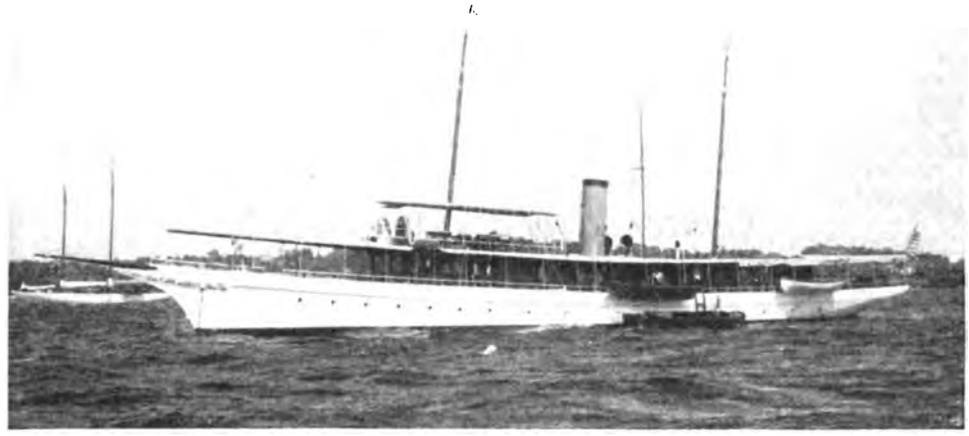

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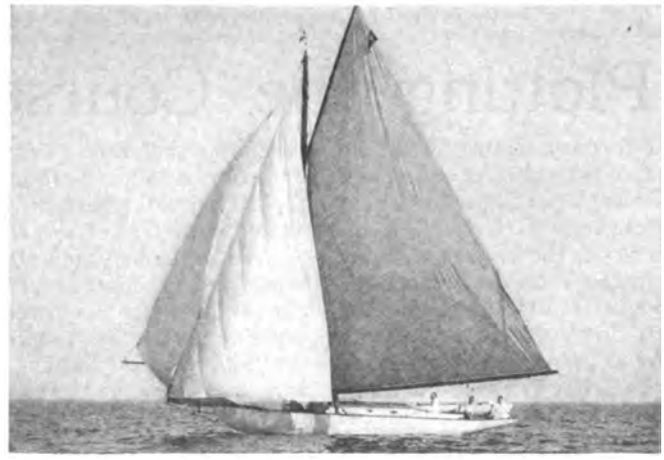

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Volume XXXVIII · January, 1922 · No. 1

Hydroplanes and Reminiscences

By Ethel Salisbury Hanley

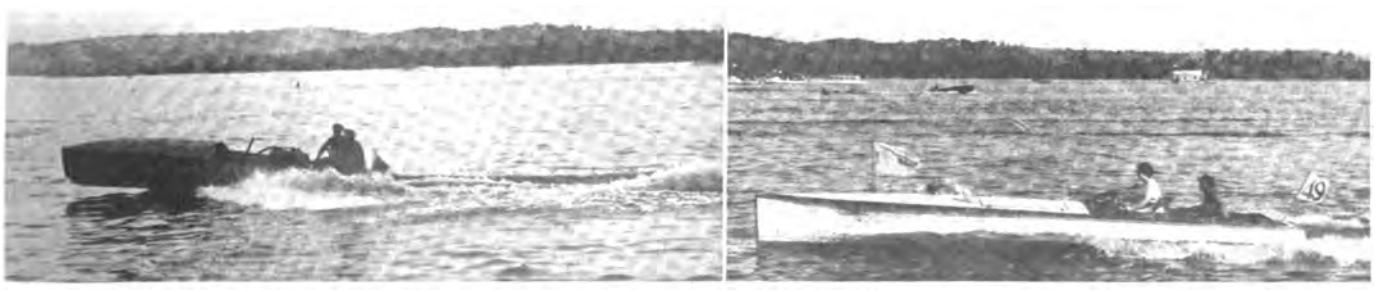
Editor's Note—Mrs. Hanley is probably the greatest feminine owner and driver of hydroplanes. In this article she recalls many of the old boats and enthusiasts.

Away with Politics and Peace! Away with Wars and Woes!
I've started on a week-end trip of comfort and repose.
I've said Farewell to every care, I'm happy, on my way
Aboard a sentimental line, the ship to YESTERDAY.
The World will have to rock along, without my aid awhile,
I'm sailing on a summer sea, and no ambition's guile can stop me.
I've jumped my job and ducked the City's din,
Just to lazy down the Mississippi with Huckelberry Finn.

GUY LEE was a wise "guy" when he wrote the above, and surely echoed the sentiments of more than one of the "old guard"—that grand old bunch of River Rats who gather together at least once a year on the Father of Waters with no thoughts of Wars or Politics or the prosaic things of life. It is surely on a sentimental line that I travel, "The Ship To Yesterday"!

It is not an easy thing to acknowledge that this was fourteen years ago, or way back in 1907 (is it permissible to add that I was rather young at the time?) that I noticed an account of some boat races which were to be run under the auspices of the Muscatine Launch Club to decide the local championship. I decided that those races would be rather interesting, and three days later saw a boat named Arrow owned by a young chap named Hanley win an exciting race. I afterwards found that the boat that had won this championship had actually made 13 miles per hour! I think that it was on that day that I made up my mind that some day I would ride in a boat that went as fast as that.

Two years later at the second annual regatta of the M.V.P.B.A. I had my first fast ride! It was in Planet, owned by this same chap who had driven Arrow to victory two years back. Does anyone ever forget the excitement and thrill of their first ride in a real race boat? The wind in your hair, the roar of the engines, the water rushing past with the speed of a second Niagara and the inevitable spray from the bow



As Proof of the Fact That Mrs. Hanley Practices What She Preaches, We Show Her at the Wheel of the Fast Hydro Warren-Groat and the Runabout Ethel V. Both Boats Were Top-Notch in Their Classes

of the long narrow displacement race boats. That boat made 26 miles an hour, and made more noise than a boiler factory in full operation.

In Peoria, in 1910, Bob Deming of Cleveland brought out a little boat called Cero 2nd, powered with a White Steamer automobile engine, which won the mile speed trials at the remarkable speed of 33 miles an hour! But—this same little boat was outclassed in the real races, simply because it was impossible to keep up the steam in her boilers. Nevertheless, it was the first boat up to that time that had gone over 30 miles an hour, and whenTom Webb, bless his heart, suggested that I might like a ride in her, it didn't take me many minutes to don the yellow oilskins. 33 miles an hour! It was like riding in a farm wagon over a rutty country road. But it was a real race boat and what cared I?

In the meantime I was beginning to learn something about boats and engines, and when we made the trip to Dubuque in 1911 to attend the 4th annual regatta of the Mississippi Valley and I was permitted to pilot Ethel III over the rapids, it was the proudest moment of my life. Even the fact that I ran the boat high and dry on a rock ledge from where it took three hours and $10.00 to dislodge us, did not detract from the enjoyment of my first real cruise.

In 1912, at the Davenport Regatta, we saw the first real speed. Baldy Ryan brought to this regatta the first Smith Hydroplane. Heretofore the race boats had been long and narrow. This boat was a radical departure from anything we had seen. In fact most people referred to it as a "bath tub." When word went out through the press that this boat had made over 48 miles in her speed trials, I am afraid the Eastern folks laughed just a wee bit at us Westerners,

"Chap" and Mrs. Hanley All Ready for a Race in Ethel IX

and some of the Valley folks themselves were just a little bit skeptical. Jim Pugh added to the excitement of this regatta by bringing out Disturber 2nd, which chased Baby Reliance, but failed to show the necessary speed to lower the record.

One year later, S. F. Brock of Portland, Ore., came to the annual regatta, held that year at Keokuk, Iowa, bringing with him Oregon Kid. This phenominal boat won in every race to which it was eligible with a speed of 51.99 miles an hour, probably the first boat to reach that in real mile speed trials. This regatta was one of the most memorable of the many I have attended. In the first place, some of the "Valley Gang" chartered one of the big Mississippi River Steamers and cruised to the regatta in it. Whenever I think of that trip, a picture flashes to my mind of Gar Wood (world famous today because of his boating activities) working night and day on the boat Little Leading Lady. This boat was stored on the first deck of the big steamer along with several other race boats, and was the designated place for the "gathering of the clan," most of whom stood around and gave advice (which was seldom taken). I have wondered since whether he gets as much real joy out of the Americas as he got from that pretty little class boat he had at Keokuk. Her speed is given as 15 miles 32:04:25. So many things happened in Keokuk! The Van Blerck sank, and never was found. Earl Deacon of Chicago brought Hydro Bullet out to these races. This was really a remarkable boat, and was showing real speed, when on a sharp turn, she threw her owner into the water and lost her chance at first place. Oregon Kid stove a hole in her side and rushed to the barge in a sinking condition, barely in time to have a rope tied around her. One thing after another happened but in spite of it stands the fact that before the regatta was over I had ridden in a 50 mile an hour boat.

In 1914, we went back to Peoria for our annual regatta. Regattas may come and regattas may go, but power boat enthusiasm never wanes in Peoria! If anybody in this grand old country of ours thinks that power boating is dead, I wish that he might attend one of these Peoria meets! ! ! ! (These exclamation points are absolutely necessary).

Warren-Groat owned by Warren and Groat of Chicago and Spot owned by Thomas J. Tracy (?) of New York, BUT—driven by the Smiths of Algonac, Kitty Hawk owned by Timken of Detroit and Baby Speed Demon II entered by C. C. Smith were the outstanding boats at this regatta. The fastest time made was by the last named boat which averaged 53.43 m. p.h. Now, I have seen strange mascots used by various racing men, but I think the strangest I have ever seen was the one in the Warren-Groat. While riding in that boat, I noticed a broken egg shell lying in the bottom of the boat, and being a woman naturally curious, asked what it was doing there. It was their Mascot! It was guarded as carefully as the boat itself, and woe be to anyone who stepped on their mascot.

It was at this regatta I lost my standing as an amateur by winning and accepting a cash prize, given in the runabout race. I had won various cups and merchandise prizes, but this year I accepted the cash prize!, Oh Woe is me!

Our next regatta was held in 1915, in the town made famous by Mark Twain (Hannibal, Mo.) Here the attention of many of the visitors was divided be-

tween the race and the various points of interest in that city. Parties were formed and many trips made to the famous cave where Tom Sawyer was lost, to Huckleberry Finn's home, and to meet Becky Thatcher. I must confess that in looking back, it is hard for me to decide which afforded me the most pleasure, riding in Wm. J. Conners' Buffalo Enquirer at a speed of 55 miles an hour, or meeting that charming little old lady who was Mark Twain's "Becky Thatcher."

Wm. J. Conners sent two boats out to this regatta, Buffalo Enquirer and Buffalo Courier. Both remarkably fast boats, but unfortunately, the wireless timing device's failure made official timing impossible. There were some specially fine class races this year. Such splendid class boats as Dodger, Teaser, Ugly Duckling, and P.D.Q. were there, and they kept the spectators in a constant state of excitement. *It's a strange thing isn't it, but true, nevertheless, that while the advertising of a 60 mile an hour boat will bring spectators from many miles, yet it is the little class boats that hold these same spectators in their seats until the races are over.*

1916 stands out as a red letter year in my calender. In the first place, the regatta was held in St Paul, which gave all of us a chance at a fine long cruise. 2nd: For the first time, the championship of the Association went to a Mississippi Valley boat, Miss Minneapolis, the first boat to be officially recognized as a 60 mile boat. 3rd: I married the chap who had won the Championship of the Club, eight years before with the record breaking speed of 13 miles an hour. It was a wonderful regatta!

There was no regatta in 1917 because of the war, and the regattas for 1918 and 1919 were both held at Campbell's Island above Moline, Ill. Because of existing conditions these regattas were not on so large a scale as formerly, but the class races were interesting, as always. This year Gar Wood came back to us, with his offering Miss Detroit 11, and when he left, took the Webb Trophy with him. I missed both of the Moline regattas because of my Chautauqua work, but my heart, mind and my good wishes were there during the entire races.

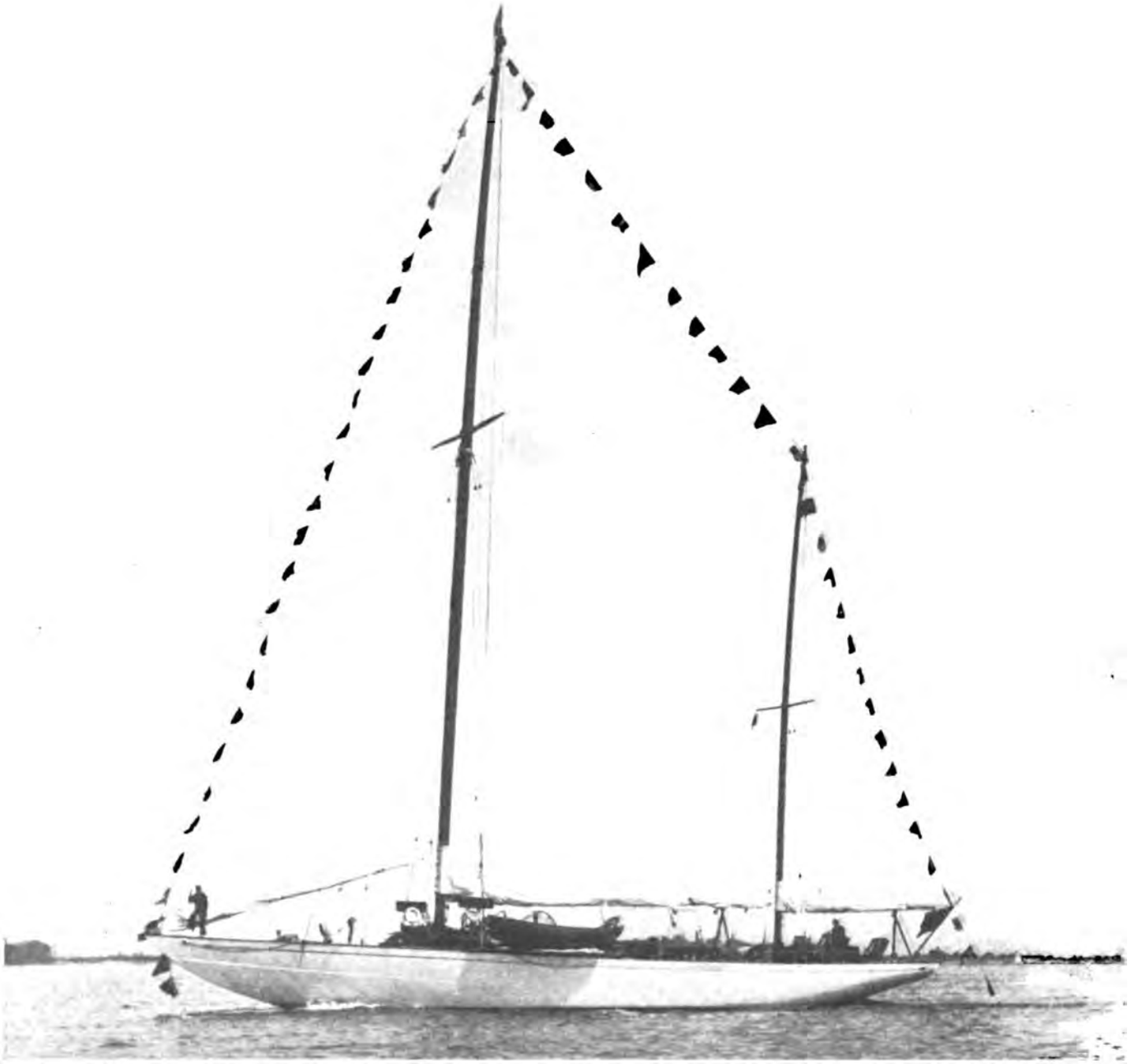
The year of 1920 found the crowd gathering at Burlington, Iowa for one of the finest regattas held thus far. Miss Toronto was the only boat that showed real speed and Fritz Ericsen was generous to the crowd in the thrills he gave them, probably the most spectacular being his race with the aeroplane. Of course we have seen races of this type before, but when the aeroplane dips so low to the water that its wheels throw a spray, the excitement is intense. To Mr. Ericsen I owe my thanks for my first ride at over a mile-a-minute! That ride took away a little of the sting of owning and trying to drive a boat with such a name as Snoozer. She surely lived true to name! Miss Toronto brought to the Valley official records, the sensational speed of 67 miles per hour.

To the regatta of 1921 in Peoria, Sheldon Clark brought his wonderful little boat, Miss Chicago, the fastest single engined boat in the world. I believe her official record shows a speed of over 70 miles an hour. And yet within my own memory, I have recollections of a group of men (boat-men, too) who argued the impossibility of ever making fifty miles an hour, because there would always be the resistance of the water to overcome. At this regatta we had the *Ninth* of a long series of *Ethels*. Powered with a Cadillac 8, she won first in her class, the champion of the 320 class. Next year the Ethel X will make her initial appearance at the Valley meet, whether to win or to lose, who knows?

Eighty miles an hour has been made. To Chris Smith and Gar Wood belong the credit. If proportionate gains are made in the next ten years, it is not too much to expect the realization of the 100 mile an hour boat, and I am looking forward to a ride in it.

I have ridden in a great many boats since I rode in that little 13 mile an hour champion way back in 1907. I have seen race boat men come and go. Have seen them bring world champions to the regattas, come for a few times to the regattas as spectators and then as silently drop out of the game, and yet in our reminiscences these people are always with us. I am a lover of all types of sport—have indulged in hunting, golfing, aeroplaning, swimming, acquaplaning and boating, and the greatest of them all is owning and driving your own race boat. Geoffrey O'Hara has written a song, "Give a man a horse he can ride" but I say, "Give a man a boat he can drive" and I say then he will have found the fountain of Perpetual Youth.

Myrtle B. II, a Stock Runabout Built by the Everett Hunter Boat Co. and Powered with a 30-40 H.P. Red Wing Engine. She Is 25 Feet 10 Inches Long, 5 Feet 6 Inches Wide and Makes 22 Miles



Criole IV, New Auxiliary Ketch. Her Arrangement Plan Will Be Found in the Designs Section. A 54-H.P. Standard Drives Her at 8 Knots

Auxiliary Ketch Oriole IV

One of the most interesting auxiliaries of the year is Oriole IV, owned by Commodore George H. Gooderham of Toronto, and built from plans drawn by George Owen, by the George Lawley and Son Corp. The rig is that of a jib-headed ketch, somewhat of a novelty, although the so-called Marconi rig is coming rapidly into favor for both cruising and racing yachts.

The hull is entirely of steel, the plating averaging about ¼ inch in thickness. The deck, houses, hatches and sky-lights are of Rangoon teak. The interior finish is in mahogany wainscotting with tinted panels above.

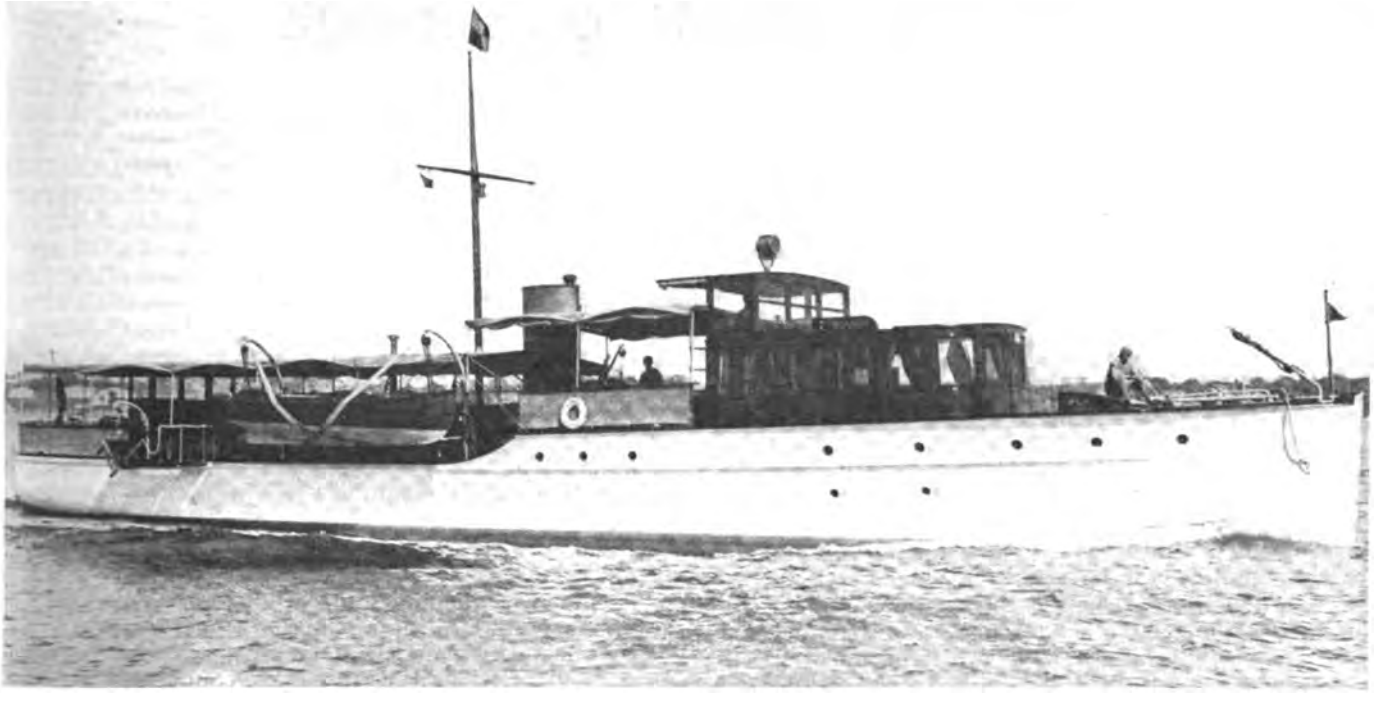
The engine room is aft and contains a 6-cylinder, 54-h.p. Standard engine, a Delco Electric Light Plant, blower and the usual bilge pumps. The speed under power is slightly better than 8 knots.

The galley is fitted with a Shipmate range and hot water heater. The ice-box, also located in the galley is fitted with a Toledo Cold Maker, ice machine.

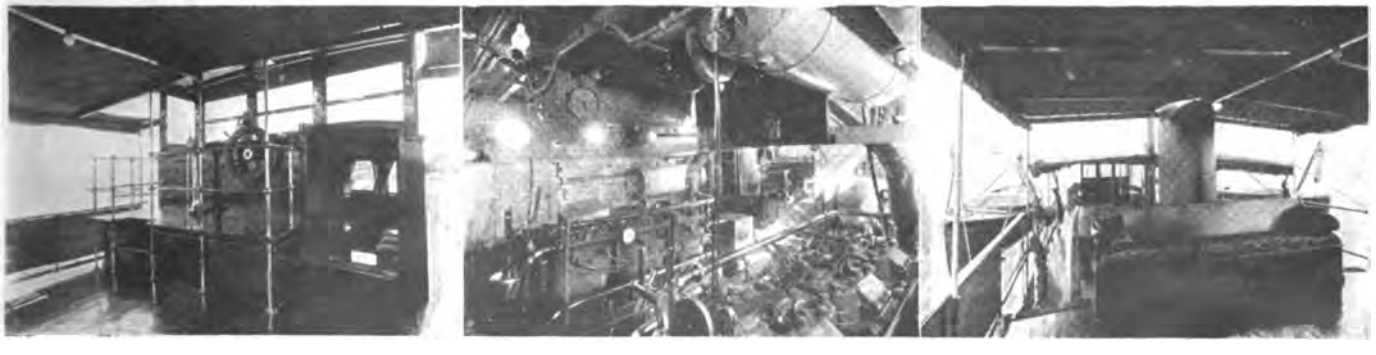
The spars are all hollow and were made by the Pigeon Hollow Spar Co., while the blocks and cordage were made respectively by Merriman and Plymouth. The tenders consist of an 18 foot Consolidated launch and a 14 foot dinghy.

Oriole IV was hardly launched before she made a 2,000 mile trip from the builder's yard to her home port. In every way she proved the high quality of her designing, building and equipping. She is 93 feet by 60 feet water line, 19 feet wide and 9 feet draught.

Dining Saloon in the Deck House and Two Views of the Main Saloon Below in Roamer, the New Nock-Designed and Built Yacht for A. Albert Sack, Jr., of Providence. The Furnishings Are in Perfect Taste. Note the Small Tile Stove for Warming the Saloon on Raw Days



Roamer, Designed and Built by Frederic S. Nock, of East Greenwich, for A. A. Sack, Jr., Is a Type of Yacht That Is Growing in Popularity. She Is 93 Feet Over All, 92 Feet on the Water Line, 15 Feet Wide and 5 Feet Draught. The Construction Is Unusually Heavy, the Planking Being Double. Arrangement Plans Are Shown in Our Designs Section



Two Views of the Bridge Deck of Roamer and the Engine Room, Containing a Pair of 6-Cylinder 80-H.P. Winton Engines. A Winton Electric Generator Is Also Provided. A Kelvinator Ice Machine Keeps Things Cool and a Shipmate Stove Makes Them Hot and Appetizing

Typical Florida Gentleman's Fishing Boat. Note the Wide Stern and Short After Deck and the Short Awning

Fishing Boats of Florida

THE Angler's Winter Paradise, Florida, like every other boating section of the country has its own type of fishing boat. The market fishermen usually use a craft of the Seabright skiff type, although almost every type of sturdy boat can be found in the fleets. The boats used by those who fish for sport are more of one type. This is partly so because of the fact that the Miami Anglers' Club had a fleet of one-design boats designed by John Hacker and powered as are most of the boats with Scripps engines. These boats were found so ideal for the purpose that many of the same general type have been built since the club fleet was launched.

Boats which are to be used at Miami or Stuart have much the same conditions to face. The cities are located on protected waters, but the fishing is mostly done in the ocean. Therefor the boats have to cross a bar to reach the grounds. As the grounds are quite a way from the landings a boat that would make a good speed was required, for otherwise the party would be tired out before the boat reached the grounds. Speeds of from 12 to 15 miles an hour have been found to be the best, for large engines do not have to be installed and the first, as well as the operating costs are kept low. As rough seas will be met with at times it is required that the boats be able and dry. Towards the end of a day of fishing, some members of the party may feel like napping, consequently a small cabin, usually of the raised deck type is provided. There is not full headroom in the house, but it is sufficiently long to include a small toilet space, one or two transoms and plenty of hanging and shelf space for coats and hats as well as for the tackle.

We show several examples of these boats on this page. It will be noted that the cockpits are exceptionally long and wide. There is neither side deck nor coaming, a flat cap rail covering the heads of the frames. The freeboard at the stern is low. This allows the fish to be gaffed easily and lifted into the boat without fear of their shaking their way free. It will also be noted that the awning does not extend to the after end of the cockpit. This gives space in the air to handle the fishing rods. With an awning overhead it would be impossible to properly play the fish.

It must be understood that nine-tenths of the fishing in Florida is trolling. The lines are rigged to stout poles with heavy reels. The bait consists of a large hook, the shank of which is covered with a metal jacket which shines in the sun, thus attracting the fish. The sportsmen sit in the stern, facing aft, on comfortable chairs which can be kicked out of the way if necessary when playing the catch. A wide stern and a short after deck is absolutely necessary for the success of a trolling boat. The wider the after end of the cockpit the more men can fish, and the sport is thus increased. It is an interesting sight to see fleets of these little boats making their way towards the grounds in the morning, or returning later in the day with often several hundreds of pounds of mackerel, king, sail or blue fish.

Two Slightly Different Types of Florida Fishing Craft. Both Have the Same Characteristics However. The Majority of This Fleet Is Powered with Scripps Engines

Mary Jane, Diminutive Auxiliary Schooner

DURING the last year or so there has been a marked trend towards the small auxiliary of the husky type, capable of providing cruising accommodations for a small party and at the same time able to go out to sea and stay there day after day if necessary. The acknowledged handiness of the schooner rug has attracted many of those who love small craft. In many ways the schooner rig is better than either the yawl or the ketch. The yawl, in particular is usually designed so that the area of mizzen and jib is so small that with the mainsail doused the available area is not enough to properly drive the boat in anything less than half a gale. The ketch is better from this standpoint but the mizzen mast often interferes with the standing room in the cockpit. With the schooner the main mast can often be brought through the cabin in such a way that it does not interfere with the space below decks, but on the other hand does provide a place for some coat hooks so that wet clothes can be dried conveniently.

The little schooner shown on this page is the property of W. Prescott Gannett of Scituate, Mass. and is used off Scituate and on short cruises to Rockport and Gloucester. She is a real little ship although the over all length is only 25 feet.

Mr. Gannett writes that the boat is 3 years old and has been used late in the Fall and early in the Spring as well as through the usual Summer months. She has been used in all sorts of wind and sea conditions and has always acquitted herself nobly.

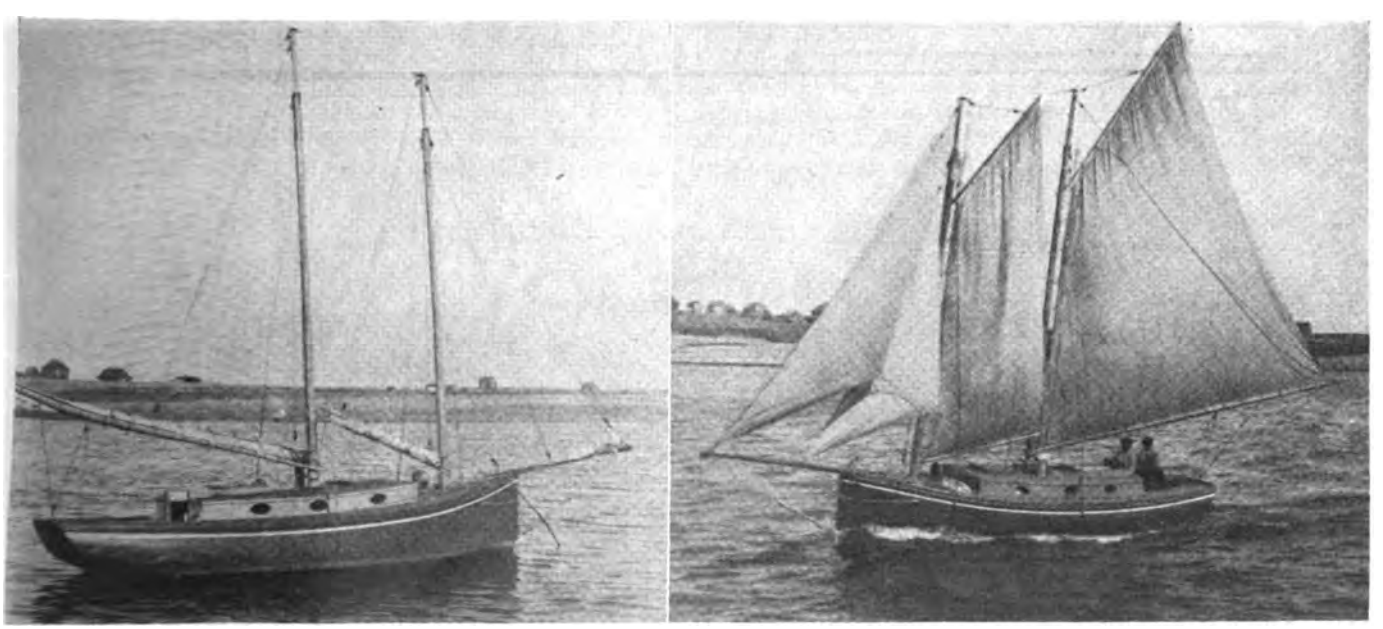
In spite of her size the accommodations in the cabin are all that could be desired in many a larger yacht. There is a 6-foot berth on each side aft, followed by a 2-foot space for lockers for dishes etc. Another pair of 6-foot berths follow. Thus there is sleeping accommodations for 4 people. Ventilation is taken care of through the usual ports and a hatch in the forward end of the house. A coal range is placed in the cabin just forward of the main mast, while fuel is carried under the forward transoms.

The engine consists of a 5-h.p. 2-cylinder engine which swings a 16 inch 2 blade wheel. The engine is under the cockpit with the fly-wheel projecting into the cabin and under the companion steps.

The lines of the boat were taken from a half model which unfortunately was destroyed, but below we give some dimensions so that the many who will be interested in this fine little vessel will have a chance to lay her out as far as is possible without the complete lines. The sails are of 8-ounce duck and all sheets are led to the cockpit so there is little need of going forward except to handle the hook or get the sails up or down. The ballast is all inside and consists of about 1½ tons of pig iron, all stowed below the floor.

There is plenty of freeboard without the boat looking top-heavy. It is 42 inches at the bow, 24 inches at the stern and 20 inches least. The cabin is 12 inches above the deck. The planking is 1 inch cedar and the frames 1¼ inches square on 8-inch centers. A sheathing ½ inch thick is on the inside of the frames.

The hull is 25 feet long on deck; 23 feet on the line and 7 feet 4 inches wide on the water line at a point opposite the main mast. The sails are as follows. Outer jib, Foot 8 feet; Luff 18 feet; Leach 12 feet 6 inches. Stay Sail, Foot 7 feet; Luff, 14 feet; Leach 11 feet. Fore Sail, Foot 6 feet 6 inches; Head 6 feet 6 inches; Luff, 13 feet; Leach, 16 feet 6 inches. Main Sail, Foot, 17 feet; Head, 10 feet; Luff, 14 feet Leach 21 feet.



Mary Jane Is an Interesting and Sightly Little Vessel Either Underway or At Anchor. One Can Hardly Believe She Is Only 25-Foot Long Over All

Conversion of M.L. Patrol Boats to Power Yachts

By Rodney W. Paul

OWING to the high cost of new construction at the present time of industrial unrest and consequent unfavorable financial position, there are but very few yachtsmen in Great Britain who are in a position to place orders for new craft.

A large number of M.L. Patrol boats have been disposed of by the Government through private agencies and are being purchased by yachtsmen who are converting them in order to render them suitable for pleasure use. The dimensions of the majority of these vessels it will be remembered are, 80 ft. long, 12 ft. 2 inches extreme breadth and 6 ft. 4 inches deep with a hull draught of 3 ft. 10 inches, given a displacement of some 40½ tons, whilst the draught over the propellers is about 5 ft. 6 inches. The engines consisted of 2 sets or 220 b.h.p., 6-cylinder 10-in. bore x 11-in. stroke, Standard engines starting by compressed air and reversing by sliding cam shaft. The maximum speed with these engines was 18 knots with a fuel consumption of about 45 gallons per hour. Gasoline in England is too expensive for the operation of such engines and in most cases the feature of the conversion is the replacement of these engines with kerosene or even semi-Diesel engines of lower power with a consequent reduction in running costs.

An example in which the original engines have been retained is shown in the plan reproduced in fig. 1. The plan will give all the information necessary. Practically all the conversions feature a new full size deckhouse which contains a saloon, the wheel and generally the engine controls all mounted at the forward end. The photo illustration shows the Firefly II ex M.L. 118, which has been entirely rearranged and new engines fitted, comprising twin 6-cylinder Penta 42-h.p. models. The main feature of the conversion is the provision of a passage way right through the engine room on the port side connecting the forward with the after accommodation. Full use has been made of all the available space: right aft in place of the original fuel tanks, a bathroom and small cabin has been arranged. The original after cabin forms a ladies' cabin and the mess room another cabin. The original galley has been kept in the same position but modified somewhat to suit the new accommodation lay-out. Forward of the engine room is a large saloon fitted with an upholster-

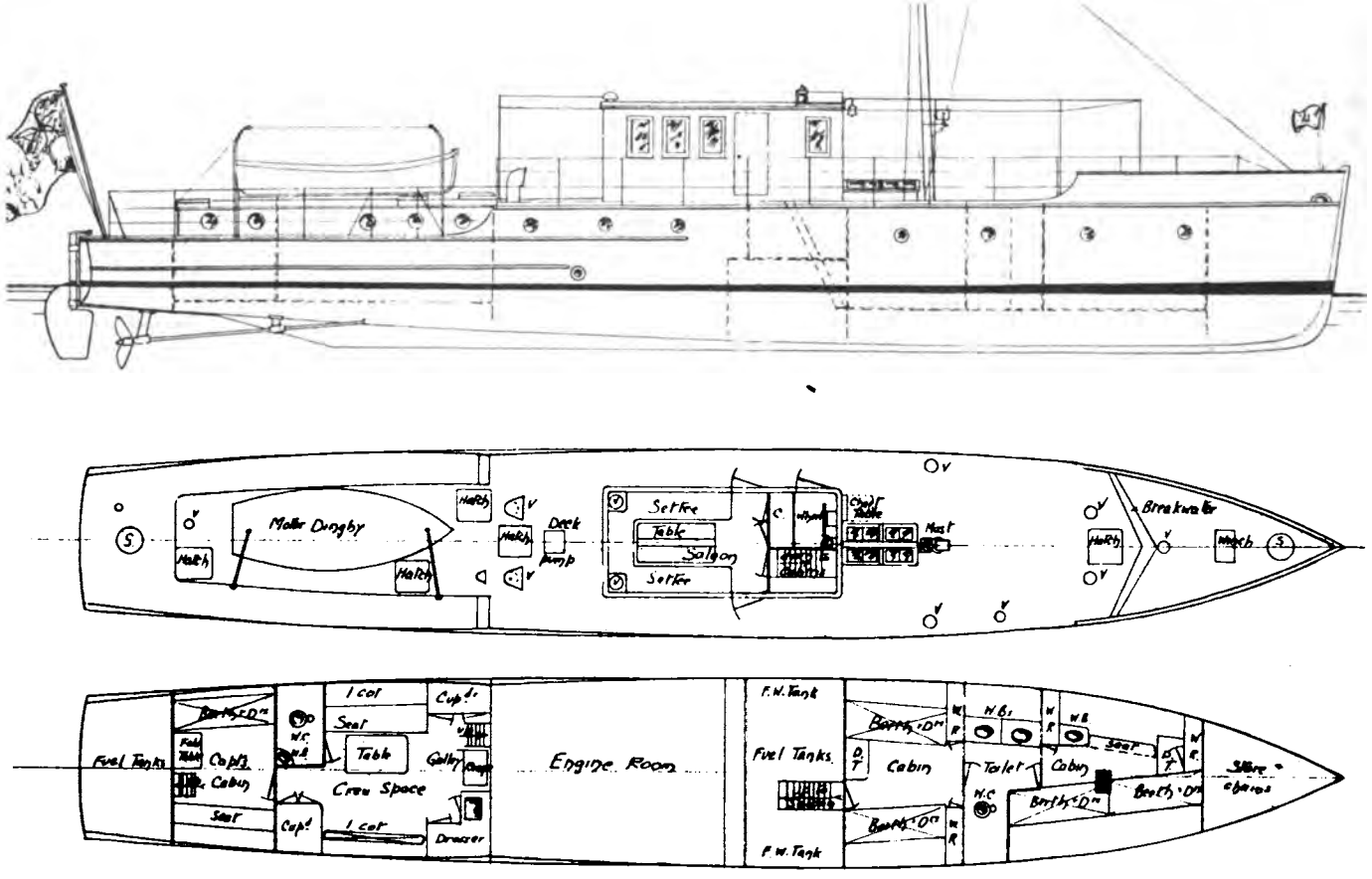


Figure 1 Showing a Converted M.L. in Which the Original Standard Twin Engines Have Been Retained

Two of the Converted M.L.'s. Both Have Been Made into Comfortable and Safe Cruising Boats for All Waters

ed settee each side with dining table and revolving chairs, whilst a sideboard is fitted across the forward bulkhead. Forward of this is the owner's cabin fitted with athwartship berth, with separate access from the deck. The remaining space is occupied by the forecastle and the original toilet room forward. The engines exhausted into a funnel as can be seen from the illustration. A steering shelter is provided which contains fuel tanks fitted under the seats each side. All the deck fittings are of teak whilst around the trunk cabin aft is arranged a teak rail. A seat is fitted over a tank at the after end of this trunk cabin deck which will supply the bathroom beneath.

Another example of an elaborate conversion is that of M.L.314, renamed Emeline. The accommodation is being entirely re-arranged including the fitting of a solid teak full size deckhouse, new bulwarks forward and the replacement of the original machinery by twin 50-h.p. 6-cylinder Atlantic kerosene engines which will give a speed of about 11 knots. It is interesting to note that not only will electric light be fitted throughout but also the water for baths, washbasins etc. will be electrically heated whilst all the cooking will also be carried out by means of electricity. The original 2-cylinder 8-h.p. Standard auxiliary set is being retained on this vessel, being converted to operate on kerosene instead of gasoline as originally. A funnel is being fitted.

Two notable examples of the replacement of the original engines by a semi-Diesel plant are seen in the ex M.L.16, Palmo and M.L.321. The former has been fitted with twin 25-h.p. Avance semi-Diesel engines which show a fuel consumption at full speed of only about 3 gallons of gas oil per hour. A speed of 7½ knots is obtained under ordinary conditions. This vessel has a B.O.T. certificate for passenger carrying and is in service on the Thames. The latter craft M.L. 321 is shown above and is fitted with two 40-h.p. Nat semi-Diesel engines. M.L.187 now named Northern Maid has been completely rearranged including a new deckhouse and machinery installation consisting of two-20-h.p. Peerless engines which give a speed of 6-knots. Examples of houseboats are to be found in Gracia ex M.L.349 in which a 20-h.p. Detroit engine is installed, which gives a speed of 4 knots. She is now stationed in one of the Essex rivers, and doubtless makes a very comfortable floating home. M.L. 496 has had the original machinery removed and is used solely as a houseboat. M. L.100 owned by Mr. Percy Wright, is similarly used and stationed in the Bealieu River. Examples of conversions in which the original machinery have been retained are to be seen in M.L.353. now named Iris. She has had alterations made to the accommodation. M.L.203 and Joy ex M.L. 77 are also in service with their original engines. Another M.L. No. 329 has also been converted for pleasure service and in order to obtain a B.O.T. certificate, bulwarks 3 ft. 6 in. high had to be fitted all around the vessel.

At one yard alone namely Messrs. R. Kemps Ltd., Southampton, between 30 & 40 of these conversions varying from houseboats without engines to complete rearrangement of accommodation and new main engines have been carried out in the last two years.

Over 25 of the American Sub-Chasers Tied Up in the Hudson River. These Boats Are All For Sale at Low Prices and Can Be Converted as Successfully as the British Craft

Data on Higher Speed Craft

Curves of Performance and Notes on Fifteen Record-Breaking Boats

By E. Weston Farmer

SINCE the writing of the article on hydroplane design which appeared in the December Rudder, Mr. White has written us concerning the speeds of some of the better known speed boats, saying that he believed that a direct comparison of speeds based on a $\frac{W}{P}$ basis, furnished the best method for predetermining the performance of a new boat. Our own experience somewhat contradicted this as we believe that the ratio $\frac{B}{L}$ figures prominently in the action of a speed boat. Similarity of lines must in some way be considered when comparing the speeds of two boats.

Accordingly Mr. White asked us to present data and curves of performance of the epoch-making boats of the past year, based on a direct comparison of their $\frac{B}{L}$ and $\frac{W}{P}$ ratios. The data as presented herewith represents a great deal of time in verifying the figures, as it was the purpose of the Editor as well as ourself to present a short, authoritative summary to all interested in such matters. In so far as the information has come from Prof. Crouch, Gerald T. White, C. E. Padgett, W. C. Wood, and many Valley owners, it may be said to have accomplished its purpose.

We have included only such boats as have, by their behaviour, shown themselves to be shining examples of efficiency. After due consideration we decided to omit the performance of the Sea Sleds as well as of Rainbow II, both of which, while extremely efficient, incorporate patented ideas. We have therefore dealt only with types of an orthodox character, which include such boats as the British Motor Boat Club 21-footers, (151 cu. in. displacement runabouts) the Fisher Trophy boats, all classes of the M.V.P.B.A. hydros, several Thorneycroft designs, as well as two Ramaley built hulls. The last two mentioned are included because of the phenomenal efficiency they have exhibited.

As to the method of obtaining graphical results based on the factors $\frac{B}{L}$ and $\frac{W}{P}$: by performing the mathematical function of division $\frac{W}{P}$ divided by $\frac{B}{L}$ they become properly related and with convenient range, forming the curves of performance shown.

These curves will be useful in several ways, aside from their value as authentic data. They may be used in checking up the performance of an existing hull to see whether it measures up to what might be expected of it, and they may be used as a basis for propeller calculations. Heretofore the expected performance of a boat was based on what the designer's experience had taught him to expect. These should eliminate all guesswork. They may also be used in the preparation of a design, using the information obtained from them as a starting point where any three factors are known. If a boat must have a speed of 30 miles, a length of sixteen feet, and 25 horsepower, you may find the proper beam by carrying through the equation with X substituted for the unknown quantity. See table for typical weights.

Notice that as speeds increase, the difference between actual and theoretical performance becomes greater. This is attributed largely, not to the inefficiencies of the propeller, but to an excess of planing surface. The faster a boat travels the greater the supporting pressure on her bottom. A boat having enough surface to cause it to plane, will, if the power is sufficient, need less surface for support when once up to speed. This is a condition which can be only partly remedied. It was met with in Miss America II, and it has been suggested that some method be employed by which her planing surface be increased at low speed, enabling her to climb out sooner, and which could be reefed when at speed to reduce planing surface.

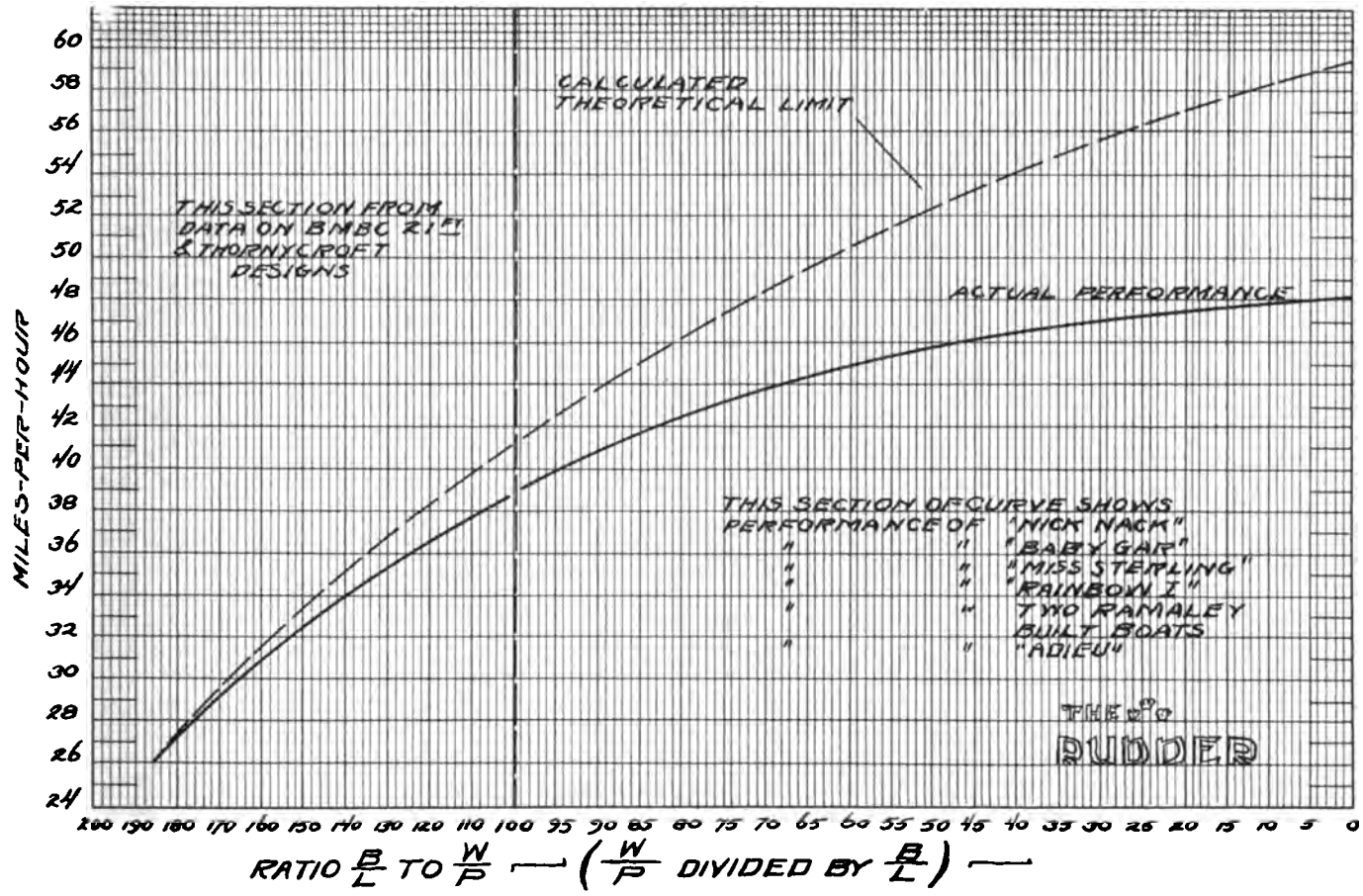
The variations of $\frac{B}{L}$ in the displacement craft are not great, ranging from .1908 for Baby Gar to .219 for Rainbow I. In this connection we might define exactly a "displacement" boat. Originally in the A.P.B.A. definition it was defined as a craft weighing not less than 15 lbs. per h.p. and having a submerged transom area equal to not more than half the area of the submerged midship section. In the later prominent races, such as the Fisher Trophy, the limitations regarding submerged transom area have been dropped, enabling designers to flatten the run and obtain better planing angle, which is highly conducive to speed. It is of course understood that transverse steps be barred.

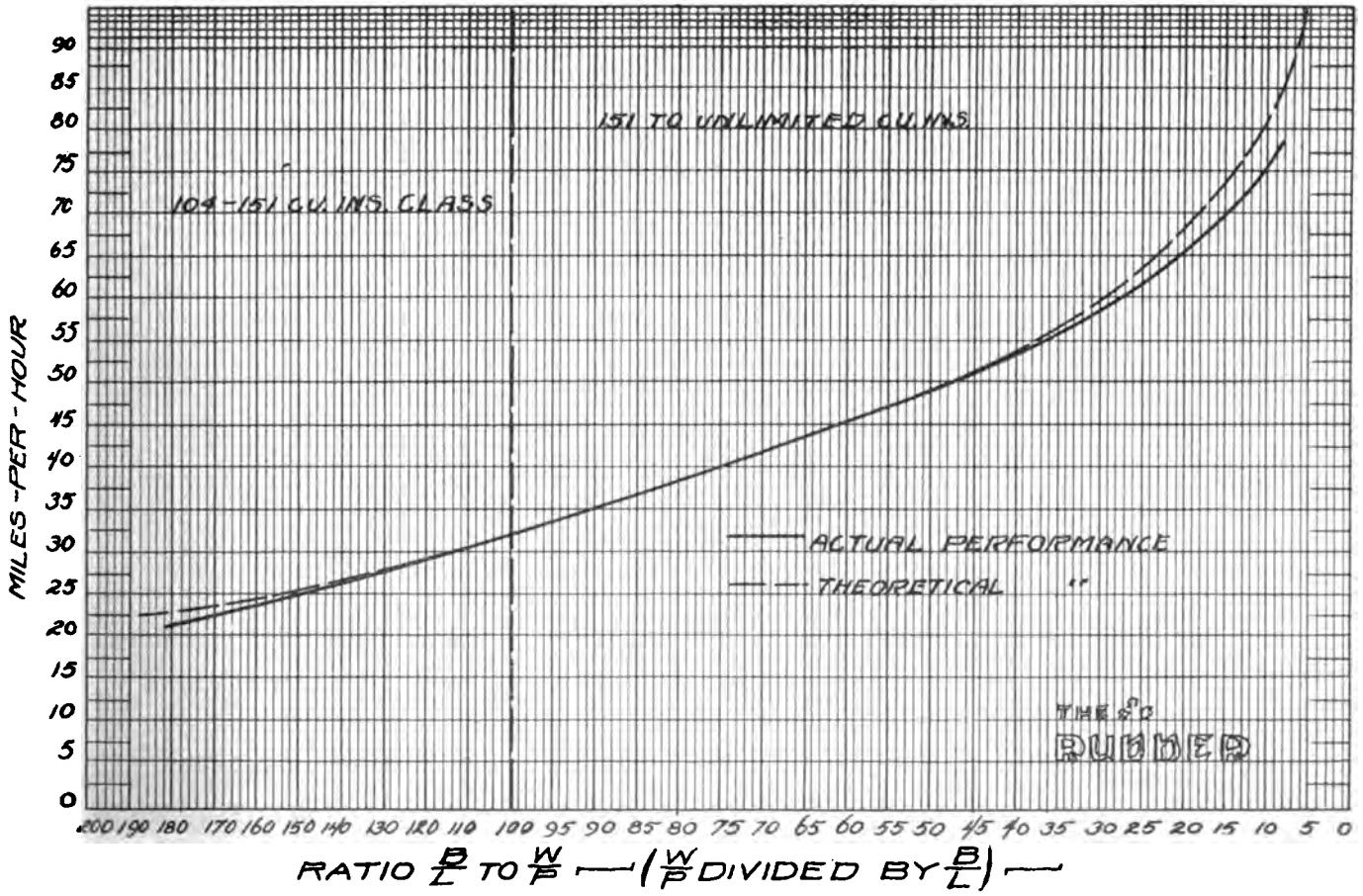
The hydroplanes show a greater range in both the $\frac{B}{L}$ and $\frac{W}{P}$ ratios. This probably is because all those from which figures are taken are products of empirical design and embody the ideas prevalent in the localities from whence they hail. All of them are fast —each is a record breaker, with but one or two exceptions. We include also as a matter of interest Miss America II.

The $\frac{W}{P}$ ratio referred to is obtained by dividing weight by power. Similarly the $\frac{B}{L}$ ratio is found by dividing the beam by length.

Performance will bear out satisfactorily if the weight is calculated conservatively and carefully. It is possible without complicated calculation to come within 10 to 30 lbs. of the actual for a hydro, and correspondingly close for a displacement boat, by dividing the plan and outboard profile up into easily measured areas and calculating for board feet. Add the board feet in the transom, step, keel frames and deck and calculate for weight. Cypress and cedar

(Continued on Page 38)



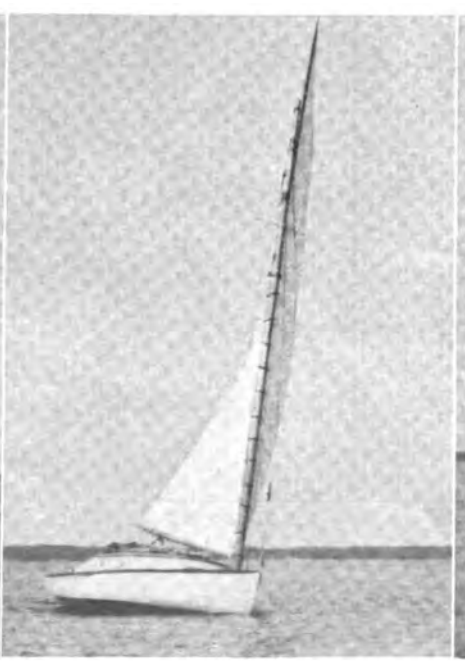


Curves to Use in Connection with Mr. Farmer's Article. Upper Curve Is For Displacement Boats, Lower For Hydroplanes

Two Crack Windjammers

Gilfan, Designed by John Alden, of Boston. She Is Owned by Gilbert D. Maxwell. She Is Powered with a 16-H.P. Frisbie, Turning a 28 by 22-Inch Columbian Propeller. The Speed Under Power Is 7 Knots.

Scat II, Designed by Francis Sweisguth, of N. Y. Champion Cat-boat of Barnegat Bay. Also Winner of the Middleton and Sewall Cups. The Scantlings Are Very Heavy and the Accommodations Exceptional. An Ideal Example of a Fast and Comfortable Cruising Yacht.



Log of a Waterlog

By Bill Cochran

WE Lake Ore Boats set our own styles, and Salt-water Tramps try to make fun of us because we carry our officers in the fo'castle and our deck-swabs aft, tote our cargo in the middle instead of each end, squeeze our engine back till it takes right hold of the propeller like an Evinrude, and lay our hatches so close together that a Swede would pinch his foot if he tried to step between them.

Blast my mudhook! It's just ornery jealousy. Honest, we could put two of them in our hold, and still need water-ballast to ride level, and can load or unload ten thousand tons while they're waiting for a pilot to warp them up to the dock.

Our Old Man, for'ard and the Chief, aft, both keep logs to fill up their time and earn their salaries. One of them tosses over a trolling line and counts the number of bites he gets from Minnesota Point to Whitefish Bay. T'other one counts the times his shaft turns over on the same run, and then they compare notes to see who wins.

I'm stuck alone up here to die, and while I have a little fight left in me, and before Dad Neptune gets out the harpoon and yanks me to Davy Jones, I'm going to do a little log rolling myself.

Thursday, Nov. 11—Under way at last after my weekly shot of ore. Eight thousand tons dumped into my hold in six hours is'nt bad. It's back-breaking however, and I shudder each time I get under the hoppers. It seems as though every rib in my side would crack when that stuff comes pounding down into me.

It's snowing as we pass the outer piers of Duluth Harbor, and as I look out the hawse pipes I can see a gray, tossing, white-capped sea running on ahead before a Nor'west gale. The swabs are battening down the hatches and jamming home the ports.

Soon I start rolling like a groggy souse. As each stinging wave boils up under my stern, I shiver all over like a scrapper dazed from a stiff uppercut on the jaw. In about two shakes all sight of land is swallowed up in the storm.

We lurch along at a pretty good gait, my old rheumatic backbone creaking and grinding worse and worse, and the spray beginning to lay an icy sheet over the after-cabin.

The swabs start a poker game in the bunk room, but as fast as they ante in their chips I shake them off the table to leeward and bang their heads against the upper bunks, till they get sore and quit.

Six o'clock grub is a cheerless job,—plates knocking around the table-rack, and coffee slopping all over the landscape. Some of the colts are pretty green around the gills by now, and sneak off to their bunks in short order.

Gosh, how she is blowing! Shrieking and howling through the rigging and always more ice making on the after-combing, till the old steering-gear will hardly pull the rudder around at all. The wheelman keeps yawing his cables to keep things free, and the Old Man blows off the horn now and then to see if she's still there. All he raises is a hoarse grunt that hardly carries to the bridge.

Friday, Nov. 12th—What a night! Not one second's rest from the battering seas. Morning comes, but no daylight—just howling hell. We've logged two hundred before noon. Cap gives Kewanaw Point a good offing. No land raised at all, no boats sighted. The swirling snow shuts in the horizon to a hundred-yard circle. The rudder gets stiffer every hour, and it's the Devil's own job to keep my nose on the course.

I don't believe I was ever out in a blow as hard as this. Whitefish Bay will sure look good to me. The Old Man was up all night and is dog-tired, frost-bitten and grouchy as an old bull. The after crew is red-eyed and bleary,—not one but has banged his head a few times into the bulkheads.

How I manage to keep my nose above water is a mystery. I feel myself buckle at every smash. Time after time solid water comes over the taffrail, leaving me sputtering and gasping. Now the propeller races—next it bangs into the depths with an awful wrench on the shaft. A lot of seams have opened, and the bilge pumps are sucking away at the oily mess below. Thank the Lord the ore was dumped pretty evenly and has stayed solid. If she'd shift now, I'd turn turtle as sure as my name's Hank.

Night is on us again, and everyone aboard is tense, as we near Whitefish Point. How far are we off our course? When can we see Whitefish Light? I'd know that ten-second white flash in a minute.

There's a light dead ahead. Is it a shore light? Slam her hard over; get an offing; do something quick. My God, it's another boat! Look at her wallow; give her more room. Bear away to the north. Look at that mast-head light shooting around like a flock of meteors. Why does she crowd us so? We're right in the trough. Damn it, we can't live there. Look out, hang on tight, I'm going over. Biff, Bang, a comber pounds down on me, smearing my whole four-fifty feet at once. Listen to the stanchions rip. Two lights stove in the mess room. Hear the steward curse!

Water's sloshing around knee-deep in the fire-hold. A coal-passer, frantic with fright, trying to crawl up the lee side, gets tossed back amidships as I flop over on the back side of the wave. Why doesn't that other tub let us by? We're going two to her one. The old man yanks savagely at the whistle cord. He might as well toot a jews-harp. Snap goes the ice-laden wire. I knew it was coming. Now forget it and get clear, or all hell's to pay. How many more of these broadsides can I stand? I feel my slats caving in. Aren't we by yet?

At last they're swinging into the Sou'east and we can pay off too. Now we've passed them. Gee, but they are making leeway fast. A mile more and they're nearly that much to the south. Then the storm shuts in heavier, and their lights blink out in the distance.

Where's that Whitefish light? We ought to make it soon now. The old man's eyes are fairly popping out of

their sockets, trying to bore holes in the inky blackness ahead. We must be nearly abreast now. God help that other craft! The way they're heading they'll hit the rocks miles to the south of the point.

Why don't we fetch it? The watchman is a cake of ice up for'ard. They won't be able to pry him loose. Look, damn you, Look!

Crash! I've struck! A wave lifts me and smashes my poor battered keel down on a granite ledge. I struggle to get up, and bang down I came again. This time wedged solid,—only my stern sticking out into deep water.

First I'm numb all over, then a hideous pain shoots through me. I know my back is broken. Every new punch from those waves is torture. No land in sight! Where are we? The old man yells—"My God, it's Pancake Shoals!" Pancake hell! There's nothing pancakey about this. I'll swear there's a boulder as big as a house right under the middle of me, and sharp rocks jabbing my bow, while my stern is left dangling in deep water.

The after crew swarms out between floods and dashes up for'ard. The fires are flooded, and the steam shoots off with a roar. Lights all puff out. Then it's black except the swirling white foam that lathers over me with each sickening wave thud. I'm dizzy, and drowsy and frozen stiff.

Saturday, Nov. 13th.—I must have been knocked for the count all right. When I come to it's nearly noon and clearing up, but still blowing great guns. Off ahead is land only a few miles away, and ten miles to the south Whitefish Point is just about visible.

The after-house is a sorry mess. Most of the ports are stove in;—the raft torn loose;—the port small-boat smashed to bits;—ventilators ripped up and skylights simply wiped out. My tank-top is broken clean across;—several, ribs stick up like a picket fence;—my rudder is gone, and two buckets off the propeller. I certainly would never recognize my rear elevation.

The crew is huddled in the fo'castle. They have ripped off my woodwork to make a fire, and somehow have managed to bring up stores from the galley. A volunteer squad has been getting ready to launch the starboard boat, chopping loose the ice, and rigging a tri-sail.

4 p.m. All hands aft to help on the life-boats. Cap with six men stand ready with cork jackets on. A lull in the seas and over they go, smash down on a comber. Cut away the pulls! The're off, bobbing like a cork, banging the hull a couple of times, with the little spidery men down below clawing like mad at their oars. Then she sweeps free and shoots across the reef. The sail is set and she scuds away to the Sou'east. The rest, soaked to the skin, run forward to dry out by the fire, ripping more splinters from my hide as they go. Night again, and still the everlasting pounding on my stern.

Sunday, Nov. 14.—Still blowing strong. The crew has a real chicken dinner. How in blazes the steward got it up on an open fire beats me. He's a wizard. Next comes the Bull Durham, with its cootie-killing clouds, and the gang cuddles around the blaze, swapping yarns and barbershopping a bit on "Whispering". That so-called close harmony of the oiler nearly sets my rivets on edge.

Smoke on the horizon! A tug! Hooray! The boys get out on the bow and shimmy a bit. Then comes a grand scramble to get ready the raft and life-belts, and douse the fire. Now she's within hailing distance and they're bawling out orders. Everyone is pulling or chopping, and scampering around like squirrels on the roof.

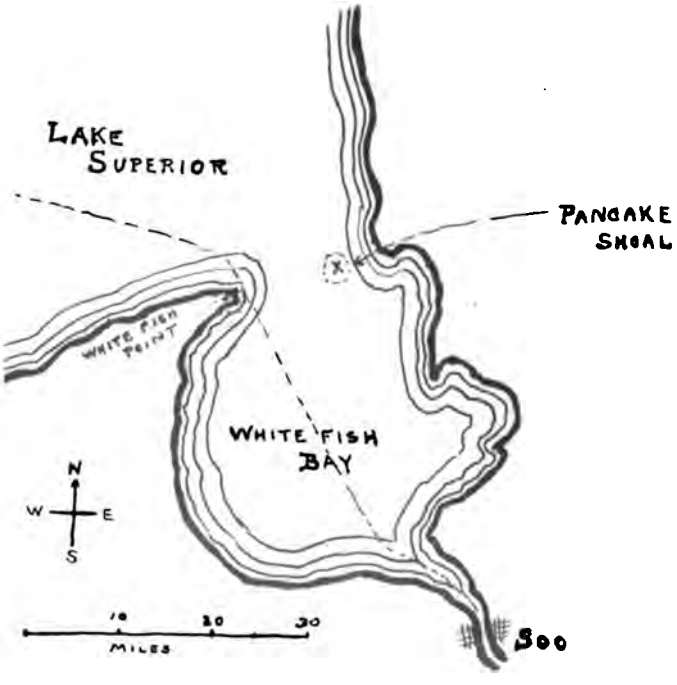
Splash goes the raft. Upside down, what the hell! Jump, you lubbers when she comes up to you. Now cut away. She's gone across the drink. I pipe the cheering as they jockey alongside the tug, and swarm aboard. Then quiet;—fearful quiet! Deserted!

As night comes on I get the willies. Every wave clutches at me like a shrouded ghost. I look out into the blackness and shudder. What if I should slide off this old pancake. Come back! Come back, or I'll go mad!

Wednesday, Nov. 17th.—For two whole days I hung on desperately. The days and nights dragged terribly. Just pound, pull, wrench, yank, flood, suck, hour after hour. All alone! Left to die! But last night the seas went down, and today is bright and sparkling. There's the old tug again,—bless its smut-covered heart. This time with a lighter in tow and old Doc Favorite the wrecker. All the boats on the lake swear by Favorite. Always ready to help any craft in trouble. With Doc alongside I feel like getting up on my hindlegs and walking away already. Inspectors and divers clamber in and out of me, then over comes the clam, and they begin scooping up ore and dumping it into the lighter. Honest, you'd have to laugh to see them. What can that little dumpcart alongside of me hold? Just the same, it takes all day to fill her, at a thimble a throw;—and they've only cleaned out a hatch or two. Meanwhile the divers are patching my sides, scarcely knowing where to begin, I'm skinned in so many places.

Old Doc's shovel keeps pecking at my cargo all night. Now it's overboard with the stuff, while the lighter is being towed back to the Soo. It feels good just the samey to have company tonight and I snooze off like a dog that's being combed for fleas before the kitchen fire.

Friday, Nov. 19th. —Two days of this jettisoning. Today they have my engine room and fire hold pumped



"White Fish Bay Will Sure Look Good to Me"

out and have started the fires. Say, this is the life. It's the first time I've felt warm for a week. The men on the Favorite say they have lifted fifteen hundred tons of ore. Not so bad for their little tomato-can scoop. But they have been getting down close to that boulder and it feels like a dentist picking at an ulcerated tooth. The Cap just now patted me on the back and said,—"We'll have you afloat by tomorrow noon, old Hank." O Boy! If the weather will only last!

Saturday, Nov. 20th.—This morning they found that hole punched in my solar plexus, and are grafting on a little new-skin. Wind swings to Nor'west and gets stiffer each hour. Everyone's working like mad, but it's no use. By four o'clock such a sea is running, that the boats have to beat it for the Soo. Damn it all! What am I in for now! The waves are actually shoving me around, and soon my seams are gaping. All that pumping for nothing. Fire out again. Engine room flooded. Cargo hold looks like a wash-boiler full of bum coffee. At least this flooding helps steady me, and if I can stop see-sawing on this shelf, and settle down to buck these nasty seas, I may get a little chance to sleep tonight.

Tuesday, Nov. 23rd.—Two days of hammering on this old piece of scrap-iron and now another lull. They're back on the job, and I have to snicker as I hear them cussing. Everything to do over again. All the old holes opened up, and now some more of my tank-top stove in. I give them credit for persistence, anyhow. Pumps going again, and more ore over the side. It'll take a man's size patch on my tank. Then I can keep old Superior out. On with your pumps, let juice be unconfined. Foot by foot she goes down, and at midnight I doze off with the steady chug-chug in my ears.

Thursday, Nov. 25th.—Thanksgiving Day! Well, thank heaven I'm alive at least,—as the puppy said after cornering a tomcat under the front steps. For old mister weathervane has swung once more into the Nor'-west, and Dad Neptune insists on the wreckers taking a holiday. As for me, mud-scummed inside, and snow-plastered without, I'm left behind as usual to muse.

O where, O where has that little tug gone?
O where, O where can she be?
With her tinker-toy crane, and her bilge-pump drain,
She's hiked it for Soo Saint Marie.

Monday, Nov. 29th.—The days have hammered by till I've almost lost track. Swirling blizzard. Battering-ram seas. I am getting calloused to it all. These last patches have held pretty well, yet I'm full of water again, clean up to the arches. O you fair-weather wreckers, back on the job again. Down goes the scum line once more. Go to it you suckers. The only way you'll get anywhere is to stick day and night on the business end of that pump.

Friday. Dec. 3.—Four days, and they're still at it It's like watering the elephants with a tin cup. Pumpity-pump, pumpity-pump, the lesser the water, the worser I jump. Hundreds more of those ore scoops into the drink. Spreading brown sugar on the pancake pretty thick. The dead swell is bothering us both, but with fenders out we keep from barking one another's shins. Doc says I'm light by my head today. I suppose he means delirium tremens, or is it the Saint Vitus toddle. Well, mighty few of them would stand unhitched as long as this. Do you realize that this is the third "weekly-versary" of my debut on this famous dancing floor?

Saturday, Dec. 4th.—After-hold dry again. Fire going. Simply great! Now they set me pumping my own bilge. I'll show them. Ow! Those joints are rusty! Not so fast! They're getting their heads together now. What's up? Hooray, they're going to take a pull on me. Hawser's out to Favorite and the tug. Let's go! Easy now! Oh my poor ribs! I moved, I'll swear I did. Once more! Never mind the pain. Pull, durn ye, pull! Ten feet more! Yo-heave-ho. Another ten. Balance on the boulder now. We're going to make it, sure as shooting. Watch out there! Quick, damn you, quick! I'm getting wedged again. Oh, the Devil! It's all off now. Stuck tighter than a drum, and some more ribs caved in, I'll swear. Nope I'll not budge another inch till you do some more patching along that keel of mine. Do you want to haul me off into d ep water, and then let me do the Annette Kellerman act? I draw the line there.

O Gee! Snowing again. There they go. Beating it for the Soo. By night I'm rising to the trot on those long Superior swells. How would you like to have a hundred and fifty feet of you sticking out behind into the deep water, teetering up and down,—most of your breast-bone mashed into a pancake, and your throat caught and half-strangled on a reef,—like a kitten with it's head in a fence?

Wednesday, Dec. 8th.—Blow, blow, blow for two days. But my sides are too numb to get sore anymore. But last night the wind died down and it's a regular Spring day today. Here they come back again and all pitch in and work like mad. So many tons of the red salve scooped out now that you can almost touch bottom in the oozy hold. The patches are holding fine. Say, won't they blow their whistles when I get to the Soo? Already I can see the crowds on the edge of the lock, eager to pat my sides. I'll be the hero of the town.

Saturday, Dec. 11th.—All ready for the tug-of-war. Three of them this time out astern with their cables ready. Come on! Watch them churn up the suds,—their lines stretched out like fiddle strings. The sweat stands out on their sides. Their stacks get red hot. Their panting breath fouls the sky. Yet never a move. Now what do you think of that? Try it sideways, there, I did budge a little. But oh! that reef, she surely has got a hammer-lock on me. There's no use, my shoulder is to the mat. Can't you pump a little more water out of me? Maybe that would break the hold. They're going to try it. Eight of those pumps going at once. Damnation! They're actually losing ground. Must have torn some seams with that last yank. My stern feels like a broken arm. Sort of hanging limp and loose. You don't suppose I'm broken in two? Surely it isn't that bad Doc.? Jumping jiggers, here comes another Nor'-wester too, Good Night!

Sunday, Dec. 12th.—Another mad swirl of wind and snow. No signs of the Doc. Just a month ago today, and the gale was wopping me down the lake, straight for this Devil's ledge. Who'd have thought she could have rammed me onto this shelf, and then battered me abaft the beam for thirty days, and me still ready to stand up for more. I'm still laughing in your face, old Superior, bring on your dog. You haven't got my goat, and you aren't going to get it.

Monday, Dec. 13th.—What a night we had! The stuffing is nearly ripped out of me. My stern is twisted out of line, and a slit in my bilge is torn open for fifty

(Continued on Page 88)

Los Angeles Speed Races

By John L. Von Blon

MIDWINTER powerboat racing had its premier at Los Angeles Sunday, December 4th, and was not lacking in thrills for spectators or participants. This was the opening of a series of annual events under the auspices of the Los Angeles Athletic Club Motorboat Racing Association, which proposes soon to make them an institution throughout the year and extends a bid to the sportsmen of the entire world to come and bring their swiftest craft. When the great and influential athletic organization determined to promote these contests, and marine sports and pleasure generally, it announced that they invariably would be held as scheduled, rain or shine stormy waters or calm. It so happened that the mighty western ocean was less pacific than its name implies on the first date and the going was rough, but there was no deviation from the fixed policy which has made the L. A. A. C. famous. The program was all the more exciting. Boats and drivers underwent a severe test. A fleet of nearly a hundred crowded vessels, large and small, was out for the fun.

The day's feature was a 100-mile event, the free-for-all for the B. H. Dyas Trophy—the first race of such distance ever staged in Pacific waters. It was held in the open sea, outside Los Angeles harbor, over a rectangular course measuring 8.3333 miles, and consisted of three heats of four laps each, the first starting at 10:30 a.m., the second at noon, and the third at 1:30 p.m. There were four entries: Fellows IV, owned by Joe Fellows; Miss Los Angeles II, owned by Dustin Farnum; Hurricane II, W. W. Paden; and Mystery, Frank A. Garbutt. A serious propeller accident to Miss Los Angeles II the previous day put her out of the running. Mystery struck a submerged cable a few days before the speed battle and smashed her wheels, entering with propellers too small for her engines.

Hurricane II is a 24½ foot Hacker designed single step hydroplane powered with a twelve cylinder Navy type Liberty engine of 438 nominal horse power. This boat was driven by Wm. Cubbins, who has a reputation second to none for holding them open. Hurricane II is said to be capable of 70 miles per hour in smooth water.

Fellow IV is a 26 foot Fellows-designed creation powered with a six-cylinder G. R. Sterling which will deliver about 275-h.p. consistently and continuously. In fact consistency is Joe's middle name. The Fellows boat likes rough water; the rougher the better. Joe Fellows and his son Richard (Rusty) drove.

Mystery is a 33-foot craft, designed by Frank E. Garbutt. She is powered with four engines, two Libertys of about 800-h.p., and two Elto engines of 2-h.p. each. The latter are for fishing and emergency use and will not be carried during the race. Mystery was driven by Frank E. Garbutt, assisted by his father, Frank A.

Mystery's real speed never has been determined, she has plenty. She is of novel construction, a remarkable sea boat, holding, to the water like a battleship, and promises big things. Her owner has one feature that the rest seem to have overlooked. In addition to 4 water-tight bulkheads he installed about 100 water tight cells designed for him by the aeronautical Department of the Goodyear Rubber Company. These cells have an average buoyancy of about sixty pounds each, or 6,000 pounds in all, thus practically insuring the boat against sinking. As far as known this is an innovation. The total weight of these cells is less than 100 pounds.

"Bill" Cubbins has probably had more wild rides than any one now in the racing game. It is said he can assimilate more punishment when delivered in the rear of and a little below the solar plexus than any racing driver extant.

At the gun for the first heat Mystery and Fellows IV got away together, but Hurricane II had difficulty in starting her engines and crossed the line nine minutes late, roaring like an aeroplane and jumping like a porpoise. The high seas pounded her bottom so severely that her leaks became dangerous in the third lap and she dropped out. She leaped clear of the water again and again and Cubbins took long chances before he quit. It was a wild ride and a wild sight.

After a sharp battle through three laps, during which Fellows IV kept well ahead, Mystery overhauled her in the third mile of the fourth lap, took the lead and won the heat.

THREE CHIEF CONTESTANTS IN THE DYAS CUP RACE

Left to Right:—Fellows IV, Powered with a GRS. Sterling 6-Cylinder Engine. She Is a Wonderfully Consistant Performer. Hurricane II, a Hacker Designed Hydro Built by Newport Harbor Marine Corporation and Powered with a Liberty. Mystery, One of the Fastest Boats on the Pacific Coast

In the second heat Mystery won the first lap and the second, but in the third her troubles began. The result was as bumpy a voyage as her crew ever experienced. An oil pump in the starboard engine went out of commission. The engine had to be eased down to an idling load and the port engine was working at full speed when the throttle control on it broke. Bill Rudolph, one of the mechanics, got into the oily engine compartment, a most dangerous position in view of the fast-rising sea and pitching craft, and held the throttle control as evenly as he could, wide open. In this perilous way the third lap was finished but lost. The strain on the steering gear was so great that it broke a bevel gear. Mystery immediately took a wild sheer toward the surf line. Seizing a Stilson wrench Frank E. Garbutt, who was driving, tore up a floor board, got a grip on the steering shaft, twisted it around, and the plunging boat headed for the open sea. With fine maneuvering she was brought across the finishing line, but could race no more that day.

Fellows IV ran the third heat alone, because under the rules if no boat wins two heats and no boat finishes three heats the race shall be called off for that year. Fellows IV the winner of 2 out of 3 heats made a consistent showing throughout.

To become the permanent property of any contestant, the beautiful Dyas trophy must be won three times, not necessarily in successive years.

Everyone was disappointed at Dustin Farnum's absence, which was absolutely unavoidable. Saturday Harry Vorhauer, his mechanic was exercising Miss Los Angeles II with a new pair of wheels. When going at a 60-mile gait, one of the surface wheels broke a blade. The two remaining blades, revolving at about 3,000 revolutions, created such a centrifugal force as to bend the 2 inch shaft four or five inches and this in turn wrecked the stern of the boat and shattered several ribs. Miss Los Angeles II spun around in a circle but luckily did not capsize and the crew were able to get her on the way before she sank.

The other events of the day was a nine-mile dash for boats of 800 cubic inch and cylinder displacement or under, six laps around a mile and a half triangular course. There were four entries but only two appeared —Frank A. Garbutt's Mystery IV and Ralph C. Hamlin's Joker.

Mystery IV, is a wonderful little 21-footer designed by Frank E. Garbutt, that probably never had an equal in the world. She is powered with a Hudson super-six automobile engine of a nominal 29-h.p. and had the temerity to enter in the 800-cubic inch class with her little 288 cubic inch displacement.

The Mystery's record is a remarkable one. Built about five years ago, she won nine first and one second in ten starts. Three times she won the Santa Catalina Perpetual Challenge Trophy which is the hardest and most gruelling powerboat race in the world; won the Nordlinger Race and other important events against boats twice her size.

This little Pacific Coast product is some bearcat herself and her specialty is rough stuff. It can not come too rough for her.

The Joker is a bear on the turn and Mr. Hamlin is a noted automobile racing driver, especially over long distances. He handles a boat equally well. Joker is equipped with a Hall-Scott four-cylinder engine of 606 cubic inch displacement, rated at 125-h.p.

These two boats put up a great race and cut astonishing didos on the sharp turns, tossing the water in high sheet. Joker took the first lap by a boat length, but in the second Mystery IV forged ahead and won the remaining three, one of the former's cylinders missing part of the time.

In the main event for the Dyas Trophy Fellows' average speed was 37.36 miles per hour. His fastest lap was at the rate of 41 miles per hour. His actual speed was necessarily about a mile and a half faster than this in order to make up for extra distance traveled. Therefore the boat must have averaged about 39 miles per hour with a maximum speed of 42.5.

Mystery's fastest lap was at the rate of 43.11 miles per hour. Garbutt's boat, therefore, must have actually made about 44.6 miles per hour.

Hurricane II made one lap at the rate of 46.87 miles per hour and an actual speed of 48.37. As Hurricane started 9 minutes and six seconds late, her official time was much slower.

In the 800 class, Mystery IV averaged 27.51 miles per hour. Her fastest lap was at the rate of 28.1 miles per hour.

Joker averaged 26.57 miles per hour. Her fastest lap was at the rate of 28.16 miles per hour.

It would appear that these little boats were very evenly matched.

Considering that there were two short turns to each mile and that the water was rather rough, this was very good time, especially as the actual time was probably at least half a mile faster.

FREE FOR ALL—SUMMARY

Time by Laps

First Heat

Fellows IV	Mystery	Hurricane II
12:30 4/5	13:00	10:40 1/5
12:23 3/5	12:07 2/5	12:58
12:12 3/5	12:08	11:17
11:59 4/5	11:47	Out

Second Heat

12:11 3/5	11:35 4/5	
12:15 4/5	12:19	
12:35 3/5	13:38 2/5	
12:45	17:34	

Third Heat

14:45	Out	
15:37		
16:06		
15:14 4/5		

Time by Heats

Fellows IV	Mystery
49:06 4/5	49:02 2/5
49:45	55:07 1/5
61:42 2/5	

Total time, 100 miles, 2:40:34 3/5

800 CLASS

Time by Laps

One Heat Only

Mystery IV	Joker
3:14 1/5	3:11 4/5
3:12 1/5	3:31 4/5
3:20 3/5	3:18 3/5
3:17	3:20 1/5
3:12 4/5	3:25 3/5
3:20 4/5	3:23 1/5

Time by Heats

Mystery IV	Joker
19:37 3/5	20:11 1/5

Total time 9 miles, 19:37 3/5

How to Build 16-Foot Tunnel Stern Launch Crab

No. XIV in The Rudder's Series of Working Plans

Note—We cannot guarantee safety, speed nor seaworthiness for this boat if built at variance with the drawings and specifications. If changes are contemplated we should be consulted.

ALL of us cannot live where there is deep water. Many who have been bitten by the boat bug live where there is lots of water, but where it is spread out too thin. There are thousands of miles of waterways in this country, to say nothing of the rest of the world, where power boats are not used to any extent on account of the shoal conditions. The open boat Crab was designed for exactly these conditions and in addition, so that even those who live on deep water and who desire a power boat capable of being pulled up on the beach would be able to build such a boat.

Crab is not a speed boat, neither is she a cruiser. For afternoon sailing, fishing or general service we feel sure she will fulfil a need. The total draught, taken with a total displacement of 1,000 pounds is only 6 inches. When underway she may draw an inch or so more, particularly if the occupants are all in the stern. In this case move one or two up on the forward seats. The engine shown in the drawings is a single cylinder 3-h.p. Gray, swinging a 12-inch diameter wheel. The tunnel is laid out for that diameter propeller and a larger one cannot be installed without its coming below the hull. From 3 to 4 horse is about all the power that Crab will stand, for she is not designed to make much over 7 miles an hour. Any attempt to drive her at speeds much over that will result in greatly increased operating cost and little, if any increase in the speed.

We have shown Crab in her simplest form, without decks of any kind, except for a 3-inch cap over the frame-heads. There is no need of decks on a little boat like this. They will only increase the weight and thus the draught. The seating accommodations are rather novel, the after fore and aft seat being on top of the tunnel, thus making the space taken up with this portion of the construction available for passengers. This seat would be very comfortable for fishing. The steering gear is simple, the lines leading from the tiller to blocks, and then down the port side to a vertically pivoted steering lever. The seat aft of the engine will be the most popular place when two are aboard. While the space under the seats is left open in the drawings there is no reason why lockers cannot be built here except that weight should be kept down fairly well. The scantlings are not light, but we doubt if it would be wise to cut the planking and frames down very much owing to the racking strains that are endured when these shoal water craft bump over bars and ride up on the beach.

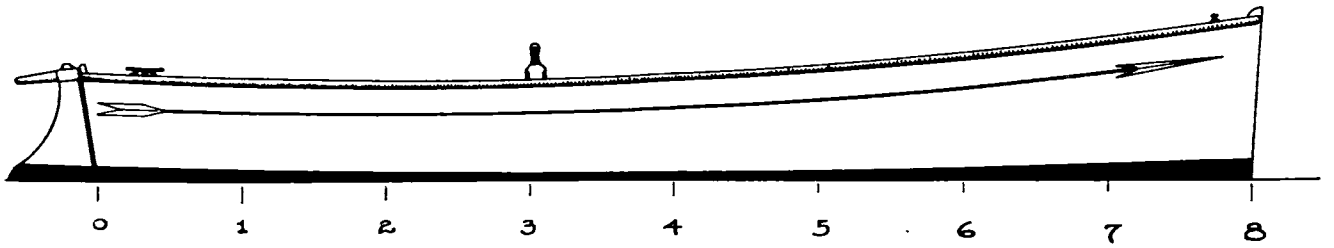
The plans have been made as simply and completely as possible so that almost anyone with a knowledge of wood-working tools can build from them. Before we go any further, let us impress one thing upon you. Crab was designed to have a certain draught on a stated weight. Do not make the boat wider or narrower or longer or shorter without consulting us! If you do you will find to your sorrow that the draught is all wrong and the propeller efficiency cut down so that she will not run satisfactorily. A tunnel boat must be laid out very carefully. She will be a good boat if you build her exactly to plans and specifications.

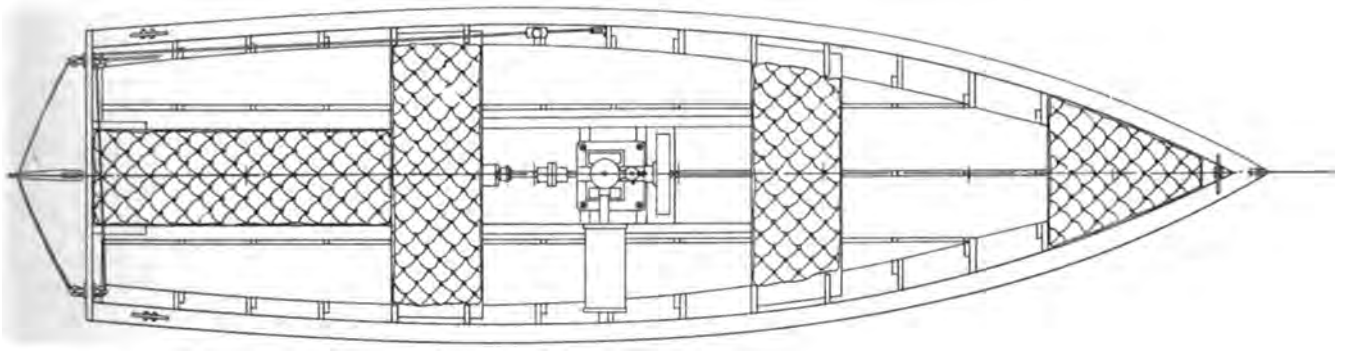
You will probably find that when starting up, Crab will move very slowly, while the engine will race, for a moment or so. This is because the tunnel has become partly filled with air. This air must be drawn and driven out and the entire tunnel sucked full of water before the wheel will properly take hold. In any case it is desirable to have the stern of the boat under water. If you place the weight of yourself or passenger so far forward that the under edge of the transom comes out and allows air to get into the tunnel, the boat will slow down.

The engine installation is as simple as we know how to make it. Two longitudinal members are bolted to the side of the tunnel. They run well forward and serve to strengthen the boat in a fore and aft direction. The real engine bearers are placed crosswise between the longitudinals and are screwed to the latter. The bed will have to be laid out separately for each make of engine. This caution also applies to the location of shaft hole and the propeller position. A strut supports the shaft after it passes through into the tunnel. This strut will also depend upon the shaft angle, which in turn depends upon the engine. If the Gray machine is installed, measurements of the shaft angle can be taken from the drawings. Otherwise all dimensions will have to be taken from the full-sized layout in chalk which you should draw on a clean level floor.

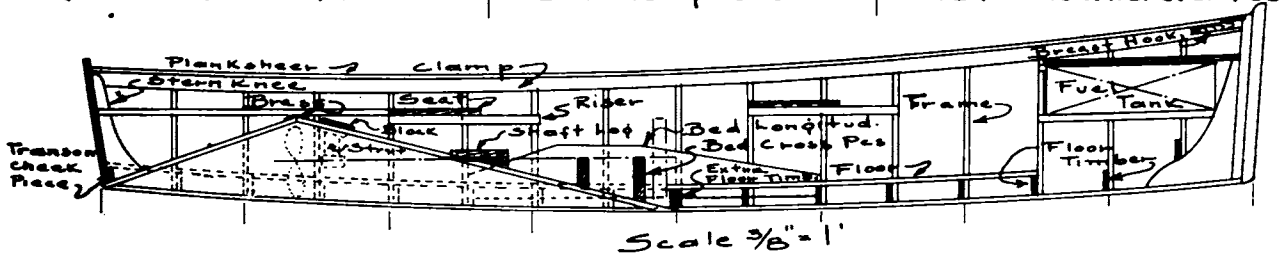
The lines of the boat can be laid down full size from the Offset Table. Clear off your floor and snap a chalk line down on it about 3 feet below the top of your cleared space. This line should be a little over 16 feet long. By means of a large try-square erect lines across this line, which will act as a load water line. these lines should be exactly 2 feet apart, and between the ends, 16 feet. Now number these upright lines, starting with O at the extreme left and ending with 8. These are then your station marks for which offsets are given. Each one will also represent a frame. There will also be frames between each of these stations but these can be neglected for the present. To get the overhang of the bow, lay up another line, 1¾ inches to the right of station 8. At the stern lay up one 2½ inch to the left of station O. Now check the distance between these two overall lines and see that it is exactly 16 feet 4¼ inches.

From the Offset Table lay off the distances from the water line upwards to get the sheer line. Draw





Tunnel Launch Crab	Draught 6"	Note: Use Dimensions
L.O.A 16'4¼"	Displacement 1000#	Given In Specifications
L.W.L. 16' 0"	Overhang Aft 2½"	In Preference To Scaled
Breadth 4' 7½"	Overhang Fo'd 1¾"	Dimensions Wherever Possible



OFFSETS

	0	1	2	3	4	5	6	7	8
Bottom Of Boat W.L.	0-2-0	0-3-6	0-4-7	0-5-7	0-6-0	0-5-6	0-4-6	0-3-1	0-1-2
Sheer Above W.L.	1-6-0	1-5-1	1-4-5	1-4-7	1-5-5	1-7-0	1-8-7	1-11-5	2-3-0
½ Width Bottom	1-8-1	1-10-3	1-11-5	1-11-5	1-9-7	1-6-3	1-1-4	0-7-0	—
½ Width Sheer	2-0-0	2-1-6	2-3-1	2-3-4	2-2-7	2-0-5	1-8-0	1-0-3	0-2-0

All Offsets In Feet-Inches & Eighths; Thus, 1-4-6 = 1Ft, 4 In., 6/8ths, or 1' 4¾"

All Offsets Are To Outside of Planks. Frames Are 5/8" Smaller

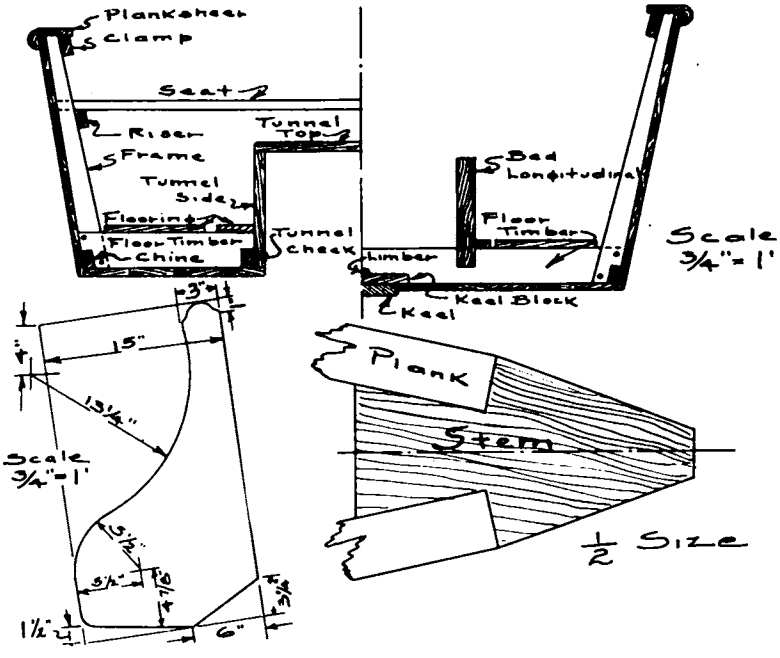
Tunnel Offsets - Outside

At #0 = Bottom of Boat

At 9" Fwd of Sta #1 = 9" Above W.L.

At 2" Aft of Sta #1 = Bottom of Boat

Inside Width 16" Note: Wheel Less Than 12" Dia. Cannot Be Used



Building Plans of the 16-Foot Tunnel Stern Launch Crab. All the Plans Are to Scale. The Little Boat Will Not Draw Over 6 Inches of Water Under Normal Conditions. She Is Not Speedy, but Ideal for Shoal Waters

this with a thin batten of wood tacked to the floor Now lay off the bottom of the boat in the same way, measuring from the W.L. down. Now draw your stem and transom, which are perfectly straight lines.

Draw in now the two lines which represent the tunnel. The dimensions for this are also given on the bottom of the Offset Table. This sheer drawing is now done.

Snap down another straight line, parallel with the W.L. and about 3 feet below it. This will be the center line for the half-breadth plan. Extend the station and overall lines down across this center line. Check their distances up at their lower ends to be sure they are square to the center and water lines. Then lay off the widths from the table and draw with the aid of the batten the shape of the bottom and sheer. Next lay off the remaining frame lines, exactly half way between the stations. You now will have an upright line every 12 inches. From these laying-down plans you can get the width at top and bottom and the total height of every frame. In making the frames, it is well to let them come an inch or two longer than necessary, although the proper height should be marked on each. The shapes of the stem, stem knee, stern knees and other parts can be drawn in chalk in their proper places. Make up all the frames right away, fastening them together at the corners as shown. Across the tops tack a piece of rough stuff to prevent them going out of shape. The stem and its parts and keel can also be cut out. Use the printed specifications and the full-size drawing and you will have no trouble.

In order that the keel may take the proper curve it will be necessary to make a keel mould. This mould will set up on edge and be shored to the floor, acting as a set of stocks upon which the boat will be built. The easiest way to get the shape of this keel mould is to lay off a line about 6 inches below the W. L. and use this line as the lower edge of the mould. The upper edge should be sawn out to the shape of the bottom of the boat and uprights screwed fast representing the outside of the tunnel. It is of the utmost importance in laying out frames from the offsets to remember that the lines are drawn to the *Outside Of Planking*. The frames and other parts fitting inside the planking must be ⅝ inch smaller in width and height.

You will find that the specifications call for the size and material for all parts. Bolt the heavier ones together and screw fasten all planking to frames. Do not use nails whenever the parts effected are subject to much strain. Above all, do not fail to consult us if you need help.

SPECIFICATIONS

Keel—Oak, 6 inches wide, 1 inch thick. Tapered from station 5 to 8 to a width at stem of 2 inches. The taper is to be gradual. The keel runs from the forward end of the tunnel to the stem. To box into lower end of stem.

Stem—Oak, 2 inches thick, 3½ wide. Rabbeted for ⅝ inch planking.

Stem Knee—Oak, 1½ inches thick. Shaped as shown. Bolted to stem and keel with ¼ inch galv. bolts.

Stern Knee—There are two stern knees, each shaped as shown, of oak 1½ inches thick. To run alongside the tunnel sides and screw to same.

Transom—Oak, ⅞ inch thick. Fastened to stern knees with 2½ inch No. 16 galv. screws on 6 inch centers.

Transom Cheeks—Oak, ⅞ by 2 inches. To fasten with screws to the forward face of the transom to form a better backing for the plank and tunnel ends.

Frames—Oak, ¾ inch thick. Placed on 12 inch centers. Width at head 1 inch; at heel 2 inches.

Floor Timbers—Oak, ¾ inch thick and 3 inches wide. To act as bottom member of the frames. To fasten at each side frame with two 1¾ inch bolts. From Station 4 forward the floor timbers are on after side of the frames. From Station 4 aft on fore side. In the way of tunnel floor timbers halve over, and fasten into, cheek pieces.

Chine Blocks—⅞ inch thick. 1½ inches wide. These are to be placed between frames, after frames are set up but before planking is on. Beveled off as required so that planks bear evenly upon them. Planks screwed to chine blocks with 1½ inch screws.

Keel Blocks—Oak, ¾ inches thick and 8 inches wide. Placed on top of keel and between frames to form a backing for the garboard plank. Screw fastened to keel or copper riveted through latter. Bevelled off on outer lower edges so that plank will bear evenly. Only used from tunnel end forward.

Tunnel Plank—Cypress or cedar ⅞ inch thick. Construction as shown in detail.

Tunnel Corner Floor—An extra floor timber is to be placed against the forward face of Station No. 5 floor timber to back tunnel end.

Brass Tunnel Strap—⅛ by 4 inches. To bend over upper angle of tunnel to strenghten the corner. Runs from side to side and is set in thick white lead and screw fastened on 1½ inch centers, staggered.

Cheek Pieces—Oak, ⅞ by 1½ inches. Fastened on the outboard sides of tunnel at bottom to form extra backing for the planks at side of tunnel.

Planking—Cypress or cedar, ⅝ inches thick in single lengths. No plank is to be more than 4 inches wide at any place.

Clamps—Spruce ⅞ by 2 inches. To run full length from transom to stem on inside of frame and bolted to same through planking. At the fore and aft ends where there are no frames to rest clamp ends a spruce block is inserted between clamps and plank.

Plankshеer—Oak, 3 inches wide ⅝ inches thick. Fastened on top of clamp, frame heads and planking. If possible there are to be not over two lengths to a side. At any joints between lengths the space between clamp and plank will be blocked solid to form base for plankshеer joint.

Breast Hook—Oak, ⅞ inch thick 8 inches deep. Arranged between ends of clamps at bow and resting against after side of stem. Space between clamp and plank in way of hook to be filled up and long screws or blind bolts driven into breast hook from outside of planking.

Engine Bed—The main parts of the engine bed are to be arranged to run from frame 2½ to 5 and to side against tunnel sides. Bed pieces of spruce 1½ inches wide and 9 inches maximum depth. Screwed to tunnel side and notched 1½ inches over floor timbers. The engine will rest on two cross members properly situated to take machine and screw fastened to the longitudinal members, Cross pieces to be same materal as longitudinal. These pieces will have to be located to suit engine selected.

Shaft Log—Oak, 3 inches square. Placed on top of tunnel at the proper place and set down in thick white lead and screw fastened from the under side. Hole for shaft and location must be arranged to suit engine installed.

Flooring—Cypress ¾ inch thick 10 inches wide. Fastened on top of floor timbers. At least one board should be arranged with thumb buttons so as to be easily and quickly removed to get at bilge.

Seats and Risers—Oak. The two seats are to notch over frames as shown and rest upon ¾ by 1½ inches oak risers screwed across two frame spaces. Seats to be of ⅞ by 15 inches oak. Stanchioned as required to prevent sag. Screw fastened to risers to strengthen boat.

Rudder—Oak, ⅞ by 15 inches. Tapered at edges to ¼ inch. Shaped as shown and hung on galv. gudgeons and braces.

Steering Handle—Oak, 1½ by 3 inches. Shaped as shown and pivotted with heavy bolt to block fastened to planking.

Tiller—Galvanized iron to set over rudder head.

Steering Sheaves—Five 2 inch upright galvanized,

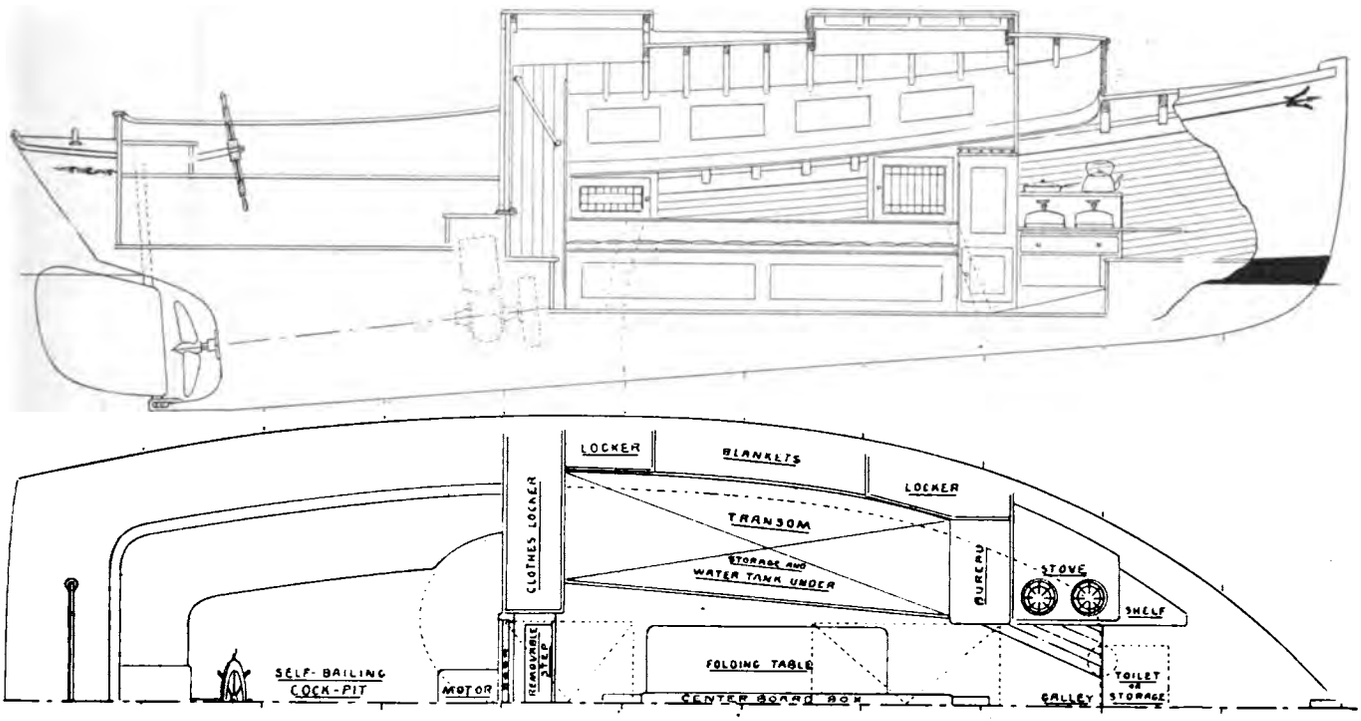
Cleats—Galv. Three 6-inch. Bolted through blocks under plankshеer. Forward one bolted through breast hook.

Strut—Bronze to be made to suit work.

Mouldings—Oak, half-round in single lengths, screw fastened. 1½ inches wide.

Painting etc.—Inside and outside of boat to have at least two coats of paint. Colors etc. to suit builder. All seams caulked and puttied. All holes over fastenings puttied.

Designs



Arrangement Plans of Toppan Cruise-Cat

The Toppan Cruise-Cat

The Toppan Boat Mfg. Co. of Medford, Mass. have added a new cat boat to their line, and offer this season a 22 by 9 foot 6 inch Cape cat as shown by the accompanying design.

The desirable features of this boat consist of easy lines to be driven under power, combined with great breadth for stability and sea-worthiness and for general comfort. The self-bailing cockpit not only makes a safer boat under severe conditions but does away with the everlasting pumping after every rain. The cabin is spacious and the great amount of locker space helps a lot to make her home-like and livable.

The Marconi rig is a feature of great value, as the awkward and dangerous gaff is done away with, reducing the weight aloft and simplifying the running rigging to one halliard. The mast being placed further aft than is usual gives opportunity for side stays, provides better deck space forward for handling ground tackle and also helps to relieve the bow of excessive weight of a heavy mast, usually stepped as near the stem as possible. The high narrow sail makes a well-balanced rig and prevents griping. The engine is a single cylinder two-cycle machine, simple but reliable.

Length over all .....22 feet 0 inches
Breadth ..... 9 " 6 "

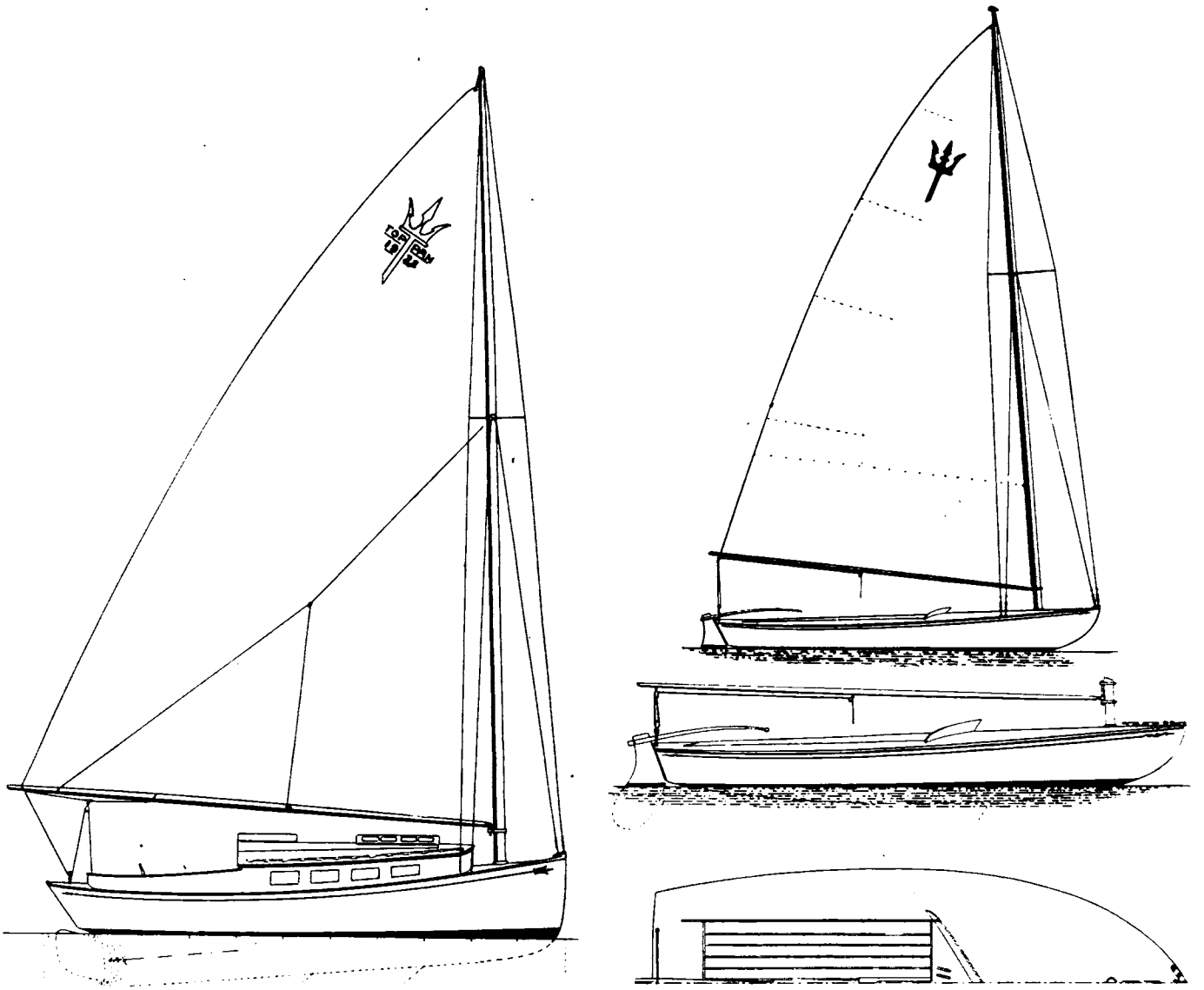
The Toppan-Tot

The Toppan-Tot has been added to the line of stock boats built by the Toppan Boat Mfg. Co. to meet the demand for a small, Marconi-rigged cat suitable for one-design classes. When a club wishes to add another boat or two to its class of Toppan-Tots, prompt delivery is assured on exact duplicates. This eliminates the difficulties that have beset many one-design classes.

The design is by Harry L. Friend of Boston whose wide and successful experience in developing this type, qualifies him for turning out the best.

These little boats sail without ballast and are non-sinkable and remain under perfect control in most severe weather, carrying their sail well and steering with an easy helm. It is said they will not root, gripe nor get into irons, remarkable features for cats. The hulls are round sided and smooth planked. The planks are narrow and of ⅝ inch pine. The finish as well as the frame is of oak.

The rig is of the highest quality and spars of clear, straight grain airplane spruce. The sail runs on a bronze track with slides instead of with hoops. The hardware is bronze. Length over all 15 feet. Length water line, 12 feet. Breadth, 6 feet 6 inches. Draught 3 feet.



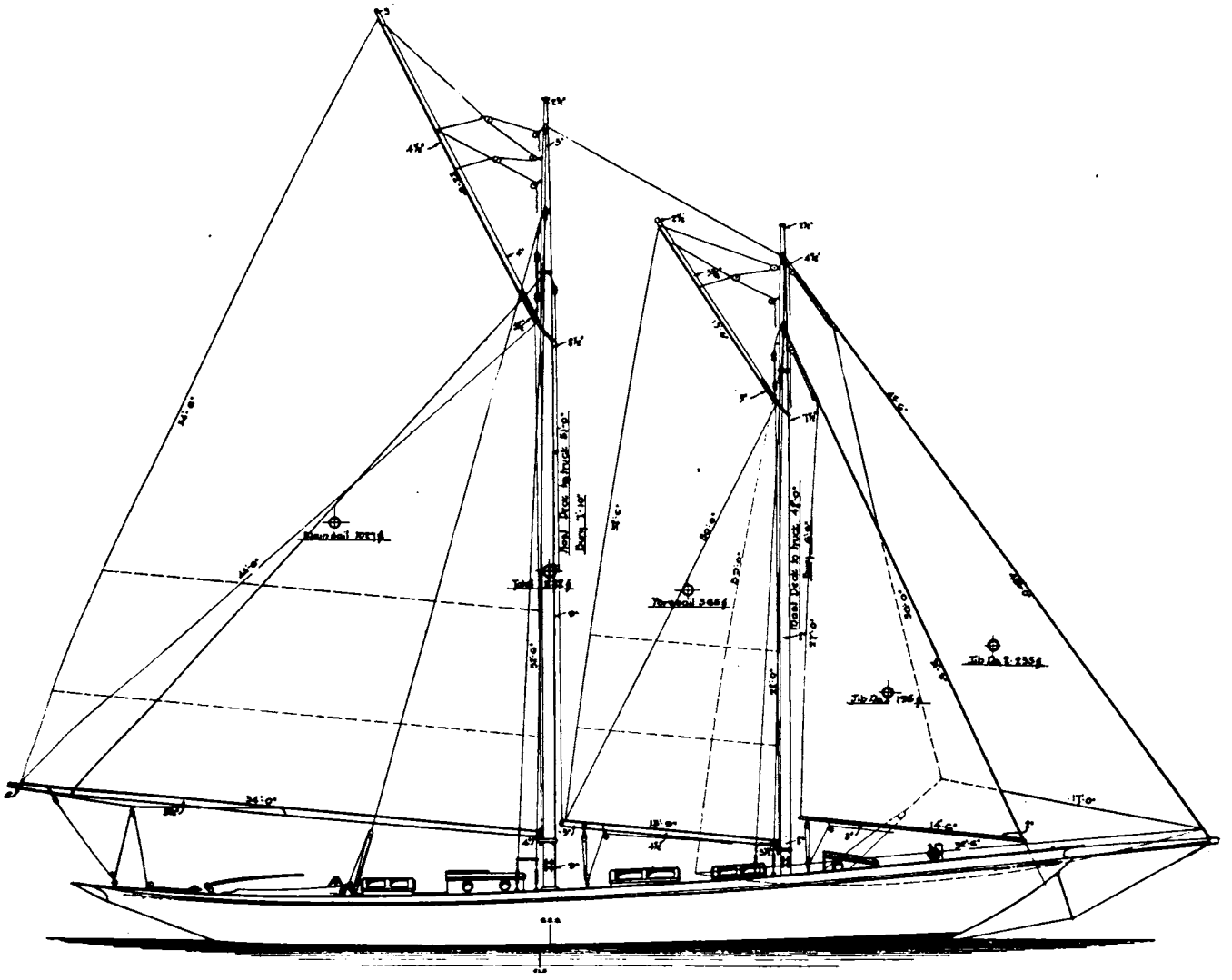
Sail Plan of Cruise-Cat, Sail and Deck Plans of Toppan-Tot

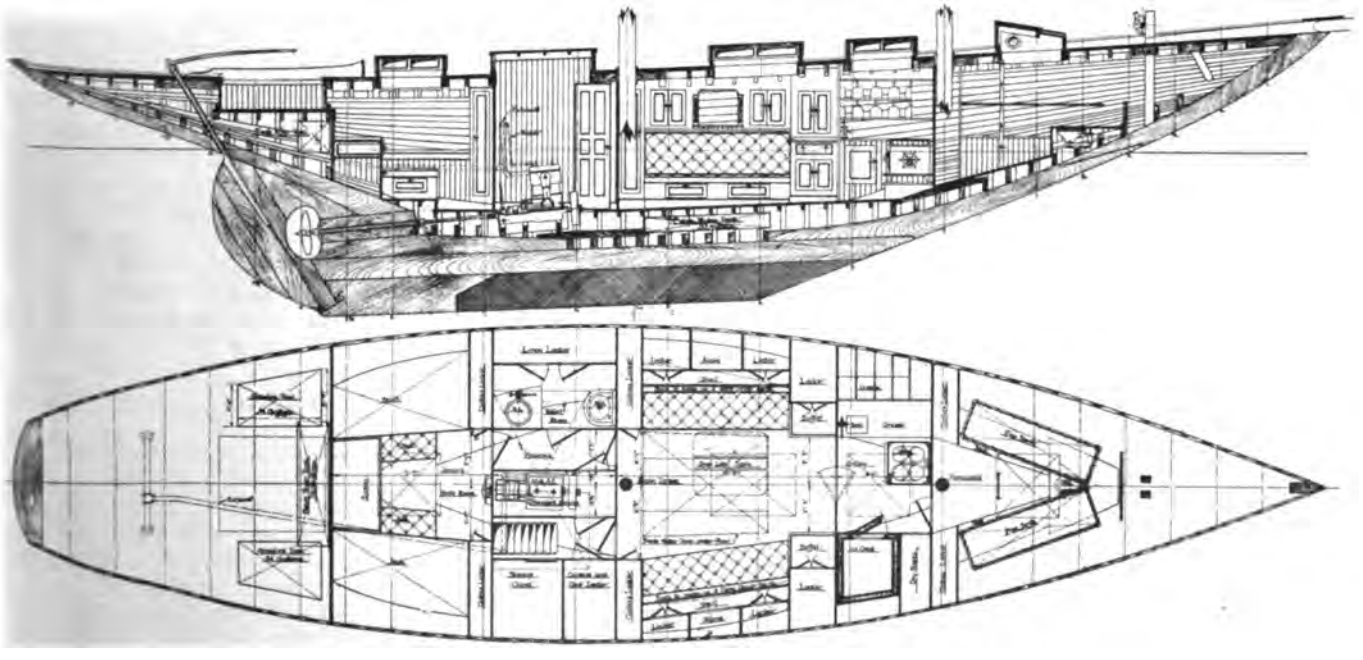
Wanderer IX, Auxiliary Schooner

In the December issue of THE RUDDER we showed some picturers of the fine new schooner yacht designed by Chas. D. Mower for Harvey J. Flint of Providence R. I. This boat attracted so much attention that we managed to get a set of the plans for reproduction, thinking that many of our readers would be interested in the arrangement and rig of this yacht.

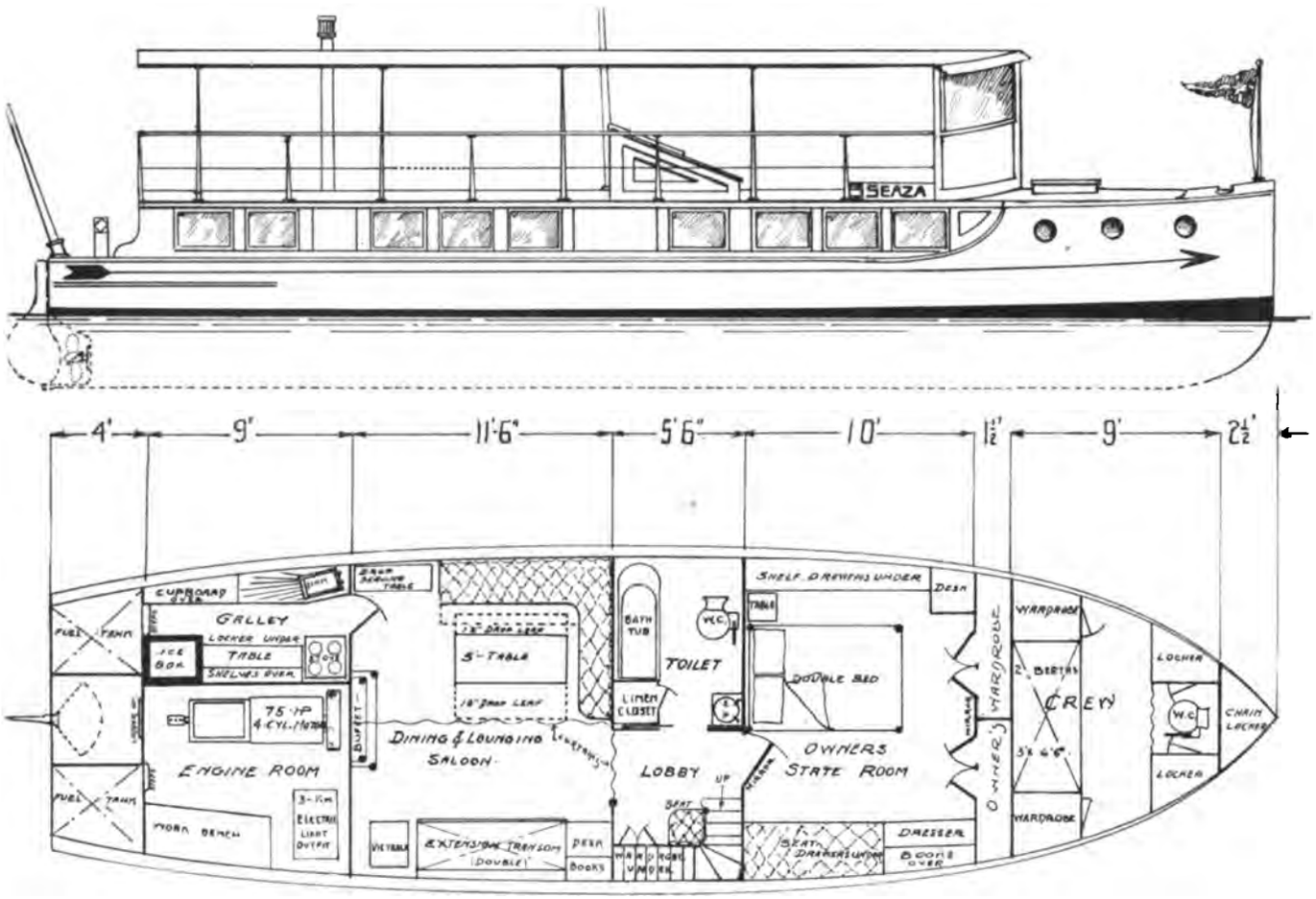
The rig is simply that of the ordinary schooner yacht, no attempt having been made to get up a special and more or less experimental rig. The bowsprit is short so a man will not have to go out on it in heavy weather but can handle the outer jib by means of a down-haul from deck. For the same reason the main-boom does not extend very far over the stern. Although a tiller is shown in the drawings, the yacht was fitted with a wheel when built. The sail area is moderate, as follows: Outer jib, 235 square feet, Inner jib, 195 sq. ft. Foresail 365 sq. ft. Mainsail 1027 sq, ft. The total area of all working sails is therefore 1822 sq. ft. A ballon jib is also carried.

Turning to the arrangement we find the boat laid out so that every available inch of space is utilized. The fore-peak is open for chains and is followed directly by a two-berth forecastle. There is also a crew's toilet and locker room here. The galley, containing a Shipmate range and a large ice-box and locker space is next. The main saloon follows with two wide transoms as well as swing upper berths. This allows four to sleep in the saloon if required. There are two buffets as well as ample lockers and alcove spaces under the side decks. The fresh water tank is under the saloon floor. Just abaft the mainmast is the engine space for the 20-h.p. 4-cylinder Knox engine. On each side of the engine space is a passage. The one on the starboard side leads to the deck, past two large lockers. The port passage leads to the owner's double stateroom which takes up the entire after end of the space. A toilet room opens off this port passage. The gasoline tanks are in the lazarette where a great deal of storage room can also be found. The yacht is 65 feet over all, 44 feet 3 inches on the line, 15 feet 4 inches wide and draws 8 feet.





Arrangement and Sail Plan Auxiliary Schooner Wanderer IX



New Seabury and deZafra Design

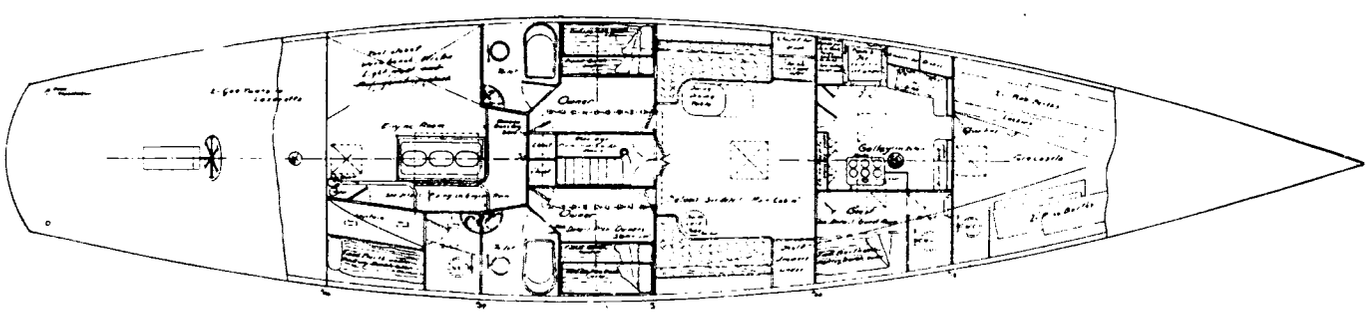
The above plans show the arrangement and profile of a power houseboat recently designed by Seabury and deZafra of New York City. The owner of this boat desired better ventilation and more comfort than is found on the usual boat. Speed was of no importance, mere mobility being sufficient.

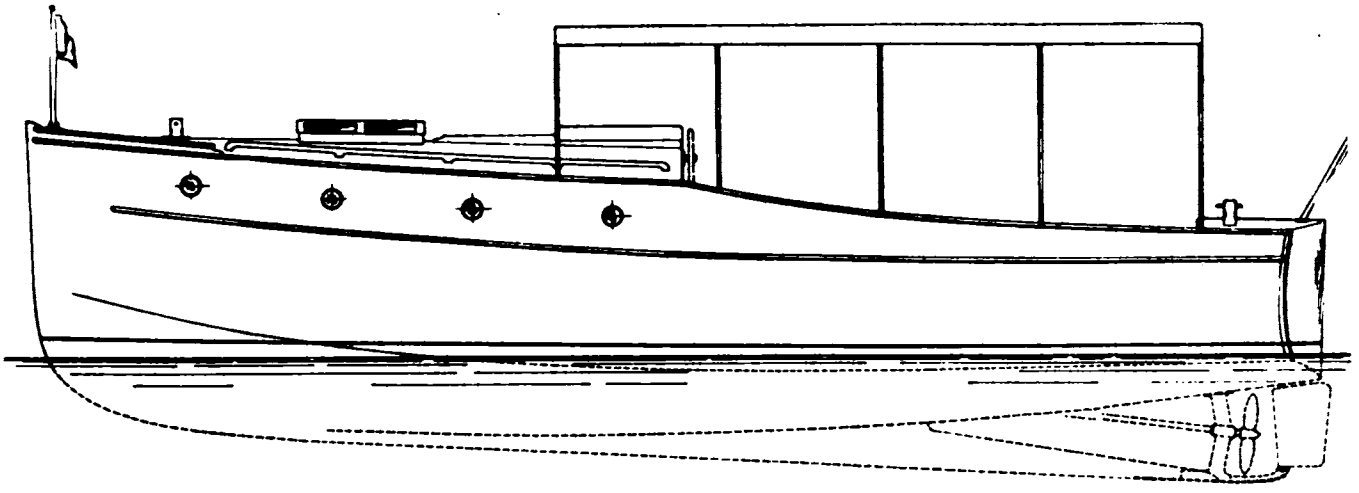
The arrangement can be plainly judged from the plans, all spaces being laid out so as to get the best advantage of every inch of cabin. The fact that the after deck is very short; just long enough to provide a landing platform and to allow the crew to handle the stern lines; permits the remainder of the boat to be arranged almost entirely for the owner's convenience. The crew are taken care of with athwartship berths in the extreme bow. These berths however are very good, being 3 feet wide and 6 feet 6 inches long. The yacht is 53 feet long and 15 feet wide.

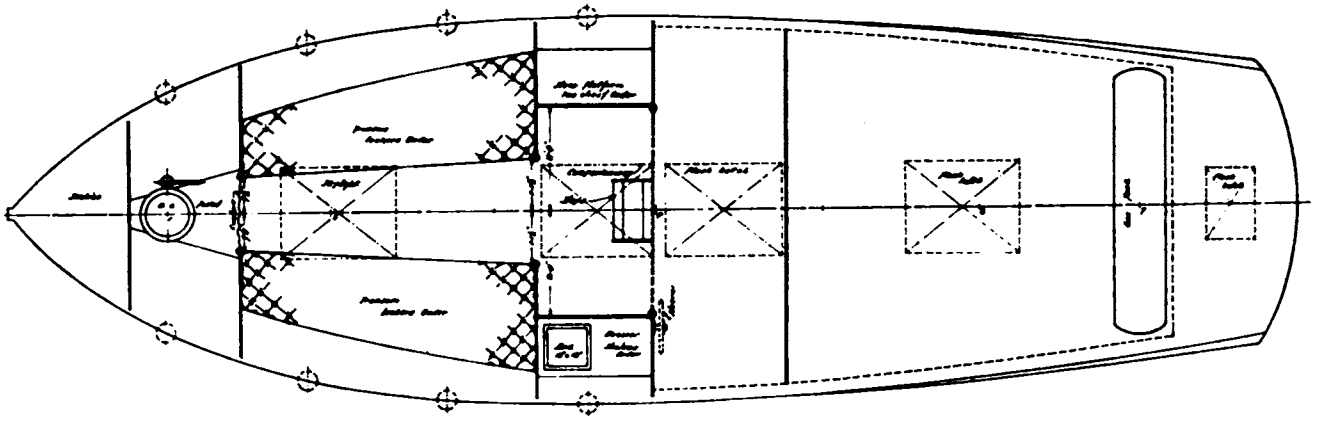
Oriole IV

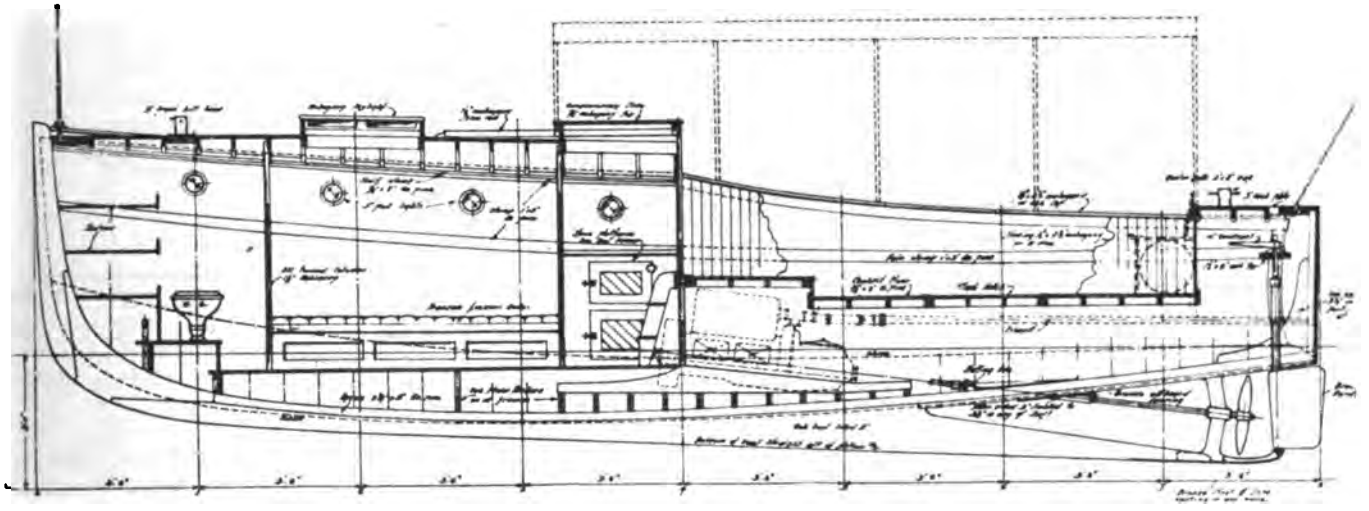
On page 6 of this issue we show a photograph of the new auxiliary ketch Oriole IV, designed by George Owen for Com. George H. Gooderham of Toronto. Below we show the arrangement plans of the same boat.

The usual forecastle with crew quarters is arranged forward. Four sailors can be accommodated here and the captain has a room of his own way aft and on the starboard side of the engine room. The galley follows the crew space and is exceptionally large and well arranged. On the starboard side of the yacht, and alongside the galley there is a single guest's stateroom and private toilet. The main saloon is next aft and is located just a bit forward of amidships. On each side of the passage there are double staterooms each with connecting bathrooms. The engine room, entirely separate from the owner's quarters, contains the 54-h.p. Standard engine.









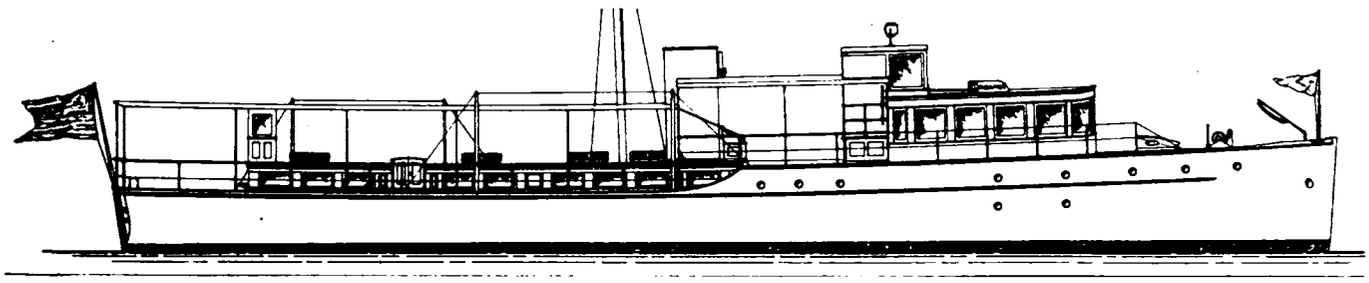
New Stock Cruiser

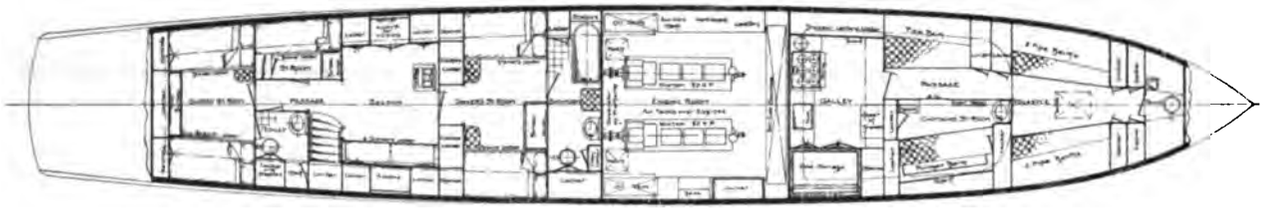
A. G. Liggett and Son Co. of Wyandotte, Mich. have recently placed upon the market a most attractive stock cruiser. The plans of this little boat are shown above. She was designed by W. H. Hand Jr. of New Bedford and is one of his famous V-bottom boats.

In marketing this boat the builders have no idea of getting out a craft at a price so low that they will not be able to give the construction the care that is required before a safe and capable boat can be created.

The arrangement below decks provides for two good berths and toilet and galley space. The berths are not of the usual "cushion on a plank" type, but are real springs covered with a fine mattress. The engine is a Kermath 20-h.p. 4-cylinder which should drive the boat by means of the 20 by 20 Columbian propeller at a speed of about 11 miles an hour in spite of the fact that the construction is very substantial and high grade.

Length over all	28 feet 0 inches
Breadth	8 " 6 "
Draught	2 " 10 "





The Power Yacht Roamer

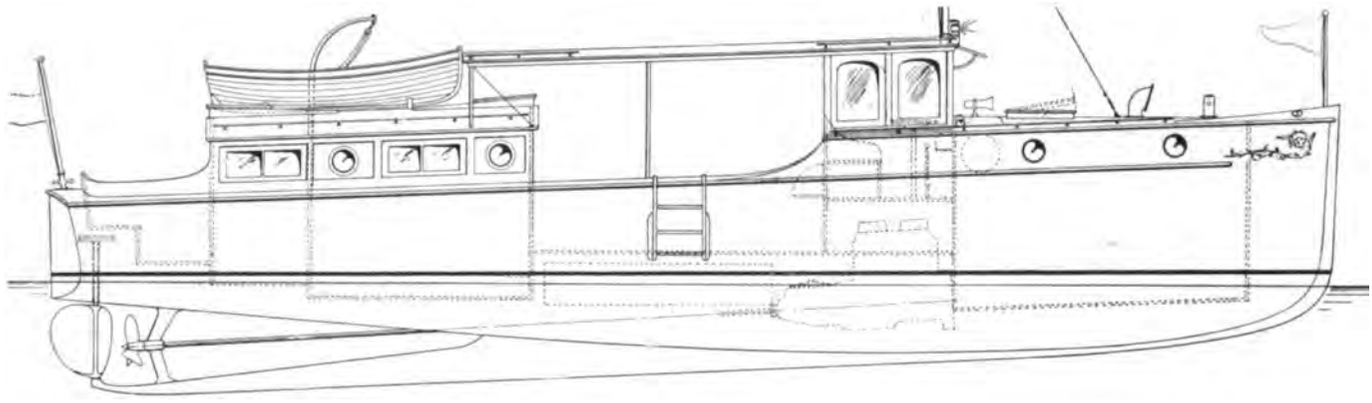
On page 7 we show photographs of the arrangement and outboard of the power yacht Roamer, designed and built by Frederic S. Nock at East Greenwich R. I. for A. Albert Sack Jr. Above we show her outboard profile and arrangement plans for those who wish to study her more intimately. It is noteworthy to see the size of the two large staterooms which take up each end of the owner's quarters. Both of these rooms are double and are much larger than is usual in yachts of this size. A smaller stateroom is also provided across from the companionway at the after end of the saloon.

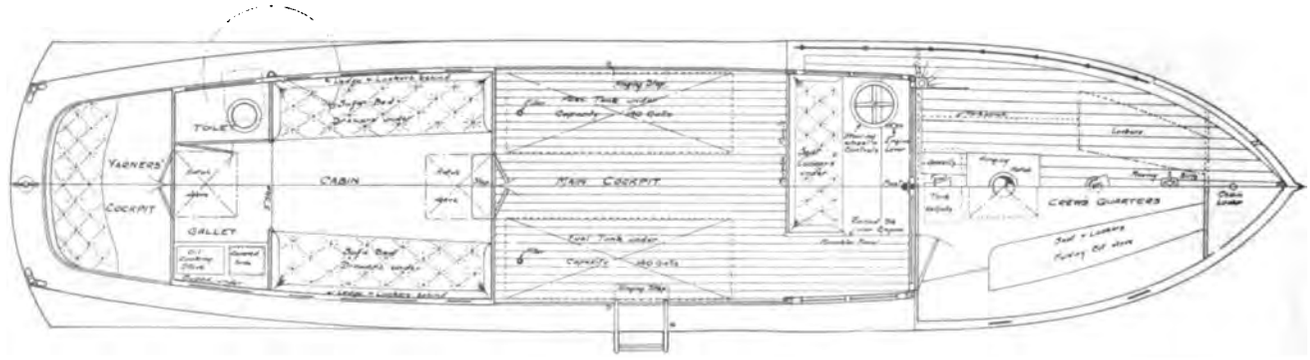
Length over all	93	feet	0 inches
Length water line	92	"	0 "
Breadth	15	"	0 "

Fast Cabin Cruiser

Designed by Charles G. MacGregor the fast cabin boat shown below is worthy of careful study. She was designed for a Cleveland yachtsman who required a boat that could be used as a fast ferry between his summer home on the Lakes and the railway terminal. A speed of not less than 15 miles an hour was required. The accommodations are chiefly for day trips as far as the owner is concerned, although there is room for a paid hand forward. The cockpit is roomy and capable of seating about 10 on chairs. The engine is a model GR, 4-cylinder Sterling.

Length over all	40	feet	0 inches
Breadth	9	"	0 "
Depth Moulded	5	"	0 "
Draught	3	"	0 "





Beachcombings

Dedicated to the Mid-West. With Humble Apologies to Poor Kipling.

Set me somewhere west of Detroit,
Where a man can race a boat.
And the rules and regulations,
Ain't aimed to get your goat.
Where they don't care a whoop in Hades,
If you race for coin or fun.
And the public knows the winner
As soon as the race is done.

We don't like to pry into anyone's affairs but there are a lot of things we would like to know. We wonder what Harry Jackson says to himself at the start of the Cruiser Championship, *sans* Victory? And how does Bob Power keep so nimble? And where does Jack Robinson get the rosy cheeks? And what does Harry Sampson do when he is not timing? And what would Jack Hanna do if the editors wouldn't print his stuff? What would Gar Wood do if there was a speed limit on the water? And what would become of the Beachcomber if the squirrels ate all the nuts???

* * *

Harry Jackson is responsible for this:
Hello Mate:

Just where is the bell buoy off New Rochelle? I want to lamp the finish of that match ocean yawl race because when "Tape" Fuller gives away anything, I've got to see it; I will be all ready for Bosun Gabriel and his megaphone.

The race won't be close. If there is any hootch connected with it Harry Curtiss can tow a raft and make Miss America II look like Patch.

And say! Where does Dizzy mine that prehistoric stuff? If his assistant is so smart, why did he not swipe the boiler so that the Disbrow Spiffy Six might have been invented, for, whisper, the Sage of Dunedin seeks a perfect engine for his newly designed hydro?

* * *

Howard Gardner sends us this one:—

"In that portion of the St. Lawrence noted for it's fast runabouts and charter boats, the owner of a fleet recently invested his surplus profits in a car. Being somewhat unfamiliar with it he naturally had a number of interesting experiences one of them being on a trip to a nearby city. On this trip he 'patted her on the back' or as the autoist would say 'stepped on her' till she was traveling at a good rate, suddenly a sharp right angle curve appeared in the road but instead of checking he put his wheel hard over, turned to one of the occupants and in an agonized voice shouted 'Lloyd, hold her off—hold her off!' Fortunately no serious damage resulted but the port side of the machine looked as though she had hit a dock real hard."

Photo by M. Rosenfeld

Biographies of Boatdom

This way people! Quick! Quick! Quick! You are going to miss the treat of your life if you don't crowd around. Gaze carefully on this noble specimen of the genus Americanus Architecturalis, species Navalis. Look him in the eye folks. See the grand look of *sang froid* with which the able Charlie Mower rests his eyes upon you.

Charlie used to be with THE RUDDER years ago and never got over it. He once hung his hat in the City of Brotherly Love and Dirty Subways but this also was put behind him and he has arisen, Phoenix-like from the pipe ashes and located in New York and way stations. He spends his days in the Borden building, probably because he overflows with the milk of human kindness. Honest folks he is awful kind. Once he gave the Beachcomber a job and he never raised his voice.

Aside from his fame as a designer, it is said that he is the greatest fire-engine driving yachtsman in the country. They put him on the fire-department at Plandome and after he had driven the engine to one fire the rest of the department quit. They didn't mind being burned to death in the course of their duty, but they were darned if they wanted to end their days under the wreckage of an auto truck. Luckily Charlie usually sticks to the water. His chief land sport is being the fall guy in a battle royal with chow dogs. He has been bitten so many times that he fears he will give hydrophobia to the next hound that takes a chance on him.

Needed Information

In this department all questions are answered relative to the care, operation and equipment of boats. When answers are required by return mail, postage must be enclosed.

Removing Carbon by Acids

Editor of THE RUDDER:

My two-cylinder two-cycle engine gave me trouble towards the end of last summer. There was a bad knock in one cylinder and after I opened the switch the engine would keep on running for several turns. I believe this is caused by a great deal of carbon in the cylinders. Are there any acids which can be poured in the cylinder and which will eat the carbon out?—F. X. G., Maine.

There are several liquid carbon removers on the market, but we think all of them are to be used while the engine is warm and just after she has been run. It seems as if you had a great deal of carbon and it is doubtful whether you can get it out without hand scraping or the use of acetylene. In the latter case, it is probable that you would have to take the engine to some shop where they have the outfit unless you can get some one with a portable set. As your engine is only a two-cylinder affair it would seem advisable for you to take it apart for the scraping. If the head is removable the job is very simple. The fact that you ran the engine in spite of the knocking, which was undoubtedly due to carbon pre-igniting the charge, may mean that you have worn the bearings badly with the early explosion coming while the piston is at the top of the stroke. This creates great pressure on the connecting rod and main bearings. Our suggestion would be to take the whole engine down and go over it carefully, cleaning the carbon by scraping at the same time. As a preventative of carbon deposits in the future, we might suggest the injection of not over one teaspoonful of alcohol in each cylinder at the end of every day's run. You must put the alcohol in while the engine is warm. If hard starting results, cut down the amount of alcohol.

Engine for At-A-Boy

Editor of THE RUDDER:

I have recently completed the speed launch At-A-Boy, built from plans shown in your issue of November, 1920. The engine bed was originally laid out to fit a Ford automobile engine but I have come to the point where I do not believe that engine will give me the service I desire. There are several boats so equipped in these waters and they have had a great deal of engine trouble. As far as reliability is concerned I feel that I will do better by buying the Universal engine specified in the story. Will I get as high speed with that machine as I would with the car engine?—B. N. J., New Hampshire.

The bore and stroke of the Ford engine is larger than that of the Universal, and at the same number of revolutions it will develop more power. Power without reliability is of no use. Even if you wish to use the boat for racing, it is not wise to take a chance on not finishing simply for the sake of a possible slight increase in the speed. The matter of the adaptability of the automobile engine to boat work has been taken up so many times that we cannot go into it again. If the car engine was a suitable plant for boat work there would not be a marine engine maker in the country.

Sloop vs. Yawl

Editor of THE RUDDER:

I have had a little experience with sailing yachts but not enough to be able to judge the merits of various rigs. I now plan to have a new boat for general service around Long Island Sound and am at sea as to whether I will use a sloop or a yawl rig. My club mates, all of whom have had years of experience don't seem to be able to decide upon my question. In fact if I bring the matter up when a crowd is around I immediately start a rumpus. Will you please decide the question for me? The boat is to be about 30 feet on deck and will be equipped with an engine. The idea is a comfortable craft with a fair amount of speed which can be handled at all times by myself and wife. —R.F., New York.

The usual yawl is a very handy boat, capable of being sailed by one good man providing it is a boat of the size you mention. In the case of a sudden squall the main can be doused entirely and the boat kept going under jib and jigger. The main can then be reefed at your convenience. The objection is that the average jigger is so small that the total area is reduced too much unless the wind is gale strength. That means that in all ordinary squalls the main will have to be reefed anyway if enough way is kept on the yacht to make her handle easily in the sharp seas which are apt to be whipped up. With a sloop having a gaff-headed sail, the peak can be dropped for a sudden blow and the area thus reduced enough for average summer conditions. If it does become necessary to reef it may require two hands on the sail and one on the helm. It is for this reason that we believe the yawl rig will work out better in your case as you only will have one available for sail handling.

May we suggest the compromise of the ketch rig: In this case the main is smaller than with a yawl and the jib or jibs and mizzen larger. Dropping the main reduces the area just about the right proportion. The mizzen is large enough to be of real help in light airs. The jigger of a yawl is of little value in light weather. When talking about yawls and sloops it is well to remember the experience of Joshua Slocum, who sailed around the world in Spray. She was sloop rigged for the best part of the journey, and Slocum handled her entirely alone. He afterwards changed to a yawl rig but found the jigger of no use when before the wind. Under those conditions he kept the sail furled.

Commercial Boats

Down East Lobstermen

By F. G. Milliken

With the annual opening of the important lobster fishing season in Canadian waters of Charlotte county, New Brunswick, to be followed in December by the annual opening in the extensive waters of St. John county, New Brunswick, a great fleet of power and sailboats are engaged in this fishing industry across the border, running to May 24, and since the opening of the season thousands of crustaceans have been caught in slatted traps, or "pots" and brought to the New England seaports where they are always in demand.

The many fishermen of the long coast-line of Nova Scotia, Canada, were given special concessions by their govenment and allowed to fish for lobsters from Nov. 1 to Dec. 15, and this opposition for the first time in Dominion waters caused a great drop in former prices for the usually prolific, toothsome and palatable shell-fish which are so plentiful in the above waters, for the principal catches are made in the Bay of Fundy.

The New Brunswick fishermen have thousands of traps set out in Passamaquoddy Bay and Bay of Fundy, baited up with herring, clams, pieces of flounders, sculpins, squid, pollock, hake and codfish to lure the slow-moving lobsters inside these "pots", and it is stated that more than 800,000 traps are used during the long winter season in the above bays, also near the shores of Canada bordering on the Atlantic, and there are 250 lobster canneries owned across the International boundary that employ ten thousand men and women when operated later.

In these photos are seen the types of Canadian powerboats that have been used in the sardine fishing season running from April 15 to Nov. 30, furnishing millions of hogsheads of fish to the 25 sardine canneries operated at the far East frontier coast towns of Eastport, Lubec and far up the border river St. Croix, for during the busy season these factories require from 800 to 1,000 hogsheads of herring daily (10 bushel baskets to every hogshead) and the prices for the entire season had been $5.00 per hogshead up to Nov. 15 when fish became scarce and several canneries were closed for the season, while fish advanceed for the closing two weeks.

There are many of the smaller powerboats owned by Dominion fishermen in Passamaquoddy Bay, seen in the photos, that are used in hand-line and trawl fishing for cod, hake, haddock, pollock, and occasionally halibut, as these canoe-shaped crafts of 30 to 35 feet, equipped with 7½ to 10-h.p. gasoline engines are operated during the fall and winter at a great saving in fuel and can go into small coves and rivers where the larger "sardiner" is of little use at certain parts of the season.

There are more of these canoe-shaped Canadian crafts owned at all Dominion island settlements than other models, but within the past two years the "turnback" or inverted stern, fishing craft has appeared, and has been found most satisfactory to the fishermen Down East near the frontier coast of Maine. Some boatmen have taken a liking to the square-stern model, and there are many fishing crafts of these small types having the sharp keel similar to the blade of a hollow-ground razor. Center-boards are rarely seen in any fishing boat in the above Canadian bays, or even in Eastport harbor, as they are not looked upon with favor by these hardy fishermen who furnish the majority of their daily catches of all kinds of fish to the New England seacoast markets, and catch 60 percent of all herring used in the Eastern Maine sardine canneries so that the larger part of the Canadian herring fishermen depend on the Maine sardine canners for their greatest sales, for only two sardine canneries had been operated on New Brunswick shores during the past short season, and both were closed before Nov. 15 for the winter.

(Continued on Page 39)

Scenes Along the Eastport Waterfront Among the Lobster Fishing Fleet

The Young Skipper

Boats for Beginners

The young man who wishes to enter the great combined sport and recreation of boating, must look sharp to keep from falling into the many pit-falls that yawn open for the rank beginner in boating. In the first place he often buys or attempts to build a boat that is far too large for his ability. Not only does this apply to the expenses of operation, but the knowledge of boat handling must come gradually. A common idea is that any man who can operate an automobile can run a boat without further instruction. He therefore steps into a 15 or 20 miles an hour boat and make a botch of the handling. If he is not more than usually unfortunate, no great damage is done.

The driving of fast boats or large boats is an art that can be acquired only by experience. The young man entering the game should therefore get a small and medium speed boat. If he desires a sailing boat he should get a craft with a small sail area and a craft that if capsizable is nonsinkable. In some ways a small cat boat is ideal as the rig itself is easy to handle. On the other hand a cat boat is often harder to handle in a breeze than a sloop. The addition of the jib makes more running rigging, but the intelligent use of the extra sail often permits quicker handling than would be possible otherwise.

Young men often make the mistake of thinking that a cabin boat is the only craft that will suit them. As a rule an open boat, with some locker space so extra clothes, lunch, etc. can be kept dry is a far better all around craft than a cruiser. Being smaller, lighter and lower in freeboard it is easier to handle. The view from the steering point is unobstructed in every direction. Also the up-keep, laying-up and fitting-out expenses and labor is greatly reduced.

Don't feel that you must have as fine a craft as those who have been in the sport for years. It is axiomatic that it is better to grow than to recede. If you get too large a craft in the beginning you are likely to get a smaller one after a while. Start the right way however and your boats will grow as you get older and financially better able to take proper care of them.

Another, and very important point. Do not, under any circumstances, buy a wreck because someone tells you that all it needs is a couple of planks and a new frame or two! It is easier to build a new boat from beginning to end than it is to tear apart and rebuild a worthless hulk. In every case you will find that as soon as you start to rip out old parts you will discover more and more work. Time after time have I seen young fellows put in months of work only to give up in despair when they found the craft they bought with such high hopes, disintegrate into a few piles of rotting frames and checked and warped planks. If you can't afford a new boat, get a second hand one that is in commission.

They Start 'Em Early at Detroit *Photo by M. Rosenfeld*

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, 9 Murray Street, New York City, U. S. A.

Yachting in Spain

EDITOR OF THE RUDDER:

Thinking that some of your readers might be interested in hearing about yachting in Spain, I will give you a few words on that subject.

As a rule in Spain there is no desire among the young men for cruising or yachting of any sort. They do have yacht clubs along the Northern coast, such as at San Sebastian, Bilboa, Santander and Gijon. The races take place when the king shows up in Summer. It is more than anything else a social affair. Some members even have English skippers to man their boats. After the races are over very few of the racing sloops remain in the water. These races last only a little over a week.

As far as cruising is concerned; very seldom do you meet with a power or sail yacht along the coast. I never saw one out for pleasure. Can the reason be that the Cantabric Ocean is a troublesome sea? That I could not tell. In Summer there is not much danger if you have a good boat and it is properly handled. You might get some very strong winds from the East and occasionally from the Northwest but the prevailing winds in Summer are from the Northeast.

If you are cruising in the latter part of October you had better watch out because then anything might happen. If you are caught by a "galerna", which is the Spanish term for local storm,—then God help you! They come like a shot without any warning, for by the time the glass falls you are in the midst of it. This reminds me of a little trip I made some years ago from Ribadeo to Luarca, only 30 miles distant.

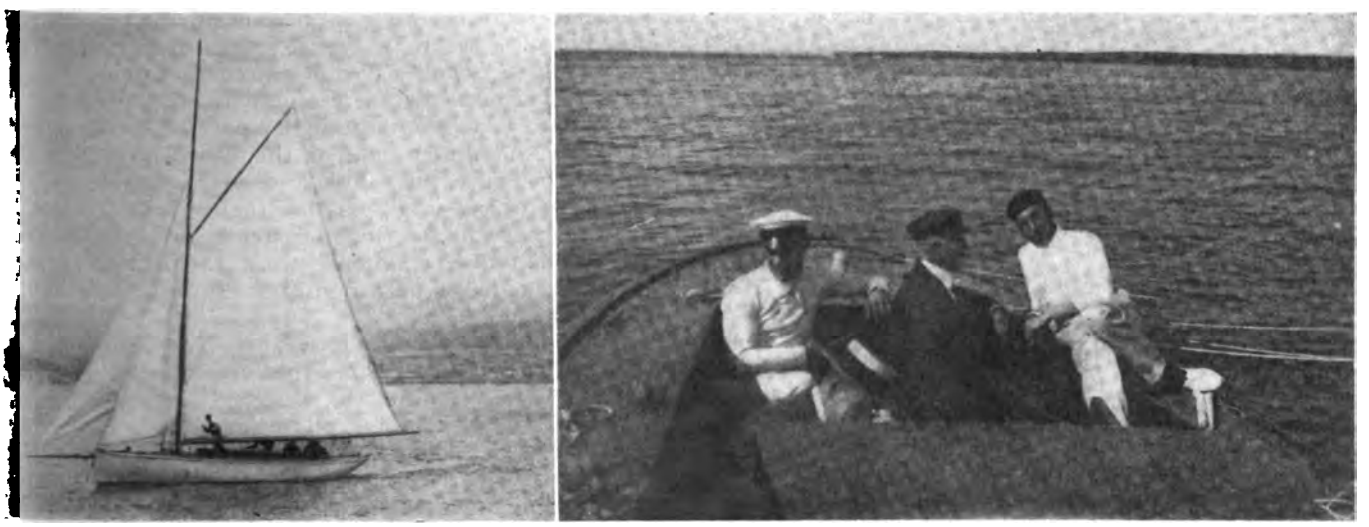
We left at midnight in my 32-foot sloop, which, by the way has sails made by George B. Carpenter and Company of Chicago 14 or 15 years ago and still in tip-top condition. We were expecting to reach our point of destination about daybreak, taking advantage of the breeze that blows from the land in the early hours of the morning. Our party consisted of five friends and two paid hands.

With every bit of canvas spread, there was hardly enough wind to make us move, but the outgoing tide helped us out. Had I known what was to happen later, I would much rather have had the tide going the other way. We were not out more than half an hour when a light breeze started to blow from the Northwest. This should have been a warning to us to beat it back. I looked in that direction and saw a barrier of clouds coming up. I talked it over with my friend Luis, but he did not seem concerned about it so I said "Let's go".

Half an hour later we took in the topsail and flying jib. The Northwest wind kept getting stronger each minute. Next down came the jib and we took two reefs in the mainsail. Well,—to make a long story short we took in the mainsail and left only a small storm jib and even then we were sailing close to 10 miles an hour in a following sea. By 3 a.m. we had to our starboard side the light of Cape Bustos. Not wanting to run past Luarca we turned about and hoisted our mainsail with about 1/5 of the area, for I use a reefing ma hine.

The rest of the night we were fighting the weather to windward, not going ahead one foot. Around 7 in the morning we were able to enter Luarca. A week later we set out again to return to Ribadeo. We left at 3 a.m., arriving home at 7 p.m. with the Northwest blowing all the time right on our bow, so we had to tack along the coast.

Louis A. Pinon



One of the Few Cruising Yachts, Owned in Spain. She is Fitted with Sails, Made by Carpenter, of Chicago, 15 Years Ago

The Engine Room

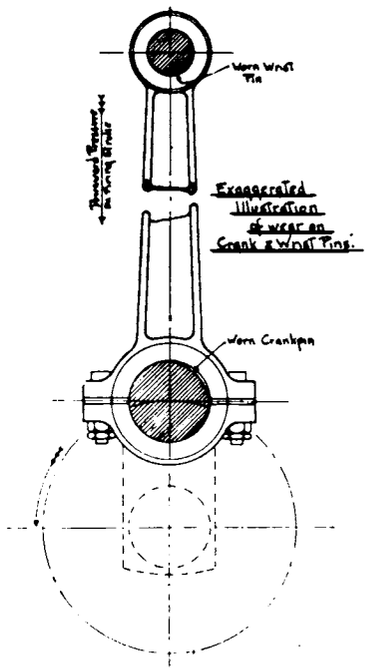
Wear And Its Compensation

By K. M. Walker

The length of time that an internal combustion engine will run before overhaul, necessarily depends principally upon two factors, the nature of service it is called upon to render and the care that is administered. In the average pleasure boat that is used only over week ends during pleasant weather and that is laid up over the winter the engine will, if given proper care, often last five or six seasons with only an annual grinding of valves before overhaul is necessary, depending largely upon the type. The high and medium speed engines require far more attention and compensation for wear than the slow turning heavy duty machine. In the average work boat, called upon for continuous service, wear generally becomes objectionable after but one season's use.

The effect of wear is most apparent in cylinder walls, pistons, wrist pins and crankshaft bearings. The symptoms accompanying these disorders consist of loss of power, abnormal consumption of fuel and lubricant, low compression and serious knocking and other noise.

Wear is caused in cylinders by the friction and the pressure of the piston rings, the high temperature present in all internal combustion engines that breaks down the lubricant and affects the physical properties of the material of the cylinder walls and last but by no means least the gradual abrasion caused by small particles of carbon finding their way down into the crankcase. It is conservatively estimated that cylinders will wear approximately .001 inch for each 100 hours of service.



If a cylinder would wear evenly all around for its full length a new set of rings would overcome a great deal of trouble and save considerable expense; but such is not the case, as invariably a cylinder will wear out of round as there is much more wear where the rings bear than where they do not, causing the cylinder to become barrel-shaped in the bore. The installation of new piston rings alone will not help these conditions and it is impossible to fit a ring to a cylinder that is worn out of round and when the diameter is not uniform.

The only remedy for worn cylinders is regrinding and, of course, the fitting of new pistons with the accompanying new wrist pins and connecting rod bushings.

The oil in the crank case should be changed frequently by draining out all old oil and grit, washing the crank case thoroughly with kerosene or flushing with a grade of oil now on the market especially for this purpose, which is far superior to kerosene as, if it does not drain away entirely, it will mix with the new lubricating oil and not cut it and destroy its lubricating qualities as will kerosene.

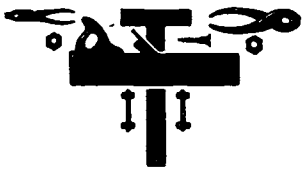
This should be done two or three times during a season as carbon is continually finding its way into the crank case which if allowed to accumulate finally gets into all bearings and results in rapid wear. The condensation of mixture leaking past the piston rings also combines with the oil in the crankcase and will accumulate until in time it seriously impairs the lubricating qualities of the oil.

The crankshaft and its bearings are subject to two kinds of wear, the first being the result of grit or gasoline in the oil or a low oil level causing the crankpins and bearings to become scored. The second kind of wear is due to pressure causing the crankpins to become out of round as during the firing period an excessive downward pressure is brought to bear upon the upper part of the crankpins and also the under side of the wrist pins that will ultimately cause the crank and wrist pins to become flattened for a small part of their diameter and to cause play in the bearings. After a pin once becomes slightly flattened, additional wear rapidly takes place that is decidedly detrimental to satisfactory engine operation.

One remedy for such wear is regrinding which reduces the diameter of the crankshaft and pins slightly, but all properly designed engines have a factor of safety that will allow for such a repair. In a reground crankshaft, however, it is not possible to use bearings carried in stock by dealers and it then becomes necessary to have them made or rebabbitted and machined especially to suit. The only other remedy for a worn crankshaft is a new shaft.

The Work Bench

This is a monthly department for yachtsmen who build their own equipment. In each issue there is a question pertaining to the design and construction of some item of equipment for power or sailing yachts. For the best answer each month THE RUDDER *gives a credit order for $25.00, which will be accepted in payment for goods handled by any advertiser in the current issue. Contestants whose answers are published, but who are not first prize winners, receive a credit order for $5.00. Readers are invited to suggest questions. Prize orders will be mailed directly after publication.*



Drawings must be made with black ink on white paper or tracing cloth; lettering as large and clear as possible, and all dimensions plainly marked, as the reproductions will not be to scale. Descriptions limited to about five hundred words. Answers must be received on or before the first day of the month preceding publication. Address Contest Editor, THE RUDDER, *9 Murray Street, New York City.*

QUESTION FOR THE MARCH ISSUE

What practical suggestions can you make to marine engine builders, based on your own experience. Answers must be received on or before February 1st, 1922

GLASS ENCLOSURE FOR RAISED DECK CRUISER

Answer to Question in November Issue—$25.00 Prize Winner

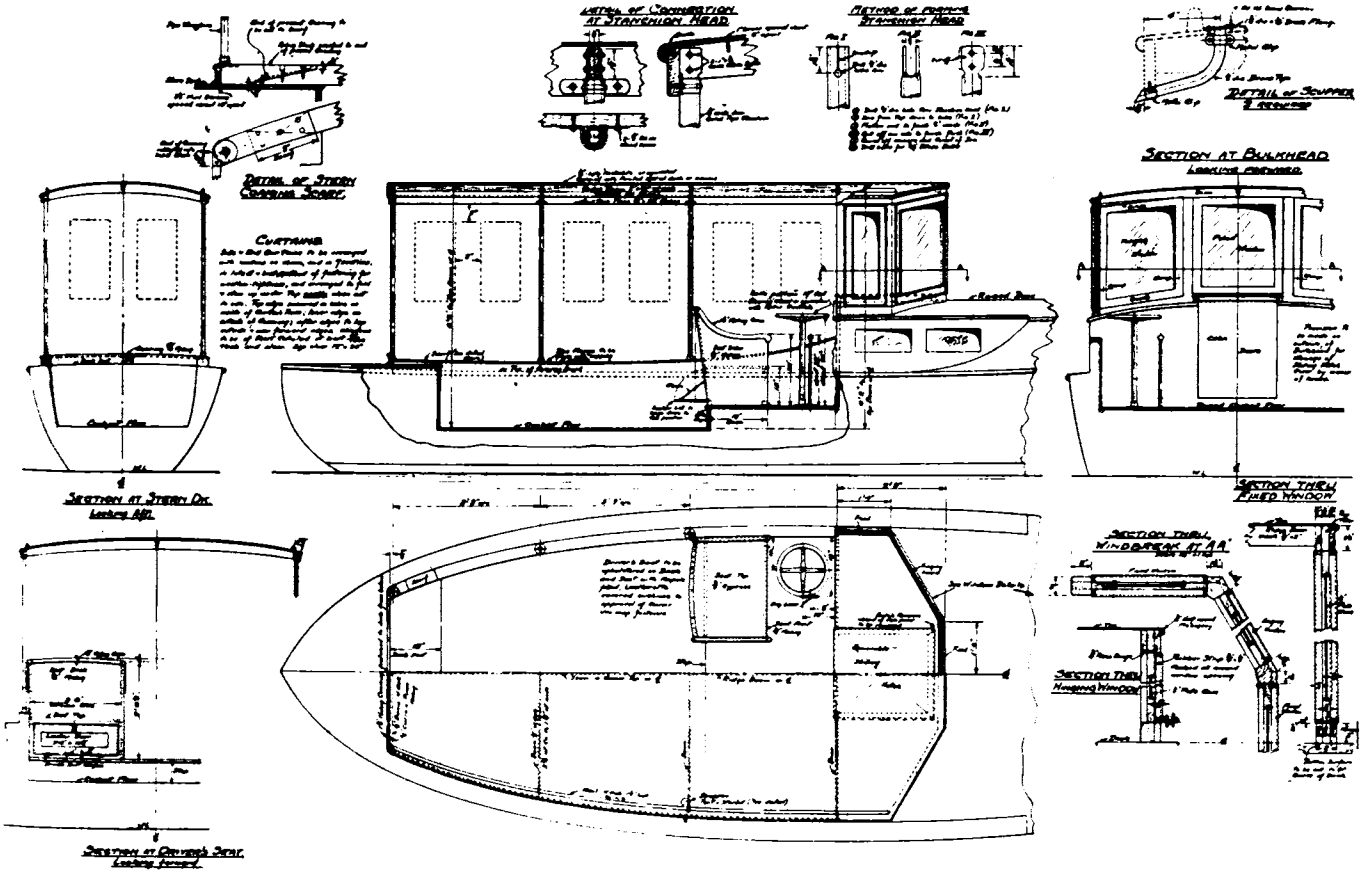
The accompanying plan illustrates a simple method of building and installing a glass enclosure around the forward end of the cockpit of a popular type of raised deck cabin cruiser; also a suitable type of fixed top for the cockpit to combine with the enclosure.

The headroom in the cockpit should be 6 feet if possible. The driver's seat raised high enough, so as to give a good range of vision over the bows.

The glass enclosure is built around the existing sliding hatch opening. The sliding hatch cover is altered so that it can be pulled right out of the slides and be stowed on the after side of the cabin bulkhead. The slides are cut off forward of the hatch opening, so as to eliminate the necessity of providing for the cover if left to slide forward through the enclosure. The hatch opening being within the protection of the enclosure it is then necessary to shift the cover only when locking the cabin entrance.

The center and small side windows are fixed, but if desired they could be made to hinge up similar to the others. The opening windows are so constructed as to hinge inwardly. The hinge is on the upper edge, and two clamps on the lower portion of the sash keep it bearing tight against the rubber strip around the window frame. When the windows are open they are hooked up to the roof and are thus out of the way, leaving a clear opening for air and access to the forecastle deck.

Sliding side curtains with clear celluloid windows are an added comfort to the cockpit on wet, windy or cool evenings.—C. G. MACG., N. Y.



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National Power Boat Show

The annual Power Boat Show will be held in New York City, February 17th to February 25th, 1922, at GRAND CENTRAL PALACE, 45th Street and Lexington Avenue.

The Show's the Thing

As you read this, grim winter, with its slush and ice will be upon us; or at least, those of us who inhabit the nothern climes. Just why we live here is one of the great mysteries of life, but that has nothing to do with the object of this editorial.

With the winter comes a gradual reduction in yachting spirit, which starts as soon as the boats are laid-up for the off season. The Show is the first brightening which portends the dawn of a new season. Many yachtsmen do not seem to realize the immense value of the Show from the standpoint of the general boat owners. The Show shares with the publications devoted to yachting the honor of bringing in more new men into the game than all other agents combined.

There is a silly habit amongst some yachtsmen of sneering at the Show; saying, "I don't want to see the Show. What is there to interest me!" These men seem to think that as long as they have a boat there is no need for them to see and study other fellows craft. One might as well argue that as long as one can sing there is no reason for their going to the opera. The success of any exhibit, be it of paintings, picnic hams or power boats, lies with those who visit it. Every up-to-date manufacturer of boats or boat equipment is now devoting his time and money towards arranging an exhibit of his goods for your inspection. Don't make the mistake of thinking that he is placing his product there just because he wants to sell his particular brand. The trade supports the Show because it is very valuable propaganda for the sport. They require and deserve the support of every boat-owner and boat enthusiast in the country. Arrange your affairs so that the week of February 17th-25th will be free. Start in now and urge your friends to visit the Show. One yachtsman of our acquaintance makes a habit of taking five young men each night to the exhibit. He picks out those who have had little in their lives to lead them to the water. In that way he starts thirty-odd fellows off with the best hobby that man has ever known. Why don't you try the same plan? Make up a schedule and take one or more friends to the Show every night. It wont cost you a great deal, it will help you to check off some of the social debts that we all have and it will help us all.

Remember one thing, the more men we get in the sport the greater political and economical bargains we can make. Prices of boats, engines and equipment will come down in almost direct proportion to the number of buyers. The reason one can buy a car for as low as $325.00 is because of the number of purchasers. The reason why the automobile owner gets a better deal from the legislators is because he and his innumerable fellows control a lot of votes. Boost the sport, morning, noon and night. There never can be too many yachtsmen.

Martin C. Erismann

It is with deep sorrow that we record the sudden death of Martin C. Erismann, a clever designer and one of the greatest friends the boating world ever had. Erismann was a profound student of the small-boat and gave to the world many designs, each of which were marked with his strong personality. His work was marked with strong individuality and an Erismann yacht could usually be picked out of a fleet at a glance.

In the course of more than two decades of professional employment, following the completion of his school years—which include a course in naval architecture at Glasgow University—he made a study of every type of small vessel known to the world. His collection of data and plans of boats was probably the most complete ever arranged. From the ships of the ancient Vikings to the craft of today, his collection was complete. No matter what type or size of craft was desired, Erismann could produce lines and constructional plans as well as the more technical details of calculation.

In the November issue we published what was probably the last of his small boat designs. His striking individuality as well as his passion for detail is strikingly illustrated in that boat.

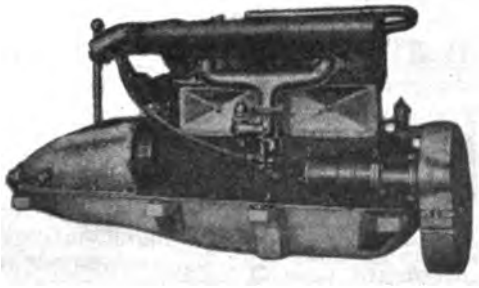
Two Corrections

We regret that in both the November and December issues we allowed mistakes to be printed. In November we published, by request, plans of the yacht Seriola, originally built for E. P. Hussey M.D. of Buffalo. This boat was designed by the firm of Bowes and Mower of Philadelphia and not by Mr. Mower individually.

In the December issue we neglected to state that the auxiliary Sea Maid, our "How To" feature of that issue was designed by Chester A. Nedwidek of New York. This information was contained in the Contents but was not mentioned in the article itself. The general idea of the boat was laid out in this office, but Mr. Nedwidek should have the credit for the working out of the plans and all the details.

The Majority of the Florida Fishing Fleet *is* Scripps Powered

At Trolling or Full Speed They Respond Instantly



Ask any Scripps' Owner

Send for Booklet

"The Motor that Crossed the Atlantic"

Built in Sizes From 10 to 125 H. P.

IN order to show the world the reliability of our motors we built "The Detroit," a 35'x8' motor boat, equipped with a 12-15 H.P. SCRIPPS MOTOR, and ran her, under her own power, every inch of the distance from Detroit, Michigan to St. Petersburg, Russia (now Petrograd). The start was made from Detroit, on July 2, 1912. She arrived in St. Petersburg September 13, 1912—6008 miles with ABSOLUTELY no trouble. Ask Thos. Fleming Day, her skipper, or Walter Moreton of Boston, they will tell you. No other manufacturer has dared to attempt a similar demonstration of reliability. A Scripps motor will run when nearly upside down, as demonstrated by Larsen's trip through the Niagara Rapids in October, 1911. Do these wonderful demonstrations of reliability and stamina mean anything to you?

SCRIPPS MOTOR COMPANY, 5822 Lincoln Avenue, Detroit, Mich.

Data on Higher Speed Craft

(Continued from Page 12)

weigh 30 lbs. per cubic foot, (12 board feet). White oak weighs 53 lbs. and Phillipine mahogany weighs 37 lbs. Include 300 lbs for weight of crew of two in case of a displacement boat, and omit in the case of a hydro, as performance of such hulls has been judged on weight of hull, engine, hardware and fuel, but without crew.

TABLE OF WEIGHTS, ETC.

	Name of Boat	L.O.A. Feet	Beam Feet	Weight Lbs.	B/L	W/P	Power
Displacement Boats	Nick Nack	32	6.5	3,100	.203	15.5	200
	Adieu	32	6.5	3,600	.203	18.0	200
	Leopard	32	6.9	4,500	.211	20.0	225
	Rainbow I	32	7.0	4,702.5	.219	20.9	225
	Baby Gar	33	6.5	4,355	.1908	10.5	410
	Ramaley Hull	25	5.6	2,850	.2264	17.8	135
	Ramaley Hull	26	6.16	2,850	.2303	11.40	250
	B.M.B.C. Hull	21	4.25	1,436	.2024	38.32	38
	B.M.B.C. Hull	21	4.33	1,531	.2062	34.02	40
	Buddy	15.5	4.5	750	.2903	50.00	15
One-Step Hydroplanes	Margaret III	16.0	4.66	750	.2912	30.00	25
	Miss Quincy IV	16.0	4.66	750	.2912	30.00	25
	Cadillac IV	18.0	5.33	1,200	.2961	27.1	70
	Miss America II	32.0	8.33	6,000	.2603	3.03	1800
	Docs	18.0	5.33	1,000	.2961	10.0	100
	Thorneycroft Hull	15.0	3.40	672	.2267	13.44	50

Appended is a table of necessary data for comparing the speed performance of such boats in conjunction with the curves. Empirical dimensions and conservative speed ratings have been used because the data was collected from such widely varying sources. They will be found to be as close as possible to get them in a table of this type without having a clutter of explanatory notes. Mr. White in his letter to us says of the Fisher Trophy boats, "My personal observations of the boats would rate them as follows as far as maximum speed is concerned: Rainbow II, Nick Nack, Adieu, Leopard, *ex* Miss Sterling, Rainbow I. The race results may not bear out this statement but trial data and short run speeds do."

Log of a Waterlog

(Continued from page 17)

feet, letting me down behind till my after-cabins are awash. My stack has sheared her rivets, and teeters at a crazy angle. The seas roar around my sides, and slosh over my hatches. Inside, its a curdled mess, red as blood and frothy with the constant squirting in and out, while a tell-tale streak of gore spills off to leeward, like the trail of some wounded whale.

Old Favorite comes heaving and tossing across the Bay to give me the once over, and wish me luck. A hell-uv-a-lot of good it does to stand off there and wish me luck on the 13th. I'll fool them all yet.

Friday, Dec. 17th.—Still howling and freezing outside. But I scarcely feel it now. Hour by hour a sheathing of ice has been building up around me. The racking pains of a few days ago seem dull and far away now. When you get to a certain point in this freezing game, you almost enjoy just lying and dreaming. Your worries and fears fade away, and it feels good to just stretch out in one long blissful snooze. I hear a faint call, and come-to just enough to see Favorite steam a-

round like some ghost at a wake. She is all ice too,—a phantom ship. What's that they're yelling?—"be back next Spring?" Oh, well, I can wait. Only go away and let me sleep. Stop bothering me. Here take this, my log it is, keep it.

If you are up the Lake next Summer, get out on deck two hours after you lock through the Soo Canal. Wait till you get abreast of Whitefish Light, then look off to the North. Here, I'll draw a map for you. Maybe a battered hull will be sticking it's nose out of water away across the Bay. Maybe you'll see just water. If you do, perhaps you'll remember that here Davy Jones got one more souvenir for his Hope Chest last Christmas. Now get out of here, and let me rest.

Down East Lobstermen

(Continued from Page 31)

Just a year ago on the opening of the lobster fishing season in New Brunswick waters every lobster was worth thirty cents each, and advanced until the unusually high price of 80 cents was secured by boatmen coming to the far East frontier seaport of Eastport, but when the fishing season opened this month prices started at twelve cents per pound, for all catches, running from two to four pounds, and there are indications of even lower prices before the year ends, since the big opposition from Nova Scotia fishermen has caused this reduction, of about two thirds of the cost of just a year ago.

It is stated that fully 600,000 gallons of gasoline, kerosene, (and a small amount of crude-oil) is distributed during the busy sardine fishing season at the frontier city of Eastport, most of which is taken to the many neighboring islands and coast towns off the railroad; but not much crude oil is available in this coast section and boatmen having such engines installed in their craft find kerosene of value, but gasoline is the principal fuel of the lobster fishing fleet now operated across the imaginary boundary line.

There are regulation lobster traps, holding 35,000 live lobsters, moored in many small harbors and coves, a few being owned by Eastport lobster shippers, and one seen in the photo with type of 55 foot fishing craft that carries 5,000 live lobsters frequently from New Brunswick waters to the Down East seaports, and there are many similar craft now being operated, although the majority of Canadian lobster fishermen are content with smaller craft after the sardine canning season is over in November and the larger fishing boats are moored, or tied up, for the long winter months to cut down expense.

These canoe-shaped craft, and in fact most of the other boats now in commission, have a speed of 8 to 10 knots, as there are not many boats used in Passamaquoddy Bay that are much faster, although a few herring fishing powerboats with 45- or 50-h.p. engines can make 12 knots, and there is one sardine carrying craft in Eastport harbor—the Calumet 11, owned by MacNichol Packing Company, having speed of 16 knots, but she is equipped with steam boilers, and was formerly a yacht when owned by the late Bishop Codman of Maine Episcopal church.

There are very few yachts owned in Eastport harbor but plenty of small pleasure craft for short trips are in commission during the summer season, and now that the lobster fishing season has opened there is

considerable activity among Canadian boatmen in the above bays gathering up crustaceans for New England markets while weather conditions are favorable for operating the great fleet of open boats now so plentiful. While millions of tiny lobster fry had been scattered along the waters of Maine, as far East as the frontier boundary river St. Croix, in recent seasons by Government hatchery craft there are not many lobsters caught in Eastport harbor, and up the St. Croix, for the shell-fish seem to prefer the deeper waters of the Bay of Fundy and Passamaquoddy Bay and it is probable that the larger part of these Maine hatched fry later crawl into Dominion waters to be caught by fishermen across the border, and later brought back to be sold to New England dealers.

It takes six years for a lobster to grow to 9 inches, and every year they grow one inch, and until the female lobster reaches 10½ inches she does not have her first batch of eggs. From 20,000 to 25,000 eggs have been found on the mother-shell; often a larger number reported, and when these eggs are liberated in the salt waters they float on the surface for 4 to 5 days, an almost formless mass, until the churning removes the dirt and hairs from the mother lobster, and bits of shell, so that the tiny fry soon comes forth; but millions are eaten by birds and various fish before they become heavy enough to sink to the bottom and are safe under rocks and eel grass to grow into the profitable lobster now being caught in thousands of slatted traps with net pounces suspended in the center, holding various kinds of tempting fish, for lobsters are attracted by smell, and move backwards.

When confined for any length of time in traps, or even the large cars, without their big claws being plugged with pieces of sharp sticks, they are cannibals and will fight until every claw is broken off, and occasionally the fishermen find in their traps many pieces of lobsters that had been killed and eaten by the survivor. When tossed into the large cars, to await shipment to the markets, they are rarely fed as there is plenty of food to be sucked out of the swift running salt water passing through the cars with many small opening on all sides moored in the bays during the entire season.

ALASKA FOREST RANGERS USE POWERBOAT

A forest ranger who rides a powerboat instead of a horse would be a novelty in the Western States, but is the rule in the Tongass National Forest, Alaska. In a report to the United States Department of Agriculture, of conditions there, E. A. Sherman, associate forester, writes as follows:

"The Tongass National Forest is completely equipped with an admirable system of waterways. Here, instead of saddle and pack horse, the ranger rides a seagoing powerboat. He guides his steed by means of a wheel instead of reins; feeds it gasoline instead of oats; tethers it at night with an anchor in some sheltered cove instead of with a picket rope in a mountain meadow, and uses the paint brush in lieu of a curry comb."

Rangers in that national forest travel in couples, two men to each boat. The boats are staunch, sea-worthy craft, 35 to 40 feet long, equipped with 25-h.p. engine, and with fully enclosed cabin and pilot house. Except when they are at headquarters or actually at work in the woods, the rangers eat, sleep and live on their boats.

"Summer is the busiest season," Mr. Sherman reports. "Their day is not an 8-hour day, but usually a 16 or 20-hour day, with only 1 man actually on duty while the boat is running. The ranger is just as proud of his boat as the Bedouin horseman is of his steed, and the ranger boats in Alaska are the most distinctive craft sailing the waters of the Alexander archipelago."

Designing Marine Gas Engines

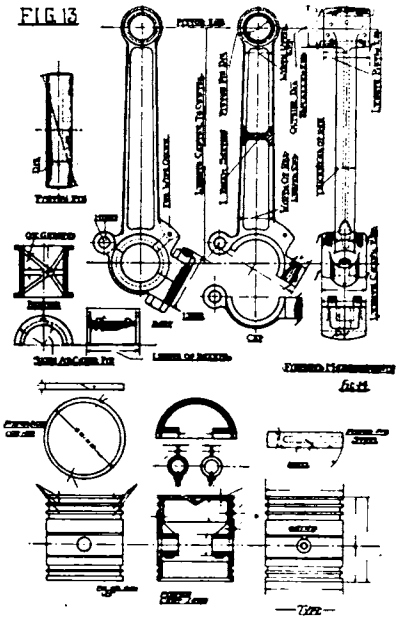
By Chas. Desmond

Note—Parts 1 to 7 have appeared in previous issues of THE RUDDER

Design of connecting rod

The factors to be considered when designing the connecting rod of a marine gas engine are (a) the maximum explosion

FIG 13



pressure per square inch of piston head, (b) length of connecting rod from centre to centre and (c) the M.I. of selected connecting rod cross section shape and area. Before proceeding further we will exulain the meaning of the term M.I. M.I. means *Moment of Inertia*. And as the *moment* of any physical agency is the product of force and distance, and *Inertia* is a term expressive of that indifference to a state of rest, or motion, which is the universal property of matter—the sum of the force required to overcome the inertia of a body, whether to start or to stop it, is named the MOMENT OF INERTIA. Moment of Inertia (expressed as M.I. or as -I-) deals with the rotation of bodies around an axis. The axis can be either within or without the body and it naturally stands to reason that as distance enters into the calculation, the further the mass of the body is away from the axis around which it is supposed to revolve, the greater will be the force necessary to stop the momentum, or to start the mass revolving if it is necessary.

In the case we are dealing with (reciprocating engines) the mass is composed of the unbalanced parts of engine that rotate around the axis, which is in this case the centre of crank shaft. Calculations made to determine strength of connection rods in their plane of motion and at right angles thereto indicate that rods having circular or square cross sections of sufficient strength to resist the bending effect of inertia in their plan of rotation and the friction of crank pin are approximately 2½ times as strong as needed laterally. It therefore is apparent that weight can be saved and M.I. of moving parts reduced by selecting a cross section shape which gives only the needed strength both laterally and in the direction of travel. An examination of available cross section shapes indicates that a properly proportioned I cross section, having rounded corners and angles filled in gives required strength in both directions and lowest weight per unit of length. On fig. 13 we have outlined such a cross section and we propose to use this shape for connecting rod of engine we are designing. The average proper proportion of height to breadth in an I section connecting rod for use in small gas engines having a piston speed of not over 300 feet per minute, lies between 2.5 and 2.7. And knowing this and the approximate length of rod required (it is twice the length of stroke) it is an easy matter to determine the required sectional breadth by using this formula.

$$\text{Breadth} = .046 \sqrt{L \times B} \sqrt[3]{3.5}$$

Where L stands for length of rod from centre to centre. B stands for cylinder bore in inches. 3.5 stands for increased pressure on piston during working stroke.

Substituting the proper figures for letters in formula we get

$$.046 \sqrt{11 \times 5} \sqrt[3]{3.5} = .515$$ "or about 33/64ths (say 9/16)"

And if breadth of cross section must be 2.5 times width we get

$$.515 \times 2.5 = 1.257$$ inches (say 1¼ inches)

Regarding details of piston and crank pin ends. We have already determined that piston pin diameter should be between .225 and .250 of piston diameter and its length between 2.16 and 2.25 times the diameter. Using .225 we find that pin diameter must be 1.225 inches and that a length of 2.63 inches of pin support is required at piston pin end of rod.

Now it is possible to either secure the pin to connecting rod and allows ends to rotate or move, in piston or to secure pin to piston and allow rod to move on pin.

As in this case there is a sufficient piston diameter to permit rod to have the needed bearing length, we have decided to secure pin to piston and allow rod to move on pin. The advantages of this method are lowered construction cost, possibility of having better oiling of connecting rod bearing at pin and slight reduction in friction.

The piston end of rod must be properly bushed with antifriction metal and the outside diameter must be sufficient to leave a proper amount of metal after rod end is bored out to receive the bushing. (1/8 to 3/16 of an inch of metal outside of bushing is ample in this case).

As connecting rod will move on piston pin it will be necessary to partially drill pin for the purpose of forming an oil passage from outside of piston to bushing on connecting rod. This detail is clearly shown on Fig. 14—Piston pin.— Regarding crank pin end of rod; in two-stroke engines of type we are designing it is advisable to have a minimum amount of crank case diameter and clearance because of the necessity of obtaining the crank case pressure required to transfer charge from base to cylinder at proper velocity. Crank case diameter depends upon the outside diameter of path followed by connecting rod bolts when crank is revolving, and as minimum diameter of path can be obtained by using a hinged lower box having its bolt placed at an inclination I will use a lower box or cap of that type. On fig. 13 is shown a rod having hinged cap, the parts being marked for identification.

The stress in bolts of connecting rods is almost entirely due to inertia pressures at end of stroke, therefore if the inertia of moving parts and the stearing value of bolt material are known, the required bolt area can be determined. It must not be forgotten that diameter thus found will only represent the required diameter at ROOT OF THREAD, which averages between .65 and .7 of the required bolt diameter.

The connecting rod of engine we are designing requires a bolt having ⅜ inch diameter and made of nickel steel.

Required diameter and weight of fly-wheel.

The function of fly-wheel is to keep engine speed constant. Even moderate variation in speed brings added strain on the parts of an engine and also produces undesired vibration of the hull in which engine is installed.

At each working stroke the speed of a fly-wheel attached to a gas engine increases a certain amount above the average and during the interval between working strokes fails an equal amount below the average. So the fly-wheel must have sufficient weight distributed over a sufficient diameter of wheel to hold the variation in speed between the working and idle strokes down to within a prescribed limit, which in marine engines is about 3% of piston speed.

Regarding diameter of fly-wheel: a careful analysis of wheel diameters on existing successful single cylinder marine engines of type and size we are dealing with indicate that diameter averages between 3 and 4 times the length of stroke.

And it is obvious that as in multiple cylinder engines the inertia of moving parts in one cylinder is, to a certain extent, balanced by the inertia of moving parts in another cylinder (the cylinder having crank throw opposite) the maximum diameter and weight of fly-wheel is required on single cylinder engines.

(*To be Continued*)

CHALLANGE FOR 6-METER RACE

At the meeting of the British Committee in charge of the 6-Meter International Yacht Races it was decided to challenge for a series of races to be held here next summer. At present only one yachtsman on the other side has promised to build a new boat for the contest, but a series of elimination races will be held in which some of the last years winners may prove to be still good enough to be sent over here. It has been stated from time to time that the races in this country would be between boats built to our rule. However, next season's races will still be between yachts of the 6-meter class. It is probable that the two Gardner-designed yachts which we sent abroad last summer will engage with some new boats of the class here in elimination trials.

* * *

DATES FOR CHICAGO RACES

There seems to be some erroneous reports circulated in regards to the Pageant of Progress races at Chicago next summer. In our issue of last October we announced the races as being scheduled for July 29th to August 13th inclusive. These latter dates are correct. It must be remembered that these races are held under the sanction of the International Power Boat Union, and while it is true that the dates conflict with those of the American Power Boat Association at Buffalo there is small chance of it causing any difficulty amongst the racing men.

The Pageant races will be for both hydroplanes and runabouts and it is hoped that the Mississippi Valley boats will again come *en masse* to Lake Michigan. It will be remembered that last year's Pageant races were among the most successful events ever run and indications are that the next seasons races will be much larger, both in point of entries and in the interest of the public. Commodore Sheldon Clark of the Chicago Y. C. has just notified us that the largest cash prize distribution ever planned will feature the Pageant races. From the standpoint of either the racing men or the spectators the Chicago races are ideal, for the course is protected by breakwaters and there is a natural grandstand upon which thousands of spectators can view the course. In addition to all this, the fact that the course is practically in the heart of the business center of Chicago makes it ideal.

NEW TROPHY OFFERED FOR HYDROPLANES

Commodore George Leary, Jr., owner of the famous Orlo II has offered, through the American Power Boat Association a trophy for hydroplanes equipped with single engines and having a total contents of cylinders of not over 1,100 cubic inches.

The first race for this trophy is scheduled for Miami during the Wood-Fisher and Fisher-Allison races to be held there from March 2nd to 9th. The Deed of Gift provides that the Cup must be won three times by one owner in order to become his property, but Commodore Leary has offered an additional trophy to be given outright to the winner of the first race.

* * *

CHARTER FOR DELAWARE RIVER YACHTSMEN'S LEAGUE

The A. P. B. A. have just authorized a charter to the Delaware River Yachtsmen's League in recognition of their successful staging of races during the past season. This is the second charter for the river, as the Delaware River Yacht Racing Association has been chartered as a section for some years.

* * *

NEW YORK CANOE CLUB NOTES

At the 50th annual meeting of the New York Canoe Club, O. J. Timberman was elected Commodore. The club is the holder of the International Sailing Canoe Trophy which was originally raced for in 1885. It has been challenged for many times by both Canadian and British canoemen, but the efforts of the challengers were always unsuccessful. It is hoped that another challenge will be received soon so we can have an international canoe event for next summer.

GREAT LAKES CLASS R

All who are interested in yacht racing on the Great Lakes will be pleased to learn of the action taken at the meeting of the Yacht Racing Union. Commodore Gooderham of Toronto announced that his club was willing to open up racing in Class R and a resolution was adopted to the effect that with the consent of the donor, the Richardson Trophy would be transferred from a Class P event to one for Class R yachts. It is planned to have a race every year between the champion R boats of the Lake Michigan Yachting Association, the Inter-Lake Yachting Association and the Lake Yacht Racing Association of Lake Ontario. It was suggested that the boats representing each association would be the winner of the Lipton Trophy on Lake Michigan; the winner of the Lipton Trophy on Lake Erie and the winner of the George Cup on Lake Ontario. The latter race will be held at McDonald Cove, Bay of Quinte the second week in July.

* * *

OFFICERS OF THE LAKE YACHT RACING ASSOCIATION

The recent election of the L. Y. R. A. had the following results: President, W. B. Casey, Kingston Y. C.; vice-pres. T. A. E. World, Q. C. Y. C.; secretary, A. B. Bowes.

* * *

RACE FOR BROOKLYN CHALLENGE CUP

Both the New Rochelle and the Brooklyn Yacht Clubs have adopted a resolution, quoted below which will open the way for at least one challenge for a race next summer for the historic Brooklyn Yacht Club Ocean Challenge Cup. It is almost certain that a challenge will be received from John Alden of Boston. The resolution is as follows:

"Whereas, the several yacht racing associations under whose rules competitors for this cup are to be measured and given a rating for handicapping or time allowance have in recent years, and since the conditions were made, put an arbitrary limit on the displacement a yacht could use or get credit for in the calculations for racing measurement: Now, therefore be it Resolved That the Brooklyn Y. C. and the present holder of the trophy, namely the New Rochelle Y. C. and in accordance with Article X of the 'Conditions' do mutually agree to eliminate from, or to declare null and void in, the measurement rule the restriction that does not give a yacht challenging or competing for this cup full credit for her actual displacement in the calculation for rating measurements."

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TOLEDO NOTES

By Burnap Cole

The annual election of officers was recently held by the Riverside Boat Club of Toledo. The new officers are:

Commodore, Edward Knipper; vice-commodore, C. Deible, rear-commodore, B. Cole; secretary, Mrs. J. Murphy; recording secretary, A. Keener; treasurer, Dr. John Baldwin; delegates to the Inter-Lake Yacht Association, M. Becker and C. C. Crites; trustees, H. West, J. Murphy and D. Shifferd; Grievance Committee, C. Rackstraw, Mrs. J. Knipper, and A. Pete.

The Maumee River Yacht Club elected officers recently, Nels Larsen succeeding Elmer Holst as Commodore. Other officers elected were: vice-commodore, William Billingslea; rear-commodore, E. Brown; recording secretary, P. Sussman; financial secretary, A. R. Perry; fleet surgeon, Dr. P. Hohly; delegates to I. L. Y. A., W. Billingslea; alternate, E. F. Walbridge.

The club voted against the proposal to amalgamate with the Toledo Yacht Club. This project has been contemplated for some time, the proposal coming from the T. Y. C.

Chris Smith, Algonac boat-builder who designed the Miss America, was taken seriously ill here recently. Smith came here to interest some Toledoans in the formation of a syndicate to build a displacement boat, Miss Toledo, to race in the challenge event next year.

* * *

FORD ELECTED COMMODORE AGAIN

James B. Ford, Commodore of the Larchmont Y. C. for the last six years was again elected Commodore of that famous organization. Other elections were; H. H. Raymond, vice-commodore; Philip H. Johnson, rear-commodore; B. O. Booth, secretary; S. R. Bell, treasurer.

The reports of the various committees showed that the club was in a flourishing condition and gave proof that next season will see one of the greatest and most successful seasons ever known. Howell C. Perrin, chairman of the Regatta Committee stated that the last Annual Race Week was very successful but that in his opinion the next would be a record-breaker.

CHICAGO YACHTSMEN ELECT

The annual meeting and election of the Columbia Yacht Club was held Nov. 26th.

The date for the Thirtieth Consecutive Annual Race from Chicago to Michigan City—37 miles—was set for Saturday, June 17th, 1922. This long distance race is without a parallel in American yachting. It has never been postponed for wind, weather, finances or anything whatsoever.

The annual election resulted in the following Officers for 1922:

Commodore, Walter S. Gerts, owner, Cabin Cruiser Kelpie, vice-commodore, U. J. Hermann owner, Schooner Swastika, rear-commodore, Edwin C. Boutelle, owner, Cabin Cruiser Jeanne Marie II, Treasurer, Fred C. Taylor, owner, Launch F. C. T. Secretary, Fred D. Porter, owner, Sloop Iro. Directors—two years—Charles H. Morgan, owner, Schooner Natant, John F. McGuire, Former Commodore. Regatta Committee, Walter J. Eden, chairman, Fred C. Tylor, E. C. Webster. Delegates to Lake Michigan Yachting Assn., Leonard J. Lambin, Charles H. Morgan, Fred D. Porter.

The Treasurer reported all bills paid and a comfortable balance in the bank.

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BAYSIDE YACHT CLUB ELECT JOHNS

At an election of officers for the Bayside Y. C. the following were elected to office. William H. Johns, commodore; T. J. Menten, vice-commodore; Thos. Rumney, rear-commodore; R. J. Heyward, secretary; B. F. Larrabee Jr., treasurer. The club has increased its dues and initiation fee to $50. The membership now stands at 397.

* * *

TABLETS TO INVENTOR OF MONITOR

On March 9th, four tablets to Capt. John Ericsson and his partner Cornelius H. Delamater, will be unveiled in this city. The event will be the sixtieth anniversary of the battle between Monitor and Merrimac. It is expected that National, State and City Governments as well as representatives of the Swedish Government will take part.

* * *

INTEREST IN DINGHY RACING

There is much interest in dinghy racing shown by members of the Royal St. Lawrence Yacht Club. It is proposed to build a new fleet of 140 square foot boats to be built by Aykroyd Bros. of Toronto at a special price of $183.50.

* * *

STAR CLASS RESULTS

Benjamin L. Linkfield, secretary and treasurer of the Star Class Association has announced the results of the seasons activities of this fine class of small racing yachts. The Stars raced in two divisions, A being the senior and B the junior class.

The season championship in class A went to Maia, owned by B. L. Linkfield, with a percentage of 76.78. Taurus, W. L. Inslee was second in the class and F. W. Teeves' Milky Way, third. Class B championship went to E. Ratsey's Irex, all of the above happens to be rigged with a Marconi spar. Mars, S. Enscoe was second and Southern Cross, A. Knapp, third.

In the club series, Class A; Saturn won the Port Washington; Maia the Bayside and Manhasset Bay Y. C. championships. In Class B, Canis Minor won the Port Washington; Southern Cross the Bayside and Irex the Manhasset Bay club honors.

* * *

Y. R. ASSOCIATION OF GRAVESEND BAY

A resume of the activities of yacht racing on Gravesend Bay, N. Y. was brought out at the annual dinner of the association held at the Marine and Field Club. There is no doubt of the fact that yachting is coming back strong in New York harbor and too much credit cannot be given to the officers of the association. One feature of their racing is that invariably there is enough wind to permit the finishing of a race.

The Marine and Field Club, the Pilgrim Y. C. and the Canarsie Y. C. are all head-liners in the associations success. At the dinner Commodore John J. Van Pelt of the Bensonhurst Y. C. offered a large silver cup for competition next year. The details of the race will be worked out by R. W. Rummell, chairman of the race committee. There were over 100 yachtsmen at the spread. The following yachts hold association championships Ethel, 1st. division handicap; May, 2nd division handicap; Bug II, 3rd division handicap; Mouse, X class; Nieuport, Victory class.

WINDJAMMERS CONTROL NARRAGANSETT BAY YACHT CLUBS' REGATTA COMMITTEES

By "JEFF" DAVIS

The majority of the yacht clubs in Narragansett Bay have held their annual meetings and elected officers for the season 1922. In most cases the old boards have been reelected with but few changes. The Washington Park Club is about the only exception as owing to a little "family scrap" last season in which the membership failed to back up the board of directors, the majority of the officers resigned and refused to stand for reelection at the annual meeting.

In the Rhode Island Yacht Club, the only radical change is in the membership of the regatta committee, which has been composed largely of old members who have gone out of the sailing game into powerboating, and therefore lost some of their old keenness for the promotion of sailing races.

The new regatta committee has two sailboat men on it, only one powerboat man, and one non-boat-owner, and one place to be filled by the committee which insured a majority of windjammers. The two now there are among the most presistent and consistent racing men in the bay. The club is kept open all winter with the steward in charge, and a pool table has been put in the smoking room for members' use.

Two of the East Greenwich race committee men are windjammers, Elmer Stewart and Fred Nock, both owning boats that fit with one of the old Narragansett Bay Association classes. The chairman of the Edgewood Club race committee is the original Star class booster here, and as he is to select his own committee, it looks as if the sailing men were going to control whatever racing develops next season.

The prospect of a Star class here grows better every day and several members, scattered through the clubs, are only awaiting the arrival of building and sail plans, before placing orders. There are a number of others who are ready to buy second hand boats if they can be found. Several of the latter are powerboat owners who want to start their sons in the sailing game.

The new racing association boosters are plugging along. The idea is popular with about everybody who is interested in yachting, and all agree that the time is ripe to go ahead. So far the organization has been kept out of the control of any clubs, and while some few who have attended the meetings declare it an impossibility to make it a success unless it is made a combination of clubs, there is another strong faction in favor of making it a combination of boat owners regardless of their club affiliations.

They feel that any owner who joins the association would soon become a member of his nearest club and that the association would be a splendid recruiting station for the clubs. Another question that has come up is whether or not it should be limited to sailing craft. A lot of powerboat owners feel that it would give an impetus to powerboat racing, and want to get in on the ground floor. All differences of opinion will come to a showdown at the next meeting, and whatever the majority favors will be adopted, for the only object of the people who are furnishing the "push" is to put Narragansett Bay racing back on the map, and they don't care much how it is done, as long as it is done.

At the last meeting, the name "Narragansett Bay Yacht Fleet" was adopted, and the objects stated to encourage yacht racing and formulate and enforce uniform regulations to govern open races.

Two committees were appointed, one to list up all the racing craft now owned in the bay in order to revive the old Narragansett Bay Yacht Racing Association classes and the other to canvass the coast to find out where there are Stars—for sale, their prices and condition, for the benefit of those prospective owners who prefer to buy rather than build. It was said that the owners of the 11 Stars that have been racing in Massachusetts Bay as the "Nahant Bug Class" were considering going in for a class of larger boats, and the "Bugs" were liable to be put on the market. If the rumor proves correct, there will be negotiations started to import the entire class.

Most of the boats have been hauled out for the winter, but there are a few of the old timers who keep their craft afloat until the snow flies, for the fall fishing and shooting. They say that the cod never bit better than they have off Block Island this fall, and when it is too rough for fishing they run over into Salt Pond and shoot ducks. Stories of good catches and big bags are beginning to be told around the clubhouse stoves, which reminds the other fellows of the time when etc., and they "catch them" over again.

SOUTHERN Y. C. NOTES

By P. F. Spitzfaden

Officers and prominent members of the Southern Yacht Club have addressed a comunication to the membership in which they are asked to approve the proposed increase in dues. The letter which is dated November 26, and signed by Commodore Harry T. Howard, Vice-Commodore Gus. B. Baldwin, Rear-Commodore A. D. Geoghegan, Percy S. Benedict, F. J. Foxley, Wil. H. Douglas, W. K. DePass and W. E. Winship, reads as follows:

"At the semi-annual meeting held August 11th. 1921, a resolution was adopted without dissent by those present that an amendment to the By-Laws be submitted to the membership at the annual meeting to be held the 12th. of January, 1922, increasing the dues from $18 to $24 per annum. As this increase has the unqualified endorsement of the Commodore and the Governing Committee, the reasons which actuate them in asking your support of the amendment is opportune in view of the approaching New Year."

"Primarily, the policy of the administration in having restricted the membership to 2,500 seems to have met with the universal commendation of the club, and as the club is becoming ever and ever larger and more influential, it necessarily follows that its needs commensurately increase. These needs, as hereinafter detailed, can be met in two ways only, an increase in tne membership or an increase in the dues. Please understand that the club is in no financial stringency; the bond issue, its interest and redemption and the overhead of the club and pen can undoubtedly all be taken care of on the present membership of 2,500, based on dues at $18 per annum, but this figure provides for no surplus or sinking fund whatever, and should any unforeseen contingency arise, it might result in an enforced assessment."

"Your club as to dues is still on a pre-war basis, its standing in this community as a social club is pre-eminent, and in comparison to all other clubs to which you may belong, you are certainly getting in the Yacht Club from every viewpoint much more for your dues. It is interesting to examine in this connection the dues of other yacht clubs; thus, New York $100; Cleveland $75; Corinthian (Philadelphia) $60; Baltimore, Columbia (N. Y.) and Philadelphia $50; Chicago, Seattle, Toledo and Detroit $40. There are no yacht clubs of any prominence in Lloyd's Register the dues of which are less than $30 per annum, and many of these clubs have no social feature whatever."

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LONG BRANCH ICE YACHT CLUB HAS NEW HOME

The Long Branch Ice Yacht and Yacht Club of Pleasure Bay, has just completed a new club house, an uptodate house, containing lounging room, open fire-place, billiard, card and meeting room as well as a dining room and kitchen. There are also a number of guest rooms for out-of-town members. The house is lighted by electricity and heated with hot water. Six acres of ground surround the house which faces Pleasure Bay. The old club house is to be moved 600 feet to the newly acquired ground and used as a storage and rigging place for the ice-yachts.

The season for ice yachting will open with the usual race for the Commodore's Cup. Following this Capt. James O'Brien's Jack Frost and Capt. Lash Price's Imp will be taken to the North Shrewsbury Ice Yacht Club at Red Bank to race against that club for the championship of New Jersey which was left undecided in the seasons of 1919 and 1920. The Long Branch Club holds one leg on this trophy, won by Jack Frost. After this the Red Bank yachts will compete at Pleasure Bay for the 350 Square foot championship of America, known as class E boats, and formerly embraced in 3 class and known as that type in New Jersey.

Quite a number of small boats have been built with 200 sq. ft. or slightly under. They have hollow back-bones about 20 feet long.

* * *

NEW CLASS OF RUNABOUTS

One of the most noteworthy developments in recent times is the fact that at the meeting of the International and Mississippi Valley Power Boat Associations in Cleveland it was decided to build a class of one-design runabouts.

At the conference the class was agreed upon. The boat will be 25 by 6 feet 6 inches and will be equipped with Hall-Scott 100-h.p. engines. 20 of the boats are to be built by Hacker in Detroit from his designs. 16 will be built at some Canadian yard and will probably be from Crouch designs. The class will first race at the M. V. P. B. A. on July 4th. Among the well-known racing men who will own these boats may be mentioned, F. G. Ericson, Walter B. Wilde, Ralph Sidway, J. G. Robinson, E. S. Johnson, Humphrey Birge and Harry Greening.

Quarter-Deck Talk

How to Apply Marine Glue to a Deck

By L. W. Ferdinand

A boat builder recently remarked that Marine Glue might easily be better to use on decks than pitch or putty, but that he, for one did not use it because he did not know just how it should be applied. With this thought before me, I welcomed the suggestion from the editor of the *Fishing Gazette* to write a brief outline of the simple process of applying Marine Glue to the decks of powerboats, yachts or any vessel.

A suitable cauldron or jacketed kettle must be provided into which the glue, which has been previously broken into pieces, is placed and melted over a moderate fire. Frequent stirring is necessary. When the glue has all been melted, the heat is about 212 degrees Fahrenheit, but in this stage it is rather too thick to run freely, and if used in this state, air bubbles may arise. It is therefore wise to heat and stir a few moments longer until it becomes quite liquid, and at this point it should be used as speedily as possible.

One should be careful not to overdo the heating, as continued boiling hardens the glue. It requires only a little experience to learn the proper heat at which glue should be used for the work in hand.

Marine glue never boils over into the fire, as does pitch, although it may ignite while being melted if the flame is allowed to touch it. If this condition should arise it is simply necessary to smother the flame by closing the top of the kettle with a piece of sacking or some other suitable substance which will immediately stop the burning. Where proper care is taken the glue is never known to ignite.

In calking decks to be finished with marine glue the oakum should be well laid down in the seam, hard, leaving the seam three-quarters of an inch deep after calking, for the glue. The seam should be payed promptly. Calking irons must be dipped in water, cold naphtha or coal oil, as linseed oil or grease prevents the glue from adhering to the edges of the planking.

Now we come to the actual work of paying the deck. The glue should be poured from the ladle into the seams, with the nose of the ladle an inch from the deck. Care should be taken not to draw the ladle on the seams, as is frequently done when pitch is used, as this permits a quantity of air to be enveloped which has no opportunity to escape before the glue becomes set. In hot weather this will cause air bubbles which leave the seam hollow and unsound. The workman paying the seam should always walk backwards, paying from him.

If the deck has been previously payed with pitch or resin, the old materials should first be broken out and a case knife used to clear the seams in order that the glue may adhere to the edges of the planking. The seams may afterwards be calked or hardened down as required, to the depth of three-quarters of an inch if the thickness of the timbers will permit.

Weather which is all right for the paying of pitch is entirely suitable for the use of marine glue. While the deck may be cleaned off the following day, it is far better to wait until the vessel goes to sea, as none of the inconvenience of pitch will be present.

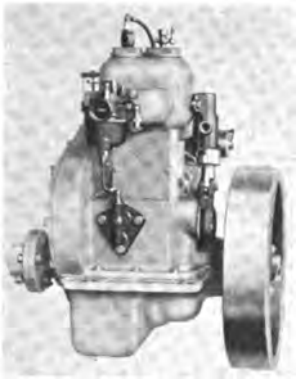
Bear in mind that it is best to heat the glue only in such quantity as is needed for immediate use, adding more pieces of glue to the pot from time to time.

Captains of vessels whose decks have been payed with marine glue are through with pitch for all time. The day is speedily approaching when the use of pitch or putty on the deck of fishing craft or yachts will be but a memory of an earlier and a less enlightened day.

NEW KERMATH 3-H.P. ENGINE

We show here one of the latest of marine engines and at the same time a machine that will appeal to a great many people who own small boats. This little single cylinder engine is a product of the Kermath Mfg. Co and has a bore and stroke of 3¼ by 4 inches. The weight complete is 125 pounds. Being a four cycle machine, it will operate satisfactorily on even the poor grade of gasoline now being supplied. All parts of the engine are large.

The valves are 1¾ inch diameter and the main bearings of 1⅜ inch in diameter and having a total length for both bearings of 5¾ inches. The flywheel is 14 inches in diameter. The oiling system is the same as is used on all Kermath engines and the ignition by means of a Bosch high tension magneto. The machine will sell for $135.00.



New 3-H.P. Kermath

NEW CLASS OF ONE-DESIGN BOATS

Bair and Edgerton of Glen Cove have received the order for 10 of the new 16 by 5 foot 6 inch cat boats for the Plandome Y. C. These boats were designed by C. D. Mower and sell complete for $250.00. They carry a leg-o-mutton sail of 154 square feet. The first boat is completed and has undergone her trials.

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DEFOE KNOCK-DOWN BOATS

During the war period the Defoe Co. of Bay City built a shipyard and constructed a number of vessels in steel for the U. S. Government. The yard is equipped with every modern appliance for steel work and in addition to their steel shop, they are building a new shop, one of the largest in the country and are prepared to build yachts in wood or steel up to 150 feet in length. They will also continue to build their well-known line of knock-down hulls in wood and steel for home and export use.

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QUANTITY PRODUCTION

John Hacker of Detroit, Mich. has just finished the plans of a small launch that will be shortly built, tested and placed in production.

It will be equipped with a low powered opposed engine and sell complete all ready to run, for $600 or less.

There is no doubt a launch of this type will be popular and quantity production makes the price possible.

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SPEEDWAY ENGINE SALES REPORTED

The activities of A. G. Griese, Inc., Eastern Distributors of the Speedway engines has stimulated the sale of these machines far beyond the hopes of the builders. Among the sales recently consummated appear the following.

One 6-cyl. Model M, 150-h.p. to W. J. Ehrich, New York City; one 6-cyl. Model M, 150-h.p. to W. B. Hodges, Detroit, Michigan; one 4-cyl. Model K, 28-h.p. to Kyle & Purdy, City Island, N. Y.; one 4-cyl. Model M, 75-h.p. to Nevins, City Island, N. Y.; two 6-cyl. Model M. 150-h.p. to W. B. Prettyman, Philadelphia, Pa.; two 6-cyl. Model M, 150-h.p. to Mrs. Thomas Ewing, New York City; one 4-cyl. Model Z,44-h.p. to Carl Tucker, New York City; one 4-cyl. Model K, 28-h.p. to Jacob, City Island; two 4-cyl.Model K, 28-h.p. to M. B. Metcalf, New York City; one 4-cyl. Model K, 28-h.p. to Charles Ringling, Evanston, Ill.; one 4-cyl. Model K, 28-h.p. to John Ringling, Englewood, N. J.; two 6-cyl. Model M, 66-h.p. to E. F. Hutton, New York City; two 6-cyl. Model M, 150-h.p. to G.A. Kohn, San Francisco, Cal.

A NEW PIERCE ENGINE

J. H. Pierce of Bay City, designer of the Smalley and Pierce-Budd engines has developed a new two stroke machine which is far ahead of the very successful engines he has developed in the past.

In the Mississippi Valley races the Pierce-Budd made a clean sweep, not only winning in its own class, but going up into larger classes and taking them too. While the new Pierce is about the same as the Valley champion, it will develop far more power on the same weight. The rated horse-power is fully guaranteed.

In the history of gasoline engines to date the products of Pierce have been the highest powered machines of their bore and strokes on the market. When a man of his engineering ability brings out something new it will cause much interest.

Aside from their consistent performance in racing boats the Pierce-designed engines have had long life and great durability equal to anything built. * * *

ANDERSON APPONTS AGENTS

Bowler Holmes and Hecker Co. 259 Greenwich St. New York have added the Anderson marine engines to their line. They will carry a stock of parts and are prepared to give service to all Anderson users.

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MARINE EQUIPMENT AND SUPPLY CO.

The Marine Equipment and Supply Co. of Philadelphia announce the resignation of George S. Ruhland as president and the election of William Kirtland, former secretary-treasurer. Percy L. Smith who has had many years experience in the power boating industry will become associated as secretary.

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YACHT REPAIR AND STORAGE CO.

This well known yacht yard located at Essington, Pa. has been reorganized and completely equipped with every facility for the building, repairing and storage of yachts, and with its convenient location in the centre of yachting activities adjoining the stations of the Philadelphia, Corinthian and Riverside Yacht Clubs is in a position to render the best possible service to yachtsmen.

The Building Department is in charge of competent men with many years experience in yacht construction, and with their location in the heart of the great shipyards on the Delaware, near the manufacturing cities of Philadelphia, Chester and Wilmington, they are able to undertake either new or repair work to the best advantage and for most reasonable prices.

* * *

SEXTON OPENS NEW BRANCH

Frank B. Sexton, General Manager of the Sexton Motor Company, of 30 Church Street, New York City, has just announced the opening of their branch office, in Washington, D. C. which is located in the Star B'ld'g.

Mr. Horace Ward, who for many years has looked after the Van Blerck business in our capital city, will look after the operation of this new office.

* * *

J. V. B. ENGINE AGENT

The J. V. B. Engine Company, of Akron, Ohio, announces the appointment of the The Sexton Motor Company, of 30 Church Street, New York City, to handle the marine sales for the New York and Philadelphia territories.

* * *

NEW FIRM IN ENGINE WORK

Detroit has a new industry in the Detroit Marine Aero Engine Co., which is being organized and will have a factory located in Highland Park. Men prominent in the motor boat world are among the incorporators of the concern, but officers have not been selected. Among the incorporators are: Garfield A. Wood, A. A. Schantz, Otto F. Barthel, Fred R. Still, and J. Lee Barrett, of Detroit: James A. Allison and Carl G. Fisher of Indianapolis.

The men interested in the organization of the new company recently completed negotiations with the Government for the purchase of 50 car loads of aviation engines and accessories. Shipment of these materials and power plants are now underway from government depots all over the country and this cleans up all the excess stock of foreign aviation engines which became the property of the U. S. Government at the close of the War. The engines include a large number of the Italian Fiats, with numerous Benz, Mercedes, Isotta-Fraschini and Beardmore types. The spare parts stock for all engines is adequate to take care of replacements and the accessories include tachometers, spark plugs, etc.

Activities in Rhode Island

By "Jeff" Davis

With the exception of a "40" and the big Winton yacht at Herreshoff's there is practically no new building started at any of the yards yet, but there is a lot of repair and alteration work ordered, to be finished before the rush to get the boats overboard in the spring. The Lawley built 45-footer Grayhound, built to show the type of that size that the navy department would prefer to have built and loaned for war service, bought by Rear Commodore Dillon of the Rhode Island Yacht Club a year ago and sold in midsummer to Robert W. Otis, is hauled out at Wardwell's yard at Bristol. Commodore Dillon made no changes in her deck plan except to cover the "battleship gray" with a mahogany red paint. Wardwell's men are removing both and getting her mahogany trunks and hatches back to natural wood finish, building a glass-enclosed pilot house forward, new rails and lazy backs, and getting ready to refinish her cabins inside. Mr. Otis plans to put a keel on her to steady her in a seaway, and put in new shafts and strut hangers, and a pair of propellers that will be right for the reduced power engines that were put in her last spring.

Wardwell has bought the Sarah A. Taylor estate on Poppasquash Road, known locally as Red Crest, about an eighth of a mile south of his boat yard. The property includes a fine old mansion house which Sam will occupy, a stone pier running about 75 feet out from high water mark, with a boat house on it, a big barn which he intends to use as a garage for the convenience of his customers who want to leave their cars while they are using their yachts and about five acres of level land where he intends to haul out the yachts that he cannot accommodate in his present yard; and running a railway out to the end of the hard bottom where there are 11 feet of water at low tide. Sam calls the place "an anchor to windward," as his present yard is on rented land which cannot be leased, and is liable to be wanted for building purposes at any time.

According to the advance dope, Nathaniel G. Herreshoff is to be elected an honorary member of the American Society of Mechanical Engineers at the annual meeting at New York, Dec. 5-9.

The Club officers are as follows:—Washington Park Yacht Club, President, Oscar S. Howes; Commodore, Charles F. Lamb; Vice-Commodore, Harold R. Turner; Rear-Commodore, William H. Simmons; Secretary-Treasurer, Leo C. Farnsworth; Directors, two years, Albert W. Dyer, Howard Stott; Directors one year, Norman A. Messinger, Samuel B. Burnham; Regatta Committee, Joseph W. Lutey, George Mowry, G. T. Greene, A. F. Miller, Joseph Gibbon; Measurers, Royland C. Martin and George Ogden.

Rhode Island Yacht Culb—Commodore, John E. Pugh; Vice-Commodore, Charles F. Scheminger; Rear-Commodore, Charles H. Dillon; Secretary-Treasurer, George E. Cutting; Measurer, Scott C. Burlingame; Regatta Committee, Raymond E. J. Morgan, Joe Kenyon, H. M. Lewis, A. B. Benson; (one vacancy); House Committee, Robert E. Thornton, E. R. Lassone, Thomas H. Rhodes; Social Committee, Thomas A. Boyle, Harry S. Arden, Ernest L. Johnson, Ira MacKenzie, J. A. Ratcliffe; Directors at Large, William H. Donahay, Jr., William Staton. The board consists of the three flag officers, secretary, chairman of each committee, two elected at large and the junior vice commodore, L. D. Pierce. The club has made a net gain of sixteen members, and has a more prosperous treasury than at any previous time in its history.

Barrington Yacht Club,—Commodore, Arthur L. Smith; Vice-Commodore, H. L. Manchester; Rear-Commodore, Arthur Smith, Secretary, R. L. Kelly, Treasurer, William R. Hempstead; Directors, Clinton A. Pray, Herbert M. Gardiner, R. C. C. Dubios, Harry Arnold, John A. Parker. (Committees in this club are not selected until the January meeting). A large number of Barrington Club members are summer residents of the town, and the clubhouse is the social centre during the summer months. During the past year, the membership has increased to such an extent that the house is no longer large enough to accommodate the numbers who wish to use it for social purposes, and a committee will be appointed to build an addition, and enlarge the hall on the upper floor.

East Greenwich Yacht Club,—Commodore, Eugene A. Eddy; Vice-Commodore, A. Albert Sack Jr., Rear-Commodore, C. Prescott Knight; Secretary and Treasurer, L. M. Lincoln; Trustees, W. L. Sharp, F. H. Smith; Race Committee, R. Crompton, Elmer M. Stewart, Fred S. Nock; Measurer, Fred S. Nock.

The Edgewood Yacht Club directors have elected Treasurer, Harry Fulford, Commodore Oliver D. Edwards and President Frank C. Church as the house committee.

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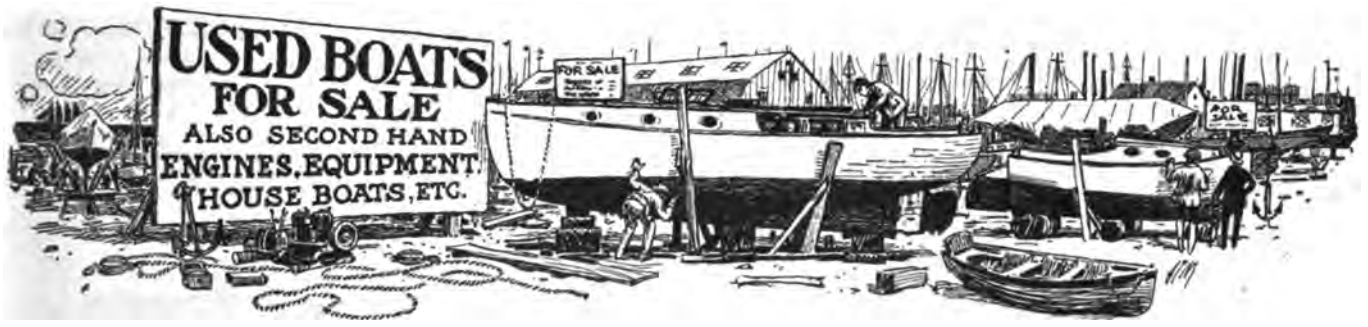

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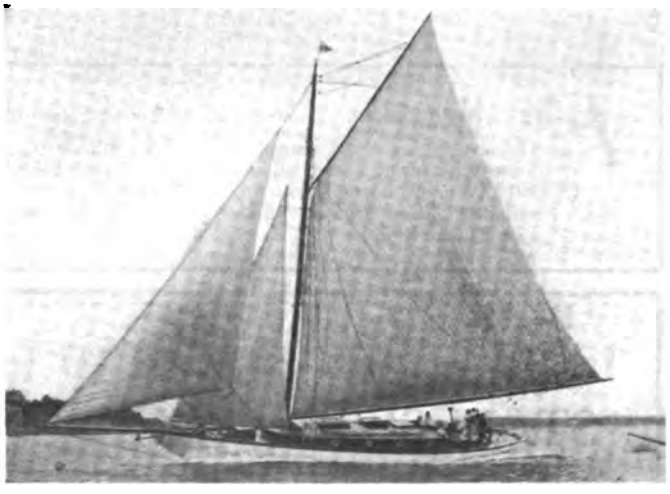

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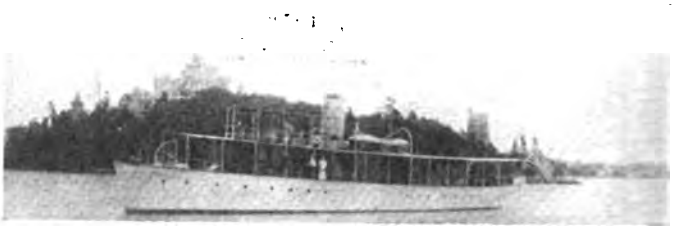

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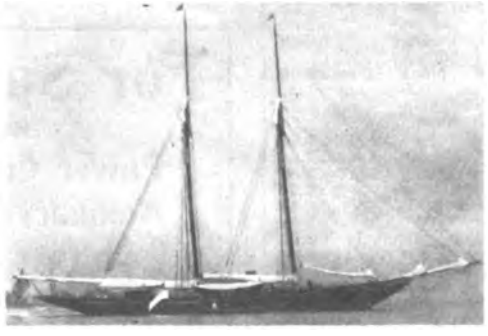

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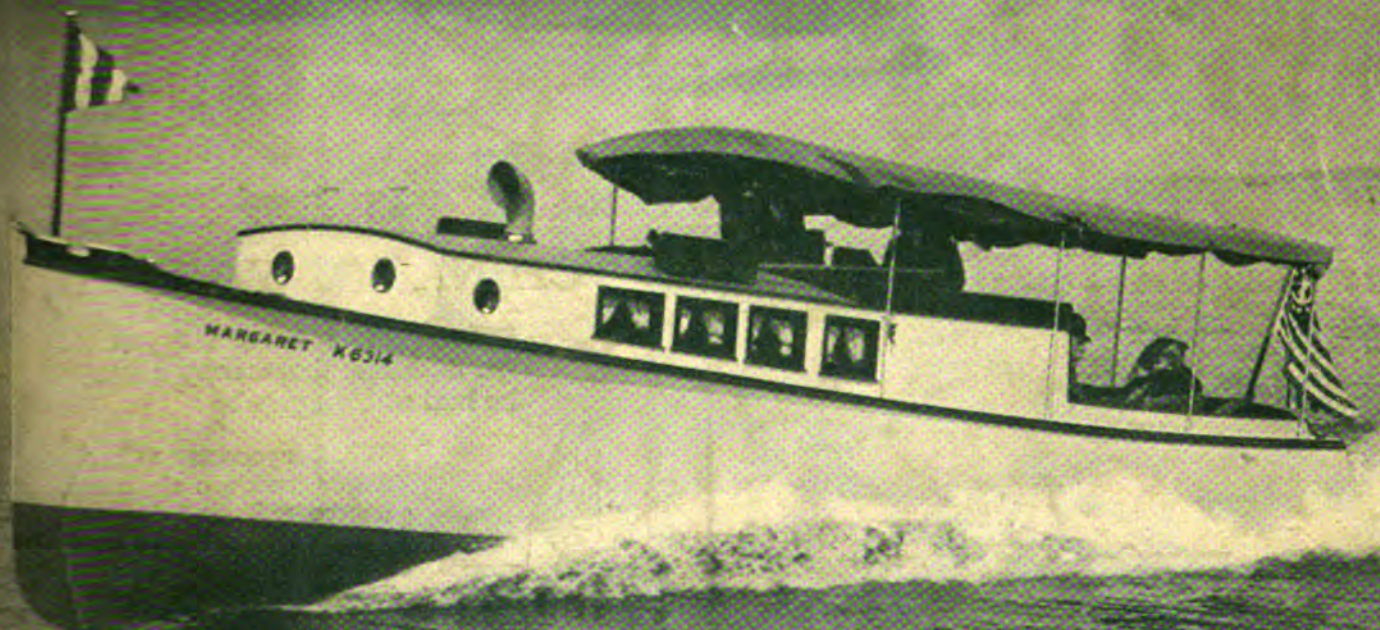

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BRENTANO'S 36 Ave. de l'Opera, Paris, France.
GORDON & GOTCH, Sydney, Australia.
Or at any Bookstall.

Contents for February, 1922

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Plotting the Course

WE'RE really proud of this issue. We hope you readers like it as well as you did the January number. Very likely you are one of those who wrote in and congratulated us on the initial issue of the year. If you like this one as well let us know. Please realize that it is your ideas that we wish to guide us. We want every reader to appoint himself or herself a contributing editor and critic.

The next is of course the MARCH FITTING-OUT and FOR-SALE Issue. These March Issues of ours are, year after year the finest numbers of all This year the paper will be about twice its usual size and filled to the gun'ls with matter that is of prime importance to you, no matter whether you own a rowboat or a steam yacht. The 8 page special paper, art supplement will be worth a year's subscription in itself. Every one of the 8 pictures will be suitable for framing. The series will show boats of every type, so, no matter what your pet type of boat, you will find a beautiful picture of that type.

Among the feature articles will be one on Interior Decoration for Yachts. This will describe the proper way to arrange the cabin of your boat to get the best out of it from an artistic and practical standpoint. The Fitting-Out article will give you directions for putting your boat into commission. Remember; like all RUDDER articles, it will be written by a man who owns and operates a boat. We do not use matter written by those who take their boating by the fireside. The cruise story will describe the joys of a coastwise trip in a small boat. There will also be articles on Stoves, on Seagoing Boats, on Gear Drive for Runabouts and Hydroplanes. The How-To will tell you how to construct the little cruiser Snapper. An introduction to this article is in this issue. Then, there will be lots of pictures of new and interesting boats as well as our usual Designs section.

The regular Beachcombings, Needed Information, Young Skipper and other departments will be there. One of the biggest features will be the page after page section which will show pictures and descriptions of the best boats of each type that are on the market. Whether you want to buy or sell you will find this section invaluable. We are promising big things for March, but as the magazine is laid out now, there are many features that are not even mentioned.

The Editor

Directory to Exhibits New York Power Boat Show

Grand Central Palace, February 17-25, 1922

NOTE: Exhibitors having Block designation are located on the Main Floor. Those with Space numbers are on the Mezzanine Floor

ALLISON ENGINEERING CO. BLOCK E

First showing of the new Allison Twelve, a V-type 400-h.p. engine of the highest possible grade and designed for installation in express cruisers and fine runabouts. The weight is 4,400 pounds.

AMERICAN BOSCH MAGNETO CORP. SPACES 101 AND 103

Magnetos for the ignition of marine engines. A feature will be a new model designed for single cylinder engines which will also serve to light the boat. Also 7 types of Bosch spark plugs.

AMERICAN STROMBOS CO. SPACE 18

Strombos boat horns in various types.

BELLE ISLE BOAT AND ENGINE CO. BLOCK A5

The 1922 model Bear Cat runabout will be exhibited with several new features of refinement. These boats are Hall-Scott powered and have a speed of about 35 miles. They are eligible for the Gold Cup races. They also will exhibit Davis American Dinghies and the new Moto-Row, power and rowboat.

H. E. BOUCHER MFG. CO. SPACE 100

Extensive display of models, including a special series of 18 illustrating the growth of the U. S. Navy. Also 4 types of model sailing yachts and 6 miniature power boats, all of which will run at high speed. Also engines and fittings for model boat builders.

BOWLER, HOLMES AND HECKER CO. BLOCK K

Complete showing of the new Stearns engines, made in sizes from 20 to 100-hp. and sold at a very low price. Also 3 of the Cady-Ford engines and 2 of the famous Universal four-cycle marine engines, a Universal generating set and a stationary plant.

BRIDGEPORT MOTOR CO. BLOCK E

Two and four-cycle marine engines ranging from 4½ to 60-hp. The two cycles will be equipped with the patented non-backfiring feature. Ignition is shown in both make and break and jump spark types.

BROOKLYN VARNISH CO. SPACE 26

Exhibiting the famous Kauri marine varnishes. The feature will be immense panels of the Giant Red Wood Tree, a practically extinct species, which will be finished with Kauri.

BURNOT FIREPROOF PRODUCTS CO. SPACE 7

Fireproof paints for marine purposes.

CAPE COD SHIPBUILDING CORP. BLOCK A6

Line of small power dories, rowing and sail boats. Some are adapted to outboard engine installation and all are to be sold at very attractive prices. A feature will be the new 18-foot Cape Cod Baby Knockabout, a fine, comfortable sloop-rigged boat.

CARLYLE JOHNSON MACHINE CO. BLOCK K

Six sizes of Johnson marine reverse gear as well as the two-cylinder 5-hp. Bud-E marine engine. Also one-way clutches.

GEORGE B. CARPENTER AND CO. SPACES 37 AND 39

Full line of marine hardware and featuring the Kainer Ropeless Steerer, the Kainer Self-Starter and the Carpenter Search Light Control. All of these devices are of the highest grade and have been proved in service to be all that is claimed for them.

CLEVELAND MARINE MOTOR CO. BLOCK O

The new All-in-One marine engine, a machine of a new type that will be examined with interest by all power boat enthusiasts.

COLUMBIAN BRONZE CORP. BLOCK L

Beautiful display of Columbian propeller wheels mounted so as to show the workmanship and balance and to illustrate the various types for all classes of boats. Also a C-Y-C electric generating plant and a number of accessories.

CONSOLIDATED SHIPBUILDING CORP. BLOCKS A2 AND A3

Three of the wonderful Speedway boats, including the day cruiser of the Trump type, a 32-foot runabout and a 25-foot runabout. Speedway engines will be displayed in all models including the new 300-hp. Model R engine.

CRESCENT MOTOR BOAT CO. BLOCK B5

Four boats of their two standardized models. Each model being shown in two grades. One model is a lap-stroke rowboat of the St. Lawrence skiff type and the other a square stern craft adaptable to either outboard or inboard engine.

CULVER ENGINEERING CO. BLOCK C

Talbot steam power plants, including the four-cylinder double action Uniflow engine of 50-hp. This machine is also made in other sizes. Also Talbot special marine boilers.

DAWN BOAT AND SHIPBUILDING CO. BLOCK B4

Exhibiting the electrically propelled yacht Light'nin', designed and built for William T. Donnelly. This boat has a number of features that are interesting to all boat lovers.

THE DEBEVOISE CO. SPACE 29

A space fitted up to be used by the friends of this company and a headquarters for out-of-town people. Also showing the well-known Depaco marine paint for all parts of a boat.

DELANCO SHIPBUILDING CO. BLOCK A4

The new stock cruiser known as the Delanco 27 and which has never been shown before. The boat is of the raised deck type and is completely equipped for cruising. The power plant is the famous Kermath 16-hp. engine. The entire boat sells complete for $1,500.

DISAPPEARING PROPELLER BOAT CO. BLOCK D1

John Bull and Uncle Sam models of the famous shoal draught power boats. The propeller houses automatically when the boat runs over any obstruction on the bottom. Also a new type of power dinghy especially for davit work.

DOMESTIC ELECTRIC CO. SPACES 14 AND 15

Delco-Light electric light plants and water systems for yachts or land installations in voltages from 32 to 110.

CHAS. B. DURKEE AND CO. SPACES 1, 2, 3, 4, 5

Exceptionally full line of marine hardware and equipment. Some of the new items include a hammered copper hood ventilator made in sizes from 3 inches upwards and a new muffler which will increase the efficiency of the engine. Also a new type of steering quadrant.

THE ELCO WORKS. BLOCKS B2 AND B3

As usual, one of the largest exhibits of boats will be displayed by this firm. Four stock boats of high-grade will be shown, including the new 54-foot twin-screw cruiser, a most attractive boat. The 40-footer which made such a hit last season will again be shown. The next boat is the famous 33-foot Cruisette. probably the best known stock cruiser in the country. The 30-foot Express runabout with the latest improvements will complete the line.

ELTO OUTBOARD MOTOR CO. BLOCK D2

Line of the new, light weight two-cylinder Elto outboards.

HUBBARD H. ERICKSON CO. SPACE 44

Searchlights, steering wheels and general boat equipment.

EVINRUDE MOTOR CO. BLOCK A5

Complete line of inboard and outboard engines, as well as a boat with outboard engine and a canoe fitted with an inboard machine. A novelty will be a fully rigged Class F ice-boat..

THE EXCELLIGHT CO. SPACE 84

A particularly attractive hand searchlight operated by batteries and in use by the Government. Handy equipment for any boat.

FAY AND BOWEN ENGINE CO. BLOCK A1

Three of the well-known Fay and Bowen runabouts; craft of the highest grade workmanship and having lengths from 24 to 27 feet and speeds of from 16 to 23 miles per hour. All will be equipped with Fay and Bowen engines. They also will show six models of their marine engines, including the new 3½ by 4½ four-cylinder 22-hp. engine which develops fine power.

FIRE GUN MFG. CO. SPACE 82

Exhibit of Fire Gun extinguishers especially intended for power boat usage. The devices will be shown in several models.

FRISBIE MOTOR CO. BLOCK E

This will be the first showing of the Model T engines, the last word from the Frisbie plant on high-grade marine engines. Of the regular models, 7 sizes of one, two, three, four and six-cylinder machines will be placed, in powers from 5 to 75.

FUEL OIL MOTORS CORP. BLOCK C

A new type of marine engine burning the low grade fuel oils. A feature is the fact that the machine is of much less weight than the usual crude oil engine. In fact, it is stated that the engines can be used for automobile and airplane work.

GENERATOR VALVE CO. SPACE 63

Line of carbureters, check valves, strainers, spark plugs, bilge pumps, governors and generator valves.

GILBERT BOATS. BLOCK D2

Two types of power boats. The larger boat is a 20 by 5½-foot runabout with a four-cylinder Peerless engine and a speed of 20 miles. The other craft will be a general utility boat 18 feet long and Kermath equipped. She will sell, including tax, for $580.

GREENPORT BASIN AND CONSTRUCTION CO. BLOCK A7

Two boats, one an 18-foot yacht tender and the other a 28-foot family runabout with water tight cockpit and shoal draught. The engine is a Wisconsin. The yacht tender is equipped with a Kermath engine.

GRAY BOATS. SPACE 51

Models, blueprints and pictures of the Gray standardized cruiser. Also some articles of equipment showing the high standard that is used with all Gray boats.

GRAY MOTOR CO. BLOCK G1

Full line of Gray motors of both two and four-cycle types. The feature of the exhibit will be the new Gray improved valve-in-the-head engine which will be shown for the first time.

HALL-SCOTT MOTOR CAR CO. BLOCK N

Showing the two models of the Hall-Scott marine engines. The four-cylinder 125-hp. plant is the same as the engine in the Bear Cats and will be used on many Gold Cup contestants. The six is the same as the machine which drove the Adieu and Nick-Nack.

HYDE WINDLASS CO. BLOCK G2

The regular line of Hyde Turbine and No-Weed propellers will be shown on attractive mountings. Hyde wheels have powered many of the fastest boats in the world and enjoy a fine reputation.

J. V. B. ENGINE CO. BLOCK F2

The well-known all-enclosed J. V. B. engine, a machine that is the result of the designing ability of Joe Van Blerck. The machine is one of many startling features which have been proved successful after the extended usage given the engine by many owners last season.

JOHNSON MOTOR CO. BLOCK C

First showing of the new extreme light-weight Johnson outboard engine, the inboard engine and the quick-action flywheel high-tension magneto. This little engine is of the two-cylinder type but only weighs 35 pounds, making the lightest outboard on the market.

KERMATH MFG. CO. BLOCK E

A complete display will be made of the Kermath line of marine engines. These engines are now made in single, double and four-cylinder types with powers from 3 to 40 hp. The models have a power range as follows: 3; 4-5; 6-8; 10-12; 16-18; 20-25; and 24-40. The feature will be the new 3-hp., brought out so that even the smallest boats could have the advantage of a four-cycle engine.

KNOX MOTORS ASSOCIATES. BLOCK F1

Display of the two-well known Knox engines. The smaller will be the model 940, 20-hp. machine and the other a model 350 40-hp.

L. O. KOVEN AND BRO. SPACES 43 AND 45

Tanks of all sizes and shapes for gasoline, water, oil or air. Also rudders manifolds, waste cans and in fact anything in the sheet metal line.

J. W. LATHROP AND CO. BLOCK C

Complete line of 2 and 4-cycle marine engines, featuring the new exhaust jacketed intake manifold.

GEORGE LAWLEY AND SON CORP. BLOCK B1

Two of the wonderful Lawley creations in the boat building art. The larger boat will be a magnificent shelter cabin 30-footer equipped with a 75-hp. Scripps engine. This boat will not be for sale but is shown as a sample of remarkable woodwork and equipment. The other boat will be a popular price runabout, built according to the usual Lawley standard.

THE LEECE-NEVILLE CO. SPACE 24

Starting motors and generators including the new starting switch which allows the engine to be started without leading the heavy high-tension wires to the control position.

G. H. MASTEN CO. BLOCK J

Showing marine engines made by the Caille Perfection Motor Co. in all their types for rowboats, runabouts and cruisers. There will also be a display of rowboats and patent life preservers.

THE MCNAB CO. SPACE 71.

Featuring the Kitchen Reversing Rudder, a device to do away with reverse gears or reversing engines and to increase the flexibility of control. Also Direction Indicators and Revolution Counters.

MERCANTILE SPECIALTIES CO. SPACES 31 AND 32

Featuring the Smithson safety porthole for power boats and larger vessels. It is a quick-closing and absolutely water-tight port.

MILES PISTON RING SALES CO. SPACE 42

Display of one-piece, triple seal, piston rings of a new type.

MONARCH VALVE CO. SPACE 25

This firm will exhibit an exceptionally complete line of Monarch power boats specialties. These articles include almost every variety of gasoline engine accessory.

MOTO-METER CO. SPACE 77

Distance type cooling water heat indicators designed for power boat use. By means of these instruments the cooling water heat can be controlled so that the full efficiency of the fuel is obtained.

MURRAY AND TREGURTHA. BLOCK M

Exhibit of the various models of the famous heavy-duty and high-speed types of Murray and Tregurtha marine engines. These engines have a reputation second to none.

NATIONAL LIFE PRESERVER CO. SPACE 73

Display upon living models, all of them pretty, of the life-saving suits manufactured by this company. Not only do these suits buoy you up, but they keep you warm as well.

NEW ENGLAND BOAT CO. BLOCK B6

Interesting display of small launches, rowboats, and sail boats. Some of these boats will be excellent types for one-design class racing.

NEW JERSEY MOTOR BOAT CO. BLOCK A6

Showing the New Jersey Flyer runabout equipped with NJM marine engine. This little boat sells at a popular price and has a speed of approximately 25 miles.

NEW JERSEY MOTOR SALES CO. BLOCK J

Showing the new New Jersey four-cylinder marine engine and the new fast standardized Jersey Flyer runabout. The latter is an 18-foot boat equipped with a New Jersey engine and having a speed of about 25 miles an hour.

NEW JERSEY PAINT WORKS. SPACE 36

An interesting display that will be of interest to every boat owner and boat enthusiast. Featuring New Jersey Copper New Jersey Flat White and New Jersey Ship and Deck Paints.

NEW LONDON SHIP AND ENGINE CO. BLOCK —

The successful operation of submarines and many commercial power craft depends upon the Nelseco Diesel engine. A display of these machines, together with photographs and other data.

NEW PROCESS CHEMICAL CO. SPACE 69

Featuring Nupro Marine Glue, Hull Seam Composition, Marine Glues and Copper Paints. A handy stick form of the glue will be featured during the Show.

NEW YORK YACHT, LAUNCH AND ENGINE CO. BLOCKS F1 AND F2

Showing the line of Twentieth Century cruiser engines that have been on the market successfully for over 20 years. These engines will be shown in four and six-cylinder sizes from 40 to 75-hp. This firm will also show blueprints and pictures of some of their yachts. Among the best known is Spendthrift II, Block Island winner and the houseboat Irwin IV.

PALMER BROS. ENGINES, INC. BLOCK C

Palmer engines are usually the largest exhibit of their kind shown at the Show. This year will be no exception, for 19 different machines will be placed on exhibition. Two features will be the new VH and VT engines which are sure to make a hit.

PARAGON GEAR WORKS. SPACES 20 AND 21

Displaying the Paragon reverse gears that have been adopted by many of the leading engine makers in the country as standard. The gears are among the best known in the world and are built in sizes for all marine engines.

PEERLESS MARINE MOTOR CO. BLOCK G2

Besides a showing of the regular medium duty Peerless engines a feature will be the high-speed machine that caused so much talk last season.

PETRELLI MFG. CO. SPACE 62

First exhibition of the new Petrelli reverse gear. This device incorporates some of Petrelli's latest ideas and will attract many interested persons.

PYRENE MFG. CO. SPACE 81

Pyrene and other extinguishers, automatic Fireklok and other safety devices.

RED BANK YACHT WORKS. BLOCK B5

Two attractive boats. The larger will be the Red Bank Sensible Cruiser a Seabright skiff type of roomy craft. Fitted with a model D-4 Scripps engine. She will sell for $4,750, including tax. The other boat will be a runabout, Hall-Scott equipped, eligible for the Gold Cup race and selling for $5,750.

RED WING MOTOR CO. BLOCK C

While a full line of Red Wing engines will be shown, the feature of the exhibit will be the display of the Baby Doll 10-14-hp. engines with various equipments. One of these fine little engines will be shown installed in a Nock-designed and built yacht tender.

REGAL GASOLINE ENGINE CO. BLOCK C

Six models of the well-known Regal gasoline marine engines ranging from a 2-hp. single-cylinder engine up to a 50-hp. heavy-duty plant. All of the engines are of approved four-cycle design.

WILLIAM RICHARDS. SPACE 72

Twelve-foot V-bottom bright finished tender ready for the water. Also models of other full-sized boats, as well as a display of model racing power and sail boats and model fittings.

ROBERTSON CERTIFIED LUBRICANTS. SPACE 68

Line of marine engine oils, with an attractive featuring of the Hall-Scott engine that powered the Delaware Champion speed boat Romalda.

B. SCHELLENBERG AND SONS. SPACE 40

Uniforms. caps and yacht club cap and sleeve marks of all yacht clubs.

SCRIPPS MOTOR CO. BLOCK G1

Standard line of two, four and six-cylinder Scripps four-cycle engines intended for runabout and cruiser installation. This display will be in addition to a number of engines which have been installed in boats displayed by other concerns. The power range is from 10 to 85 horse.

SEA SLED CO. BLOCK A4

The fact that the Sea Sled Orlo III holds the displacement boat speed championship of the world will bring a crowd to the space of this company. A close-up of these boats is always of interest to the enthusiast.

SIMMS MAGNETO CO. SPACE 61

Lighting, starting and ignition equipment for all types of power boats and the Homelite lighting system, which is one of the most attractive articles of its kind on the market.

C. C. SMITH BOAT AND ENGINE CO. BLOCK J

The Smith Marine Twin-Six, the engine that has powered practically all the modern hydroplanes, as well as the fastest cruiser in the world. The Smith engines hold practically every speed record.

EDWARD SMITH AND CO. SPACES 22 AND 23

Highest quality varnishes, coatings, enamels, etc., for yachts and work boats of all types.

SMITH-MEEKER ENGINEERING CO. SPACES 17 AND 30

In two separate booths this firm will show a great number of electrical specialties, including Edison Batteries, Winton and Homelite generators. wireless control boxes and the new Autex reel.

SMITH AND SERRELL. SPACE 50

Models and sectional models of the Franke flexible coupling showing instantly the freedom from binding possible by means of the Franke coupling. The ordinary rigid coupling looses a great amount of power when the shaft lining is not perfect.

SNOW AND PETRELLI MFG. CO. SPACE 67

Line of the famous reversing gears made by this company for many years, as well as two new types of transmissions that will prove attractive to all enthusiasts.

SPERRY GYROSCOPE CO. BLOCK L

The feature of the exhibit will be the new Sperry Compound Diesel engine, one of the greatest advances in heavy oil engine design to date. This engine is light in weight, has a high rotative speed but at the same time the economy of the usual heavy, slow Diesel. They will also show their line of gyro stabilizers, compasses and the other Sperry marine specialties.

ST. LAWRENCE BOAT WORKS. BLOCK A7

Line of Whistle Wing St. Lawrence skiffs, square stern rowboats for inboard or outboard power, sailing and rowing dinghies and canoes.

STERLING ENGINE CO. BLOCK E

This well-known firm will exhibit the regular line of their famous racing and cruising engines, as well as two new models. The new model H engine will be a six-cylinder plant of 300-hp. at 1,200 r.p.m., of their successful dual valve in the head type. The second new model will be known as K, and is designed especially for the new Gold Cup class. It will be of six cylinders and will develop 150-hp. On this power the weight is only 1,100 pounds.

S. STERNAU AND CO., INC. SPACE 58

Featuring the Sterno yacht stove, a solid alchol burning stove which is designed especially for boat service.

STROMBERG MOTOR DEVICES CO. SPACE 75

Full line of marine engine carbureters, as well as a new type gasoline strainer which thoroughly cleans the fuel before it reaches the carbureter.

W. AND J. TIEBOUT. SPACES 18 AND 19

Marine hardware and equipment in both galvanized and brass to give an indication of the extent of their line.

TOPPING BROS. SPACES 46 AND 48

Line of marine hardware and equipment, featuring One-Way clutches, Drew's Calking Tools, as well as the Barker line of two-cycle heavy service marine engines.

UNIVERSAL PRODUCTS CO. BLOCK M

Marine engines from 4 to 40 hp. in one, two and four-cylinder types. The feature will be the new four-cylinder light-weight, high-speed four-cylinder 15-18 hp. engine, as well as a new 5 kw. generating set for boats.

VALENTINE AND CO. SPACES 47 AND 49

As usual this firm will have one of the most attractive of displays to call attention to the high quality and fine finish possible with their varnishes, stains and enamels. A feature will be a new Stain Testing machine which shows the hard usage possible to give a Valspar stained surface.

VERRIER EDDY CO. BLOCK C

Full line of Lathrop two and four-cycle engines from a single-cylinder 3-hp. up to a 40-hp. four-cylinder. Both make and break and jump spark ignitions will be shown. A feature will be the latest heating device for inlet manifolds.

WESTINGHOUSE LAMP CO. SPACE 79

The new Spark-C Ignition testing device. By means of a neat, safe tool the efficiency of the ignition system can be readily found. The device is very cheap and handy.

WHEELER-SCHEBLER CARBURETER CO. SPACE 56

Display of the famous Schebler carbureters for marine engines. Types will be shown for every kind of marine machine from a small two-cycle low-speed plant up to the largest of engines.

WILCOX-CRITTENDEN AND CO. SPACE 108

Marine hardware and equipment featuring Auto-Chome whistles, Pequot power bilge pump, gasoline strainers, reverse and throttle controls and similar articles without number.

THE E. J. WILLIS CO. SPACES 83, 85, 87, 89

The largest display of marine hardware, including a great many specialties. One of the features will be the Prentis-Walbers galley stove and another the new Pullman type berth.

WINTON ENGINE WORKS. BLOCK M

Showing Winton marine engines in both the gasoline and Diesel types. The yacht Noumahal is one of the best known of the larger pleasure craft which is Winton equipped.

WISCONSIN MOTOR MFG. CO. BLOCK B7

Three models of the high-grade Wisconsin engines in four and six cylinder types.

WOLVERINE MOTOR WORKS. BLOCK K

Wolverine heavy and medium-duty marine engines in two sizes. The smaller engine will develop 40-hp. at 800 r.p.m. and the larger, 60-hp. at a slower speed. The small engine is a four and the large one a three-cylinder machine.

C. A. WOOLSEY PAINT AND COLOR CO. SPACE 16

Full line of display cards showing the colors of all paints and varnishes made by this company. These pigments are marketed for every possible service required of a marine paint.

R. W. ZUNDEL CO. SPACES 72 AND 74

Brass and galvanized marine hardware, electric horns, bilge and circulating water and oil pumps, Comet magnets and generators, stoves, including the Kamp Kook gasoline stove, alcohol stoves and Jewel kerosene stoves.

Grebe—
A Game Challenger

AT THE Cowes Regatta last summer four challengers from America battled valiantly for the British-American-Six-Meter championship.

Of the Challengers, Grebe stood out. In the first race, when three of the American team were forced to withdraw, Grebe fought it out alone. Showing work to windward of an order rarely surpassed, she took this race from the whole British team by a wide margin.

Once again, in the fourth race, Grebe led the way home. In fact, in only one race of the series did she fail to come in with the leaders.

Grebe, Gardner designed and Nevins built, was a worthy challenger—a game boat, a sturdy boat and *Valsparred of course!*

VALENTINE'S
VALSPAR
The Varnish That Won't Turn White

VALENTINE & COMPANY
Largest Manufacturers of High-Grade Varnishes in the World
Established 1832
New York Chicago Boston Toronto
London Paris Amsterdam
W. P. FULLER & CO.
Pacific Coast

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THE RUDDER

Commercial Boats and Equipment · Yachts and Yachting · Engines and Accessories

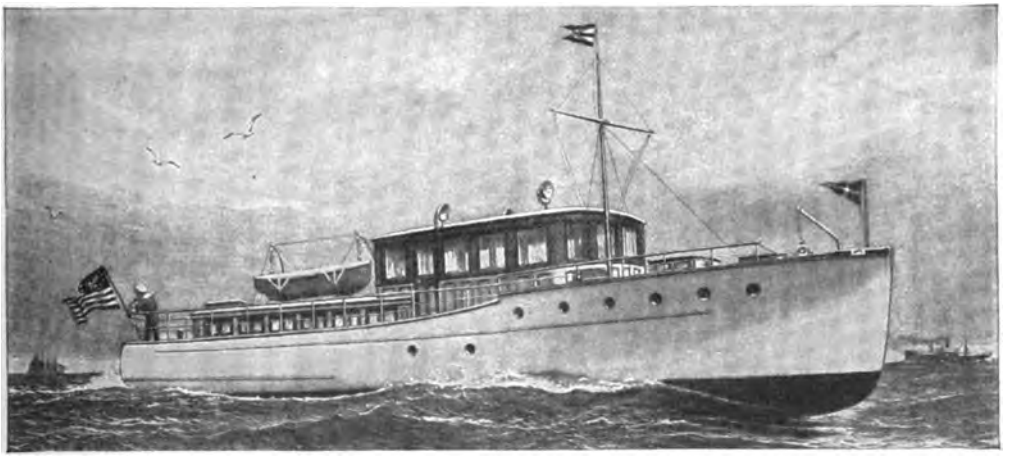
Volume XXXVIII February, 1922 No. 2

Features of the Show

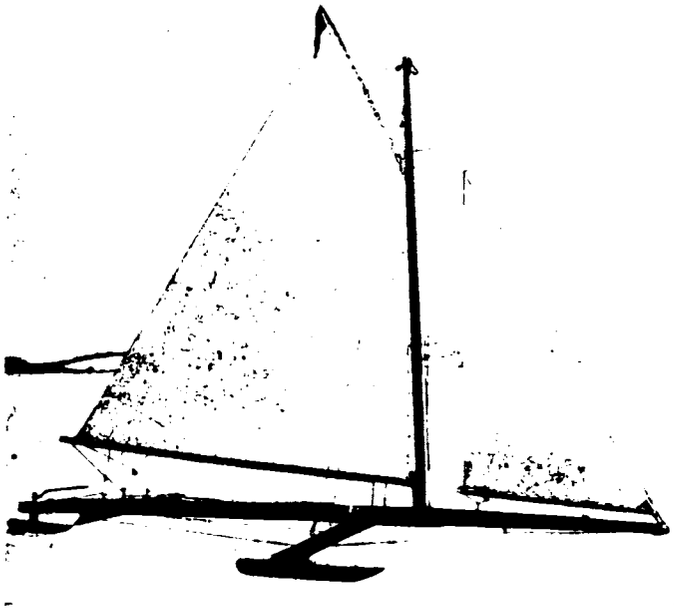
TO sit down and write up every point of interest at the Show is a job that looms up like the writing of an old-fashioned novel of the Thackeray school. There will be some features however that stand out with more than usual amount of prominence. In the first place there never before has been a boat show in this country in which as varied a class of boats could be found. This year there will be runabouts of all sorts of speeds; cruisers ranging from $1,500 upwards. Small sail boats for one-design classes or afternoon sailing, rowboats, canoes, with or without inboard or outboard engines; ice-boats and even an electrically propelled cruiser.

Any boat enthusiast who cannot find a boat to suit his requirements will indeed be hard to suit. The average man in this part of the country desires a cruiser. In the Delanco 27, he will find a fine little raised deck boat, fitted with Laughlin toilet in a separate compartment, galley with Kamp Kook Kit stove, dish racks and all equipment ready to go off on a cruise. According to what we have become accustomed to in the past years a boat of this sort equipped with a four cylinder 16-h.p. Kermath, would sell for around $4,000. When one learns that the Delanco sells for $1,500 we realize that standardized production can cut boat prices as well as automobile costs.

Those who wish boats of the highest grade of workmanship will flock, as if drawn by a magnet, to the spaces occupied by the Consolidated Shipbuilding Corp. and the George Lawley and Son. Corp. Both of these concerns will show fast day boats and runabouts. The Elco Works will show the famous Cruisette 33-footer as well as a magnificent 54-foot twin screw



54-Foot Elco Show Cruiser. Twin-Screw J. V. B. Engines and Remarkable Accommodations Feature this Yacht



Ashley-Designed Ice-Boat Exhibited by Evinrude Motor Co.

cruiser equipped with J. V. B. engines. The particular feature of this boat is the 15-foot enclosed bridge. Runabouts will complete their line.

The Belle Isle Bear Cat model runabouts will be of more than usual interest this year owing to the fact that they are eligible for the Gold Cup race under the new ruling. Several other runabouts eligible for this famous race will be shown.

In the Cape Cod booth there will be a display of small sail, power and rowboats at prices way below the figures that prevailed during the last few years. These boats are staunchly built and plainly finished. A somewhat similar display will be made by the New England Boat Co., St. Lawrence Boat Co., and Crescent Motor Boat Co. in their respective spaces.

Amongst the new engines the Sterns, made in several four cylinder units, and handled in New York by Bowler, Holmes and Hecker and in the Mid-West by the Central Marine Service Co will draw a lot of comment. This is a high grade machine and will be sold

One of the Famous Bear Cat Runabouts, Built by Belle Isle

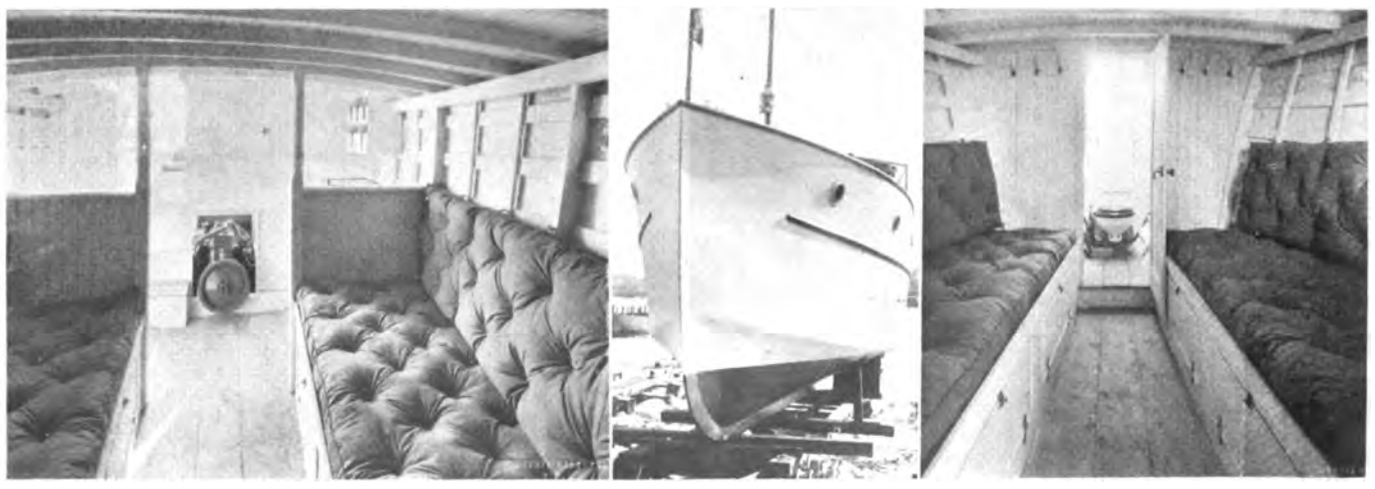
at an exceptionally low price. Another newcomer will be the 12-cylinder Allison. A machine designed and built for those power boatmen who desire a high power, high speed, light weight machine, built regardless of price.

A line of engines which will be of particular appeal to the average power boat owner, is that shown by Kermath. These machines are now made in single, double and four cylinder models from 3 to 40 h.p. All are of the four cycle type.

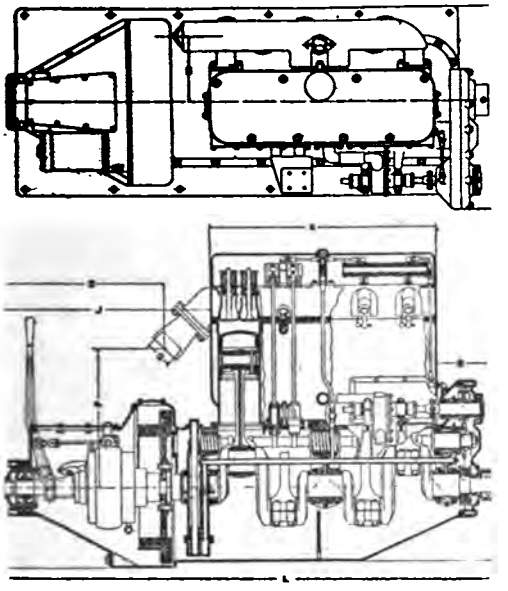
The man who desires an outboard engine for either a canoe or rowboat will find many types from which to choose. It will be the first showing of the Elto, Johnson and the light weight Evinrude. The Johnson machine weighs only 35 pounds and the other two are not so much heavier. Steam plants for boats will be displayed by the Culver Engineering Co.

Another new model that will have its coming-out party at the Show is the Model T Frisbie, the latest product of the famous valve-in-the-head pioneers. One of the most complete lines of engines will be shown by Palmer Bros. who for years have had one of the largest showings of engines in the exhibition. Dozens of other engines, big and small, fast and slow, heavy and light and all degrees between will be on hand at booths of their makers.

A series of contests which will be entered by New York school boys and Boy Scouts will enliven the Show every afternoon and evening. There will be contests of knot tying, with prizes of books and other articles which will be valued by the boys. Some of the prizes have been donated by THE RUDDER Another, and somewhat more interesting trial of skill, will be



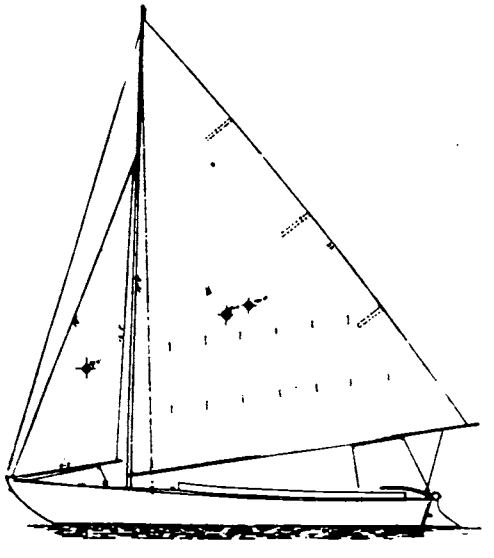
Two Interiors and a Bow View of the Delanco 27. This Kermath Powered Cruiser Sells Complete for $1,500



Sectional and Plan Views of the New Stearns Engine, Shown for the First Time

the drawing contest. As the boys enter the building they will go to a booth and register. They will then be handed a sheet upon which portions of some of the boats on exhibition will be shown. The youngsters will then carefully look over all the craft until they find those of which a portion is printed on their sheet. They will then be required to draw in the remainder of the boat and sign the sheets. Those drawing the best sketches and identifying the greatest number of boats will be given prizes each day.

As usual the Palace will be tastefully decorated and an orchestra will entertain daily. Never before has the response of the manufacturers been so prompt or so whole-hearted to the Show program as is the case this year. Not only have they taken all the space available, but the National Association of Engine and Boat Builders have raised a big fund to advertise power boating and its pleasures. There is no doubt



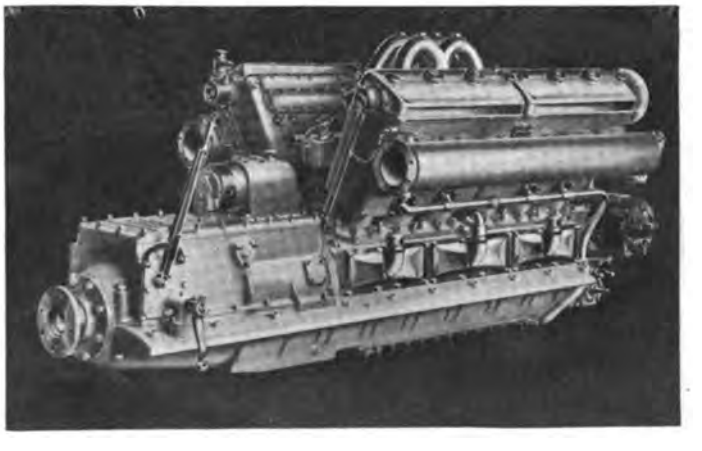
18-Foot Cape Cod Baby Knockabout Exhibited by Cape Cod Shipbuilding Corp.

The Valspar Booth is Always Attractively Decorated and Interestingly Arranged

but what this fund will do much towards bringing new men into the field. The men thus brought into the brotherhood of yachtsmen will find boats, engines and equipment brought to the latest stage of development and sold at prices that are far lower than has been the case for several years past. The new designs have brought the engines to a point where all that is necessary is to feed them the proper amount of gasoline and oil. Greater comforts than ever are to be found in the cruisers. The larger ones, take the Elco 54-footer for instance, are quite capable of being used for a year-round dwelling. Even the smaller cruisers make comfortable homes for the summer months.

For the man who likes thrill, who looks upon power boating as more of a sport than a recreation, the runabouts will have a particular appeal. There is nothing in the world that quite equals the sensation of driving a high speed boat. While no hydroplanes will be exhibited this year, some of the runabouts will have speeds that a few years ago would be considered exceptional even for a hydroplane.

A special effort has been made this year to have as many boats of the small, low priced class as possible. Some years, objections have been made by visitors that most of the boats were priced so high that the average man could not even consider the purchase. This year the condition will be reversed.



The Allison 12-Cylinder High Speed, High Power Engine for Express Cruisers and Runabouts of Quality

Latest Day Cruiser

AMONG the fine water craft to make their debut in Miami waters this season will be the Trump —a 38-foot day cruiser. Unlike the usual design of boats of this type, Trump was particularly designed for Southern work. She has the roomy cockpit of a runabout for day sailing; the day cabin of a cruiser, with sleeping accommodations for two with toilet and galley equipment. Forward there is a berth and toilet for the guide or man on board. The power consists of a six cylinder 66-h.p. Speedway engine developing a cruising speed of 16 miles per hour.

The Consolidated Shipbuilding Corporation was called upon to design and build Trump for Captain W. H. Wheeler, a prominent New York City man, a well known yachtsman, and for a great many years past a winter resident of Miami. Captain Wheeler's familiarity with the requirements of an all-around boat for Florida gave rise to the development of this boat. The designers and builders have incorporated the owner's requirements in a graceful seaworthy hull, and have given this craft a good cruising speed.

Trump is built of cedar, mahogany trim—the interior and exterior joiner work is finished in mahogany. The finish and upholstery is of the high standard that has always characterized Consolidated built boats. All in all Trump promises to be one of the smart boats of her class to appear this season in Southern waters, and Captain Wheeler may be justly proud of so trim a ship.

Combining the speed of the runabout with the cabin accommodations of a larger,—and slower boat, Trump is a craft which will prove of interest to many yachtsmen. Realizing this the builders will exhibit their Trump type at the Show.

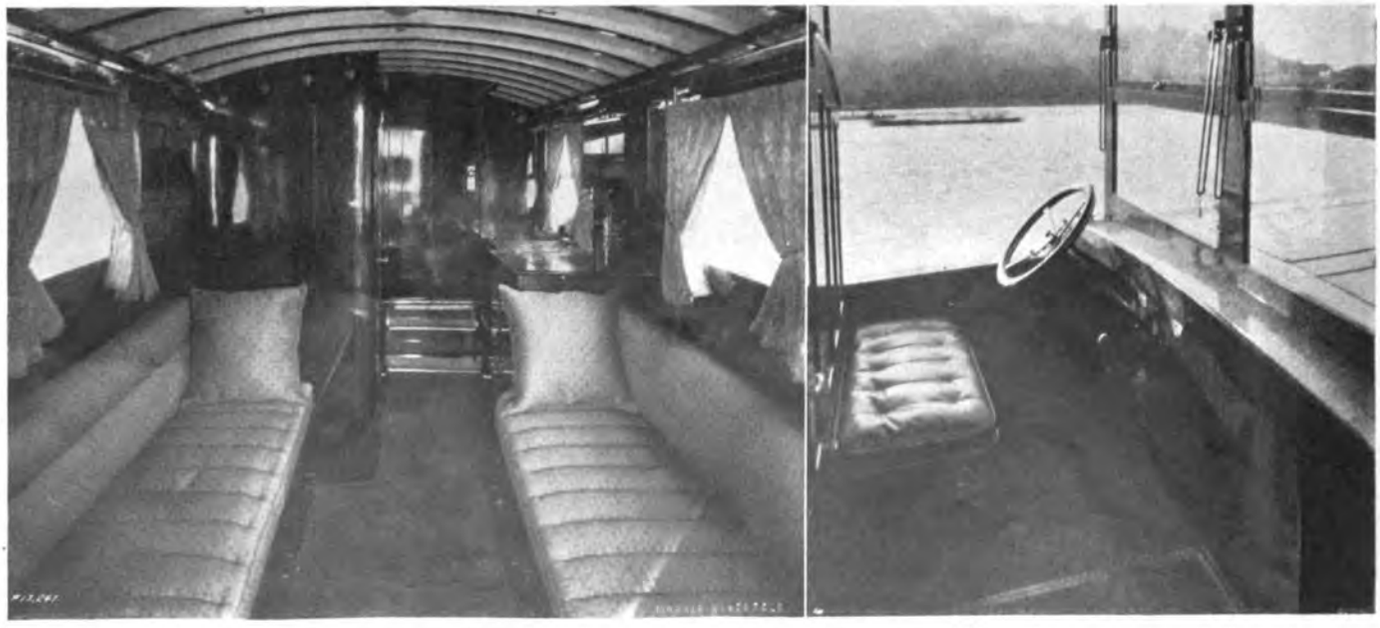


Photo by M. Rosenfeld

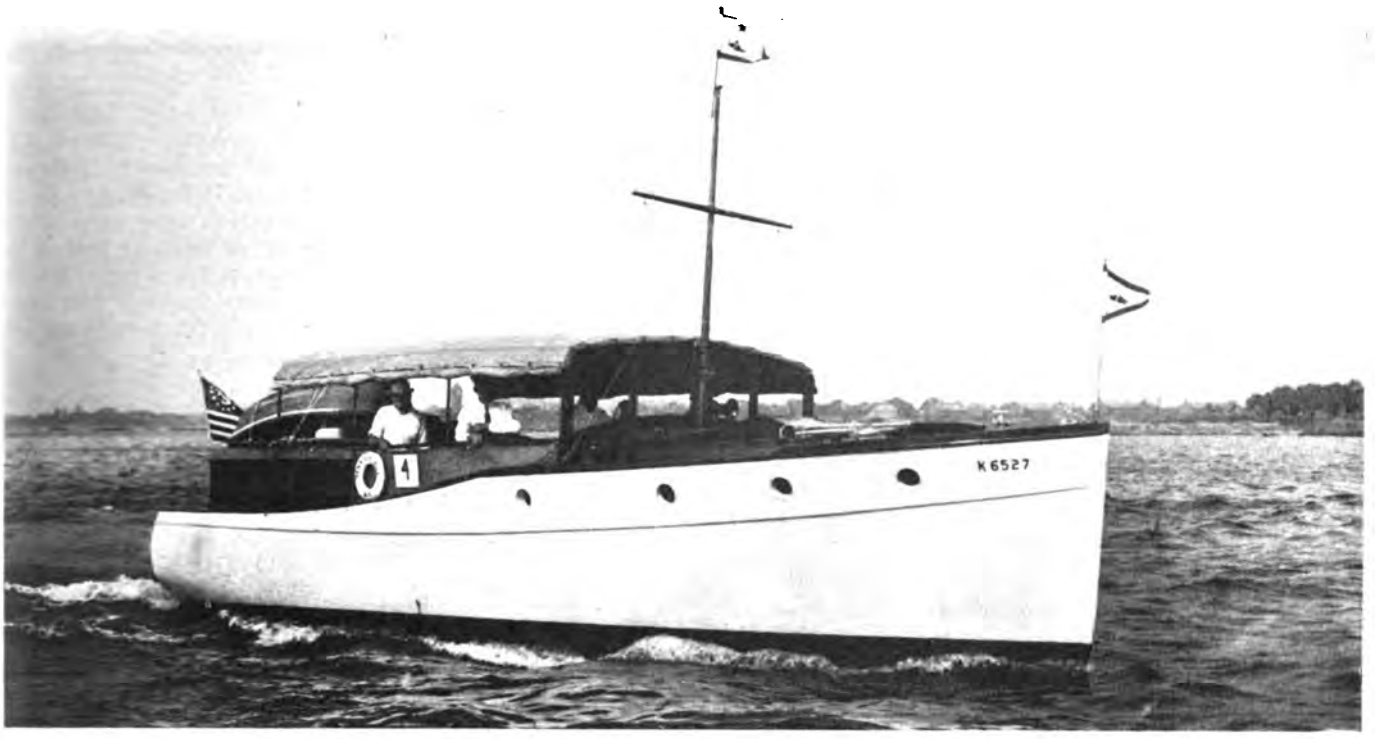


Photo by M. Rosenfeld

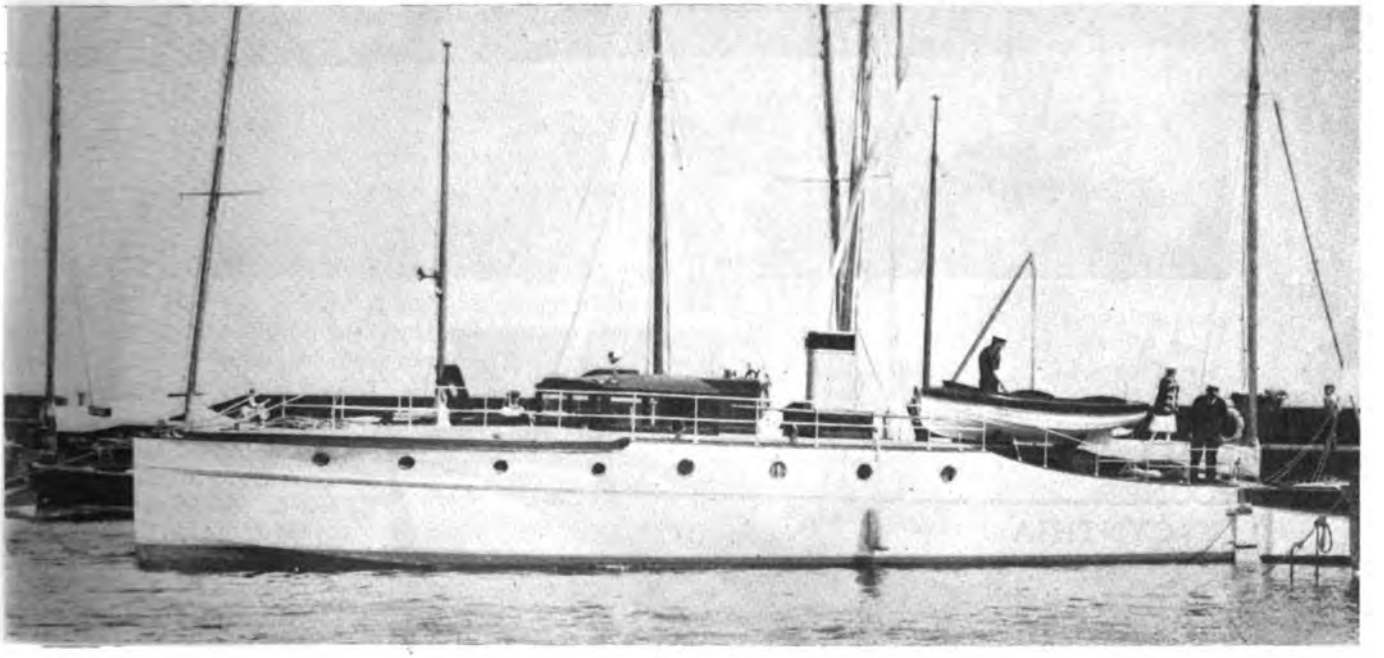
Comfortable Cruiser

A comfortable as well as a handsome 38-footer is shown above. The boat is Senator Bill, owned by Commodore L. F. LaRoche of the New York Athletic Club. The picture was taken as she was maneuvered for the start of the Block Island Race, the Long Island Sound Classic.

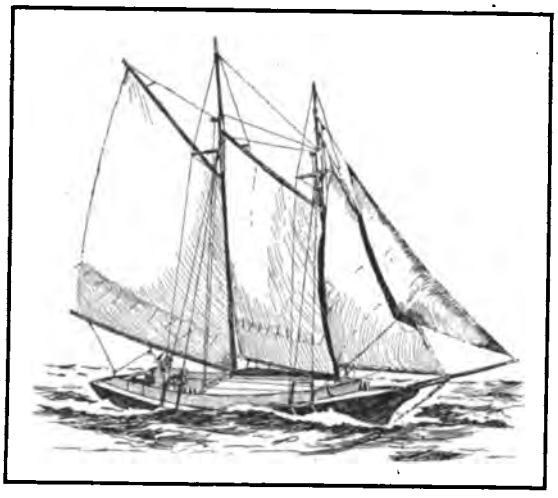
Senator Bill is equipped with a model D-4 Scripps engine which drives her at 11 miles an hour. She was built at Nyack and represents a fine type of general pleasure craft. The double cabins with bridge between is an ideal arrangement.

Fine Danish Power Cruiser

The Danish power cruiser Standard, shown below is probably the finest boat of its type built in Denmark. She is 55 by 11 feet, and is of the V-bottom type. The power plant is a 145-h.p. Sterling engine. Both on and below decks the yacht is laid out with the greatest attention to detail. The equipment is exceptionally complete and all of the most expensive type. She was built by the yacht department of F. V. Hein, from designs by N. Witt, naval architect, for S. V. Meyer and then sold to Carl Bander upon Mr. Meyer's death.



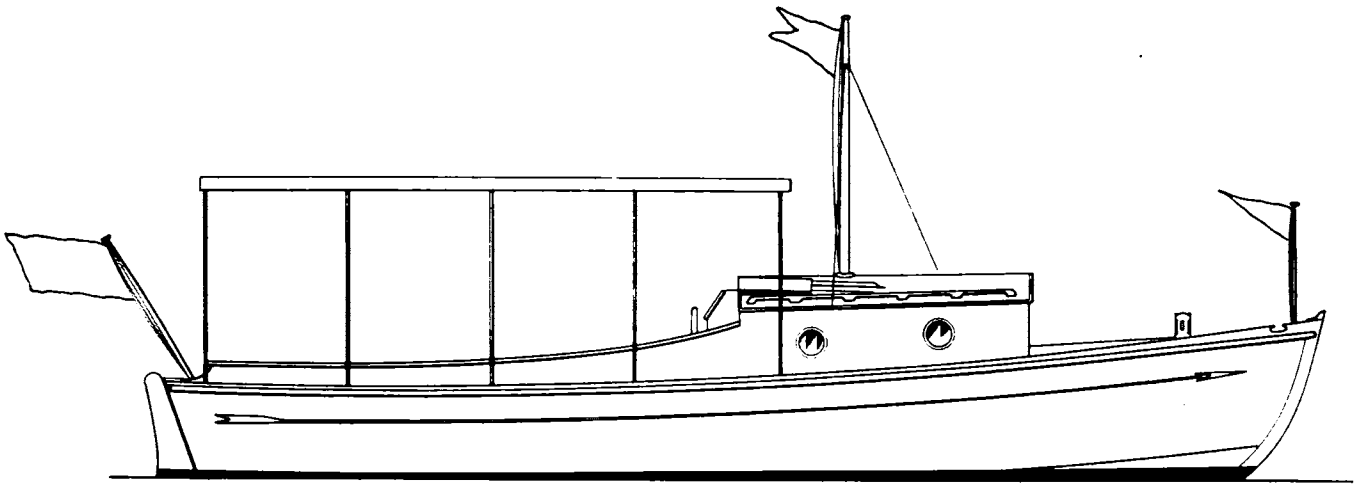
STORMALONG



Owned by George Gale, of Bristol, R. I., is Probably the Smallest Schooner-Rigged Yacht in the World. She is of the V-Bottom Type and is only 16 Feet Long on Deck, 13 Feet on the Water Line, 6 Feet 6 Inches Breadth and 18 Inches Draught. The Center Board Weighs 116 Pounds and is 2 Feet by 3 Feet.

AUXILIARY SCHOONER CYNTHIA

Property of Charles H. Cousens, of Boston. She is 41 by 12 by 6 Feet 3 Inches, and was Built 30 Years Ago by Hugh Bishop, of Gloucester. The Power Plant is a 2-Cylinder, 10-H.P. Lathrop. She Is Very Heavily Built and Able to Go Anywhere at Any Time.



Snapper is 24 Feet Long, 6 Feet Wide and Suitable for Powers from 6 to 40-Horse

Snapper, a 24-Foot Cruiser

Designed by Gerald T. White

IT was intended to run the complete plans of Snapper in this issue, but we finally came to the decision that the number of detail plans and the lengthy specifications would be too much to publish in this number. In the big March For-Sale Issue we will show the remainder of the plans of this most attractive craft as well as give the building specifications for her.

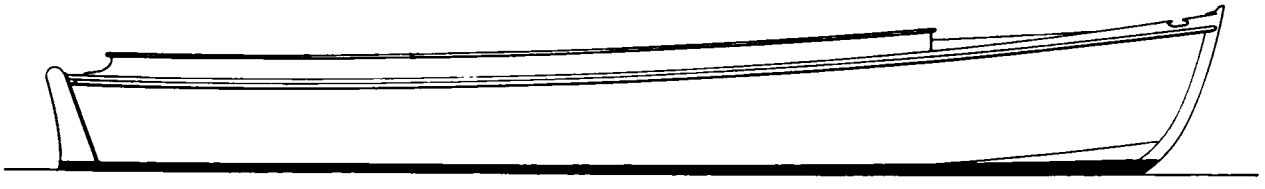
In designing Snapper we made no attempt to turn out the roomiest craft possible on the specified length. If you prefer cabin space to every other consideration do not build this boat. She is not a wash-tub with a couple of ports in it, but a smart, speedy and easy-to-build power boat. Ninety per cent. of power boat owners' conscious time is spent in the cockpit of a cruiser. Boat after boat is designed in which cabin accommodations are the main item and cockpit secondary.

If you are one of those who must have a large galley, separate toilet room and various other more or less necessities of a pampered civilization, you will not like Snapper. You will prefer some of the craft, wide as they are long that stand still and bob up and down in a head sea and wind. They are a breed of power houseboat and are all right for them as likes 'em.

Much drivel has been written about the advantages of a wide boat. The writers, seldom practical men, claim that a wide boat has more room and let it go at that. They do not stop to figure that a wide boat has less draught than a narrower one unless she is loaded down with ballast. It is a law of nature that a floating body displaces an amount of water equal to its own weight. If this body is short and wide it cannot be deep as well unless the weight is increased. Sail boats require ballast to keep them from turning over and also to sink the hulls low enough to get the proper amount of immersed plane to offset the leeward shove of the wind upon the sails. Power boats designed as deep sea cruisers require ballast to load them below the turbulent surface water. Power boats intended for general service should not be required to lug around a lot of pig-iron or lead. Gasoline is too expensive to waste it on pushing junk metal.

Snapper is a V-bottom boat, built with sawn frames and every other system that has been found by experience to make construction easier for the builder. The cockpit is 11 feet long so that a big party for day sailing can be accommodated. The cabin is big enough to sleep two fellows in comfort. A couple of others can bunk on folding cots in the cockpit, protected from rain and wind by the awning and side curtains.

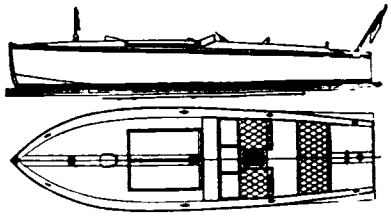
Her breadth is 6 feet, and with a 10-h.p. engine she will run the average boat of her size and power, out of sight in a couple of hours. Her lines are such that any power from 6 to 40 can be used. As a stock cruiser for an enterprising boat builder, Snapper will be a wonder. She can be built upside down, there is no steam bending, no rabbeting except at the stem and the planks will cut with the minimum of waste. She is galvanized fastened and there is little riveting.



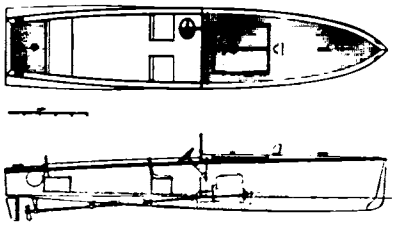
Snapper Can be Built as an Open Boat if You Desire. She is Roomy, Fast and Comfortable

Stock Power Boats of America

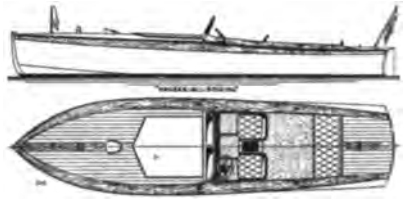
The important particulars and arrangement plans of many of the leading stock boats of the country. The list shows boats of almost every size and price and the man who cannot find his ideal in this list is surely hard to please



New Jersey Motor Boat Co., Keyport, N. J. 18 Ft. by 5 Ft. N. J. M. Marine Engine. Speed about 25 Miles per Hour

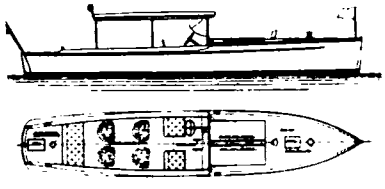


Fay & Bowen Engine Co., Geneva, N. Y. 24 Ft. by 5 Ft. by 1 Ft. 8 In. 22-H.P. Fay & Bowen Engine. Speed 16 Miles per Hour



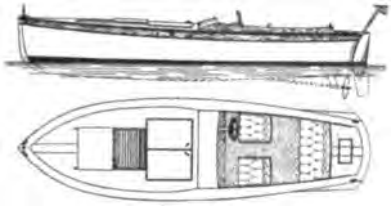
Central Marine Service Corp., Detroit, Mich. 21 Ft. 10 In. by 5 Ft. 1⅛ In. by 1 Ft. 8 In. 20-H.P. Kermath. Speed 20 Miles. Price, $1,975

Disappearing Prop. Boat Co., Buffalo, N. Y. Various Models. 16 Ft. 6 In. to 18 Ft. 6 In. Lengths. Speeds 8 to 9. Prices, $375 to $475

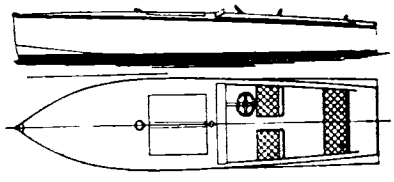


The Elco Works, Bayonne, N. J. 30 Ft. 8 In. by 6 Ft. by 1 Ft. 10 In. 4 Cyl. 60-H.P. J. V. B. Engine. Speed 20 Miles. Price, $3,450

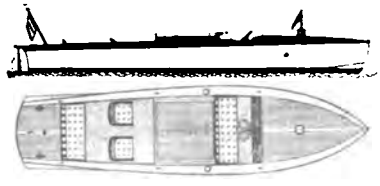
Mullins Body Corp., Salem, Ohio. 21 Ft. by 5 Ft. 6 In. by 1 Ft. 8 in. 20-H.P. Kermath. Speed 14 Miles. Price Varies with Equipment



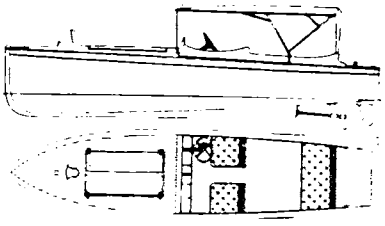
Palmer & Gardner, Bridgeport, Conn. 21 Ft. by 6 Ft. by 2½Ft. Speed 25 Miles per Hour. Price, $2,700 Complete



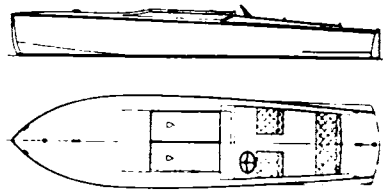
Bair & Edgerton, Glen Cove, N. Y. 18 Ft. by 4 ft. 6 In. by 1 Ft. 6 In. 4-Cyl. Universal Engine. Speed 14 Miles. Price, $900



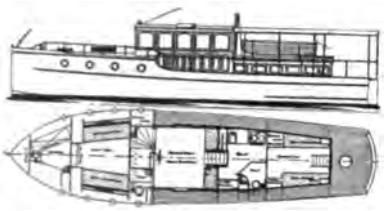
Belle Isle Boat & Eng. Co., Detroit, Mich. Bear Cat Model. 26 Ft. by 6⅞Ft. 6 In. 4-Cyl. Hall-Scott. Speed 33 Miles. Price, $7,500



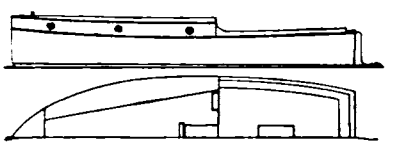
Racine Boat Co., Racine, Wis. 19 Ft. by 4 Ft. 6 In. by 1 Ft. 2 In. 10-H.P. 4-Cyl. Universal. Speed 13 Miles. Price, $1,750



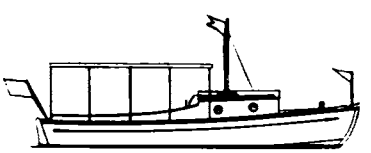
Richardson Boat Co., North Tonawanda, N. Y. 22 Ft. 3 In. by 5 Ft. 9½ In. Power, Speed and Price Vary



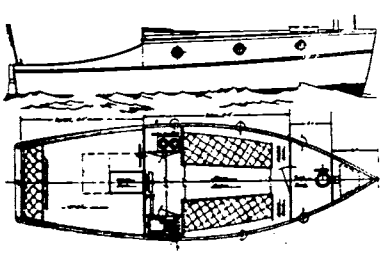
Rochester Boat Works, Rochester, Charlotte Station, N. Y. 50 Ft. by 12 Ft. by 3 Ft. 6 In. Hull Complete. Price, $14,000



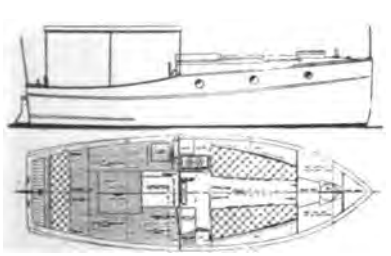
Carl N. Beetle, New Bedford, Mass. 30 Ft. by 10 Ft. 6 In. by 2 Ft. 4 In. Powers Installed to Suit. Price, $800 without Engine



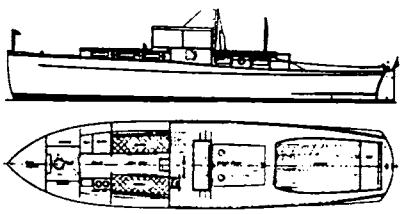
Bair & Edgerton, Glen Cove, N. Y. 24 Ft. by 6 Ft. 6 In. by 2 Ft. 6 In. 12-H.P. Universal Engine. Speed 9 Miles. Price, $1,000



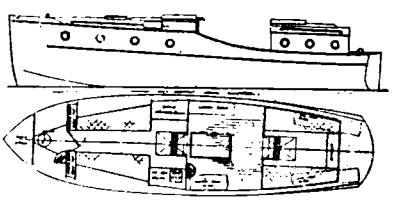
Delanco Shipbuilding Co., Delanco, N. J. 27 Ft. by 8 Ft. 6 In. by 2 Ft. 8 In. 4-Cyl. 4-Cycle Engine. Price, $1,500 Complete



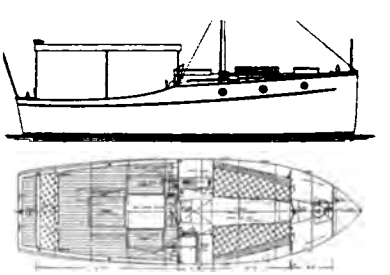
Richardson Boat Co., North Tonawanda, N. Y. 25 Ft. 11½ In. by 8 Ft. 6 In. by 2 Ft. 6 In. 12-H.P. Speed 9 Miles



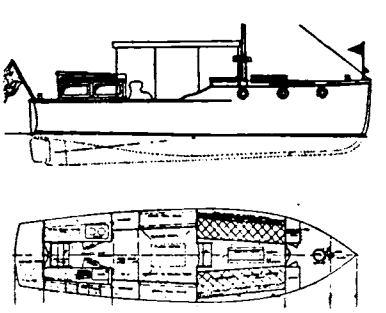
Great Lakes Boat Building Corp., Milwaukee, Wis. 42 Ft. by 10 Ft. by 3 Ft. Speed 23 Miles. Price, $13,500



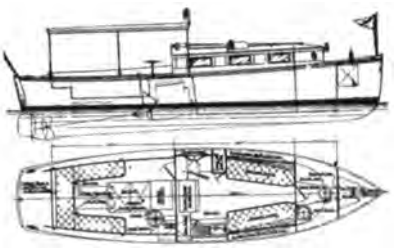
R. W. Harrison Boat Works, Toledo, Ohio. 32 Ft. Hand Design. Also Made with Raised Deck Only. 40-H.P. Kermath Engine



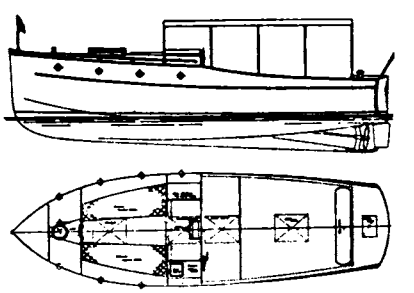
Russel Gray, Friendship, Me. 28 Ft. by 8 Ft. 8 In. by 2 Ft. 8 In. 4-Cyl. 20-H.P. Knox. Speed 10 Miles. Price, $3,350



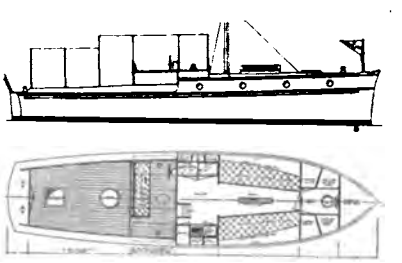
Leemon Boat Co., Cambridge, Md. 30 Ft. by 8 Ft. 3 In. by 2 Ft. 9 In. 40-H.P. Fay & Bowen. Speed 11 Miles. Price, $2,800



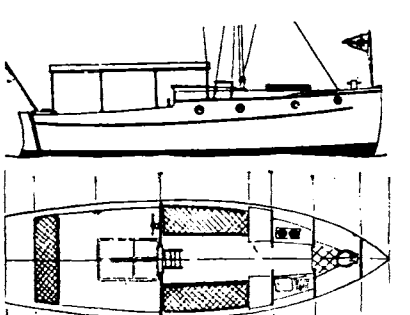
Elco Works, Bayonne, N. J. 33 Ft. by 8 Ft. 8 In. by 2 Ft. 10 In. 40-H.P. 4-Cyl. Engine. Speed 11 Miles. Price, $3,950



Liggett & Son Co., Wyandotte, Mich. 28 Ft. by 8 Ft. 6 In. by 2 Ft. 10 In. 20-H.P. 4-Cyl. Kermath. Speed 11 Miles



J. M. Densmore Co., Atlantic, Mass. 36 Ft. 3 In. by 9 Ft. 6 In. by 2 Ft. 8 In. Powers to Suit Purchaser. Price Varies with Equipment



Columbia Boat Co., Mount Vernon, N. Y. 28 Ft. by 8 Ft. 6 In. by 2 Ft. 10 In. Power Speed and Price to be Announced

A Cruise to Nassau from Miami

By Gordon E. Mayer

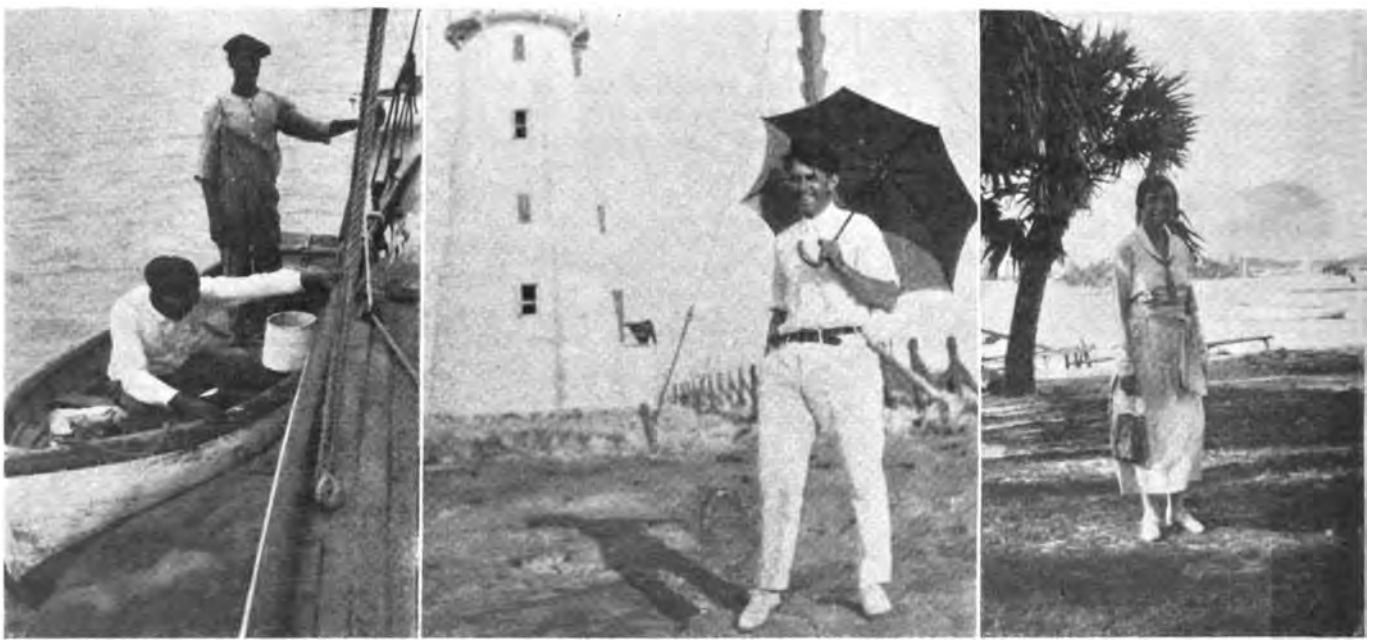
MIAMI, FLA. already is, and has every promise of becoming more and more a Mecca for anglers and yachtsmen during the gradually lengthening so-called winter or tourist season and when the wonderful coolness of the Miami summer is better known and appreciated—Miami will be a year round resort for lovers of the water and all its contingent attractions.

Besides the already popular along shore or Key trips out of Miami there is also, on account of the geographical nearness—the tempting opportunity for real cruising to and through the Bahama Islands, a British Colonial possession of which Nassau, situated on the island of New Providence is the Governmental seat and as the crow flies, or perhaps we should now say airplane, is located almost due East of Miami 170 miles.

This group of islands is much more extensive than most people suppose, extending from a point opposite Ft. Pierce, Fla. South and East in a jib shape formation to Cay Lobos twenty miles off the Cuban coast and then East to Great and Little Inagua and the Caicos Group which was originally a part of the Bahamas but is now under the jurisdiction of Jamaica. On the Eastward line which would be the hoist of the jib there are starting at the North: Abaco, Eleuthra, Watlings, Crooked Island and Mayaguana and then Inagua. Between these islands and the fringe of small cays and reefs along the banks confining the Gulf Stream, there are over 690 islands and islets and over 2,387 rocks all named and charted, which altogether contain 5,600 square miles. Only 30 of the largest islands may be said to be inhabited, however, as the balance have only tiny settlements or a group of huts erected by fishermen, spongers, or those who sail over from the larger islands seeking fertile spots for farming.

From the above description one can readily see the charm of cruising through such a collection of islands and cays with thousands of harbors, and the average larger open spaces only 40 to 50 miles between islands, so that one can always find a harbor or be able to anchor in a lee at night. The islands of North and South Bimini just East of Miami about 40 miles, are the largest of the islands and rocky cays along the Western boundary of the Bahamas, with Gun Cay with its lighthouse and then Cat Cay and Dollar Harbor 12 and 15 miles South of them. This distance to Bimini or Gun Cay does not seem very great but to those who know this short trip, crossing the Gulf Stream can be most intensely interesting.

For the purpose of passing along some first hand information to yachtsmen or others contemplating a trip or cruise to the Bahamas outside of the regular steamship lines, I will try and give in the following, an idea of what one may expect on the average cruise. The narrative will be based on the experiences of the writer who accompanied by his wife and a colored man, (a native of the Bahamas,) in his auxiliary ketch "Clara Lee," cruised out of Miami to Nassau and return, over a period of three weeks last May-June. Instead of the usual prosy "Log" this article will omit the usual details of anchoring, lamplighting, changes of watch, meal menus etc., and try to bring out the at-



Left to Right:—A Bahaman Negro with "Tam", Called Derry and Who Speaks Pure Scotch. He is Quite a Character. Playing Robinson Crusoe, Capt. Mayer Ashore at Nassau. Mrs. Mayer Goes Ashore for a Call

Typical Bahaman Grog Shop Called Life-Saving Station No. 1.

We Got Hot Beer There. A View Down the Harbor at Bimini

tractions of the islands with enough of courses, depths of water and sources of supply to be of practical information.

First off, for the benefit of the uninitiated, do not attempt to take such a trip in the average hunting cabin type of cabin cruiser unless built along very seaworthy lines and with good draught together with reliable engines and above all a strongly placed spar with a sail. A trip to the Bahamas must be prepared for as for taking a trip over the ocean, for one can go for days and weeks and never see a settlement or sail, or find even a supply of water so that with the engine broken down or out of gas, its a matter of "Just you and God."

The first feature of the trip is the Gulf Stream. Imagine this wonder of Nature as a monster river flowing steadily North, as independent of the tides and ocean as if it were flowing through solid rock. At Miami it is 40 miles wide but the real strength of the current cannot be really felt for but 35 miles. This flow Northward continues 24 hours each and every day at the rate of 3½ to 4 knots per hour at this point. We all know what happens at the Race at the head of Long Island Sound, or at Plum Gut when a strong Easterly bucks the tide—well this is child's play to what old Gulf Stream can do when riled up by a heavy Norther either East or West. Even the English Channel cannot hold a candle to her playful antics.

This description is not meant to frighten, but to suggest that proper respect be given to a physical feature that is altogether held in too light regard by the average gas engine boatmen. Luckily the prevailing winds are from the South and East, and unless it blows too hard and steadily from these quarters, the trip across would be no rougher than the trip to Greenport from New London, or from Boston to Provincetown, and when once you are free from the Florida shores and reefs with the intense blue swells of the stream and the balmy trade winds heeling your vessel over till you have a smother of foam under your bow, then one can realize what is in store. For the old school yachtsmen, a schooner, yawl, or sloop, drawing not less than 4 to 5 feet would be best, and equipped with a good auxiliary motor. On account of the current, the course for the average sailing vessel is S.E. which will counteract the drift sufficiently to allow you to make Gun Cay. Faster power vessels can head up more to the Eastward of course as it's a simple matter to plot your course across a current of known strength at a fixed speed per hour. Here is the one good time for boat owners to be frank with themselves and cut the Club piazza "bull" and get down to brass tacks on the real speed his boat makes, for to miscalculate and find Bimini to the S.E. night coming, a squall making up, and perhaps the engine missing, is not the pleasantest situation, especially if some of the party be ladies and suffering from sea sickness. For these reasons the old skippers never start across in a sailing vessel with an S.E. breeze; and always allow to make when they do start a landfall South of Gun Cay or at least Bimini.

On approaching the Bahamas after the usual small cays or low islands are sighted, the banks or shallows, bordering on the Gulf Stream can easily be seen for miles before you reach them. This water is not less than 20 feet deep and most times right along the Stream much deeper. The rocks and reefs rise ab-

Gun Cay Lighthouse from Passage.

Clara Lee at Anchor, Bimini Harbor

ruptly and you can carry 10 feet very close up to them. Partly submerged reefs or rocks show so dark on the white bottom that they are easy to avoid. This is also true of moonlight nights and even on bright starlight nights. Unless one has visited these waters before, it would be wise to have on board some member of the crew or party that is familiar with these conditions, because in the Bahamas there are no beacons, spars, nuns, gas buoys, or range lights to guide and direct.

Once on the banks you have a tremendous expanse of shallow water maintaining an average depth of 5 to 6 feet, with smooth hard bottom, but there is lots of open water nearly 18 feet deep and also sand bores that are just awash and as said before, its just "You and God," and of course, a good compass and good charts that's the fun of it. On these banks the sea is nothing worse than a cross chop, the shallow water preventing any high seas, unless a bad blow is on, when to anchor in shallow water would mean being bumped on the bottom. Otherwise one can drop anchor and hang up a light any night and never have to worry. These banks continue almost to Cuba to the South, and nearly 70 miles due East from Gun Cay.

Having entered at Bimini where the resident Magistrate combines all the necessary port officialdom into one, with an easy going make yourself at home air about it, we were not boarded again by the officials at Nassau who after hailing us from the boarding launch and finding we were from Bimini, merely told us to present the "Transire" (obtained from the Bimini officer) at the Customs House Monday morning. After this official decree we were at liberty to go ashore and do as we pleased. This was the writer's first visit to Nassau since August 1916, shortly after being arrested as a possible spy from Germany, when I was discovered taking a snapshot of a lifeboat from the commerce destroyer Karlsruhe which came ashore on Abaco and was brought to Nassau as an Admiralty Prize by the very proud natives, however I soon found all this old feeling to have been forgotten.

After dolling up, I went ashore about sunset in search of some ice and was greatly disappointed to discover that the local outfit still had its chronic ailment of laying down on the job, and after going from store to store procured a 2 lb. piece for a shilling from a colored cafe proprietor who probably thought the small piece would not save his foodstuffs and a shilling was after all a shilling. Ice sells normally at Nassau for 4 cents per lb. and is of poor quality.

Nobody rushes or hurries in Nassau even to a fire, over ¾ of the population of Nassau and the island of New Providence is colored, most of these are of pure Congo variety and very black. Here under the British colonial policy the natives are placed on an equal footing with the whites, which is quite a contrast to one having lived in the South. Even in the House of Assembly which is composed of local men of standing who make the laws and pass on the business of the colony, there is a large element of colored men. In the stores, theaters, churches and in fact in every phase of everyday life, there is no segregation.

There is one exception, and that is the Nassau Club founded and supported by the worth while white men of Nassau, and if you are so fortunate as to know a member, or through proper credentials become acquainted with a member, you will have sent to your address with due formality, a neat card signed by this member inviting you to consider the club with all its departments entirely at your convenience during your stay in Nassau. It is a courtesy that one appreciates and when one turns the pages of the club registry one will find names that are world famous in science, politics and finance. No one after a visit to these cool and attractive club rooms overlooking busy Bay Street, has ever been known to complain of the heartiness of welcome and the hospitality extended to him by these white-suited, quiet, sunburned men of affairs. From the colored element this is "Sanctuary."

Nassau offers sufficient attractions to tempt the person of average tastes to at least stay a week and ride and walk and bathe and visit. Liquor is sold everywhere and during the off season of the ice factory if you like your beer warm, you need never drink alone, for the local fans are quite used to the taste, although they admit having a preference for it cold.

The Surveyor General or Colonial Civil Engineer of the Colony, is the Hon. Wm. Miller with whom the writer has been friends for some years and it was from Mr. Miller that my wife and I received the welcomed Club Card. Mr. and Mrs. Miller also had us to tea to meet some friends. This afternoon tea drinking is quite a function, and the ladies delight in having elaborate outfits and serve this beverage with wonderful charm and grace. At Mr. Miller's palatial home up on the hill, we also had the extreme pleasure of enjoying a typical baked turtle dinner served in native style, with all the proper trimmings and fixings, even to the West Indian institution of Swizzles made

Some Bahaman Captains Pay Us a Visit. The Majority of Island Craft are Now Engaged in Bootlegging. Many of Them Carry Thousands of Dollars Worth of Booze. Buying Oranges at the Nassau Market

by Mr. Miller out of Jamaica Rum and other mysterious fluids. Examine any gentleman's hand that declares himself a West Indian and unless he has peculiar callous spots on his otherwise immaculate hands (caused from twirling the swizzle stick with his palms), he is a fraud. Mr and Mrs. Miller are true representatives of the British colonial official families that make life worth while for those that are fortunate to stray to their neck of the woods.

From Nassau there are any number of interesting trips that may be taken, but I will be very frank in stating that there is after all a great similarity to the Bahamas, and unless you have some specific objective, there is nothing different to be seen or experiences to be gained, unless one is hipped on just "going" as the writer was once having been to partically every island in the group. Also remember that the further you go from Nassau, the farther you are from supplies, world news, and in case of accident to boat or person, there is a great uncertainty of how things will turn out. One can be so completely buried and out of the way in the Bahamas that the center of Greenland or Siberia could offer nothing better.

However for those who might be tempted the island of Abaco to the north of Nassau offers good harbors, good fishing and quite a few settlements along the shore. To the East lies the large island of Eleuthra, where the best pineapples and tomatoes in the Bahamas are grown. There are some curious freaks near this island that are also very dangerous for the stranger to navigate—these are the Current, and Glass Window. At Eleuthra will be found white people that have kept strangely to themselves, and have ideas and customs that smatter of generations ago. These islanders never intermarry with the natives and keep the colored element by themselves.

To the S.E. of New Providence are a long chain of islands 365 in number running almost N. and S., so close together that one could safely paddle from one end of the group to the other in a canoe. A few settlements of 6 or 8 huts may be found every 15 or 20 miles, the entire group being nearly 175 miles long. They are almost bare rocks with a sprinkling of palmetto and a few stunted cabbage palms. Water to drink is an unknown quantity and only the odd shapes of these humpy cays are interesting and the way they are cut up from one another. The erosion of the lime or sand stone on these cays are worth mentioning, also the numerous outlaying small reefs that extend up out of the water that are so worn by action of wind and water that they are merely intricate spire-like cages formed of lace-like particles of rock that with the concussion from a shotgun will collapse like a mass of glass.

At the southern extremity of the group is Georgetown, the only settlement and the home of the magistrate for this district. This town has a beautiful and very deep harbor and snuggles down in the nest of low rounded hills of the island that make a very attractive picture. To the south of this island of Great Exuma is a small cay called Hog Cay on which an interesting old Englishman tries to raise sheep and goats with quite some success and sends the animals to Nassau alive to market. If these brutes were sent on power boats that would allow them to arrive in a couple of days the meat would not be so bad, but often these animals are tied down on the decks of small schooners without shade or water for sometimes a week and arrive at Nassau in anything but tempting condition for slaughter.

Leaving Bimini we sailed South skirting the Stream till we reached Turtle Rocks where we ran in on the banks, and continued on till we were abreast of Gun Cay lighthouse where we changed our course to S. ½ E. and continued on this course till we dropped the lighthouse astern. Then we steered due E. This little stunt is an old dodge of the local sailors to allow them to hit more surely the Northwest Passage, which nature left as the one chance to pass over the banks on the way to Nassau without a long roundabout trip nearly 100 miles longer. All the boats in the Nassau-Miami trade pass thru this passage, and it should have been lighted and buoyed long ago, for vessels approaching at sunset having to anchor and wait until the morning light to pick their way through, for this passage is just a narrow, quite shallow channel, thru patches of coral heads and reefs just under water. The fact that this passage is out of sight of all land, and only reached by good steering after 70 miles of sailing from Gun Cay or 60 miles when coming from Nassau makes it quite necessary that one knows what they are doing. Nature provides due notice however for those who will look; as the approach of this reef, may be recognized by the numerous dark patches of submerged reef and sand bores, which are only found in the neighborhood of the Passage. The open banks having a clear bottom. The boats that pass through here always place a man with good eyes aloft, and the man at the wheel steers according to his orders. The writer went thru this passage on the Nassau owned 100-ft. yawl Iris, under full sail on a moonlight night and will always remember the experience.

North of Andros Island and South of the Berry Islands is an ocean bight, or Tongue of the Ocean, as it is called with very deep water. This bight is pear shaped, the apex being the N.W. Passage, and its confines on the South are the banks, reefs, and the sand bores and reefs, which are an extension of the

The Bimini Club Dock and the Famous Bootleg Yacht Grey Duck at End of Dock. Warehouse at Bimini, which Holds a Million in Liquid Refreshment. Looking Down Bimini Harbor from Ridge

Joulter Cays or Jossie Cays, as the natives call them which were a part of Andros. On the north the banks and reefs continue to the Berry Islands which appear in order as follows after leaving the Passage—Black Wood, Bush, Rum Cay, Leaf Cay, Sandy Cay and Frazer Hog Cay with a curious lump of rock near that called "Mammy Roodie" after an old colored woman who lived in a hut on this rock all alone and traded with the spongers. Beyond Hog Cay running N. & E. are Chubb Point, Whale Cay and others of good size. Whale Cay is 35 miles from Nassau.

From the Passage to Nassau direct is approximately 60 miles of deep open ocean, which also can get very rough, but lacking the Stream current does not get so playfully lumpy. The course from the N.W. Passage is S.E. due, and it will be possible to see the Jossie Cays plainly to the South on this course, and the humpy hills of Whale Cay to the N.E. will be visible for nearly 20 miles on a clear day. Approaching the Island of New Providence on this course, the hills and bluffs at the West end of the island will be seen clearly from deck over 15 miles away. Do not run down to this land but keep true on the S.E. course, and the island will keep making up and showing more land rapidly, until the foothills and the F. E. C. Colonial Hotel can be plainly seen from deck. Then run in closer if you wish, until the lighthouse at the harbor bar can be plainly seen. If a "rage" is on which is the local expression for a heavy sea, the flag pole on the point by the lighthouse will display a red flag. If this is seen it is best to run back along the shore and round the west end of the island, and anchor in the sheltered bay there.

After one is through the Passage and would prefer to nose in along the Berry Island group it would be well worth while. We ran up along, and finally anchored in a delightful harbor back of Frazer Hog Cay. Here we gathered conchs on the banks in the white water, got some good grouper, and went ashore for green cocoanuts, which contain several glasses of tasty water, and which also have a thin lining of a gelatinous meat that is very good. On this cay were a family of colored spongers and fishermen that also do a little farming. These out islanders are always very friendly and civil, ready to do any service wanted, and modest in their charges and are usually honest. They always have also the usual native made straw hats, shell work baskets, rough cleaned sponges, sea shells, etc., to sell. These the women make in odd times for sale in Nassau, to which all out islanders have to go for their every need except fish and conch. The Bahamas on account of solid rock islands, no water supply except rain, cannot raise any consistent crop, and so all the flour, rice, grits, bacon etc., and all wearing apparel is sent to Nassau for re-distribution through the out islands by sailing vessels.

To approach Nassau from the ocean is a sight one always remembers—the old stone lighthouse on the point of Hog Island which is nature's breakwater for the town of Nassau which straggles along the water front, and rambles back over and on the hill that extends to Fort Charlotte on the S.W. and to Ft. Fincastle and the Hospital on the N.E. The ridge of the hill is about 2 miles long.

Just back of the lighthouse are the tall wireless towers operated by the Government, and the wide expanse of green grass where the guests of the Colonial Hotel play golf. To the North of the lighthouse on the rocky shore of Hog Island can be plainly seen the rusty remains of a Blockade runner which during the Civil War was chased by a Yank gunboat, and the captain forgetting which side of the lighthouse the entrance was, made the mistake and ran his vessel full speed on to the merciless rocks where she has since remained.

Passing over the bar we broke out our ensign, and sailed with all rags set in a spanking breeze on the quarter up through the harbor. There were a few 3 masted schooners, a splendid Gloucester type of schooner just dropping anchor from Jamaica, loaded with huge puncheons of Jamaica rum which could not be denied by the odor. Another schooner from Haiti was being looked over by the Port Officer, and it being Saturday afternoon when all the mail schooners loaded with passengers and mail for the out islands leave, the harbor was quite a lively sight. There were also the usual quota of small smacks, fishing boats etc., and the small pleasure harbor craft of the local yachtsmen.

On the harbor front was the hideously yellow structure of the Colonial Hotel which was erected on the site of the old historic parade ground which was sold to the Flagler interests for 30 pieces of silver, and which building when erected with its accompanying power house with high brick stack forever placed the stamp of commercialism on this otherwise quaint early English-Spanish built town. After the hotel in its beautiful gardens followed the Government power house, the Market, the sponge wharves, the Bank of Canada and then Rawson Square off from which we anchored. Beyond this point to the East were more wharves; the canning factory, residences, etc., with the huge buildings of the Baltimore firm of distillers going up in the distance.

To the S.W. of Nassau is the island of Andros, one of the largest in the group having a few settlements on the East coast facing on the "Tongue of Ocean," and practically no life of any kind on the West coast.

Typical Bahama Sail Boat with Suit of Sails Made from Cement Bags. Schooner Ashore on the Gulf Stream Side of Bimini. Bargaining for Cocoanuts and Yams at Hog Cay

The interior is a wild waste of woods and salt swamp and lakes. This eastern shore was cruised by the writer in a sailing yawl without an auxiliary in 1913 and had the misfortune of having my crew while changing harbor with me ashore, almost lose the boat in a heavy squall. The details of this trip were covered in the August 1913 issue of THE RUDDER. These settlements and in fact the entire shore differs very little from Abaco, Eleuthra, or the Crooked Islands way to the Southward, only the natives are a little less friendly, and will often take serious advantage of a white man if he is in a hole. These Andros islanders were noted for their wrecking exploitations a few generations back.

Below the Exumas, continuing down by Ragged Island over to Long Island and Acklins, and to Inagua where the writer visited several years ago, the water becomes more open, greater distances between islands, and the islands themselves are less broken in outline and offered very poor harbors. Small vessels having to anchor in the open sea close to shore and running for the nearest point for a lee in a blow. At Inagua which is only 60 miles from Haiti, there is a large settlement at Mathewtown where great salt ponds attracted much shipping 50 years ago. This island if nearer Florida would be a paradise for sportsmen for on it now are great lakes that make feeding grounds for ducks of all kinds and on the savannahs are wild cattle and horses and thousands of wild donkeys. All the donkeys used on the street drays at Nassau come from Inagua. Wild boars are to be found on the eastern end of the island. Around the lakes and old salt ponds, the last time the writer was there, there were countless flamingo in flocks that rising, made a noise like dozens of airplanes and made a solid dark cloud against the sky. From recent reports these birds were still plentiful.

Unless one has the proper vessel, plenty of time and inclination, the distance of these most Southward islands is too great to consider, and if one did contemplate going so far they should continue on to Haiti, going as far as Port au Prince, then running over to Cuba, and cruising along the North shore to Havana, and then jumping back to Key West and up along the Florida keys to Miami. To do this, one should plan to take at least ten weeks to three months.

The cruising conditions around Haiti are wonderful as the land and sea breezes are almost as dependable as the tides. Ashore there is a wealth of fruits and foods and meat that costs but little. The mountains in Haiti are very high and curiously rounded. The writer lived in Haiti for nearly a year engaged in engineering work and predicts that Haiti will some day soon have a large colony of enthusiastic American people who will think nothing of dropping down from Florida in their yachts or airplanes. The wealth and beauty of this country must be seen to be appreciated.

After ten days spent at Nassau we decided that we wanted to have some action and feel the boat move again, so we cleared for Miami without any special plans as to how soon or what way we would travel to get there. The matter of clearing an American pleasure craft at Nassau is most simple and in striking contrast to the formalities at Miami where we spent for Health Certificate, Harbor dues and other Custom House fees nearly $15, where at Nassau the American Consul issued a Health Certificate free of charge, and the Custom House required only a few shillings for stamps. The writer was however destined to pay still more to the Colonial Treasury before leaving on account of my wife having the man row her ashore to the park with our dog Fritz for a final run, who by the way was obtained by us at Nassau seven years ago when he was a puppy so that he was a real British subject and should not have been subjected to the annoyance of being taken up in a dog catcher's net. It took my wife with the kind assistance of a few officials and some business men to "jimmy" him from the custody of the arms of the law. If one of the business men's names had not been Jimmie (Sands) I doubt yet as to the fate of our mutt. Anyhow it cost a shilling and lots of valuable time.

Leaving Nassau at about eight in the morning, we crossed the bar and stood out to sea, with a light N.E. wind blowing, which grew lighter and lighter until it dropped to an oily hot calm. The hills on New Providence were still well up and about three in the afternoon it started to make up a regular squall in the S.W. As we had decided to go easy on the engine, on account of gas at 60 cents per gallon at Nassau, and not filling our tanks to full capacity for that reason we decided to take pot luck with the wind and only shortened sail to meet the squall which soon arrived. We ran under easy canvas towards the west end of N.P., and finally decided to go to a small cove and anchor there till the weather settled. It stormed all the balance of the day and during the night until 3 in the morning, when it broke away and the air cleared up and stars came out so bright we thought that this spell of weather was over, and as the breeze sprung up brisk from the N.E. we up sail and steered for the N.W. Passage, planing to drop in at Catalina Cay and perhaps Bimini again if we so desired. The wind was steady but lacked weight which the Clara Lee needed and we did not pass thru the passage until about one o'clock that noon. About three o'clock that

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Return of the Marketing Squad, Nassau. Club House at Bimini before Completion. Government Landing, Bimini. The House on Ridge is Residence of the Commissioner. The Land Drops to the Ocean Directly in Back of the House, Showing the Narrowness of the Island

Sails for Power Boats

THE high price of fuel as well as the revival of sailing is leading many power boatmen to fit sails to their craft. Hulls that were built purely for power are capable of making fair progress with sails alone. Unless the hulls are rather deep the sails are not of much value when beating to windward, but on other points of sailing the canvas will often permit the stopping of the engine without the speed falling off any great exent. When under power the sails will sometimes increase the speed a couple of miles an hour. Economy is not the sole reason for placing canvas upon a power boat, for every true sailorman loves the feel of a taut sheet and the heel of the boat as she settles down to her work. The mast and other rigging do not harmfully effect the boat when under power, but on the other hand go a long way toward giving the boat a shipshape appearance.

Either the yawl or ketch rigs are preferable for power boat adaptation, although a schooner rig can sometimes be used. The arrangement of the cabin must be taken into consideration when planning the rig so that the masts can be located to interfere as little as possible with the accommodations. The cat rig has one advantage in that the mast is located so far forward, away from all usable cabin space. This point is cancelled, however, by the tall and heavy spar and the general unhandiness. A power boat rig should be capable of being handled easily and quickly and should be divided up into several small sails in preference to one large one. The form of power boats is such that they will not come up into the wind and lie to as well as a regular sailing yacht while the reef is being tucked so it is wise to figure on taking in one sail at a time when the weather gets boisterous. The big advantage of the yawl rig is the possibilities of using the mizzen as a riding sail during extremely heavy weather. A small sail aft will keep the boat heading up into the wind and, combined with a sea anchor, will permit even a small boat to ride out a blow that would cripple a ship. Sails keep the boat from rolling to a great extent as they hold her down on a slight but steady angle of heel. This heeling also has the advantage of increasing the freeboard on the weather side.

A sailing rig will usually prevent the placing of awnings when the boat is under canvas, but at anchor the boom forms a ridge pole over which a fly awning can be thrown. In some cases the regular standing awning can be retained, the boom being cocked high enough to clear, but in general this is bad practice as it throws the center of effort of the sails too high and makes an ugly appearance. A power boat of the raised deck type with the steering gear aft will handle better under sail than a boat with the helmsman's position on a bridge deck. All sheets and halliards should be lead to the handling position and each line should have a separate cleat over which no other line is ever belayed. Care should be taken to have all rigging, both standing and running, arranged as simply as possible. A mass of gear on deck and aloft is necessary on a racing yacht where every square inch of canvas that can be set is an advantage; but on a power boat there is no need for more than three lines to a sail and often two will do.

Many writers recommend the use of leg-o'-mutton sails for auxiliary purposes but to the writer's mind these sails require too high a mast to get enough area to be of much use. A gaff headed sail with either a loose foot or a sprit boom will spread 40% more area on the same mast. The sail will be just as easy to handle except that there will be one more halliard. When lowered the gaff will look better than the longer and heavier boom and after the sail has been braided in, the gaff can be triced up in the most seamanlike manner. If a sprit boom is used it can be laid on deck in a couple of chocks. If the yawl rig is used there will have to be a boomkin rigged out over the stern to make a place for the mizzen sheet block. The mizzen on a ketch rig can be sheeted directly to the stern.

In placing masts upon a power boat it is useless to attempt to fasten them well enough on deck. They must pass through the deck and step on a heavy block bolted across several frames. There should be a stay from the top of the mast to an eyebolt near the bow and also two shrouds to the side of the hull. These shrouds must shackle to chain plates bolted to a frame. Turnbuckles must be put in all standing rigging to maintain the proper amount of strain. Where the mast passes through the deck there should be partner pieces placed between the beams. In case the mast has to be passed through a trunk cabin the strain may prove more than the house can stand unless natural knees are fitted in the way of the spar to take up the side sway. In any case one must realize that it takes a great deal of power to heel a cruising boat over to a sailing angle, and that all of this power will have to be taken up with the shrouds and the mast step and partners.

The calculation of the amount of sail area required and the proper location of the centers of effort of the several sails will have to be worked out separately for each boat. An approximation of the proper amount of canvas can be obtained from the following formula.

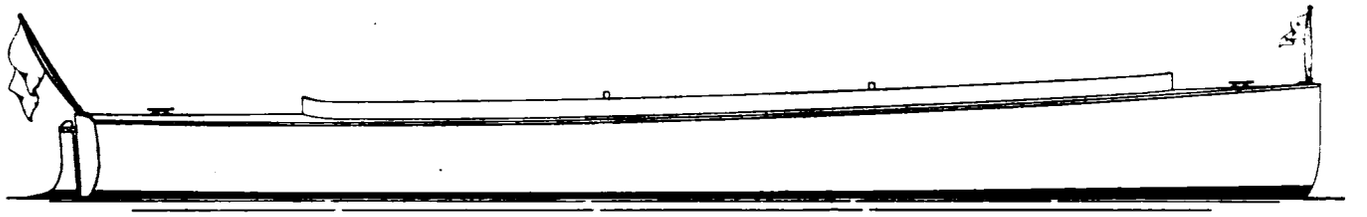
Where A = Sail Area.
L = Load waterline length of the boat.
B = Breadth over all.
D = Draught to the outside of the planking.

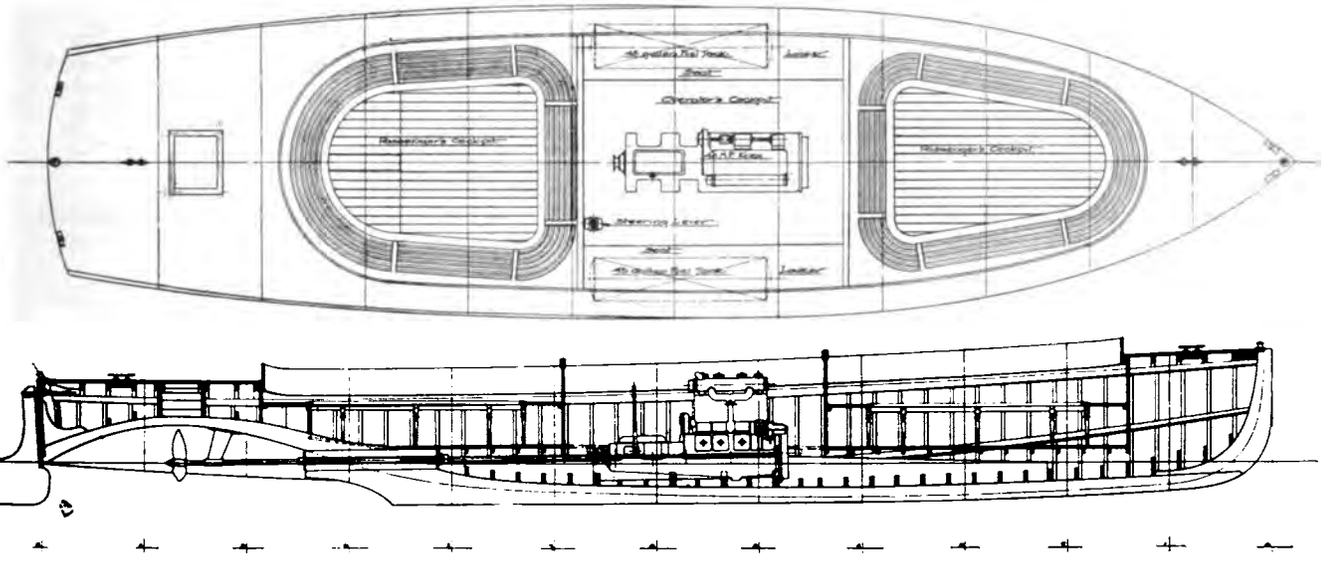
Then

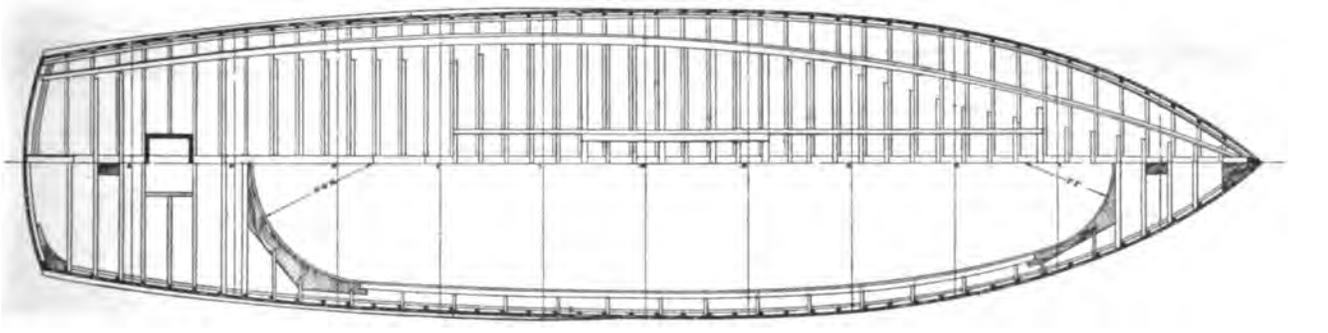
$$3\sqrt{(L \times B \times D \times .5)^2} = A.$$

The determination of the centers of sails will have to be figured so that the total Center of Effort of all sail is forward of the center of the under water fore and aft plane of the boat. This last center is called Center of Lateral Resistance. The proper distance between the two centers on power boats of ordinary form will be approximately 3½% of the l. w. l. length.

Designs





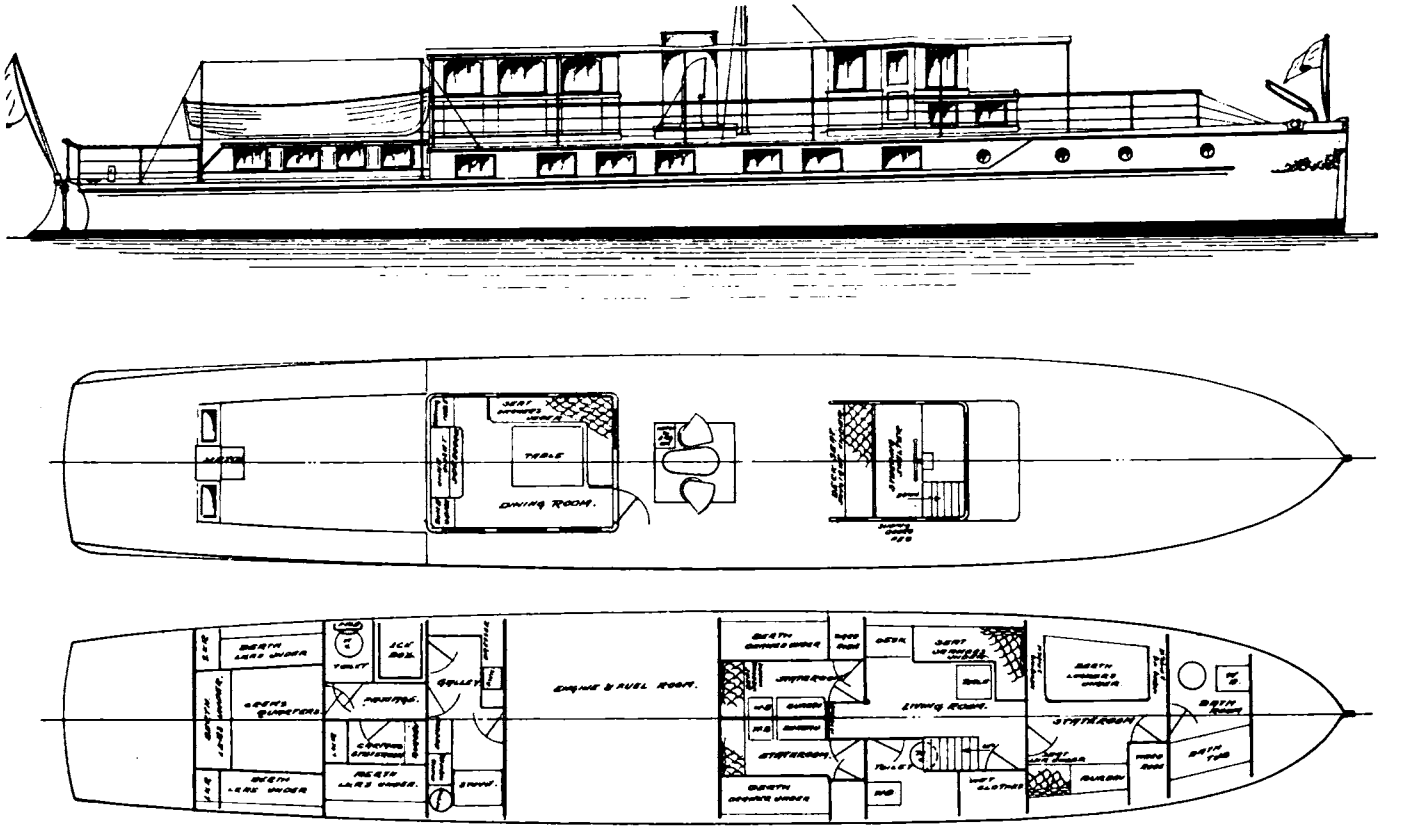


Passenger Launch for China

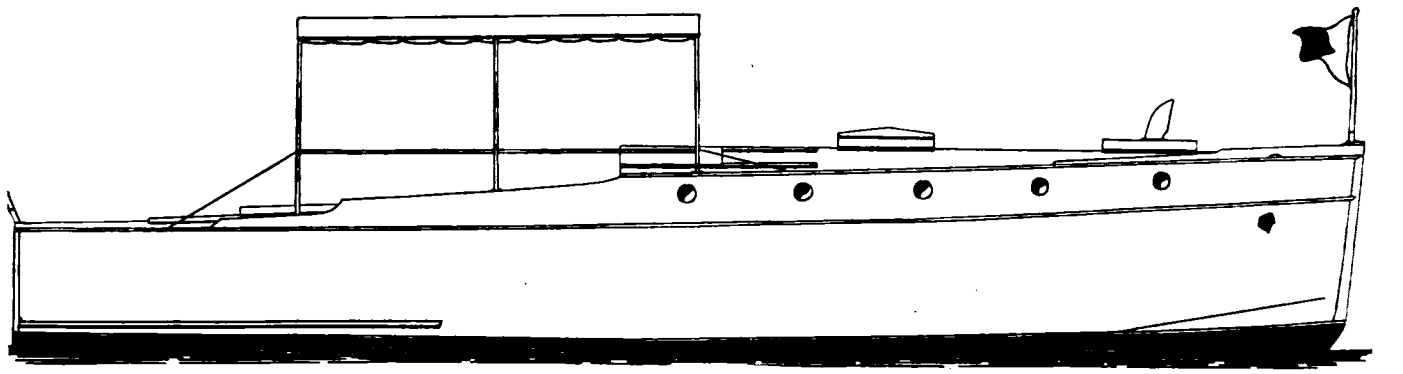
The above plans were drawn by Charles D. Mower for Anderson Meyer & Co., Ltd., Shanghai, China, who wanted a boat which would have a great deal of passenger carrying space and at the same time a draught of not over 15 inches of water. The craft had to be of the usual form, capable of being used in broken water and as attractive a boat as could be obtained under the circumstances.

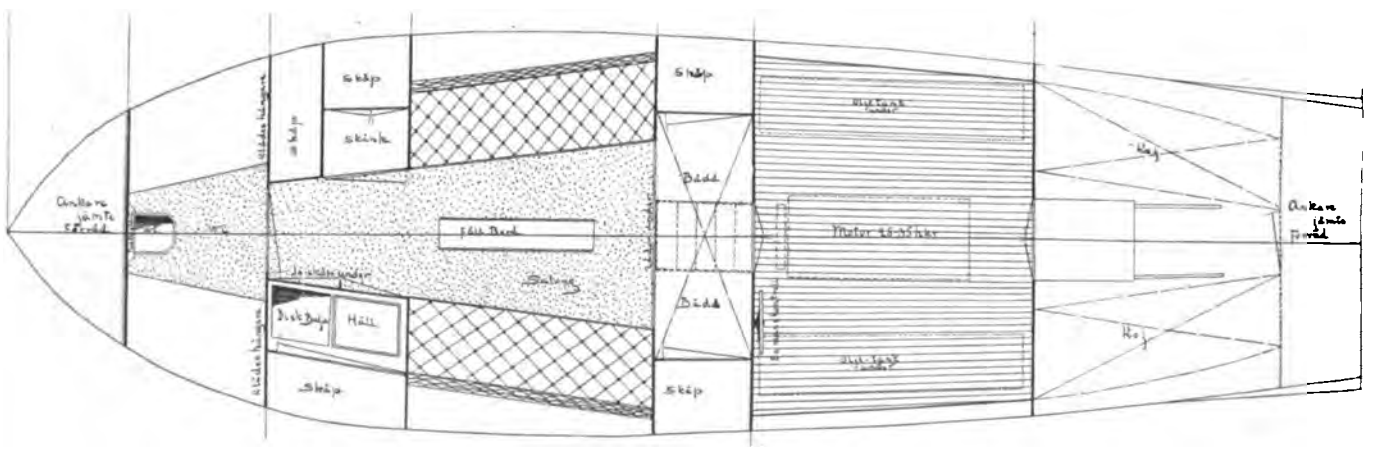
On account of the shoal draught, a tunnel stern was used with a tight hatchway above the wheel so that the propeller can be reached if necessary from within the boat to clear it of weeds. The construction, while not heavy, is substantial enough to stand the vicissitudes of passenger carrying. The fore and after cockpits are arranged for the passengers, the operator being located amidships alongside the 40-h.p. Knox engine. The steering is accomplished by means of a lever moving athwartships. Gasoline will be carried in two 45 gallon tanks located on the sides of the midship compartment.

Length over all.....	36	feet	0	inches
Breadth	9	"	0	"
Draught	1	"	3	"

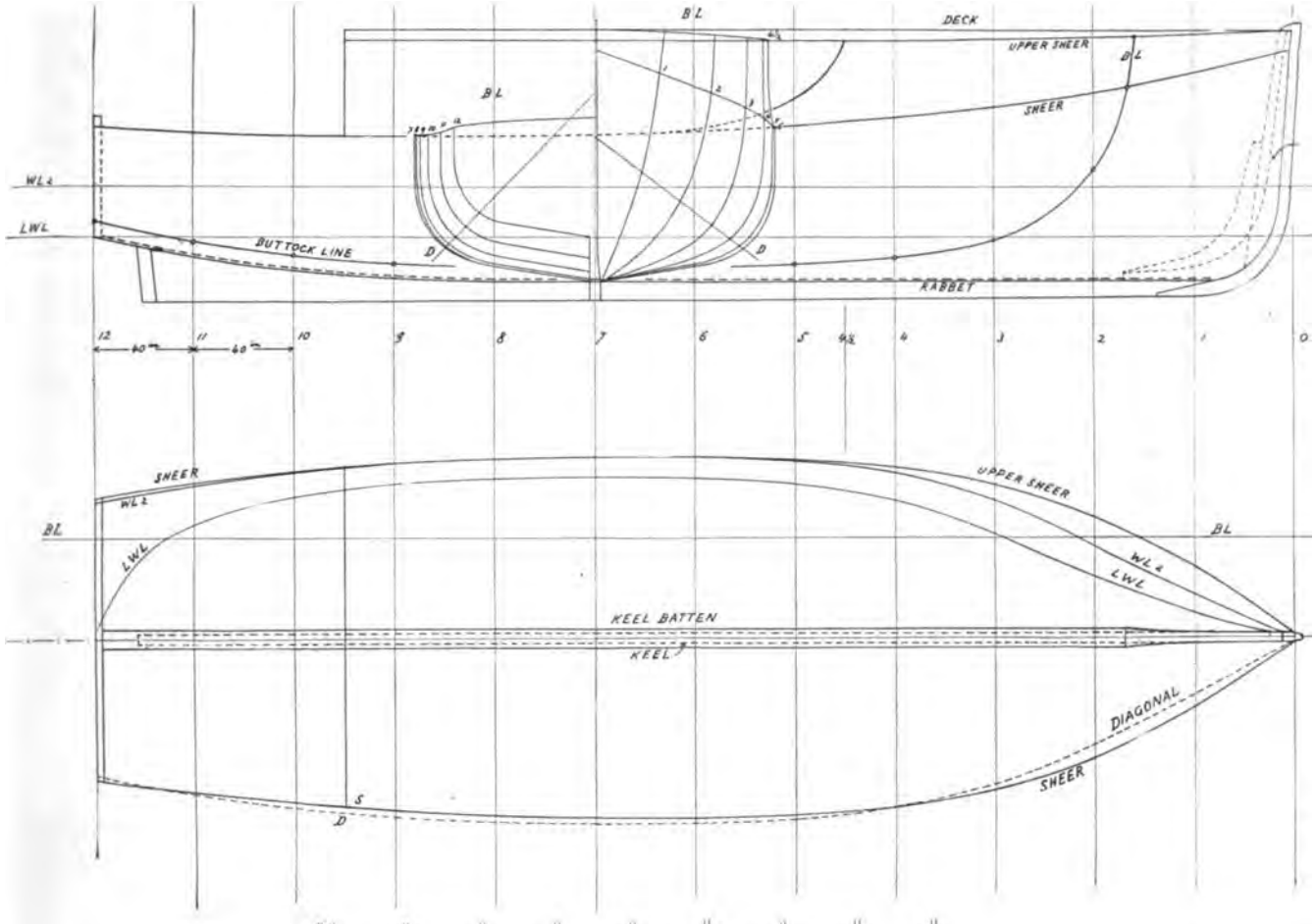


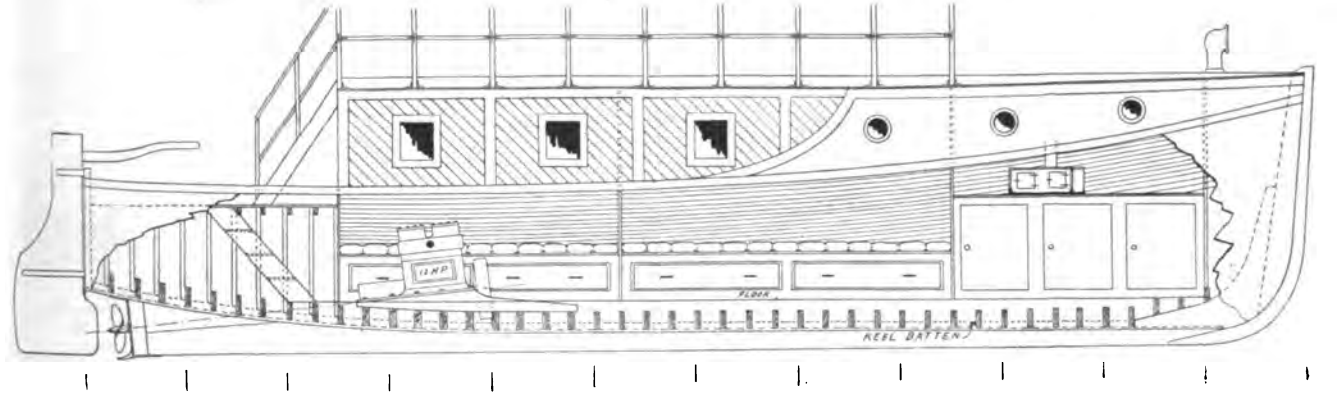
Large Power Houseboat with Yacht Lines, Designed by W. H. Millett, and to be Powered with from 100 to 400-H.P. Giving Speeds of from 10 to 23 Miles

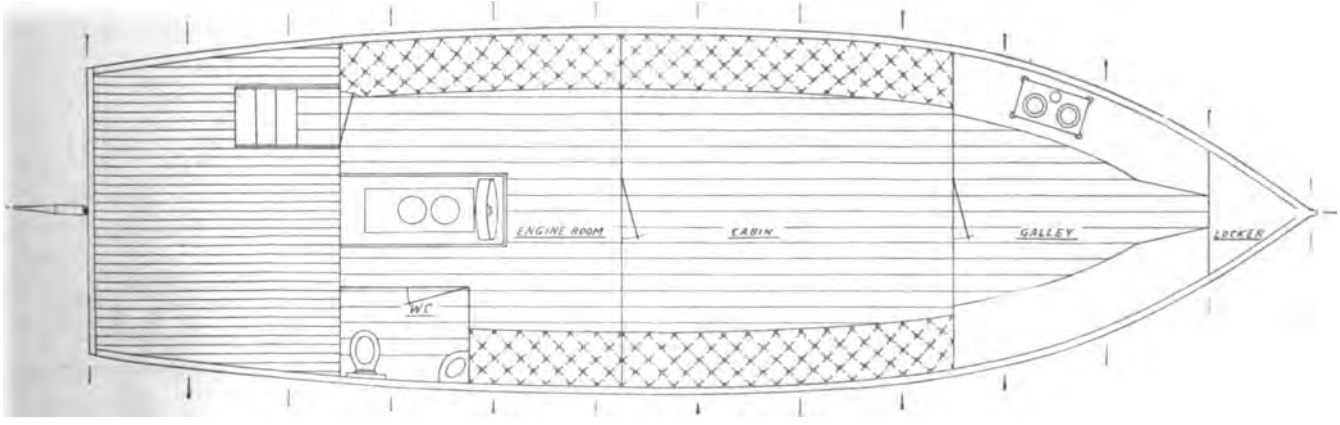


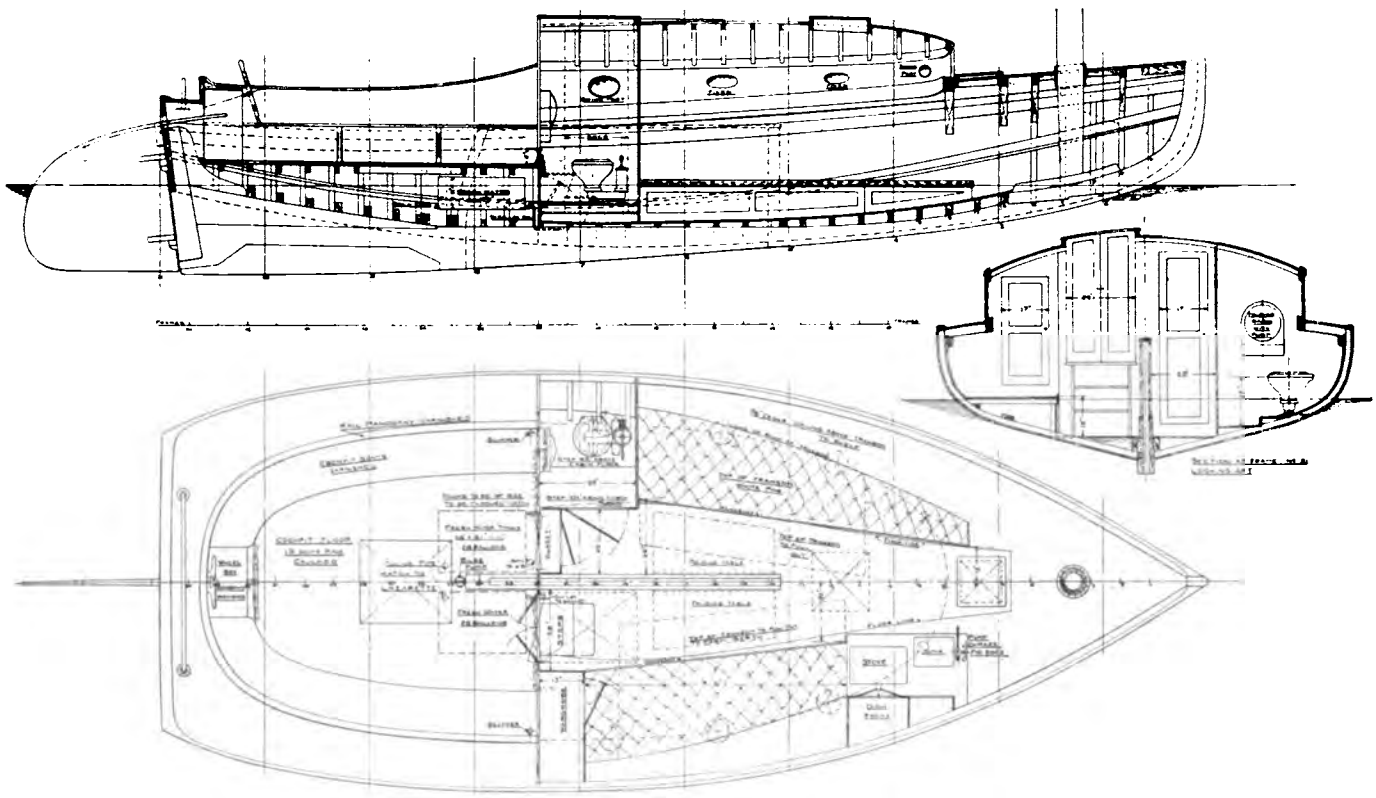


Attractive Power Cruiser, Designed by Goran Castren, of Helsingfors, Finland. She is 34 Feet Long and Has Accommodations for Seven People. 35-H.P. Will Drive Her at an 11-Mile Clip







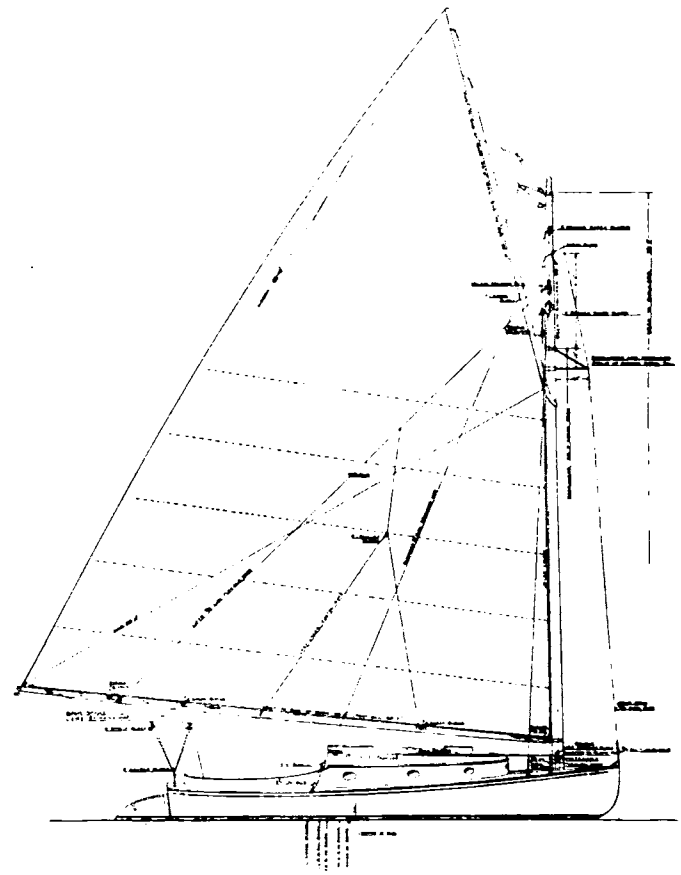


Catboat Scat II

Last month we published photographs of the Barnegat Bay Champion Catboat Scat, designed by Francis Sweisguth for Edwin J. Schoettle of Island Heights N. J. On this page we show the plans of this fine boat and herewith give an idea of her as expressed in a letter from her owner.

"In the Fall of 1920 Francis Sweisguth was commissioned to design a new boat, with almost 6 feet headroom and a length of 30 feet. Her name was really to be Sally Constant, after the boat that brought John Smith to America. As the boat is a big, barndoor rudder type with tiller through the transom, dividing it in half, it was found impossible to divide the name Sally Constant so it could be painted on the stern. Scat II was therefore decided upon. After the usual battle with the naval architect to get 5½ feet headroom in a boat drawing 2½ feet, without spoiling her chances in racing, the designs were turned over to Eli Townsend of the Seaside Park Boat Co. She was launched in May 1921. She is a craft of many features, one of them being the fact that the ballast is outside on the keel, thus making her very stiff."

A brief resume of her racing activities her maiden season may be interesting. Race number 1 was held at Island Heights and was lost because the sail was cut too high at the peak and would not take the boom off the cabin top. At that she was third out of eight starters in a light air. The second race was for the Wanamaker Cup and was sailed in a good breeze and open water. Scat II was second. Races 3 and 4 were victories for Scat II although in the latter contest she cracker her spar and tiller. Hurried repairs were made so as to allow her to enter the fifth race which she won. The sixth race also went to her in spite of the repaired mast. The seventh, and last event was for the Middleton Cup which she won handily against a field of 16 boats.



Beachcombings

The Beachcomber would have been up against it for bunk this month if it hadn't been for the dinner of the New York Athletic Club, Yachting Division. 'Twas a wet and stormy night.

* * *

Poor old Alice, whose virtues were poured into the ears of Benjamin Bolt Esq. was resurrected from the grave. Tom Farmer was the culprit. Tom can sing as well as he steers a boat and that is going some.

* * *

Bill Nutting had an awful time. The waiter brought around a pitcher of—er, soda water; and Bill thought it was a seidel intended for his own consumption.

* * *

The prize winners for the season were given the various articles of silver which they wanted. Poor devils they all had to make a speech and then had to listen to the rest of us talk.

* * *

We don't know what became of George Molloy. After a most interesting speech he was presented with a bouquet of flowers stuck in the mouth of a bottle. We wonder if he went home that way. We give our readers five guesses as to what the bottle had in it. Right! you win the hand embroidered mushroom anchor.

* * *

Commodore Anderson contributed the venison for the dinner. Someone had to spring the stuff about "passing the buck." Gee but this social life is killing!

* * *

A pathetic incident marred the preparations for the coming power boat Show. Some miscreant stole Fred Lawley's shirt. It is hoped that before Show time the genial Fred will be able to find another on an unattended clothes-line.

* * *

To go back again to the New York Athletic Club dinner for a finale—Commodore Farmer added to his laurels by breaking out as an artist. He perpetrated the invitation cards as shown below. The postal laws made the services of a censor necessary. Hot Dog!

Biographies of Boatdom

Hurry, hurry, hurry! Young and old, short and long! Come arunnin'! If you hurry you will catch him in one of his wildest moods. In this cage we have the genuwine, feerocious and untamable Nut Hound. He passes by the name of Fred Fricke and his habitat is Durkees. Ask Harry Curtiss what he knows about Fred and then get the women and children out of the way before Harry answers.

We have shown hard guys before, but never have we caged as hard a specimen of a Hardware Cootie as you see here. Great Heavens, Look Out! My Goodness, I thought he had bitten one of the iron bars through! Gosh, but he is wild! But then what can you expect? Fricke spends his time amongst bolts and nuts all day long. He bolts his food, eats Grape Nuts, galvanizes his finger nails and sleeps between sand-paper sheets on a coil of chain. We missed one thing when we captured this curiosity. You should have seen him when he was wearing his stud link eye-glasses! A peculiarity is that he raised pink Tea Roses in the Jersey Wilds as a hobby. Don't crowd there! Pass right along.

Needed Information

In this department all questions are answered relative to the care, operation and equipment of boats. When answers are required by return mail, postage must be enclosed.

Wants Steel Cruiser

Editor of THE RUDDER:

As I am a machinist by trade and have been badly bitten by the boat bug, I am planning on building a steel hull cruiser which I want to use off the coast a great deal of the time for fishing purposes. Will you let me know where I can get plans and books on steel construction to help me in laying out the proper size of the material? Do you think a four-cylinder 40-h.p. engine at 700 turns will be the proper engine for my boat? She is to be 40 feet long and about 14 feet wide. Are these good proportions? I want to build her of steel because I am use to working it and also because it will last longer and be stronger for heavy work.—R. P. H., Boston.

We would not advise you to build a steel boat of the size you mention. There are any number of things against the use of steel for small power boats. The most serious is the fact that a steel hull has to be given more attention than a wooden one to keep it in condition. Rust is always at work on such a craft. While it is true that the big steel ships are more successful than big wooden ones, the comparison is not fair. Rust takes place over the surface of a plate. If the plate is an inch thick a season's rust will make little difference in its strength. If the plate is only 3/32 inch thick, the rusting will seriously effect the strength of the plate. If the plates are made heavy enough to allow for this rusting, then they will be so heavy that the boat will have too much displacement, resulting in a slow craft. If you take a chance on the rusting and put in a plate which would have a thickness proportionate to the size of the boat as compared with big ships, it will be so light that every time you bump the dock you will leave a dent in it. For small boat work there is nothing that approaches wood. It is light for its strength, buoyant in itself, flexible and easily worked. A well-built wooden boat will last at least 35 years. A small steel plated craft is lucky to last 5 years in salt water unless it is hauled out every few weeks for painting.

You do not state the draught of your proposed boat, but we would suggest that 14-feet breadth is too much for sea-going work. Better proportions would be 40 by 11 by 4 feet draught. A 40-h.p. should drive such a boat at 9 miles an hour.

At-A-Boy Is Popular

Editor of THE RUDDER:

I built a speed boat from your plans of How to Build At-A-Boy? I made this 21 feet 6 inches long and 2 inches wider than shown. I now have a Ford engine using a 13½ by 14 wheel, 3 blades making 19 miles per hour. By installing a 16-valve cylinder head what size wheel would you recommend and what speed would I get? I also have a 2⅞ by 4 inch 6-cylinder engine. What speed will I make with this engine and what wheel do I need?—K. A. K., Minneapolis.

We do not know how much faster the 16-valve head will make the boat. If you will let us know how fast you are turning the engine now, and how much speed increase the makers claim for the new heads we will be able to help you out. The 6-cylinder engine should turn a 14 by 16 inch wheel and get a speed of 24 miles an hour.

At-A-Boy in South America

Editor of THE RUDDER:

In the issue of November 1920 I am interested in the plans and construction of At-A-Boy the 20-foot boat drawn by Jago and Lowen and which raced at the regatta of the Mississippi Valley P. B. Association, making the notable speed of 15.65 miles an hour with a Universal 9-12-h.p. engine.

In a later issue you gave the plans of a boat of the same type called At-A-Boy II, a 17-footer which obtained the speed of 19 miles in the July regatta of the above association. I am now in a place to construct the 17-foot At-A-Boy and want to know what kind of a wheel she used to get the 19 miles? I am a subscriber to THE RUDDER and an enthusiast about building launches. I always build from THE RUDDER plans.—J. N. M., Buenos Aires.

The propeller used on At-A-Boy II during the races in the west was a 3 blade, 12 inch diameter and 13 inch pitch Hyde wheel.

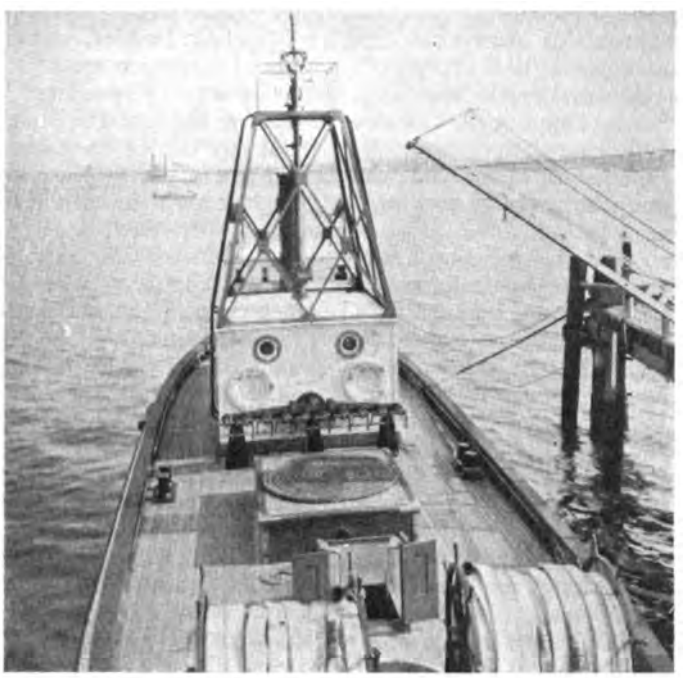
Sludging Down Spars for the Winter

Editor of THE RUDDER:

The spars on my schooner are too heavy to lift out and store every winter and I want to know what you would recommend as a coating to put on them, so that the varnish will not all be eaten off by the weather and the spars checked and stained?—T. H. B., Bristol.

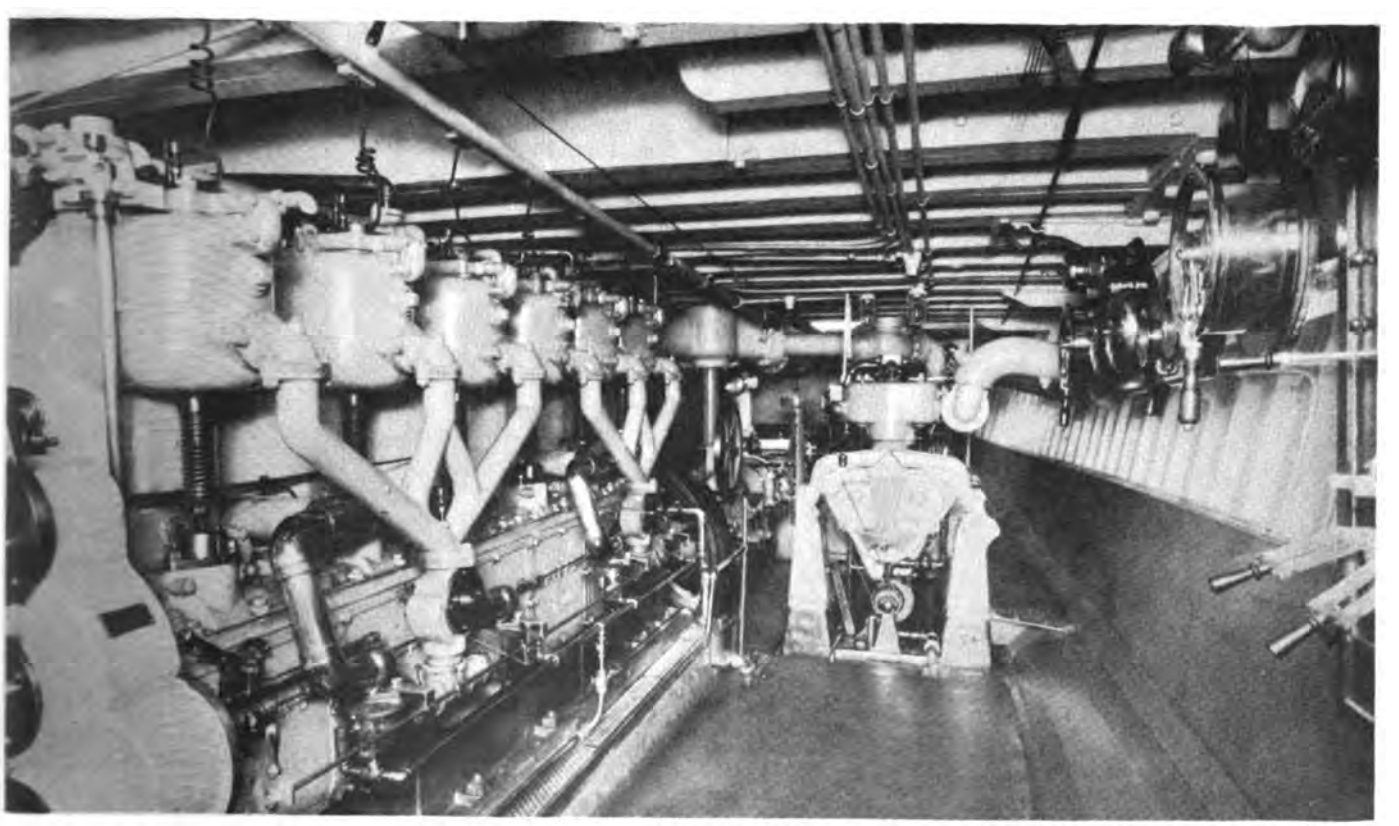
One of the most popular methods of coating spars which are left out all winter is to smear them well with a half and half mixture of white lead and tallow. A better way is to cover them with a thick coat of steam engine oil. This will last all winter and can be cleaned off with gasoline in the Spring. If the proportions of the former are not correct, the spar will be stained. The latter does not have this disadvantage. In either case the spar should be thoroughly varnished as the dope must not be smeared on bare wood. In the case of an extra fine job, wrap the spar well with strips of old canvas after the sludge has been applied. This is also the best plan if the boat is to be left out for a period longer than the few winter months.

Commercial Boats



Fire Boat Bill Kettner. Designed and Built by Members of the San Diego, Cal. Fire Department. 65 Ft. Long, 18 Ft. Wide and 5 Ft. 3 In. Draught. 200-H.P. Atlas Engine. Speed 10½ Miles per Hour

Main Fire Pumps, Driven by Two-200-H.P. Engines. Main Engine Can Also be Connected to Third Fire Pump. Total Water Capacity, 4,500 Gallons per Minute at 125 Pounds Pressure



The Young Skipper

Australian Sea Scouts

Our pictures below show a group of Australian Sea Scouts and their flag-ship. This crowd of healthy, out-of-doors boys are members of the Baden-Powell Sea Scout troup and the vessel is the S.S.T.S. Dolphin of Crawley Bay, West Australia. The following letter from the skipper of Dolphin will be of interest to all of you who are interested in scouting or nautical training for boys. Editor of THE RUDDER:

I enclose photos of the Baden-Powell Sea Scout Training Ship Dolphin, situated at Perth, West Australia, which may be of interest to the Sea Scouts among your readers. She has a fleet of six boats attached to her, of which two are used for cruising along the coast, the others being small fry. We keep no paid hands, permanent duty aboard being undertaken by the boys in turn. Only two officers are over 21 years of age, all warrant and petty officers being under 21. The leaders who are allowed full charge of the boats and crews being from 13 to 15 years, as we believe in the boys taking responsibility early in life. Our river affords splendid cruising ground, being an estuary up to 3 miles wide and over 25 miles long; while the coast outside is reasonably safe for decent boats.

THE RUDDER comes aboard monthly, and besides good reading, the ads. are pasted on cards and make useful charts for instruction. We got a splendid series from the Lowell Duck ads. and were sorry when they cut them out. We also look forward to the March Fitting-Out Issue as an education in rigs and types of boats.

With best wishes for the old ship,

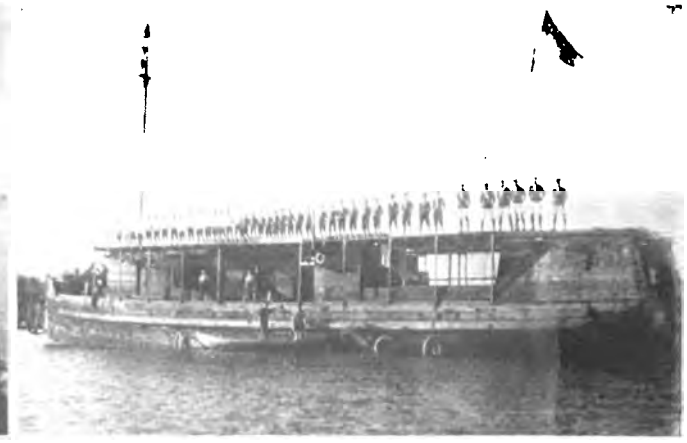
(Signed) HAL MACKAY,
Skipper of Dolphin.

We extend our congratulations to Skipper MacKay and his crew. The sort of training these boys are getting will turn every one of these boys into yachtsmen who will be a credit to the sport and to the Sea Scout organization that gave them the right start.

Equipping the Amateur Boat Builder

No boat builder, young or old, can afford to do work without a proper set of tools. In response to many inquiries we have prepared this list of the most important tools for the amateur boat builder. They can be obtained from any dealer in marine hardware. All should be of good grade as it is cheapest in the end.

4 inch Iron Vise with Extra Pipe Jaws.
24 inch Rip Saw.
24 inch Cross Cut Saw.
10 inch Compass Saw.
Hack Saw and Assorted Blades.
Claw Hammer.
Small Ball Pene Hammer.
Joiner Plane (Wood).
Smooth Plane (Wood).
Block Plane (Iron).
Try Square.
24 inch Rule.
Push Screw Driver with Blades.
Hand Drill with Assorted Bits.
Ratchet Brace.
Augur Bits, ¼-⅜-½-¾-⅞-1 inch.
Expansion Bit
Firmer Chisels, ¼-½-¾-1-2 inches.
Draw Knife.
Spoke Shave.
Six Assorted Files.
Hand-Driven Grinder.
Oil Stone.
Knurled Center Punch.
Gas Pipe Pliers.
Small Flat Nosed and Side Cutting Pliers.
⅜ inch Cold Chisel.
½ Dozen Hand Screw Clamps.
10 inch Monkey Wrench.
10 inch Stillson Wrench.



Australian Sea Scouts and Their Training Ship Dolphin. A Clear Eyed, Clear Skinned Crowd of Real Boys

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, 9 Murray Street, New York City, U. S. A.

A Rudder Junco

EDITOR OF THE RUDDER:

Going back to yours of Nov. 24th, 1920, in which you sent us blue prints and instructions on How to Build Junco, wish to tell you that we built one in the winter of that year and turned out a mighty fine boat, one that was envied wherever we went last summer; and we pretty well covered Saginaw Bay and portions of Lake Huron. We made day trips of over seventy-five miles, sailed in all kinds of weather and were comfortable at all times and had a boat that acted like a thoroughbred.

I am enclosing a few pictures of the boat, and wish to call the attention of readers of THE RUDDER to that picture showing the boat being used for family purposes on Saginaw Bay. You will notice that I have an outboard engine attached which we found very handy on long trips and when the family went along. The engine can be easily stowed forward under the deck when not in use. When attached to the boat we could make a speed of about 6 miles per hour. We had some difficulty in fitting the machine to the boat, but finally, after some experimentation, cut a small opening with hatch in the after deck about 4 by 10 inches which enabled the clamps of the engine to bite the transom and gave us room to tighten same by hand from above. Our other difficulty was in getting the engine in such shape as to have its tiller handle clear the deck, as the almost vertical transom hardly allowed clearance. We purchased an extension tilting device which made it just right.

If any readers are interested in building this boat, I will be glad to offer any information at my command, including detailed and itemized building costs. Lastly, let me thank you again for the kind help you gave us in this matter, and assure you that in our year's experience with this boat as an all-around safe, speedy and flexible proposition, she is some dandy.—WILLIAM S. BAUM, Saginaw, Michigan.

We Thank You

Editor of The Rudder:

I am taking this opportunity to express my appreciation to you and your staff for the manner in which the material regarding races held under the auspices of the Royal Kennebecasis Yacht Club, was inaugurated in your valuable magazine.

The Club has now under consideration a very attractive program of races for next season, and should I consider any of the events would be of interest to your magazine, you may expect my co-operation.

Yours very truly,
Robert L. Logan

Yachting in New Brunswick

EDITOR OF THE RUDDER:

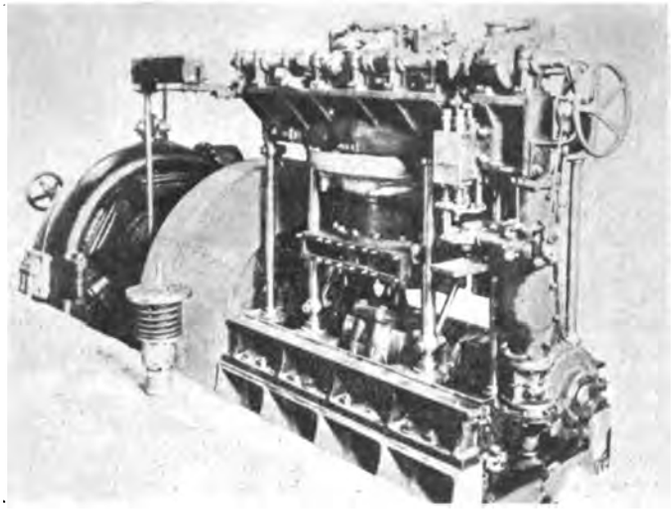
I have read in the last few months a few copies of your valuable magazine of which I am very thankful to you. I often buy a copy of THE RUDDER down here whenever I can find one, but it is not always possible to get one here. You will find enclosed $2.00 for one year's subscription to your paper of which I take a great deal of interest in reading. I have been in the yachting game for about 25 years and am not tired of it yet. Of course, we have not the class of boats down here that you have in New York, but one thing we have got is a very beautiful river, second to none in America, good water and lots of beaches and one can always find good anchorages for the night. Our river is navigable for 85 miles up from St. John to Fredericton, the capital of New Brunswick, for a boat of 7 to 8 foot draught. If ever you come down this way, I would be only too pleased to take you out for a spin. I have a very good boat and I make it hot for most of the boats around here.—WALTER LOGAN, New Brunswick.

Several Views of Boat Built by William S. Baum, of Saginaw, from The Rudder Plans of Junco

The Engine Room

The Sperry Compound Diesel Engine

For one engine to answer the two greatest dreams of internal combustion engine's designers is a remarkable feat. Elmer A. Sperry, of New York; the inventor of the remarkable gyro-compass, stabilizer and many other devices which have almost revised the science of navigation, is the inventor and manfacturer of the new Diesel. Although the machines have been built and tested for some time the public will have their first introduction at the Show.



Mr. Sperry has spent years over the problem of compounding the gas engine, in fact at the World's Fair in 1890 a Sperry Compound engine was shown in operation. The new Diesel is light compared to the normal Diesel, being about 1/10 the weight of the usual Diesel. This makes it appear as if there was a field for the compound Diesel engine for airplane and speed boat service. The field thus opened is tremendous.

Among the features of the new engine is the remarkable expansion of the gases. In the usual marine engine the expansion is from 3 or 4 to 1. In the usual Diesel the expansion is increased to 12 to 1. In the Sperry Compound however the expansion is as high as 120 to 1. This means a much greater efficiency, almost all of the heat of the gases being used as power and not dispersed through the exhaust.

The method of compounding is fairly simple. The two high-pressure cylinders are of the four cycle type. The exhaust gases from these two high-pressure cylinders is passed into the low-pressure cylinder which is of the two cycle pattern. As the H.P. cylinders are set so that when one is exhausting the other is compressing, it will be seen that the L.P. cylinder gets a charge of gas every stroke.

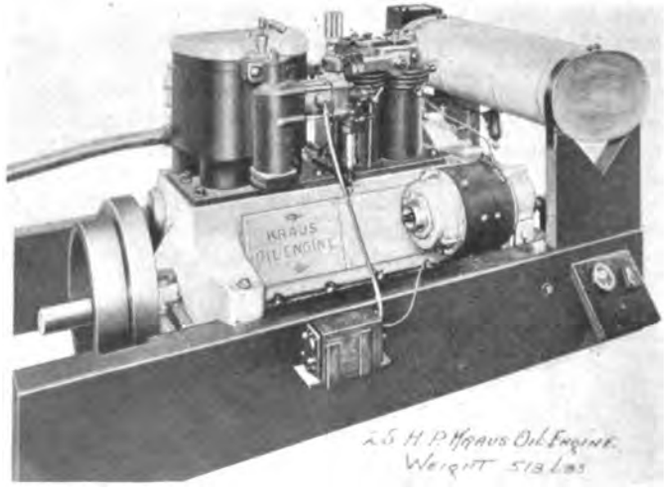
The Kraus Oil Engine

The years of striving for a light weight marine engine that will successfully operate on the heavy and cheap fuel and crude oils has resulted in a great advance in the science of marine engine designing.

One of the latest results of this branch of engineering is the Kraus Oil Engine, illustrated below. This machine has a number of features that at first glance seem impossible. In the first place there are no water jacketed cylinders, secondly; combustion of fuel is continuous, thirdly; water is introduced in small quantities into the cylinder, turning into steam and cooling the cylinders from the inside. In the last place, no combustion takes place within the cylinder.

Briefly, the operation consists of drawing a charge of pure air into the cylinder, thoroughly scavenging the remaining gases from the previous power stroke. This air is compressed in separate cylinders. The fuel is burned in a separate combustion space and is then led to the working cylinder, collecting, on its way a small quantity of water which is turned to steam and which cools the gases to a practicable working temperature. The steam, combined with the gases of combustion is then passed into the working cylinder.

Starting is accomplished by cranking or air starting devices of the usual type. One spark plug is used



to ignite the charges in the combustion chamber. After the engine is once started the electric ignition can be cut off and is thereafter automatic. By means of a throttle the speed can be varied at will. Some of the features are that there can be no chance of a backfire, no heat is lost through the water jackets, the highest pressure in the working cylinder is constant during the working stroke. As there are no very high temperatures generated within the working cylinders, the use of aluminum alloys is possible, accounting for the light weight of the plant.

The Work Bench

This is a monthly department for yachtsmen who build their own equipment. In each issue there is a question pertaining to the design and construction of some item of equipment for power or sailing yachts. For the best answer each month THE RUDDER *gives a credit order for $25.00, which will be accepted in payment for goods handled by any advertiser in the current issue. Contestants whose answers are published, but who are not first prize winners, receive a credit order for $5.00. Readers are invited to suggest questions. Prize orders will be mailed directly after publication.*

Drawings must be made with black ink on white paper or tracing cloth; lettering as large and clear as possible, and all dimensions plainly marked, as the reproductions will not be to scale. Descriptions limited to about five hundred words. Answers must be received on or before the first day of the month preceding publication. Address Contest Editor, THE RUDDER, *9 Murray Street, New York City.*

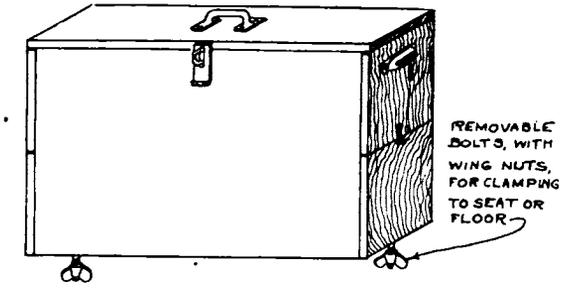
QUESTION FOR THE APRIL ISSUE

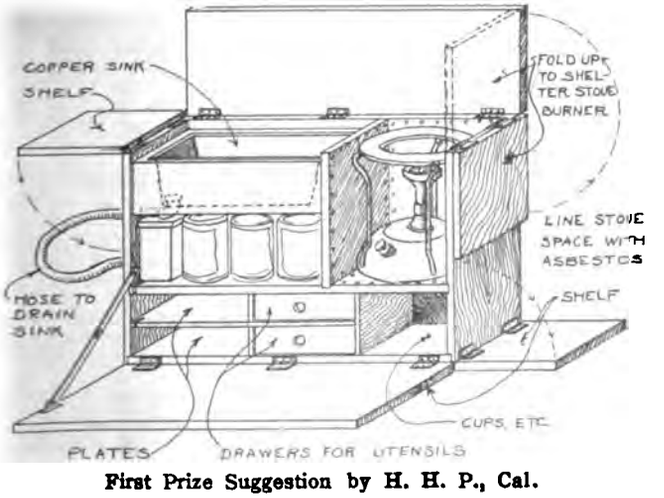
Illustrate and describe a complete mooring outfit, showing mushroom, chain or rope, buoy and method of fastening to hull according to the best practice? Answers must be received on or before March 1st

$25.00 Prize Winning Answer to Question in December Issue

The sketch gives a general idea of the construction of a portable box galley for an open boat. When the cruise is over the entire thing can be carried ashore and while cruising it will serve as a seat. No dimensions are given as the box will have to be built to accommodate special equipment and possibly to fit into some corner of the cockpit where it will be as handy as possible.

The drawings show very plainly the idea of the stove and sink space as well as the food and utensil racks. It will be noted that a pair of thumb bolts are fitted on the bottom of the box so that the entire thing can be mounted on top of a thwart, or even bolted to the floor. By shifting the bolts to the back of the box, it can be bolted to a bulkhead or seat front. As a rule however it will not be necessary to bolt the box down as the weight will serve to keep it in place in anything but really rough weather. On a sail boat it will be necessary to bolt it down to prevent shifting when heeled over. It will be found much more convenient to have the box mounted above the floor line to prevent stooping over all the time.—H. H. P., California.





First Prize Suggestion by H. H. P., Cal.

* * *

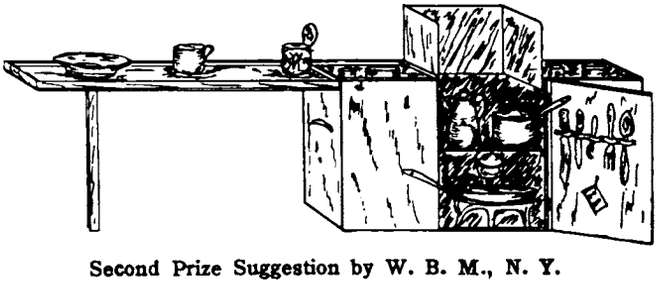
$5.00 Prize Winning Answer to December Question

The open boat can not quite equal the cabin boat for cruising comforts. The comfort of a good roof and a galley and the berths are lacking, but a tired man after a good meal can go to sleep on the soft side of a board with his coat and shoes for a pillow. The good meal is necessary to keep everyone happy. It has been said that a hungry man is akin to a bear, and nothing will spoil the trip as quickly as a grouch.

The portable galley is the solution of the problem, and you can easily make the outfit this winter according to the sketches shown below.

It would be advisable to select the stove, cooking utensils and dishes and then proportion the outfit so that everything will go into it conveniently. The selection of utensils is important. A coffee pot, two kettles, one of which nests inside the other, a frying pan and a dish or two will answer for cooking. The eating utensils should be cut down as low as possible to save weight and room. Knives, spoons, can-opener and other like articles can be arranged in strap loops on the door of the stove compartment.

An approximate size of 12 inches by 12 inches by 2 feet will be found about right to hold a single burner stove and the necessary utensils and dishes for four. The box should be made from ¾ inch lumber and the stove shelf, wind shield and other parts, of galvanized sheet iron. The end compartments can be sub-divided to suit and strong handles fitted to allow carrying ashore.—W. B. M., New York.



Second Prize Suggestion by W. B. M., N. Y.

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National Power Boat Show

The annual Power Boat Show will be held in New York City, February 17th to February 25th, 1922, at GRAND CENTRAL PALACE, 45th Street and Lexington Avenue.

Progress in Standardization

The standardized boat is not a new thing, in fact almost all of the first power boats built in this country were of the so-called stock model. These boats were usually 16 to 24 feet in length and of the old fan-tail type. The larger models were equipped with standing roofs and occasionally glass windows were fitted between roof and coaming, forming the old glass cabin craft. At Morris Heights hundreds of these boats were built and sold and that era marked one of the most successful that the builders have had.

As time passed, owners wanted more speed and more accommodations in their boats. For awhile this was accomplished by placing more power in the old hulls and extending the glass-enclosed portion aft until finally the larger boats were all cabin and no cockpit. The type of hull was one that could not be economically driven at more than 8 miles an hour and new hull shapes were designed. From that time, up to the war period there was little activity amongst the stock boat builders with the exception of those turning out small launches of the open, slow-speed type. The open, low-powered boats have always been standardized. There are few alterations in either shape or accommodations possible with this type of boat so few buyers held back owing to the craft not being exactly what they wanted.

The yachtsmen who wished fast runabouts and comfortable cruisers were hard to please with a stock boat. Every buyer had a certain arrangement or a certain brand of engine which he insisted upon having. The larger builders slipped more and more into the habit of only building to order. Prices of boats naturally went up. The reason why the automobile, with its myriad disadvantages sells in such quantities, is because of standardized production. Few, if any, of the popular car builders dream of producing less than 1,000 cars a year. Some build hundreds of thousands per annum. No boat manufacturer in the country has ever turned out 1,000 power boats of one size and type in a year.

The lack of proper standardization has not been the fault of the boat builders. The blame can be laid at the door of the purchasers. The occasional stock boat building firm which sprang up in past years, soon found that every prospective purchaser of a cruiser or fast runabout, insisted upon having certain equipment. Just as soon as the demands of that man were met, the entire scheme collapsed. Until purchasers realize that no firm is going into business with the idea of building a good hull and equipping it with a poor engine, very little success can be expected. Because you have used a Blank engine and have found it satisfactory, do not think that a Dash machine is simply a mass of cast iron and brass junk! The builders of boats go over the engine field carefully before they decide upon the machine to power their stock product. The engine is of the price, class and the power and speed suitable for that boat.

In this issue we show a great number of stock cruisers and runabouts built by representative firms throughout the country. If you are looking for a boat go over this list carefully. Remember that the builder has made a low price on the strength of the probable production. If you wish to change his arrangement or engine you must expect to pay a greater price. Not only that, but you take his men away from the work to which they have been accustomed and make them work out anew the difficulties of new installations. This slows down the production of the yard and forces the builder to raise the price generally.

The builders we have listed are trying their best to turn out a boat of a certain quality at a certain price. In every case the price is as low as is possible. Not because the builder is philanthropically inclined, but because he must meet competition. The fact that one builder charges more than another for a craft of the same length is no criterion. A 20-foot open boat can be built for $300 if certain construction and certain machinery is used. A craft of the same length may cost $2,500 to build if other construction and other machinery are used. The comparison goes to extremes, we will admit, but the lesson must be driven home to the boating public if standardization is going to be the success it so richly deserves.

In Appreciation

The editor takes this space to give thanks to the thousands of yachtsmen throughout the world who assisted him to place THE RUDDER on the pinnacle of success. One of the most pleasing signs has been the great number of old subscribers, men who have been on THE RUDDER lists for years and years, who have this year sent in, or induced the sending in, of subscriptions for new friends.

It touches a warm spot in our heart to think that there are so many sincere friends among our readers. Our slogan of "The Fastest Going Boating Publication in the World" is being backed up by our readers.

A Cruise to Nassau from Miami

(Continued from page 21)

afternoon an oily calm settled down with thunder squalls making up in the S. W. At five we had ours, first one and then others followed at 45 minute intervals, each with its full quota of real wind and stinging rain. We had sail practice on account of these playful squalls until sunset, or the time the sun should have set, for we could not see it and as we were on the banks in about 15 ft. of water, we put down our heavy anchor and turned in for the night, with the squalls coming along on schedule until sleep made us forget everything.

Next morning it was flat calm when we went up on deck and very hot and close, and to make a breeze we started the motor and headed West for Gun Cay Lighthouse, and kept this up until a breeze from the S.E. became strong enough to cause us to make sail and cut out the motor. Only for a few hours did we enjoy this before we saw that the experiences of the day before were to be repeated. My colored man felt it in his bones that we were in for more sail practice, and he was not at all disappointed, for the quality and force of the squalls we met the balance of that day, would satisfy the most skeptical as to why land lubbers prefer to stay at home on club verandahs.

Night found us well to the north of our proper course, and we decided to anchor and sleep again that night, as we were in no need for sailing during the night in these squalls. Next morning we awoke to find again the same flat calm, and started the motor as we figured we were not very far from Gun Cay, which proved we were correct in our calculations by its being accommodating enough to pop up out of the sea in less than two hours. Soon after the engine began to labor strangely, and no matter what I did seemed to help—no bearings were hot—everything was getting oil, spark and gas was OK, and when I threw out the clutch, the engine would pick up and race beautifully, but when I threw on the clutch the poor motor labored and knocked till I cut off the switch, and we plugged along towards the lighthouse with a light south wind which picked up a bit and allowed us to drop anchor back of Catalina Cay about 2 in the afternoon.

Here we tried out everything and cleaned house, and put up the awnings so as to be comfortable for a few days. Mr. Strong sent us out a cordial invitation to pay him a visit which we accepted for the next day. Meanwhile we sent the colored man off for some good conch—craw fish, and anything else the gods offered while we went down on the point for a swim. Coming back to the boat I looked under her stern and at once saw why the poor motor labored. Wrapped around the propeller was a ball of solid sea weed, that when we got after it took the colored man and myself over an hour to clear away, both of us working overboard cutting and hacking.

Next day we went ashore and enjoyed our visit at the Manor House where the Strongs reside, king and queen of all they survey on their delightful island home.

After an early swim next morning we decided to drop down to Gun Cay and look around down there, so said goodbye to the Strongs, and took a bag of parcels

and mail to forward for them at Miami, and then motored to the lighthouse and anchored among the floating wine merchants on board their little schooners, who do a land office business fully within their rights and fully protected by their Government with the thirsty and brave that call in at this out of the way place in vessels hauling from Key West to Norfolk. Bundles of greenbacks changed hands there in a manner that would make many of the old timers in the business of handing out small portions to the thirsty, very envious.

For two days we lay here enjoying the activities of the fleet, having some good fish dinners and visiting the old lighthouse ashore with a swim or two thrown in. It is wonderful how easily one can form the habit to loaf and procrastinate on everything. However there is an end to all good things, and as the weather had been fine for the past two days with the wind from the S.E. which is a splendid wind for crossing to Florida, we decided to start that night at ten o'clock and run over in the night. However, just to spite us, the wind hauled to the N.E. and freshened so that all the fleet including the Clara Lee, up anchor and dropped through the Cut and anchored close up to the rocks on the west side of the Cay. It kept on breezing up and as it sometimes blows for a week in this direction when it really settles down to blow, I decided to cross anyway, and so at ten that night with "best wishes" hailed at us from the crews of the booze boats, we up anchor and passed out into the Stream which for several miles on account of the lee made by the Cays did not seem rough, but it soon made up for what it lacked nearer shore, and with double reefed mainsail and the wind almost dead astern it took careful steering to keep on the course over that lumpy, broken rushing sea and not jibe over. Without any exaggeration the waves would average over 12 ft. high, and in the dark they looked much higher. In this weather the real sea qualities of the ketch showed themselves, and I was mighty glad of the 3 ton keel, two inch cedar planking, high free board, and a tight deck. The trip was sufficiently lively to satisfy anyone that old ocean was trying to make my trip as interesting as possible.

Long before daybreak we picked up Fowey Rock Lighthouse and eased her up so that we passed in by the lighthouse which stands on the edge of the Florida reefs, just after sunrise, and then sailed up the twisting old channel into Biscayne Bay, cutting off to the Cape Florida channel, and running in close, and anchoring back of the cape for a sleep.

About noon we awoke and preparing a meal, started the motor and steered for the anchorage off the Yacht Club at Miami 9 miles away, reaching there about 2:30 p.m., all trim and dressed up with ropes coiled down and awnings up.

It did not take long to get a phone call to the Custom House, and then all the formalities of the port was extended us, even to being searched for contraband booze, which of course a man in this locality would be foolish to have on board when an official boarded him, unless it might be to offer just a nip of the old scotch for the toothache the official might be suffering from. This nip would be out of the Medical stores and would not come under the ban.

For the small cost and the varied experiences we enjoyed, I cannot conceive of a more beneficial vaca-

tion of three weeks that a man who loved the water could desire. I had not used 50 gallons of gas on the entire trip, and living for the three of us was less than our normal expense for two on shore for food.

The writer has been commissioned by the Colonial Government to be the Architect on their new group of public buildings, including post office, court house, fire and police headquarters building, etc., so will be returning to Nassau quite often in the future, but I fear lack of time will force me to take passage most of the time on the small steamers that run from Miami to Nassau several times weekly.

If any of the old crowd that the writer used to knock around Long Island Sound with reads this, and would like to have any more intimate particulars, a letter addressed to Miami will reach me. This is my 6th cruise through the Bahamas, and every time it is even more interesting, and the very lack of all navigation aids except the few and far between lighthouses is what perhaps gives such a trip somewhat of the adventure spirit which one does not experience in home waters where every yard of the sound or bay is as familiar as your own bedroom.

* * *

MISSISSIPPI VALLEY POWER BOAT ASSOCIATION MEETING

Special Wire to The Rudder

By CHARLES P. HANLEY

At a meeting held at Chicago, January 14th, delegates of the M. V. P. B. A. decided that the 1922 meet would be held at Peoria. This city held the 1921 races and it was conceded by all that the series was one of the most successful ever held anywhere in the country. Not only is the Peoria course a good one, but the arrangements for the visiting boatmen and racing enthusiasts are handled in a masterly fashion.

At the meeting several changes were made in the racing rules and new classes provided. The 478 cubic inch class was changed to 510 cubic inches. The 940 cubic inch class was reinstated and two new runabout classes one for 610 cubic inch engines and the other for 625 inch machines. No hull restrictions were placed in these classes other than that the boats be runabouts and not step hydroplanes. One important change was made as a result of a suggestion made by the editor of THE RUDDER. This was to divide the prize money up so that the winner of each heat will get his proportion instead of having to win the majority of heats. The present point system was changed to give the winner of each heat a greater number of points than under the old rules. Second, third and fourth places, also come in this new point rule with increased points. The delegates appointed to attend the New York Show were Sheldon Clark, J. W. Sackrider and O. D. Collis.

* * *

FLAPPER

The sailing pram Flapper shown in November issue is being built by Thos. Fleming Day, Inc., for early spring delivery. Captain Day says the boat is just the thing for a one design class for the boys to learn sailing in and that in order to get them in use he will be glad to make a favorable price if ordered in bunches of ten or more.

* * *

MISS CHICAGO MAY RACE ON PACIFIC

Efforts are being made to arrange a match race between Miss Chicago and Miss Los Angeles, two of the world's fastest power boats. The former is owned by Commodore Sheldon Clark and a syndicate of Chicagoans, the latter by Dustin Farnum, the movie star.

Miss Chicago holds the Webb Trophy cup representing the championship of the Mississippi Valley Power Boat Association, the Sinclair Trophy for the Great Lakes title and the world championship for single-engined boats. All three titles were won this season by Commodore Clark. Miss Los Angeles is possessor of the Nordlinger Trophy, won November 19-20 at Los Angeles which represents the Pacific Coast speed championship, held for some seasons by Mr. Farnum. Miss Chicago carries a single Liberty engine of 420-hp., while the Californian is equipped with two Fiat machines, developing over 600-hp. The former has a straightaway official mile mark of 76.2 m.p.h., while the latter is unofficially credited with 67 m.p.h.

Designing Marine Gas Engines

By Chas. Desmond

(Continued from January)

The force, or stored up energy in foot-pounds, in a moving weight can be determined by making this calculation.

$$\text{Force} = \frac{W \sqrt[2]{V}}{64} \quad V$$

Where W equals weight in motion, in pounds
V equals speed in feet per second.

The stress in rim of a cast iron fly-wheel of the usual type depends upon the velocity of rim in feet per minute. The diameter of wheel should be such that rim velocity, when engine is turning at maximum revolutions, will not exceed the margin of safety which is, for fly-wheels of margin engines of usual type, about 3,500 ft. per second.

Now assuming that a fly-wheel having its diameter 3.5 times stroke is used with the single cylinder engine the outside diameter will be 18 inches. With this diameter rim velocity will not exceed the margin of safety. Regarding weight, a careful analysis of weights of fly-wheels on existing engines give these figures.

Single cylinder engines 17-18 pounds per H.P.
Double cylinder engines 15-16 pounds per H.P.
Triple cylinder engines 12-13 pounds per H. P.

For the single cylinder engine I will use the 17-pounds weight per H. P. therefore weight of fly-wheel will be 17 x 6 = 102 pounds. This weight will provide for about 3% variation in speed when engine is developing its rated H.P. and turning 500 rev. per minute.

Now a few words about vibrations of gas engines when installed in hulls. It is the variation in a force, rather than the force itself, which produces hull vibrations due to the machinery, and this being so, irregularity or variation of the force during a complete cycle of operation will react as a twisting moment, or torque on the hull. Now the variations in force during a working stroke of a gas engine are, we know, very pronounced owing to the fact that engines of this type have either one impulse and one idle stroke per cylinder (in 2 stroke engines), or impulse stroke and three idle strokes per cylinder (in 4 stroke engines) and in addition to vibrations set up by this variation in force there is considerable vibration due to inertia of moving parts during the changing of reciprocating motion of piston to rotary motion at crank shaft, and the acceleration of the reciprocating part and fly-wheel. The force due to inertia of the reciprocating parts is always in their line of motion, and in a reciprocating engine is the same as if their weight were concentrated upon the pin of crank shaft, the greatest M.I. force being at the commencement and ending of a stroke; and the direction of the force being respectively towards and away from the cylinder. Thus you can readily understand that alternating motion occurs and the maximum value of the force which causes this motion can be calculated by using this formula.

Force = Co x W x S

Where W Co is coefficient which varies with engine speed.
W is weight of reciprocating parts.
S is length of stroke in feet or fraction of a foot.

Below I give a table of coefficients for named number of revolutions per minute.

Now assuming that the weight of unbalanced moving parts is 10 pounds and using this formula we get for the single cylinder engine I am designing, 42.5 x 10 x .458 = 194.65 pounds.

Table
Coefficients for named Rev. per minute.

Rev. per minute	Coefficients
200	6.8
300	15.3
350	20.8
400	27.2
450	34.4
500	42.5
550	51.4
600	61.2
650	71.8
700	83.3
750	95.6
800	108.8
850	122.8

Results obtained by using this formula are sufficiently accurate for practical use when designing a small engine of the type I am referring to but if absolute accuracy is desired the line of travel of connecting rod must be plotted and the inertia calculated at a number of points.

The inertia effect of the reciprocating parts can be accurately balanced by placing an equivalent weight opposite to and rotating with the crank pin. This you will note I have done by attaching counterweights to crank arm.

The fact that in multiple cylinder engines a portion of the moving parts balance each other must be taken into consideration.

As inertia forces are proportional to the weights of unbalanced moving parts the elimination of all unnecessary weight from these parts is advantageous.

I will now illustrate type designs of crank shaft, of connecting rod and of piston suitable for engines of about the bore and stroke of the one I am designing.

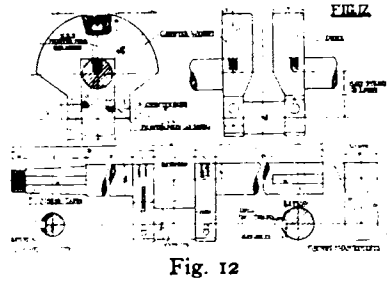

Fig. 12

Figure 12 is a reproduction of a type crank shaft drawing and on it the principal parts are indicated by name. Note that fly-wheel end is taper turned, keyseated and threaded for nut this being the most effective manner of arranging for securing fly-wheel in place. A loose fly-wheel will cause excessive vibration. Another advantage of having a taper fitted fly-wheel is the ease with which it can be removed. Note that all corners where pin and shaft arms join are finished with a suitable radius (fillets) and pin and arms are properly finished. Note method of securing counterweights to arms. The arms are tapered and weights finished to fit this taper, therefor the tendency that weight has (when crank is revolving) to fly outwards is taken care of by the taper fit thus relieving some of the bolt stress. Note how bolt heads are covered with babbitt. The counterbore is tapped out and after bolt is in place hot babbitt is poured into the recess.

Fig. 13

Fig. 13 is a reproduction of a type drawing of a hinged cap connecting rod. Such a rod is usually drop forged and therefor only requires finishing at the upper and lower ends. The hinge pin and bolt should always be of nickel steel and nut must be locked in place by means of cotter pin or other standard method of securing nuts. The crank pin end of rod is bushed with removable die-cast bushings of type shown on drawing and oil is led to the crank pin through oil hole leading from a wipe oiler to grooves cut around bushing.

The piston pin end of rod is usually drilled and fitted with a bronze bushing pressed into place. While the movement on piston pin is not excessive it is necessary to properly oil the pin and bushing. This can be done by drilling pin and piston end of rod in manner shown on illustration. Of course the drilled end of pin is placed forward of piston and permits some of the oil on cylinder walls to flow through hole to bearing. The drilled holes through rod end and bushing allow some of the suspended oil in crank case to reach the pin and bushing. At best this method of oiling piston pin and bushing is not entirely satisfactory and the writer has tried to improve the method without using a complicated oiling system which would be out of place in an engine of the type I am dealing with. So far best results have been obtained by using graphite oilless bushings composed of babbitt and compressed graphite inserts.

Fig. 14

On fig. 14 is shown a typical two stroke engine piston, ring and pin. The three rings at upper end are needed to break the ring joints and properly prevent escape of gas. The two rings at lower end are needed to prevent escape of gas from base to ports when piston is up. While I show plain eccentric rings some gain in efficiency will result from using a good type of patent ring (one of the many now on market). Gas engine pistons are turned slightly tapering, being smaller at upper end. This is done to compensate for the additional expansion of upper end when engine is in operation.

(To be Continued)

TAX REDUCTION HELPS BOAT OWNERS

The news that Congress had refused to take off the discriminatory 10% luxury tax on all boats selling for $100 or over, was so disappointing to all who are interested in the success of boating, that the reduction of the operating tax was forgotten for the moment. In reality the operating tax reduction will effect more people than the luxury tax although the amounts involved will not be so great. The operating tax reduction applies to all power boats of less than 32 feet length and 5 net tons. Formerly these boats paid a tax for permission to operate of $10 per year. This levy has been taken off entirely so that boats of less than the above figures will not have to pay any operating tax to the Government. This will save a great amount of money to the thousands who own small power boats.

* * *

WESTERN BOAT MAY GO TO SMITHSONIAN

The suggestion has been made that Margaret III, the wonderful 151 cubic inch hydroplane owned by L. E. Selby of Pekin, Ill., and which holds all class records, shall be preserved in the Smithsonian Museum at Washington as the finest example of small hydro construction and design ever seen.

Her owner, known wherever boats are raced as Lou Selby, has just announced one of the most sportsmanlike moves ever known in the racing game. The plans of this winning boat are to be shown at the New York Power Boat Show so that all who are interested in building a winning hydroplane will be able to see exactly what Margaret III is like. It may be remembered that she was designed by Chris Smith, creator of the fastest boats in the world, and is powered with a 3-cylinder 18-25 hp. Pierce-Budd engine. Her speed is better than 32 miles an hour. Mr. Selby's action in allowing the public to see these plans is the greatest example of the wonderful sportsmanship which prevails among the members of the Mississippi Valley Power Boat Association and utterly refutes the claim that racing for cash prizes has a bad effect on sportsmanship.

* * *

NEW YORK YACHT CLUB ELECTS VANDERBILT

Harold Vanderbilt was elected Commodore of the New York Yacht Club at the first election held since 1915. Former Commodore Morgan has retired from office but not from the sport. George Nichols was elected vice-commodore to fill the vacancy left by Mr. Vanderbilt's elevation. Vincent Astor was elected rear-commodore in place of Mr. Nichols. The other officers follow: secretary, George A. Cormack; treasurer, Tarrant Putman; measurer, Harold Webb. The members of the Race Committee will be H. De Berkeley Parsons, Frederic O. Spedden and Gheradi Davis.

* * *

GLOUCESTER BUILDING RACING FISHERMAN

Gloucester skippers have formed themselves into an organization known as the Manta Club and have ordered J. F. James and Son at Essex to build a fishing schooner which will be eligible for the International Fishermen's Race. The new flyer will be named Puritan. Her length over all is 135 feet; water-line, 107 feet; breadth, 25 feet; depth of hold, 11 feet; and draught, 14 feet 9 inches. She will carry approximately 8,000 square feet of sail.

It is expected that Puritan will be launched this month and immediately will be put under command of Captain Jeff Thomas, who now is skipper of the schooner Bay State. Puritan will be used until after the race as a non-powered vessel, although bed logs and shaft hole have been provided for so that she can become an auxiliary as soon as her racing career is ended. The design was made by Burgess and Paine of Boston. Mr. Burgess was responsible for the disqualified fisherman Mayflower, built especially to win the trophy last summer.

* * *

MIAMI NEWS

By F. Andrew Proctor

Among the latest arrivals in Biscayne Bay are the yachts Adventuress, Vesta, Mate-O-Mine, Edith, Klahanee, Elvade II, Deep Lake, Hoytar, Kemah, Elvira, Salfran, Trio, Sea Scamp, Agawam, all from New York. From Patchogue came the sloop Gladys Millette. From other cities all over the country the following yachts hail: Kalolah, Oasis, El Baroda, Scurry, Caprice, Riette, Romana, Eleanore II, Helianthus, Thalassa, Mizpah, Snap Shot. The cruiser Mate-O-Mine made the trip from New York in 13 days, while Janet, owned by Mr. Doherty of the Boston Y. C. ran from New York to Jacksonville in 12 days. Mr. Doherty only had a mate and engineer with him and used no local pilot during the trip.

CITY ISLAND YACHT CLUB NEWS

By William Huyler

The New Year was given a rousing reception at the Watch Night party given at the clubhouse of the City Island Yacht Club. The attendance was far beyond the expectations of the committee, composed of Messrs. Pfeiffer, Sayers and Frapwell, who so thoroughly anticipated the comfort and wishes of the members and their guests who made the journey, that all conceded that Broadway is not the only place to enjoy seeing the old year out and the new year in. Tastefully decorated rooms, fine music, supper and good fellowship which seems to be a part of a yachtsman's make-up, all tended to make what is termed a good time.

During the evening the cups which were raced for during the past summer were presented to the respective winners. The past year has been the most successful in a number of years and the increasing membership has made necessary the addition to the house which will be begun in the early Spring.

At the annual meeting the following officers were elected for the year 1922: Commodore, Charles F. Cafferty; vice-commodore, Douglass H. Frapwell; rear-commodore, Karl Seifert; fleet-commodore, Ralph H. Amberg; secretary, Roy Strever; treasurer, Theodore Kaufer; financial secretary, William F. Smith; fleet surgeon, Dr. Harry C. Clauss; fleet measurer, Perry C. Pfeiffer.

* * *

FREE LECTURES ON NAVIGATION

The New York Athletic Club, through its Yachting Division, extends a cordial invitation to those interested in yachting, to attend the Seventh Annual Series of Illustrated Lectures on Coastwise Navigation and Small Boat Handling, which will be held in connection with the United States Power Squadron, in the Boxing Room at the New York Athletic Club, 59th Street and Sixth Avenue, Monday evenings from 8 to 9.45 p. m.

The lectures will be illustrated with new pictures; there will be no charges of any nature whatsoever attached to the course.

* * *

BRISTOL YACHT CLUB OFFICERS

By "Jeff" Davis

Commodore, William Gilman Low, Jr.; vice-commodore, Paul C. Nicholson; rear-commodore, Thomas P. Brightman; secretary-treasurer, Merton A. Cheesman; auditor, J. Winthrop DeWolf; trustees of Guiteras Fund, W. G. Low, Jr., Dr. W. Fred Williams, M. A. Cheesman.

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INTER-LAKE YACHTING ASSOCIATION NEWS

By John F. Miller

At the annual meeting of the Inter-Lake Yachting Association, which was held at the Cleveland Athletic Club, Cleveland, December 3, Commodore C. W. Kotcher of the Detroit Yacht Club was elected Commodore.

Commodore John W. Koohrman, of the Toledo Yacht Club, was elected vice-commodore; Commodore Harry D. Freeman, Buckeye Lake Yachting Club, Columbus, Ohio, rear-commodore; Dr. T. C. Griest, Put-in-Bay Yacht Club, fleet surgeon; Commodore F. W. Wakefield, Vermillion Boat Club, sailboat measurer; Wm. F. Meir, Cleveland Yacht Club, power boat measurer; Commodore Otto F. Barthel, Detroit Yacht Club and Commodore S. O. Richardson, Jr., Toledo Yacht Club, delegates to Yacht Racing Union; W. F. Meier, Commodore H. Hess, Toledo Yacht Club, and Commodore Harry A. Parsons, Cleveland Yacht Club, delegates to the International Power Boat Union; Commodore Charles D. Lynch, Detroit Yacht Club, delegate to the Amateur Athletic Union; W. J. Billingslea, Toledo Yacht Club, librarian; Commodore Harry Austin, Detroit Boat Club, Yachtsmen, secretary-treasurer of the Yachtsmen Fund to succeed Dr. A. R. Hackett, Detroit Yacht Club, resigned.

Commodore Kotcher has been active in the Inter-Lake for more than twenty years, having been vice-commodore in 1909 and chairman of the Regatta Committee for the Perry Centennial Regatta in 1913 at Put-in-Bay.

It was decided that the annual meeting of the Inter-Lake Yachting Association, hereafter, would be held in November before the closing of Navigation on the lakes, also that the Inter-Lakes regatta would be held at Put-in-Bay in 1922, July 16 to 22. Detroit withdrew its petition to hold the regatta in 1922 when Commodore T. B. Alexander, Mayor of Put-in-Bay, announced that the Put-in-Bay Yachting Club and citizens had purchased and was donating to the Inter-Lake Yachting Association a site on Squaw Harbor, where a clubhouse has been planned for permanent headquarters. Commodore Alexander also announced that the citizens were giving $500 toward the expense of the regatta. The report shows the

Yachtsmen's Fund amounting to $9,164.45, the income of which is used to defray the expenses of the annual regatta.

The first act of Commodore Kotcher was to get the Inter-Lake to join the American Powerboat Association from which it withdrew two years ago, on account of the American Power Boat Association banning racing for cash prizes and which rule the American Power Boat Association had withdrawn at its annual meeting.

The delegates voted to ban the pot leading of the Star class sail boats in the future and to permit the painting of bottoms not oftener than every four weeks.

Ice-boat classes adopted at the meeting were:

Class A—Boats carrying more than 401 sq. ft. canvas.
Class B—Boats 301 to 400 sq. ft. canvas.
Class C—Boats 201 to 300 sq. ft. canvas.
Class D—Boats under 200 sq. ft. canvas.

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DETROIT NEWS

By JOHN F. MILLER

Officers and committee chairmen, appointed for the Inter-Lake Yachting Association, have been announced by Commodore Chas. W. Kotcher.

Leo J. Monahan, of the Detroit Yacht Club, has been appointed secretary-treasurer; E. M. Gregory, of the Detroit Yacht Club, fleet captain; John A. Owen, of the Detroit Yacht Club, chairman of the sailing regatta committee; Dr. A. R. Hackett, Detroit Yacht Club, head of the power boat regatta committee.

Charles D. Lynch, Detroit Yacht Club, is chairman of the entertainment committee and will be assisted by Mrs. A. W. Roberts of the Cleveland Yacht Club, wife of the 1921 Commodore, who is chairman of the ladies' entertainment committee. Lawrence Sackett, Buckeye Lake Yacht Club, Columbus, Ohio, will have charge of the other sports.

Commodore Harry Parsons, Cleveland Yacht Club, is chairman of the squadron sail committee; Commodore F. W. Wakefield, Vermillion Boat Club, is chairman of the sail yacht judges committee, and Commodore Eugene Quigley, Cleveland Yacht Club, is chairman of the power boat committee.

Commodore Harry Austin, Detroit Boat Club Yachtsmen, is retained as chairman of the sail yacht rules committee; Commodore Otto F. Barthel, Detroit Yacht Club, chairman of the power boat body. W. J. Billingsha. Toledo Yacht Club, chairman of the prize distribution committee, and W. D. Edenburn, Detroit Yacht Club, chairman of the press committee.

Work on the foundation for the new Detroit Yacht Club home at the upper end of Belle Isle has been started by the Candler Dock and Dredging Company at a cost of $500,000 and will be the finest fresh water club in the country.

According to announcements made by the Los Angeles Athletic Club Motor Boat Association, Commodore Sheldon Clark, of the Chicago Yacht Club, will bring his power boat, Miss Chicago, to the coast to race and it is also rumored that Gar Wood, of the Detroit Yacht Club, will enter the races off Los Angeles next year.

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SCRIPPS MOTOR COMPANY ISSUE REDUCED PRICES

The Scripps Motor Company are announcing a new schedule of prices which will affect their line of model D, two, four and six cylinder 4¼ by 6 inch engines. They figure that this price reduction will stimulate sales to the point where the sales will take care of the production capacity of the factory. If this does not take place it will be necessary to increase the prices later. The new figures are as follows: two cylinder,, $650; four clinder, $1,100; six cylinder, $1,500.

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TOPPAN BOATS

The Toppan Boat Manufacturing Co. are busy at their plant at Medford, Mass., on some very attractive sail boats as well as their well-known power dories. They are building one of their new 22-foot Cruise Cats with Marconi rig for F. W. Aymar, of Columbia University, New York; also a class of 15-foot Toppan-Tots for a Boston yacht club. They also have many orders for the 21-foot RUDDER design sailing dories, and are building up their 22-foot cabin sailing dory in large numbers. These are sold for the special price of $750 including sail and 3-h.p. motor as auxiliary. P. C. Blaisdell, of the Baisdell Machinery Co., Bradford, Pa., will use one of these boats at Portland, Maine, next summer.

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THE NAVY GEAR

Joseph V. Petrelli Manufacturing Co., Inc., of Port Chester, N. Y., have bought the Navy Gear Co. and will continue the manufacture of the latest gears designed by Joseph V. Petrelli, and in addition have added a small low priced gear.

SIX-METRE RACES

The Seawanhaka-Corinthian Yacht Club has received and accepted a challenge from British yachtsmen for a race between teams of three or four 6-metre yachts and the series will be sailed off Oyster Bay next September. Negotiations have been in progress ever since the team race last summer when the British defeated the American quartette in British waters. It was hoped that the British would visit this country next summer with yachts built to either the R or S class under the American rule of rating, but the present conditions in England hurt such a plan and the British proposed that the return match for the British-American cup should be with 6-metre yachts built to conform to the International rule. In order to promote the good feeling engendered by last year's match and to enable existing boats to compete, the Seawanhaka-Corinthian Yacht Club has decided to accept the proposal and to meet the British team with boats built to their rule.

The British sent a challenge through Sir Algernon Maudsley, secretary of the Special Committee representing the Royal Yacht Squadron and the Royal London, Thames and Victoria Yacht Clubs. This challenge was considered by the committee representing the Seawanhaka-Corinthian Yacht Club, composed of Percy Chubb, chairman; commodore Ralph Ellis, vice-commodore Junius S. Morgan, Jr., rear-commodore Paul L. Hammond, W. A. W. Stewart and C. Sherman Hoyt, secretary. The challenge was accepted by the club.

This match is not to be an international club match but an international match in every sense of the definition. The Seawanhaka-Corinthian Yacht Club, which has always very ardently supported amateur sport, particularly with small yachts, will, as soon as the British reply to the letter sent to them stating the conditions, send out an invitation to all yacht clubs and associations, asking the members of the clubs to enter one or more boats in the elimination trials which will be sailed off Oyster Bay next August for the purpose of selecting the four defenders. Those yachtsmen who are interested may obtain all necessary information from C. Sherman Hoyt, secretary of the committee, 24 West 43rd Street, New York.

Plans are now being made to bring back from England Grebe and Montauk, two of last summer's American team. Grebe was by far the best boat of the class last year and was conceded by the British to be a wonder. Several yachtsmen have already signified their intention of building and plans for these boats are now being drawn.

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OLCOTT YACHT CLUB ELECTS OFFICERS

The Olcott Yacht Club, of Olcott, N. Y., held their first annual meeting Tuesday evening January 2, at the Hotel Kenmore, Lockport, N. Y. After the regular dinner a business session ensued.

The work of the past year, as reviewed by Commodore Hedley, is, briefly:

1. The decision of the club to incorporate, issue $3,000 in bonds, acquire a site on Olcott Harbor and build a clubhouse.

2. The realization of their aim through the co-operation of the members in subscribing to the entire bond issue, and giving of their time in assisting the contractor in the erection of the clubhouse.

3. A successful yachting season, club races having been held practically every Sunday during June, July, August and September. The Club Cruise to Toronto over Labor Day was more successful than any previous cruise, due to the increase in the number of boats participating and to the usual cordial welcome extended by the Canadian yachtsmen.

4. The increase in membership during 1921, and the healthy condition of the club's finances.

The following officers were elected for the ensuing year: Commodore, Faber Gooding; vice-commodore, Harry Shaeffer; fleet captain, Charles B. Palmer; treasurer, Dr. F. J. Moyer, Jr.; secretary, J. N. Mackenzie; directors for one year, Dr. Wilton Paul of Buffalo, and Harrison Roberts of Lockport; directors for two years, William Kruger of Olcott, and James E. Gillespie of N. Tonawanda.

Much interest was shown in the efforts being made to form a 14-foot dinghy class. Several new boats of this class are now building and the coming summer promises an interesting season.

Decision was made to challenge the Toronto Canoe Club for the Douglass Trophy. This trophy is one of the most coveted prizes in the dinghy class.

N. Y. CANOE CLUB DINNER

Members of the New York Canoe Club, an organization that for years made its home on Gravesend Bay, came back to Brooklyn to hold their fiftieth annual dinner at the Hotel Margaret on Columbia Heights. About half a hundred canoeists gathered around the dry and festive board. After dining and hearing the usual reports and speeches, the secretary cast one ballot for the regular ticket for 1922.

As a result of the single vote, O. J. Timberman is the new Commodore. The other new officers are George A. Ball, captain; Fred A. Jahnke, treasurer; Frank L. Byrne, assistant treasurer; P. F. Pimm, Jr., and S. R. Church, trustees for three years, and E. C. Phillip, trustee of the sinking fund for two years.

Being the fiftieth anniversary, each member was presented with a handsome little book which contained the history of the club entertainingly written by W. P. Stephens, the veteran yachting authority and official handicapper of the Yacht Racing Association of Long Island Sound.

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RESTORING HULL AS A YACHTING RESORT

By QUINCY TUCKER

(House Committeeman, Boston Y. C., Hull)

In 1921, the Boston Yacht Club again reopened its fourth and largest clubhouse at Hull. The other stations are in Boston (Rowe's Wharf, open the year round); Marblehead and South Boston.

The original Hull Yacht Club was organized in 1880, but merged with Massachusetts Yacht Club in 1899. The Boston Yacht Club in turn consolidated with the Hull-Massachusetts Yacht Club in 1903, which accounts for the large number of stations within a radius of 20 miles of Boston, and controlled by the Boston Yacht Club.

The present clubhouse at Hull was erected some 30 years ago, and was the second home of the original Hull Yacht Club. In the late '80s and early '90s, Hull was considerably more of a yachting resort than Marblehead; in fact, the spectators were so numerous watching more than 100 starters in the races, that the local steamboat company contributed largely to the cash prizes.

Shortly after the close of the World War, a buyer appeared for Hull property of the Boston Yacht Club. The latter organization had a string attached to its large clubhouse and two cottages, and in November, 1920, again acquired its property.

As a summer resident of Hull Hill, it seemed a duty of the writer to save Hull Bay as a Yachting Resort, as former leaders lost interest in the game, when the Boston Yacht Club sold its holdings. Commencing in 1919, handicap races were held annually, the first Saturday after Labor Day, as a prelude to the Annual Rendezvous the next day of the Yacht Racing Union of Massachusetts off Hull. This Rendezvous has taken place for the last quarter century in Hull Bay, but the custom would have been abandoned or moved elsewhere, if an urgent appeal had not been made to Secretary Gannett of the Y. R. U. of M.

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TO THE KNOCKERS OF MAYFLOWER

Contributed by F. E. HARNDEN

Oh ye sons of land lubbers! There are many of ye and ye swarm upon the surface of muddy rivers, like flies on the cork of a rum bottle.

Know ye that the public sentiment of your horde has brought everlasting disgrace to an unchampioned nation!

Ye have said that Mayflower was a yacht, and ye have said she had a dolphin striker, and ye have said many foolish things. But if any of ye had ever been down to the sea in vessels propelled by the wind, ye would have known better. If any of ye ever venture as far out into the sea, as the head of some pier, where deep water vessels lay, ye can ask any old rigger what a dolphin striker is, and he will tell you Mayflower has no dolphin striker, but has a martingale. He will also tell you that all sailing vessels that have long bowsprits have martingales, since long before the days of Santa Maria and even one has been seen on the famous Flying Dutchman, and if he tells you not this, then you will know him as no true son of the sea.

Many of your motley gang, who have never seen or measured parts of Mayflower have said that her hold was too small, or that she had cost too much, or she was built too light. But know ye that Mayflower actually has the largest carrying capacity of any American fishing schooner.

Know ye that she was builded by one of the oldest and most noted builders of fishing schooners in the same place, manner and way that he and his father before him had done for many a year.

Ye have spoken with scorn of the fine materials used on Mayflower,—the plow steel rigging in particular ye have condemned. Know ye that ye are daily lifted to your offices in an elevator that

uses wire of this sort, as it has been found that for safety and long life, it is far more efficient than the other sort of slightly lower first cost.

Now if there are any among you who deny my words, let him come forth with any known sort of measuring instrument, and if one dare not venture it alone, come ye all, for ye are a cowardly lot, who loveth not the truth and if any of ye ventures into the hold of Mayflower, ye will be seasick, although she be made fast to the pier, and when ye return home at high noon, your own mother will not let ye into the home, for ye will have salt on your coat and slime on your shoes and ye will not eat fish for a good six month.

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NARRAGANSETT BAY RACING OUTLOOK BRIGHT

By "JEFF" DAVIS

Prospects for a good season of racing in Narragansett Bay next season took a jump when the men who have been boosting for the new racing association, "The Narragansett Bay Racing Fleet," formally organized at the Rhode Island Yacht Club. December 20.

For two months, the few optimists had been doing considerable preliminary work; three meetings had been called, but choice of officers postponed until there was a more representative gathering from which to elect them. At a meeting held December 6, it was voted to organize at the next meeting, a committee was appointed to draft a constitution, and it was learned that 53 yachts that had been in the racing game in the boom years before the war were still owned by Rhode Island yachtsmen.

December 20, twenty signed the charter list. Most of them are boat owners, the others came in as associate members, eligible to hold the offices of secretary-treasurer and fleet captain only, but eligible to appointment on committees. The idea was that every owner would want to be in the races, not on the committee boat, and there must be a few "goats."

Dr. H. D. Murray of the Edgewood Yacht Club, owner of the yawl Swiftwind, was elected Commodore; Dr. A. M. Potter of the Rhode Island and East Greenwich clubs, owner of the yawl Lady Betty, vice-commodore; and Arthur W. Davis of the Washington Park Yacht Club, yachting reporter of the *Providence Journal*, secretary-treasurer. The constitution gives the Commodore power to appoint all committees, but none were appointed, as he will wait until there are more members from the clubs in the lower bay in order to have something like an equal representation.

The plan is to make the regatta committee up of members of the club regatta committees, then use it as a clearing house for the club's racing dates to avoid conflict.

All clubs in the bay will be invited to send their regatta committees to a meeting early in March to settle dates of club races

Comm. H. D. Murray, Narragansett Bay Racing Fleet

for the entire summer. Such dates as are not claimed by clubs will be taken for Fleet races. With the co-operation of the clubs there is no reason why there cannot be a race every Saturday throughout the summer.

If there is another racing organization like it, the Fleet officers would like to know it, for they feel that the idea is brand new. The Fleet is not a combination of clubs, but an or-

ganization of individual members of all clubs, formed not to dictate to the clubs, but to co-operate in every possible way with them, and to work for uniform rules for measurements and racing, giving percentage prizes at the end of the season, the awards based on the results of both club and Fleet races.

The prospects of a class of Star boats is also good. Five members have agreed to build or buy Stars, provided a class of eight can be secured. The officers of the Star Class Association are counting on a Narragansett Bay Chapter, and are working with the officers of the Fleet to make it a go, and have invited delegates from Rhode Island to their annual meeting at New York, December 20.

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BAY SPRING YACHT CLUB ELECTS OFFICERS

The annual meeting of the Bay Spring Yacht Club was held at the Crown Hotel, Providence, January 5, and the following officers were elected: Commodore, Edward H. Perry; vice-commodore, Edward Nolan; rear-commodore. James Hanley; secretary-treasurer, John M. Harkins (West Barrington, R. I.); directors, R. B. McDonald, John J. Bowden, Charles A. Cartier, Harry Cooke, Henry Shore, Luke E. Thorpe, Louis A. Simpson; auditors, Norman Sidebottom, Frank G. Spencer, Jr.

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LOS ANGELES AGAIN RACES

The second mid-winter races of the Los Angeles Athletic Club Motor Boat Racing Association were held on schedule time, January 1, 1922.

Already the Association is making a record for keeping its engagements and the spectators know that the races will be held on the hour and minute of the date set, exactly as advertised irrespective of the convenience of the contestants or the whims of the committees.

The Racing Committee of the Association have had long experience in starting, timing and judging automobile races and all kinds of athletic events where accurate work is expected by the public, and this power boat racing is like second nature to them. The courses are accurately surveyed through the courtesy of the Harbor Commission and the timing is unquestioned. All records announced by the Club will be official. It may surprise some to find that boats do not make as fast time under these circumstances.

Five entries were announced for the Robinson Cup, and all five started. True, some of them started under heavy disadvantages—but they started. The little fifty-dollar entrance fee to be forfeited in event of failure to start may have had something to do with this.

SUMMARY OF HENRY M. ROBINSON CUP FREE-FOR-ALL RACE AT LOS ANGELES

16 Times Around Three-Mile Course—Distance 48 Miles. Two Heats. Boat Making Fastest Elapsed Time Wins.

Heat No. 1

January 1, 1922, 10 a. m.

Boat	Elapsed Time
Hurricane II	34:10
Fellows IV	36:41:8
Mystery	43:39:2
Hurricane I	37:38:8

Heat No. 2

January 1, 1922, 11 a. m.

Hurricane II	35:10:2
Fellows IV	35:22:4
Mystery	Withdrew

Hurricane II's elapsed time for the race, 1 hour, 9 minutes, 20 1-5 seconds.

Fellows IV's elapsed time for the race, 1 hour, 12 minutes, 4 1-5 seconds.

CITIZENS NATIONAL BANK CUP RACE

Boats of 800 Cubic Inch Cylinder Displacement Class Each Heat Ten Times Around Half-Mile Straightaway Course, Hairpin Turns at Ends—Distance 10 Miles. Three Heats if Necessary. First Boat Taking Two Heat Wins Race.

Heat No. 1

January 1, 1922, 12 Noon

Boat	Elapsed Time
Joker	25:33
Mystery IV	Withdrew

Heat No. 2

January 1, 1922, 12:45 p. m.

Joker	25:14

Joker's elapsed time for race, 50 minutes, 47 seconds.

TAMS AND KING

The firm of Tams, Lemoine and Crane, for 23 years engaged in yacht design and brokerage in New York City, have changed the firm name to Tams and King. Charles King has been a member of the firm for many years since the resignation of Clinton H. Crane, and is well-known in the business.

Many of the best known yachts have been built from designs by this firm and it will be recalled that the famous Dixie line of runabouts, as well as Dixie IV, the first really successful hydroplane to be raced in this country, were products of Tams, Lemoine and Crane. Among the large steam yachts may be mentioned Vanadis, Noma, Nirvana, Virginia, Rambler, Wenonah and Elreba. They have also been responsible for the designs of the following large auxiliaries: Idler, Ariadne, Alcyone and Aloha. The best known of their large gasoline yachts are Tarantula, Sabalo and Albacore.

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HALL-SCOTT EASTERN BRANCH MOVES

The Eastern Sales and Service Branch of the Hall-Scott Motor Car Co. of Berkeley, Calif., makers of the famous Hall-Scott engines and under the managership of Arthur J. Utz, has moved to new quarters at Buffalo, N. Y. The new address is 889 Niagara St. Mr. Utz advises us that the new quarters will give them greater space for the stockroom. Completed engines, as well as duplicates of every part, will be carried on hand at all times. This branch handles all sales and service for the territory east of the Pacific Coast, as well as the export business.

Semmelhaack-Dickson, Ltd., 333-337 St. James St., Montreal, have been appointed distributors for Hall-Scott engines in the Province of Quebec and vicinity. One of the engines, a duplicate of the plant which powered Adieu, Nick-Nack and other record-breaking boats, has been purchased and is on display in the firm's showroom. They also handle Universal, Scripps, Frisbie and other well-known makes of marine engines.

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A POWERFUL BLAST

To open and close the Boat Show a strong blast will be given with a Strombos, the new signal now in use on the Nourmahal and all the modern yachts built last season. The Strombos Duplex can be heard for a distance of 3 miles, is practically indestructible and will command respect from ocean liners. The various sizes will be on exhibition at New York Show Space 18 by the manufacturers, the American Strombos Co. of 507 Fifth Avenue, New York City.

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PRIZE FOR STAR CLASS SLOOPS

To the winner of the first Star Class race held under the auspices of the Long Island Sound Yacht Racing Association, during the 1922 season, G. R. Burrows Co., Inc., have offered a suit of sails made of the same material that has enabled Capt. Willis to win so consistently in the class.

UNIVERSAL-POWERED DORIS

Doris is one of the finest power boats on beautiful Lake Virmillion, Minn. She is owned by Bob Colwell and powered with a 9-12-hp. Universal engine which drives her at 13½ miles an hour. The boat is 22 feet long and not exceptionally light. Mr. Colwell reports that he has found Universal the ideal power plant for small boats, being very reliable and economical.

YACHTS SOLD TO PACIFIC COAST

The keen yachting interest that is being awakened on the Pacific Coast is well illustrated by the fact that Cox and Stevens, the New York architects and brokers, have recently sold the following large schooners: Elise II, sold for Frank B. Bower of Philadelphia to Major Max C. Fleischmann of New York. The yacht is being overhauled under Cox and Stevens supervision and will then proceed to Santa Barbara, Calif., for service at her new owner's winter home. Her name will be changed to Haida.

Idalia, sold for Morton Otis of New York to C. B. Eyer and V. R. G. Wilbur of San Pedro, Calif. The yacht was shipped on deck of the steamer West Haven and is the largest yacht ever shipped on deck to the Pacific Coast.

Invader sold for John Barneson of San Francisco to J. P. Jefferson of Santa Barbara. The new owner will use the yacht for a cruise to the South Seas. She is a steel auxiliary, 136 feet long, and was originally built for Roy E. Rainey.

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BUFFALO PRICES REDUCED

The Buffalo Gasolene Motor Co., Buffalo, N. Y., manufacturers of Buffalo marine engines, has just issued a new price list in which some material changes are made from the prices of 1921.

On the average the company estimates that the prices of Buffalo engines, as shown by the new price list, have been reduced more than 25 per cent. This does not mean that it is a blanket 25 per cent. reduction. As a matter of fact, in the case of one Buffalo motor, the price has been raised a few dollars, but this is the exception and, as a general rule, the new prices will show a decrease of around 25 percent or better.

This is not the first cut in Buffalo prices. New price lists have been issued several times within the last two years and each time the buyer of engines has been given the advantage of whatever saving was possible as a result to improve manufacturing facilities and the lower cost of labor and material.

In a table just prepared by the Buffalo Gasolene Motor Co. the new prices are contrasted with the prices of 1920 and 1921 and the difference certainly proves that the price of Buffalo engines has descended in considerably more than a nominal way.

Take the 125-150-hp. Buffalo Heavy Duty engine as an example. Comparing the 1920 price of this engine with the present price shows that this particular model is selling at a reduction of $2,550, the old price being $11,400 and the new price $8,850. This engine is, of course, a machine of tremendous size and it is selected as an example for the reason that the difference mounts into large figures, but the same reduction of price has been applied to most of the other engines commonly bought by power-boat users.

The 25-30-hp. Cruiser & Runabout engine is one of the most popular models. In 1920 this engine sold for $1,400, in 1921 the price was reduced to $1,260. and in the new price list just published it is listed at $1,000 even money.

A more spectacular saving is shown in the case of the 40-60-hp. Cruiser & Runabout engine. This, in 1920, sold for $2,625 and in 1921 at $2,363 is now listed at $1,600, a reduction of $1,025 over the 1920 price and a reduction of $763 on the price of last year.

The 50-80-hp. Cruiser & Runabout engine is also materially reduced. The price in 1920 was $3,700, the price in 1921 was $3,300, and the new price just announced is $2,450, or a reduction of $880 as compared with the price of last year.

Material reductions have been made in the price of most of the Heavy Duty models; for instance, the price of the 26-30-hp. Heavy Duty, which in 1920 was $2,650 and in 1921 was $2,385, is now quoted at $1,675. in other words, a reduction of $710 over the price of last year.

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PRICES SET FOR 1922

The prices of all Harrison Boats, except the 32-foot standardized Cruisers, have been reduced.

The Electric Starting "Runabout 20" is now priced at $1,400, including war tax, as against the old price of $1,625. Similar reductions have been made on the various models of rowboats.

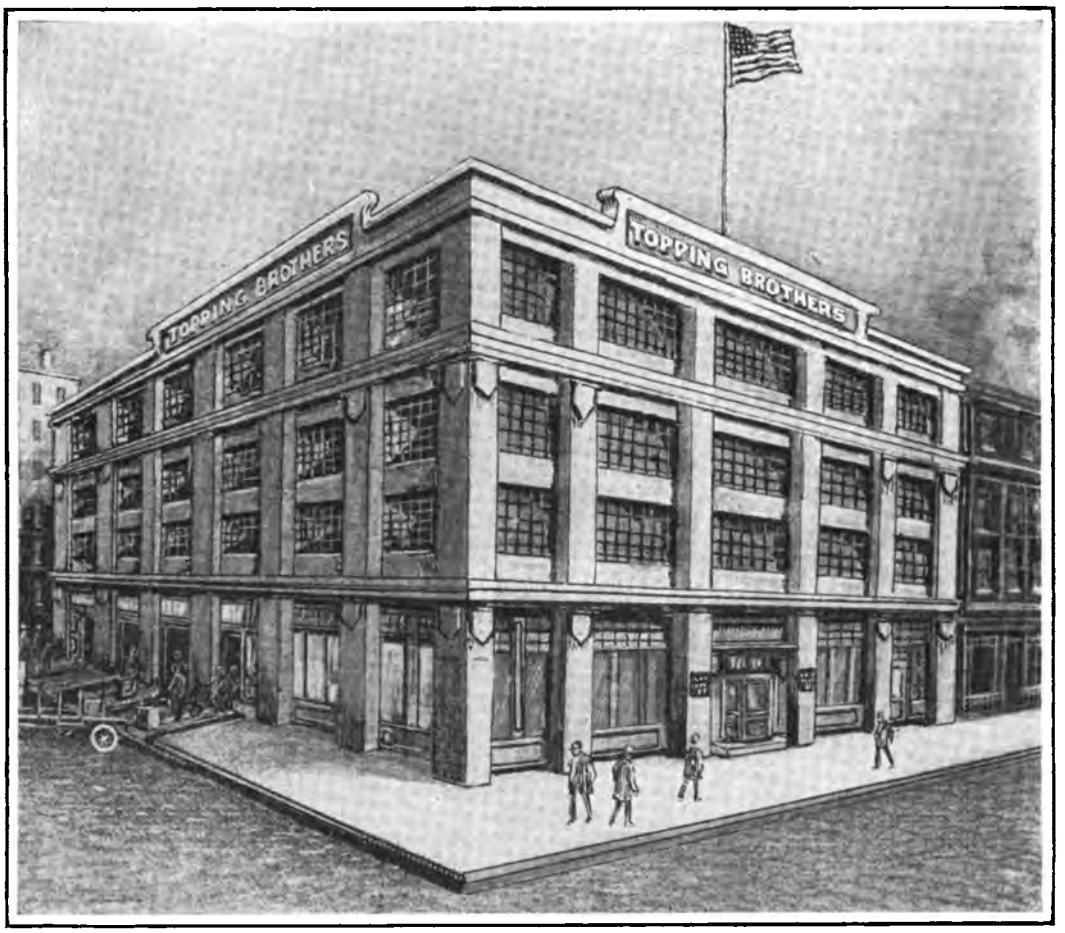
The Double Cabin "Harrison 32" is an added model for 1922 and it is pronounced by men with wide experience in boats to be one of the finest Cruisers of its size ever produced. This boat is wonderfully laid out and the workmanship and materials are of the highest quality.

1922 promises to create a big demand for the "Harrison 32" as it has been proven to be an able craft.

New Building for Topping Service

In order to maintain the high standard of service of marine supplies that has made Topping Brothers one of the best known houses in the marine hardware business, they have found it necessary to locate in greatly enlarged quarters.

Owing to the fact that the trend of the hardware trade was further uptown than their old location at 122 Chambers Street, it was decided to erect a new building at the northwestern corner of Varick and Van Dam streets. The new building is a four story plant with an exceptional amount of light and air to all floors. The available floor space will be 70,000 square feet. Below the street level will be a cellar and sub-cellar. To move goods from or to the delivery platform from all floors, there will be two elevators, one a 3-ton and the other a 2-ton affair. In addition there is a spiral chute leading to the loading platform and packing room from all floors. From the cellars an escalator will bring goods to the delivery department.



The first floor of the new plant will be devoted to the business offices and receiving and delivery departments. The remaining floors and the cellars will be used to store the thousand and one articles of hardware which they must keep constantly on hand. In the old quarters it was necessary to have additional warehouse facilities outside of the main building. This caused a certain amount of delay at times. In the new building they will be able to carry a much larger stock and to make deliveries immediately.

The importance of rapid delivery of marine hardware is one that received the most painstaking attention when the new building was designed. It was realized that the boating season is a short one and that every hour lost from the enjoyment is a serious matter to owners. No matter how well the equipment is designed, there will at times be cases where replacements will have to be made during the season. If a cleat, chock, mast-band or coupling should break during the mid-season it is advantageous to know where one can get a duplicate at short notice.

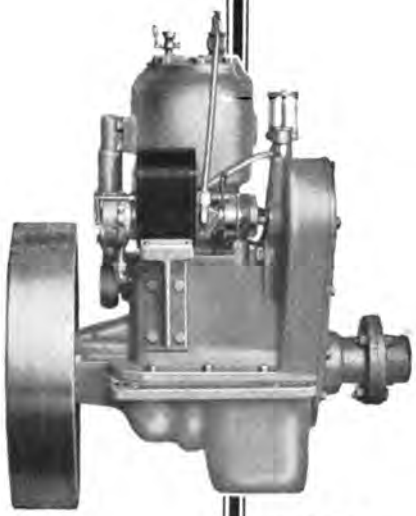
This rapidity of delivery service is also a boon to boat builders. The art of boat building is one that makes impossible the accurate estimation of all equipment and hardware required. Builders constantly find, that, as the boat proceeds in construction, they require additional hardware and equipment. The need of this material does not appear until the workmen are ready to handle it. Any delay in delivery, works havoc with the builder's promised delivery date. As this promised date is often arranged in the contract so that the builder has to pay the owner demurrage charges if the boat is not delivered on a certain date, it is easily seen that the boat builder must have the co-operation of those from whom he buys his hardware.

Topping Brothers will have a delivery platform 70 feet long and arranged so that four automobile trucks can be loaded at the same time. The mail order department is also organized to a point where it will be possible to order by mail with the same security as would be possible if the customer walked into the store personally. This is highly important to yachtsmen and boat builders located out-of-town, for it saves them the expensive journey to New York at the height of their busy season.

The firm was originally founded in 1885 as Topping and Fox. In the early nineties the name was changed to Topping Bros., and incorporation under that name achieved in 1903. For the entire 36 years of the firm's existence they have been located at the Chambers Street address, their present move being the first break away from the birthplace of the organization.

Si prega far menzione del RUDDER quando scrivete

Let Your Next Kermath — The Marine



4 Cycle
1 Cylinder
3 to 4 H. P.

THE KERMATH marine motors are famous throughout the world. You'll find them operating in the waters of every civilized country under the sun.

The Kermath standard, 4 cycle, 4 cylinder engine is used today by over 80 percent of the leading boat builders of the world as standard equipment. Could you ask for stronger endorsement?

We particularly call your attention to the experienced individual boat owner. He is one of the strongest Kermath boosters. Having tried all types of motors, he finally settles on the Kermath as the only one he can always depend upon under all conditions to serve him 365 days in the year—year in and year out.

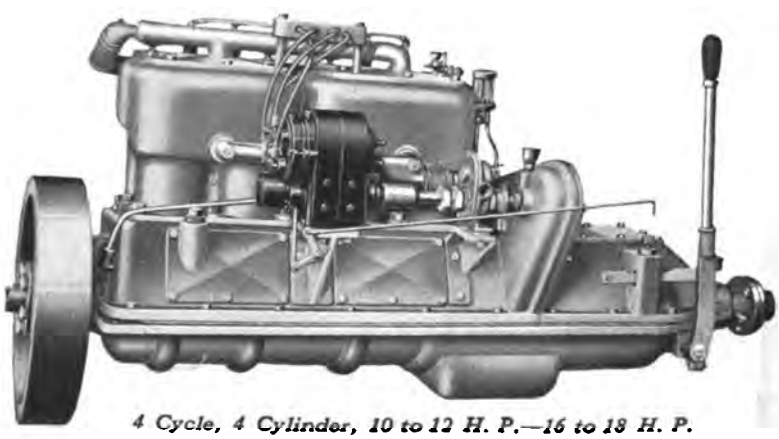
For example, Martin Welch of Winthrop, Mass., writes: "The Vanadium 20 H. P. Kermath which I purchased last May has run continually since installed, covering over one thousand miles without a single skip. Recently ran about seventy-five miles, using only eighteen gallons of gas, and made it in eight hours without a stop. Cannot say too much about the smoothness and efficiency of this engine."

Jay Gould of Lake Geneva, Wisconsin, states: "The 16 H. P. Kermath motor I bought last fall was a dandy. Ran it from Kenosha, Wis. to Mobile, Ala. on only 200 gallons of gas. Didn't even have to clean the spark plugs on the whole trip! This motor was installed in a 26-foot raised deck cruiser!"

John Law Kerr of Useppa Island, Florida, writes: "It may interest you to know that the Kermath that is now installed and is giving such wonderful service, is the same rebuilt engine that you sold me in 1917! It was the pioneer Kermath around here, and has since been sold twice, and is still giving excellent service."

L. W. Kelsay of New York City writes: "I wish to buy a 12 H. P. Kermath to replace one of your engines that has been doing service in my boat since 1911! This is ten years' service this fall. My present engine is still in perfect running order. I cannot speak too highly of this really marvelous marine motor."

Stanley M. Turlington writes: "My 16 H. P. Kermath has been constantly at work since 1919. Four months of this time she ran from 40 to 60 miles per day to the fishing grounds. The other eight months she operated every day on pleasure trips and on top of this during the latter part of 1920, we had her coupled up to a force pump, pumping



4 Cycle, 4 Cylinder, 10 to 12 H. P.—16 to 18 H. P.

"A Kermath always runs"

Motor Be A World's Standard Motor

piling for a toll bridge. In other words, she has been constantly at work night and day, and we have not had one moment's trouble with her."

A. E. Heilbron of San Antonio, Texas, writes: "The Kermath I purchased from you has measured up in merit in every statement that you made. It is a very energetic, capable motor and eminently reliable, and has given me continuous and uninterrupted service. I cannot speak too highly of it."

And so we could go on. In fact, if space would permit, we could quote hundreds of such letters. The above are merely taken at random from letters that come in daily.

Kermath popularity is due to their reliability under all conditions. Their first cost is very low, and they are very economical to operate. No matter what the conditions, they always run. With good care, they will last for years.

So, if you are about to purchase a new motor, we suggest you investigate the merits of this motor before you place your order.

The latest Kermath success is the 3 H. P. one cylinder engine that sells for only $135 with Bosch Magneto and impulse coupling. If you operate a smaller boat, this is just the power plant you need—small, compact, very powerful and a regular bear for work.

This is a very popular model, and is selling as rapidly as we can produce them.

Other equally well known Kermath motors are the two cylinder, 4 to 5 H. P. and 6 to 8 H. P. units.

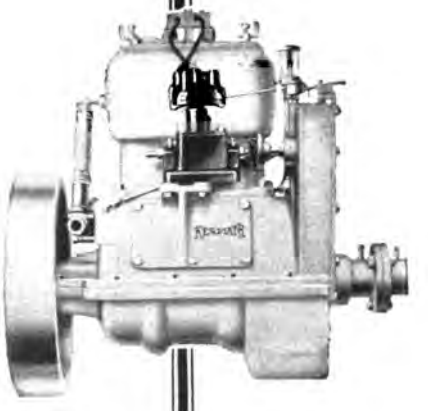
These are for slightly larger boats. They have been standard for years with the leading boat builders of the country.

Then, there are the 12 and 16 H. P. models—still larger, more powerful and very economical, and with the same Kermath stamina and reliability.

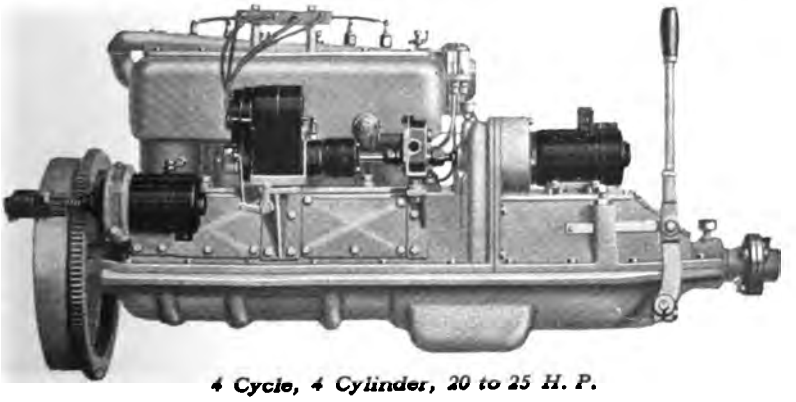
The famous Vanadium "20" which runs into still greater horsepower is a very efficient design.

The great Kermath "40" is a giant for work, and is found in many of the best power boats in this country and abroad.

No matter which Kermath model you select, if it is the type that fits your boat, you can be assured of the most efficient service, bulldog staying qualities and economy in operation at all times.

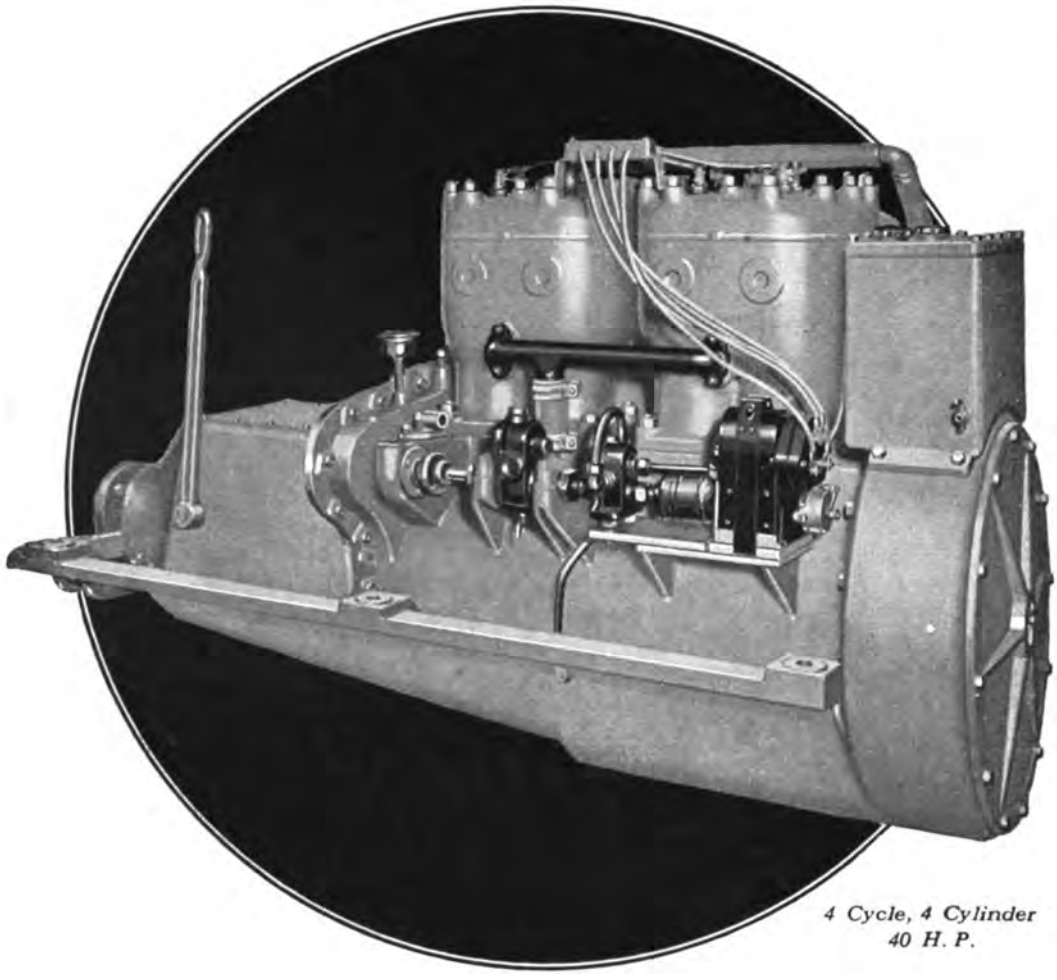


4 Cycle
2 Cylinder
4 to 5 H. P.
6 to 8 H. P.



4 Cycle, 4 Cylinder, 20 to 25 H. P.

"A Kermath always runs"



4 Cycle, 4 Cylinder
40 H. P.

Following is the greatly reduced Kermath price list for 1922. We cannot guarantee the length of time these prices will be in effect. But they are in effect now and if you place your order now (spring delivery if you wish) you will save money.

Write us at once for full description and further details of the entire Kermath line.

3 H. P.	$135	16 H. P.	$ 475
4 to 5 H. P.	270	20 H. P.	510
6 to 8 H. P.	290	40 H. P.	1,550
12 H. P.	445		

See the line of Kermath motors at the Motor Boat Show—Block E—Grand Central Palace, New York.

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DETROIT MICHIGAN.

5880 Commonwealth Avenue

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Fixtures and Specialties

"The Standard by which all other makes are measured"

Insist upon your naval architect and boat builder specifying and using "Sands" fixtures. Every pump closet has safety features possessed by no other make.

SANDS N.Y. 1922

Plate F-1080
(Patented)

"Winner" Pump Closet. Vitro-Adamant bowl; 2½-inch supply and waste pump; rough; oak seat. **$35.00**
Oak seat and cover..**$37.50**

Plate F-1060
(Patented)

"Knockabout" Pump Closet. Vitro-Adamant hopper bowl, 2½-inch supply and waste pump, rough, polished trimmings; oak woodwork. **$65.00**

Plate F-1075
(Patented)

"Bow" Pump Closet. Vitro-Adamant hopper bowl, 2½-inch supply and waste pump at rear of bowl. Fits into bow. Pump rough, oak seat **$51.00**
Oak seat and Cover.... **52.50**
Made to go into the eyes of boats or special places. A most compact fixture.

Plate S-2049

Sands' Special "Spedit" Pump Closet. Vitro-Adamant flushing rim hopper bowl, rough 2½" combined supply and waste pump, safety supply foot valve, polished trimmings, oak woodwork. Special light weight fixtures for speedy craft **$87.50**

Plate F-1617
All Brass Bulkhead Galley Pump. 1½" cylinder, reversible handle with shut-off cock.
Polished **$12.00**
N. P. all over **$13.50**

Plate F-2593
"Anglo" Seavalves straight couplings and locking plate, used on supply and discharge of Sands' "Winner" closet.
Pair **$8.10**

Plate F-2570
Made to take planking up to 3½" thick.

Plate F-2570

"Granby" Round Way Sea Cock with "Alton" thru-hull connection and intake strainer. Non-corrosive composition metal.

No. 1—¾"	$ 4.25
No. 2—1"	6.00
No. 3—1¼"	9.00
No 4—1½"	11.00
No. 5—2"	19.00

Plate F-2571

"Granby" Sea Cock with "Carlton" Outlet thru-hull connection, Non-corrosive composition metal

¾"	$4.00
1"	5.75
1¼"	8.75
1½"	10.75
2"	18.50

Plate F-3075
Universal Polished Brass Rope Lead. Swing joint permits different angles of pulley — prevents binding of rope.
½" **$0.85**

Plate F-492
"Mono" 12" Vitro-Adamant Corner Lavatory with N. P. brass pump and full "S" trap **$34.50**

Plate F-1528
Flat Rim Iron Sinks 6" deep. Porcelain enameled inside and over rim or galvanized all over. Specify which.

12" x 12"	$6.00
12" x 18"	7.80
14" x 20"	9.30
16" x 24"	19.00

Plate F-477
The "Madoc" 12" Round Front Vitro-Adamant Lavatory, with N. P. compression faucet, waste fittings and full "S" trap...**$24.00**

Plate F-475
"Menard" 14" Vitro-Adamant Lavatory, integral back and basin. N. P. faucet and full "S" trap **$28.00**

Plate F-491
"Manatee" 14" Vitro-Adamant One Piece Lavatory, N. P. brass pump, chain stay, chain and rubber stopper; N. P. brass waste plug and strainer **$31.50**

Plate F-1705
The "Sure-Stroke"
Polished brass double-acting basin and galley bulkhead pump, with iron pipe union connections on supply and discharge.
No. 1—1¼" diam., 15" long **$5.50**
No. 2—1½" diam., 15" long ..**$7.50**
No. 3—2"diam., 18" long **$12.50**
No. 4—1¼" diam., 24" long **$8.00**
No 5—1½" diam., 24" long **$12.00**
No. 6—2" diam., 24" long ...**$15.00**

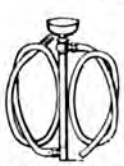

Plate F-1640
New Style Double-Acting Brass Bilge Pump, foot attachment, 5 ft. discharge and suction hose with brass strainer.
No. 1—1⅛" dia., 15" long under spout. **$5.00**
No. 2—1½" dia., 15" long under spout. **$7.00**
No 3—2" dia., 24" long under spout. **$15.00**

Plate F-1639
Double-Acting Brass Auto Bilge Pump, fitted with 5 feet rubber hose.
No. 1—1⅛" dia., 15" long under spout **$3.50**
No. 2—1½" dia., 15" long under spout **$4.50**
No. 4—1½" dia., 24" long under spout **$8.00**

Plate F-1642
"Volum" 2" Brass Bilge Pump, 28" long 5 ft. discharge hose. Capacity, 1 gallon for every 4 strokes. **$9.00**
Plate F-1641
Same as above with foot rest. **$10.00.**

"Arco"—Plate F-691
"Arco" Folding Lavatory, N. P. copper basin and slab; N. P. composition single-acting pump; N. P. copper lining.
Oak woodwork **$34.75**
Mahogany finish **37.00**
Height, over all, 19½"; width, 15"; depth, closed, 5½"; open, 16½"; basin 10"

Plate S-5200
Neptune Motor Boat Bow Lantern Bracket; hinges permit bracket to lie on deck when not in use. Polished brass

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The MARCH ISSUE of THE RUDDER has for 24 years featured the sale of used boats. Yachtsmen throughout the world await this number with interest. Those who wish to buy, use it as a guide to what is best in the field. Those who wish to sell find it the logical medium for advertising the fact that their boat is on the market.

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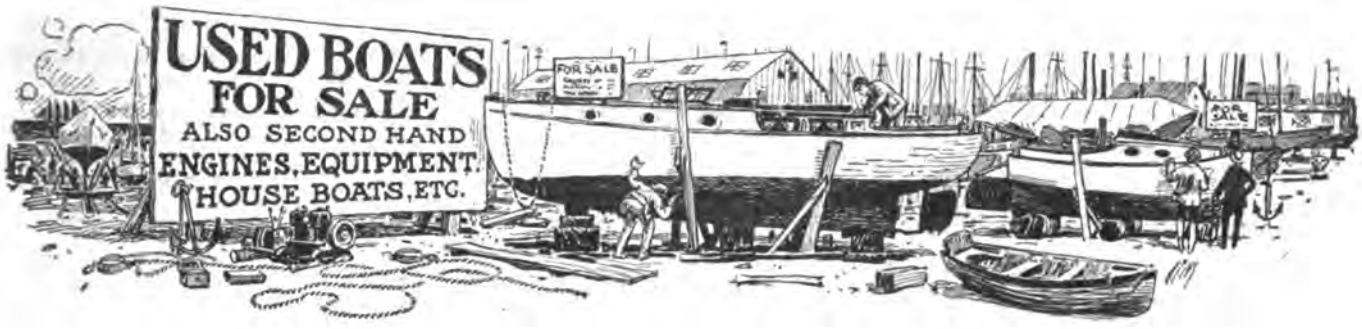

YOUR BOAT, ENGINE OR EQUIPMENT

in storage is not worth its keep and unless taken care of will soon be worthless. A $1.00 advertisement will turn an old outfit into money, besides giving the purchaser an opportunity of making it useful and a help to the sport.

Advertisements 4c a word each insertion, minimum charge $1.00. Heavy-face type, double price.
Money must accompany copy. Forms close 10th of the month preceding.

For $6.00 we will from photograph furnished by you, prepare a half-tone plate of your boat, measuring 3½ inches wide by 1 inch deep, and print same with a 50-word description.

For $10.00 half-tone plate 3½ inches wide, 2½ inches deep and 50-word description.

No. 465—FOR SALE—"BRUSH-BY." As I am contemplating building a larger speed-boat, will sell my World's Champion, 26 ft. x 5 ft. Cinderella type, Crouch designed, V-bottom displacement runabout "BRUSH-BY" at a reasonable figure. 200 H.P. Hall-Scott six cylinder engine, complete equip-

ment. This is a real boat and can make 43 miles per hour. Has won all races she was entered in and established World's record for single marine engine equipped runabouts at Alexandria Bay in 1920. Has never been defeated by boats of her type and is in a class by herself. Joseph B. Sullivan, 36 Warren Place, Montclair, N. J.

FOR SALE—Cabin Cruising Yawl, length O.A. 30 ft., W.L. 23 ft., beam 9 ft., draft 4 ft. 6 in., galley, W.C., etc., built 1914, very comfortable sea boat. Wilson & Silsby sails 1918. Low price. Address L. G. N., 302 Mutual Life Bldg., Buffalo, N. Y.

No. 464—FOR SALE—Express Cruiser, 57 ft. 9 in. long, 12-ft. beam Has one large double and two single staterooms, and bath. Also large deck house. Beautifully equipped. Electric lighted. Built especially

for Florida waters and long cruises. Speed 15 miles. Address Post Office Box 1081, Detroit, Michigan.

FOR SALE—Engines bargains in Sterlings, Doman, Kermath, Erd and others, all sizes. Also second-hand rebuilt motors and sailboats. Everett Hunter Boat Co., Dept. B., McHenry, Ill.

FOR SALE—1 pair Bausch & Lomb 6 x 30 power prism binoculars, with leather case. Same as new. Percy M. Child, 1110 14th St., N. W., Washington, D. C.

No. 455—FOR SALE—"Lady Betty," fast powerful yawl, sail only, w.l. 33 ft., o. a. 43 ft. 6 in., beam 11 ft. 6 in., draft 6 ft. 6 in. Designer, Crowinshield. Builder, Frisbie of Salem. Has a very large well-fitted cabin

and is unusually well equipped, sleeps six. Is in fine condition and should be seen to be appreciated. Price $2,000. Dr. A. M. Potter, 3 Greene St., Providence, R. I.

FOR SALE—Two new type V5 Isotta 8-cylinder motors 220-h.p. Dual ignition and carburetors. Weight 750 lbs. each. Brady's Warehouse, 554 West 58th St., New York City.

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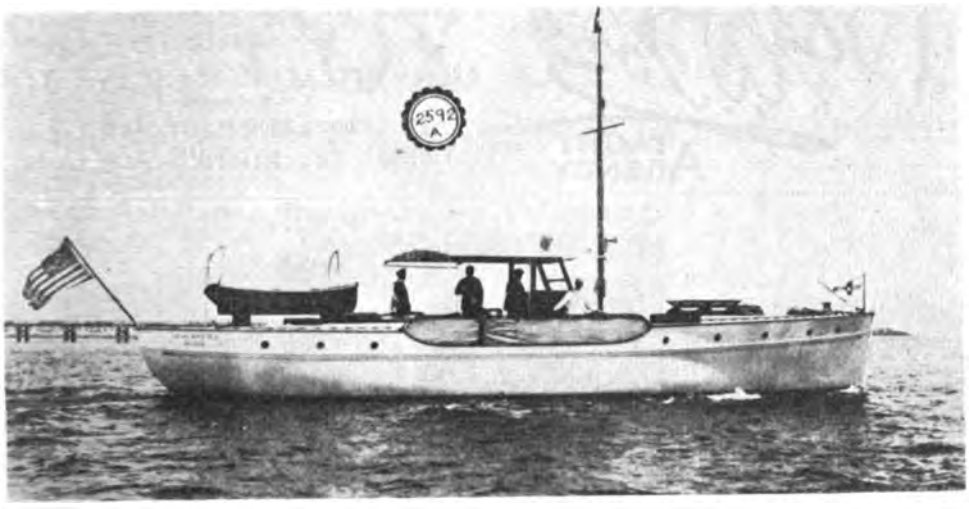
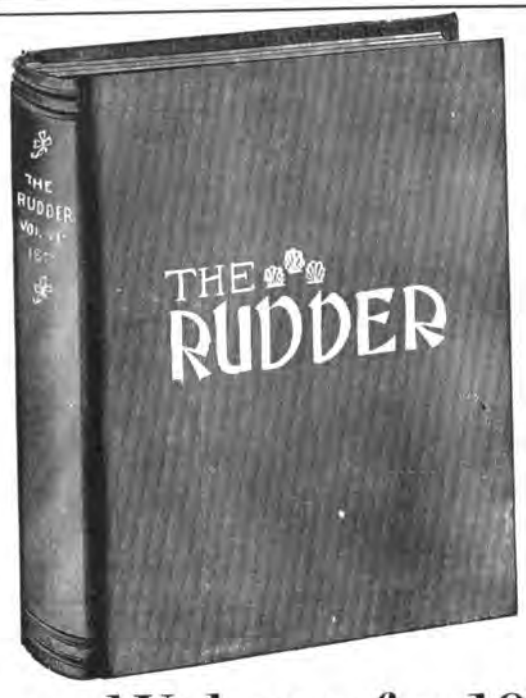


No. 2592—FOR SALE—Bridge deck cruiser (double end type), 58 ft. 6 in. by 12 ft. by 3.10 ft. Built by Lawley in 1918. Speed up to 12 miles; 6-cyl. Murray & Tregurtha motor new 1921. Large saloon, two double staterooms, two toilet rooms, galley, etc. Delco lighting system. Handsomely finished and furnished. Further particulars from Cox & Stevens, 15 William St., New York.

FOR SALE—One cyl. two-cycle 2 H.P. Detroit, $25; 3 H.P. Truscott, $30; 4 H.P. Gray, $55; 6 H.P. Caille, $65; 8 H.P. Fairbanks, $85. Two cyl. two-cycle, 6 H.P. Gray Model U, $95; 8 H.P. Racine, $65; 11 H.P. Ferro, $95; 12 H.P. Straubel, 3-cyl. heavy duty, $135. Four cycle, 4 H.P. Dunn 2-cyl., $45; 5 H.P. Universal 2-cyl., $40; 6 H.P. Mack 2-cyl., $45; 8 H.P. Dunn 2-cyl, $85; 12 H.P. Doman 3-cyl., $125; 12 H.P. Erd 4-cyl., latest model, new 4x4, $165; 16 H.P. Dunn 4-cyl., $145; 8-cyl. V type 4x5, air cooled aeromotor, $185; 100 H.P. Hall-Scott 4-cyl., new aviation motors, $350; 20 H.P. Kermath Vanadium model 4-cyl. 4-cycle, magneto ignition, $185; 40-45 H.P. Buffalo 4-cyl. 7x9 heavy duty with reverse gear 36 in. bronze wheel, $950. Badger Motor Company, Milwaukee, Wis.

No. 391—FOR SALE—Beautiful auxiliary sloop, 53 ft. O.A., 37 W.L., 14-ft. beam, 7-ft. 6-in. draft. Built in 1906 with extra heavy construction. Cabin finish all mahogany. Main cabin has wide berths and transoms. Large stateroom and very roomy galley, all with full headroom. Two toilet closets.

Frisbie motor new this year 16-h.p. 2-cyl. 4-cycle. Brand new mainsail. This affords an opportunity to buy a most desirable modern yacht at a very reasonable price. Laid up near Boston. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.



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No. 2421—FOR FLORIDA CHARTER— one of Florida's most attractive cruising houseboats. Now in the South. 77 ft. by 18 ft. 7 in. by 2 ft. 6 in. Powered with 20th Century engines. Latest deck saloon. Three staterooms and bath, below. Designed primarily for use in Florida waters. For price and details, see G. W. Ford Yacht Agency, 41 East 42d St., New York City.

Send 10c. in stamps or coin for our handsome Illustrated Yacht List. Now on the press.

No. 2586—SALE OR CHARTER—Attractive Twin screw motor yacht. Built by Seabury & Co. at Morris Heights, N. Y. Two 6-cylinder Speedway motors. 90 ft. by 15 ft. by 4 ft. 6 in. Four staterooms, bath, and large deck saloon. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

No. 2530—FOR SALE—Elegantly appointed motor yacht, 65 ft. by 14 ft. by 4 ft. Launched 1915. Powered with a 6-cyl. 20th Century motor. Two staterooms and saloon aft. Price attractive. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

No. 1174—FOR SALE—Auxiliary keel and centerboard yawl. Designed by Schock. 32 ft. 6 in. by 28 ft. 8 in. by 10 ft. 6 in. by 4 ft. 6 in. Peerless Engine. 12-h.p. Stateroom and cabin berths 4 persons. $1,800. G. W. Ford Yacht Agency, 41 East 42d St., N. Y. C.

No. 1020—FOR SALE—Auxiliary centerboard schooner yacht. Board passes through lead keel 55 ft. 6 in. by 40 ft. by 16 ft. 3 in. by 3 ft, 10 in. Designed by J. Murray Watts. Built 1915. Two staterooms. Large main cabin. Galley full width of boat. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

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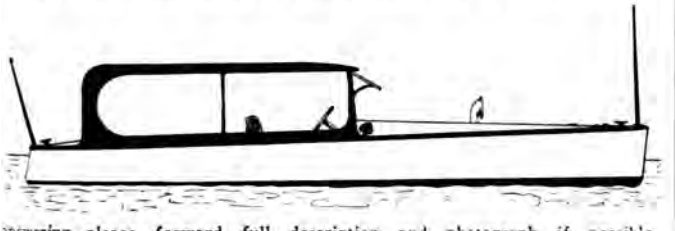
WOULD like to purchase a forty to fifty-foot Lawley built Cruiser or Cruising Houseboat. Send full particulars to L. C. M., c/o Rudder, 9 Murray St., New York City.

WANTED—Boat builders on small launch hulls and rowboats. Steady work. Everett Hunter Boat Co., McHenry, Ill.

WANTED—Cabin catboat 25 to 26 ft. overall. Must have good head room in cabin and be in A No. 1 shape. John W. Harris, Longmeadow, Mass.

WANTED—Express Cruiser, length about 50 feet, beam 8 to 10 feet, draft 2½ to 3½ feet, minimum speed 20 miles per hour, for use on Great Lakes. Must be in good condition and available by May 1st. Send offers and photographs to C. B. Colpitts, 66 Broadway, New York.

No. 476—WANTED—A Motor Boat with a speed from 15 to 25 miles per hour of the design similar to the illustration with or without top. In



answering please forward full description and photograph if possible. N. C. P., P. O. Box 437, Gloucester, Mass.

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WILL PAY $3.00 for any yachting magazine containing plans of LADY EVELYN, ex IRENE, originally AUDWIN, built 1910 by N. Y. L. & E. Co. OWNER, 2 Lafayette St., New Rochelle, N. Y.

POSITION WANTED—Draftsman, Naval Architect, over 21 years' experience. Associated with the best known Naval Architect for the past 18 years. Desires position with shipyard, yacht yard, or Naval Architect. Address Architect, c/o Rudder, Box 191, 9 Murray St., New York City.

SAILOR WANTED—About April 1st on Auxiliary Yawl, 6 months' cruise Long Island Sound and Eastern waters. Must be competent sailor and willing to cook, wash dishes and do chores. If satisfactory will keep yawl in commission all winter in Southern waters. State age, nationality, experience and wages. Cruiser, c/o Rudder, 9 Murray St., New York City.

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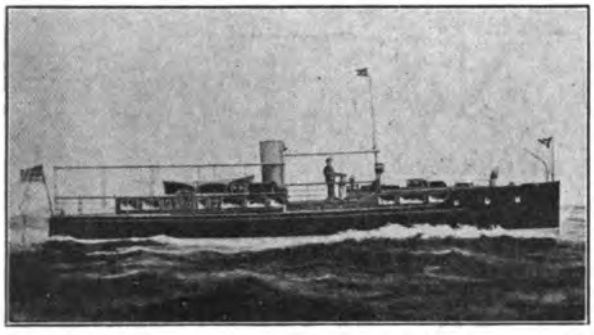

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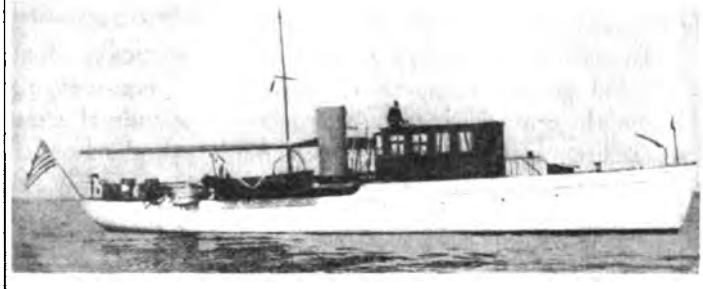

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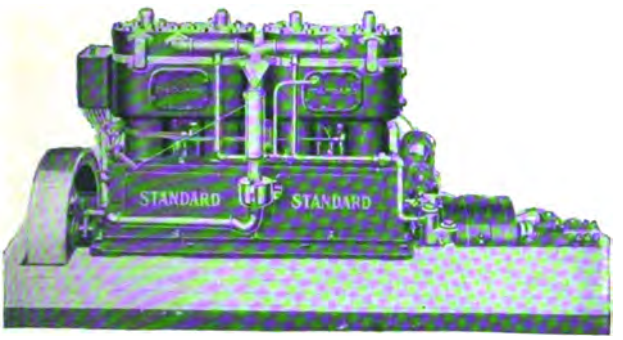

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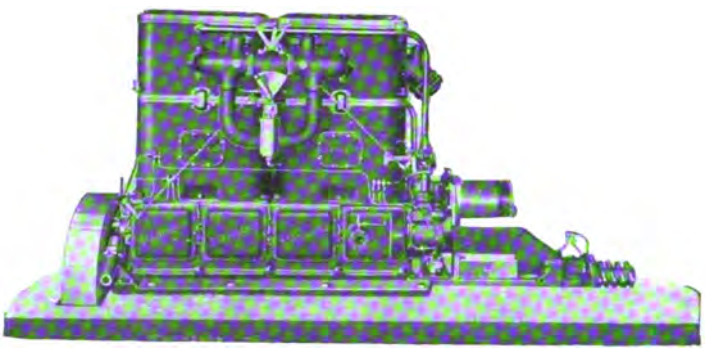

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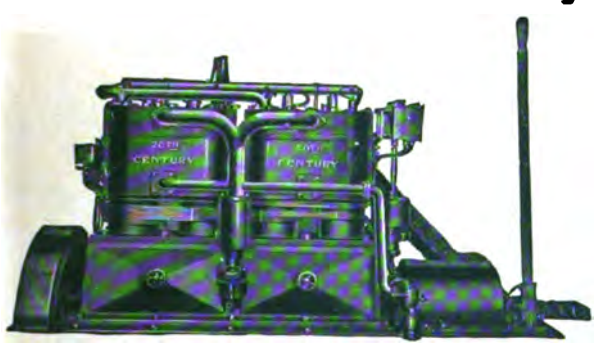

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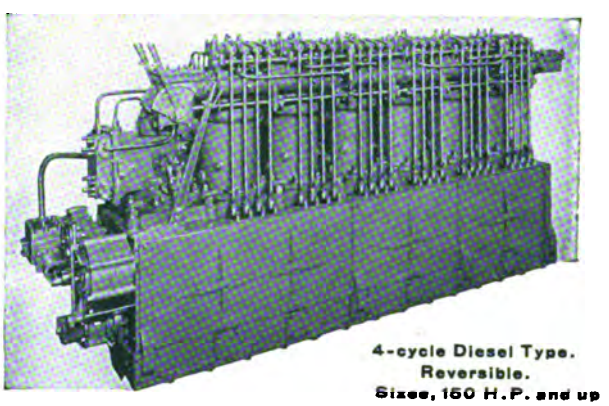

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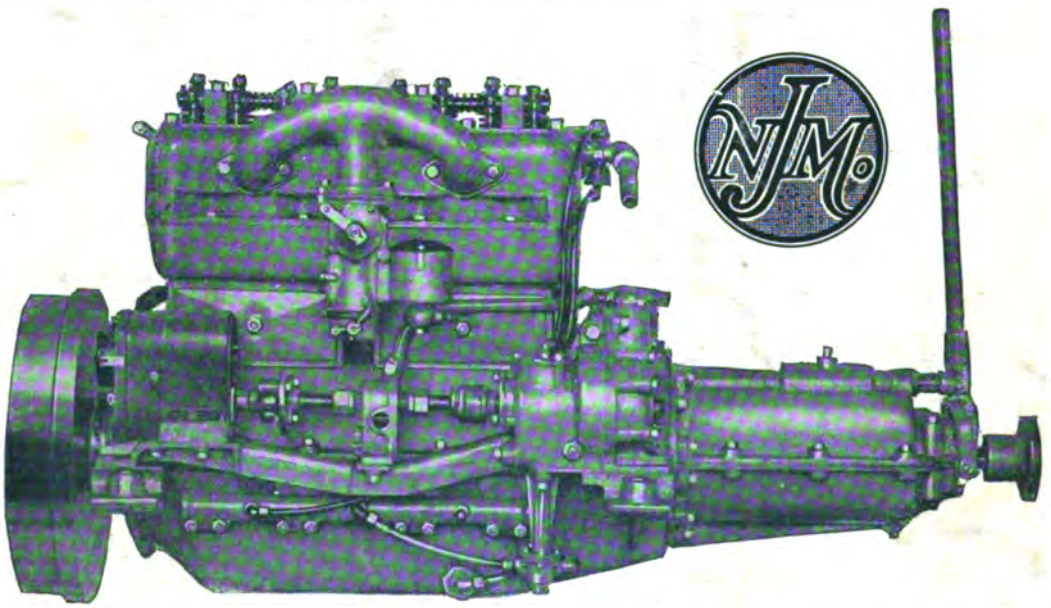

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FITTING OUT NUMBER

March, 1922

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Vol. XXXVIII

THE RUDDER

No. 3

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Contents for March, 1922

Plotting the Course

PLOTTING the Course is always the last thing written every month, and, by the time we get to it we are somewhat tired and perhaps "pernickety." We sort of spread ourselves this month, and then the boss calls us in and said, "Each month your issues must be better than the previous one in the same proportion as the subscriptions are increasing." As we knew that the subscription increase constitutes a record, we felt in anything but a cheerful mood as we retired to the sanctum. After communing with Our Lady Nicotine for some time, we decided upon the following for April When we read the list to the boss he smiled, so we know that all is well.

In the first place, the leading article will be on the uses of Outboard Engines. These little engines have only been on the market a few years, but during that time they have worked themselves into a position where they outsell all other types of marine engines.

The racing season will open early in March with the Wood-Fisher and Fisher-Allison Trophy races at Miami. In line with our policy of giving you nothing but accurate information we will have a member of The Rudder staff in the Winter Metropolis to write you the story of these races. Naturally they will be illustrated with many pictures.

Even if you are one of the thousands who visited the Motor Boat Show you will be interested in our expert's analysis of the high lights of that exhibit.

For our Cruise Story we have chosen a short, humorous tale by F. T. Lander. In this story Lander will give you a brand new idea in boat propulsion. The idea may not be practical, but at least it is ingenuous. Speaking of practical articles; Edward Roberts has written one for April that instructs as well as interests.

Another feature will be an article on the History of High Speed Cruising Yachts. We don't take the credit for thinking this up, one of our subscribers suggested is and it makes a bully subject. It may come as a surprise to some to know that years ago there were steamers that could give any express cruiser of today a run for their money.

Lidwina III, owned by Commodore S. B. Eagan of Buffalo, has proved to be one of the most successful express cruisers ever produced. She was built ten years ago by the Consolidated Shipbuilding Corporation of Morris Heights, N. Y. The Main Saloon is shown below. Photos by Morris Rosenfeld, New York.

Lidwina III— Game to the Finish

Returning from a 2,000 mile cruise in September, 1920, Commodore S. B. Eagan of Buffalo put in at Detroit long enough to enter his Lidwina III in the Gold Cup Regatta and lift the handsome Sallan Trophy. Then, through heavy seas, in the face of Government storm warnings, he put out for home. When he left Erie the next morning a 50-mile gale was raging, but Commodore Eagan and his intrepid crew kept the staunch cruiser pluckily on her way.

For five hours they literally battled for their lives, driving 73 miles through the biggest storm of the season—riding waves 18 feet high. But when they arrived off Buffalo they were only 45 minutes overdue. Here City Officials and members of the Buffalo Launch Club eagerly awaited Lidwina III's doubly triumphant homecoming.

Incidentally, her varnished surfaces had come through all this exposure without the slightest damage. A good boat—a game boat—and *Valsparred, of course.*

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THE RUDDER

Commercial Boats and Equipment · Yachts and Yachting · Engines and Accessories

Volume XXXVIII **March, 1922** **No. 3**

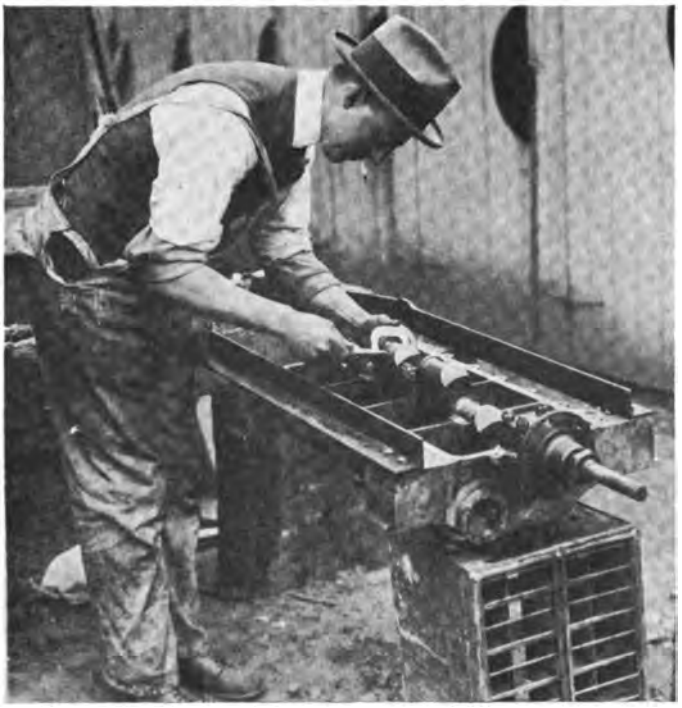
Facts for Fitting-Out

Photos by M. Rosenfeid

NOW that the ice is moving in the streams and Nature is letting up on her yearly persecution the Mecca of all boat owners is towards the yards where their pride and joy is laid up. Fitting-Out is always a period of pleasure for the yachtsman, but much of the work will be lessened, and the joy increased if the job is tackled in a systematic way.

Before doing any actual work, visit the boat and make up a list of everything that must be done. Itemize each painting job and all repairs or additions to rigging, sails or engine. Go over the equipment and see what parts have worn so that repairs or replacements will be necessary. Any part that shows wear should be replaced now. In mid-season you will have no time to order handware and wait for delivery and installation. Be particularly careful about the ropes, chain and cables. If you part something next August it may mean disaster. The cheapest insurance in the world is ample strength of gear. When, upon inspection you find anything worn, do not figure that it will be "good enough for one more season." When it reaches that point it is only good enough for the junkman. Now take your list home and arrange it so that each job will be done in proper rotation, and so that no work interferes with the next job following. Painting is often annoying, because while the paint is wet you will not be able to work around the boat. If you lay the work out right however you will be able to attend to other work while the paint is drying. Never put on another coat until the first has dried at least 24 hours in clear weather. In damp weather allow at least 48 hours.

Over She Goes!



Micrometer Work is Necessary if You are to Get the Crank Shaft Perfectly True

This Man is Careful of His Tools and Knows from Experience that it Saves Time

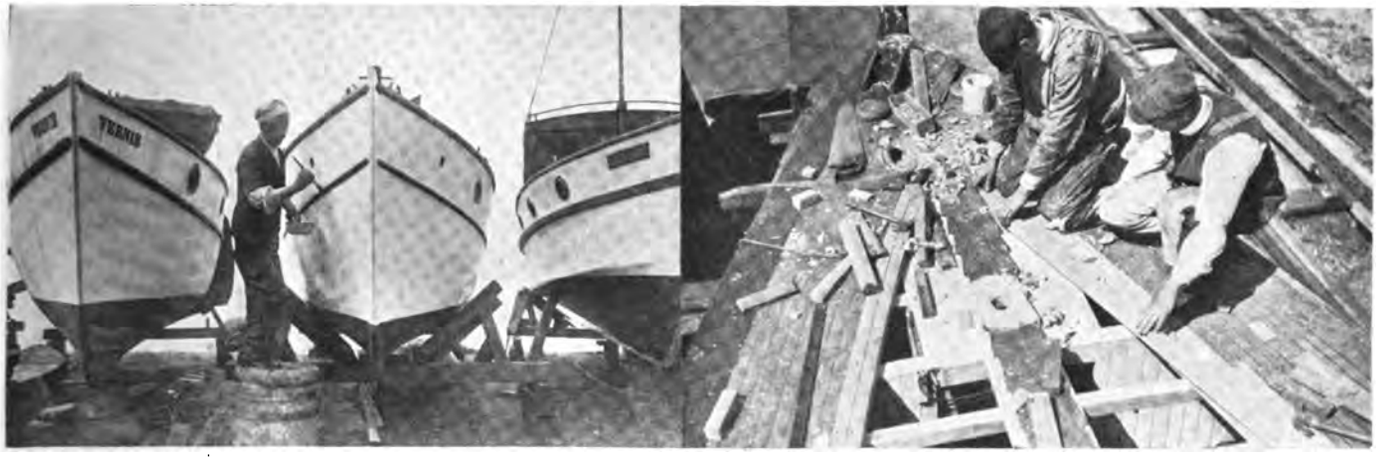
After the inspection trip, the next move is to uncover the boat, open every port, window and door and remove every article that is not fastened permanently, out into the sunshine and air. Clear all shelves and lockers and remove all floor boards. Let light and air reach every part. Then scrub with washing soda and hot water all parts except those that are in sight after the boat is equipped. Be careful to get all oil and grease out of the bilges and from around the engine Then flush all the dirty water and soda out with clean, fresh, hot water. It is of the utmost importance that every part be cleaned. While the washed parts are drying, sandpaper with number oo paper all the joiner work, whether varnished or painted.

If the old varnish or paint has become blistered or is peeling off the best thing is to take it all off to the bare wood. Either use a torch or some of the varnish and paint removers that can be purchased from any marine supply store. Read the directions on the remover can very carefully. Sandpaper the bare wood first with number 1 paper and then finish with oo. Before varnishing cover all knots and checks with a dab of shellac so that stain will not strike through the new coating. Putty all cracks and holes with white lead putty which has been mixed with paint or stain to match the color which is to be put on. Then when the putty cracks you will not have a white scar showing against a dark background.

If the engine can be removed, do so, as it is easier to work upon it when it is set up on a bench in a warm shop. Otherwise you will have to do the best you can in the somewhat limited space allowed around it. Do your engine work before you put the new coat of paint in the cabin. After the oil has been cleaned up you can finish the painting and varnishing inside. Remember that three coats of thin varnish are a great deal better than one coat of thick. The same holds good with paint.

The fuel and water tanks should be drained of all

The Careless Man Who Left His Boat Go This Way Deserves His Fate. Cutting the Waterline Requires a Steady Hand and a Long Batten



The Finishing Touches Put on With Loving Care. Nibbing a New Strip Deck into a King Plank Is Quite a Job

old liquid and then flushed out. If a hand hole is provided in the tanks you can swash a ball of waste around on the end of a stick. In any case it will be advisable to remove the tank. If you can get it out, partially fill it with your cleaning water and then rock it from side to side, dashing the water violently about. Then drain it and place it where the warm sun will dry it thoroughly. Fuel and water pipes should be blown out. A great deal of sediment will be disclosed if you attach an automobile tire pump at one end of the pipe.

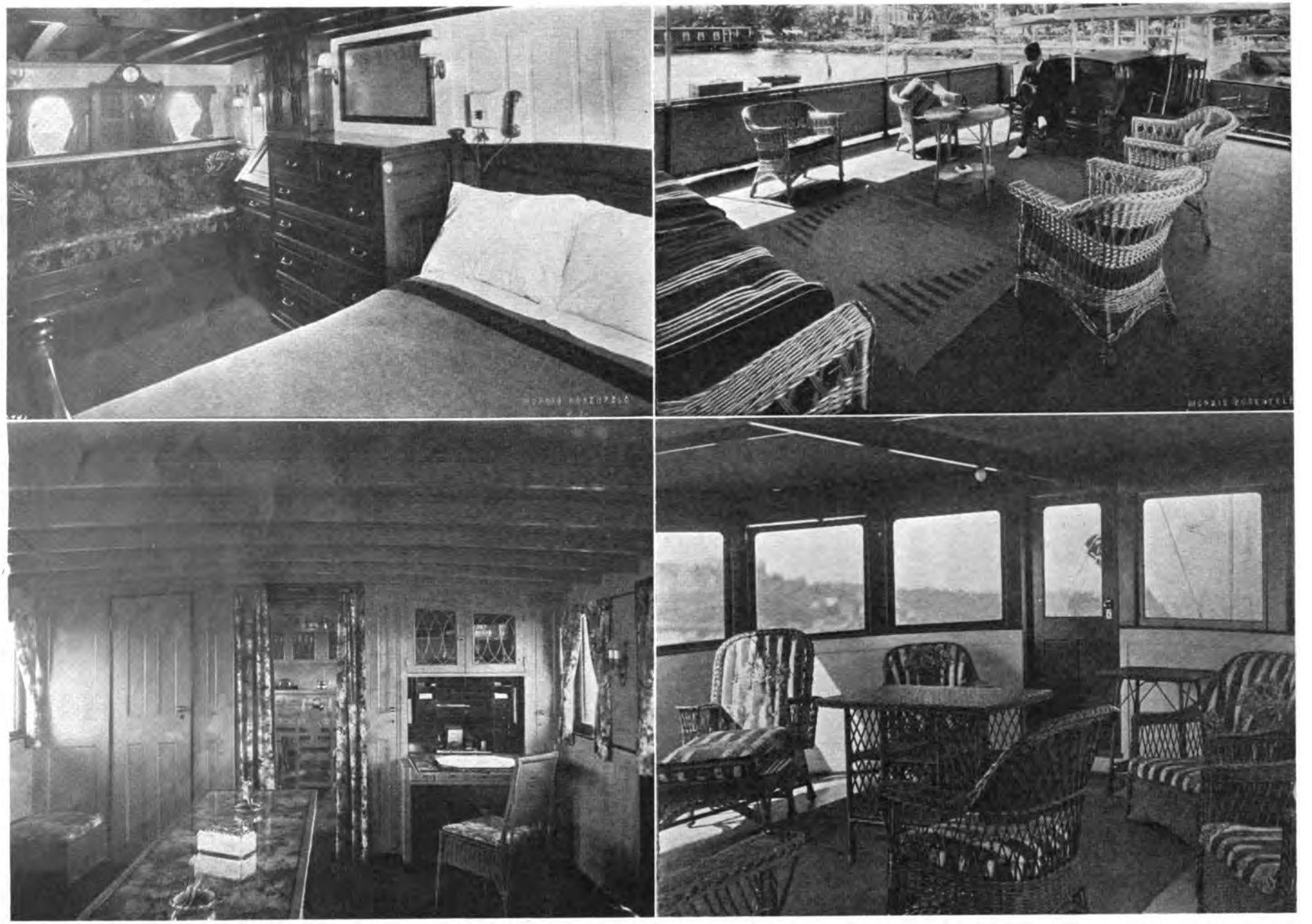
When all the work is done below, turned your attention to the cabin top and decks. If these are canvas-covered, you may find the paint blistered. This can be burned off with a torch if great care is used not to scorch the canvas. If the last coat is still in good condition scrub well and then sandpaper with number 1 paper and give a coat of the best marine deck paint. If the deck is varnished, it may be necessary to use remover and cabinet scrapers to get the old darkened varnish off. In using cabinet scrapers remember that when you buy them they are not sharpened. The working edge has to be filed to a chisel edge and then the feather edge turned at right angles to the face of the scraper by means of a smooth instrument called a burnisher. To properly sharpen a scraper is quite an art and it will pay you to watch someone else do it once or twice. When properly sharpened such a scraper will cut a tissue-paper-thin shaving. If the wood has been stained so that scraping will not clean it, bleach it with oxalic acid, afterwards washing the parts with vinegar and then hot water before varnishing.

Do not do anything to the sides or bottom of the boat until decks, cabin and spars are all cleaned up and either painted or varnished. Then go over the outside of the planking. If there were any leaks last year, locate the bad places and calk. If the hull is rough on the outside get a three-corned ship scraper with handle and smooth down all the old putty and rough paint. Then sandpaper with number 1½ paper, rubbing across the grain of the wood. In all sand-papering it is well to wrap the paper around a block of cork, like a piece from an old life jacket. Cut the block to fit the hand.

If the paint is badly blistered it will have to be burned off, otherwise give it two thin coats of a flat yacht white, or desired color.

The final job is to sandpaper and paint the bottom and to pack the stuffing box. If possible, store all the carpets, tools, dishes and other equipment ashore until after the boat has been overboard for a day or two. A boat will often leak after being dried out all winter and there is no use wetting equipment until she swells.

Paint Can be Burned Off a Canvas Deck If You Use Care. If You Use Varnish Remover the Stuff Should Come Off with a Putty Knife



Some Examples of Excellent Taste in Furnishings. On Deck, in the Deck House or Below, Simplicity and Comfort Has Been the Keynote. The Wicker Furniture with Gay Upholstery is Particularly Effective

Interior Decorations for Yachts

By Capt. E. Armitage McCann

Photos by M. Rosenfeld

THE tendency nowadays is to decorate the interiors of yachts as if they were ladies boudoirs, or again as baroniai castles.

Surely this is perverted taste and fundamentally wrong.

A yacht should be, as the saying goes, "as pretty as a picture," but not because she is a bunch of roses, or a movie star, but because she is a yacht—a ship.

This applies perhaps more to the exterior, her beautiful lines and glistening paint and brass work, but the same idea should be carried right through, and the cabins though dainty or magnificient, according to taste, should be ship-shape and yacht cabins, not imitations of something else.

One has entered saloons that were cluttered with dainty cushions, with lace frills, chiffon hangings and Sheraton or Louis XVI chairs waltzing over the Wilton carpet. Or again arranged to look like an old English cottage, wainscoted from deck to deck in antique oak, with period chests, chairs, bookcases, and the like; even the beautiful beams under the deck covered with a ceiling made flat to hide the camber—the last stronghold of the graceful line. One illustration of this kind of decoration is given. It is an excellently carried out piece of work for those who like such a style but is in my opinion not suitable for a yacht any more than teakwood bunk and bolted down chairs would look right in a drawing room.

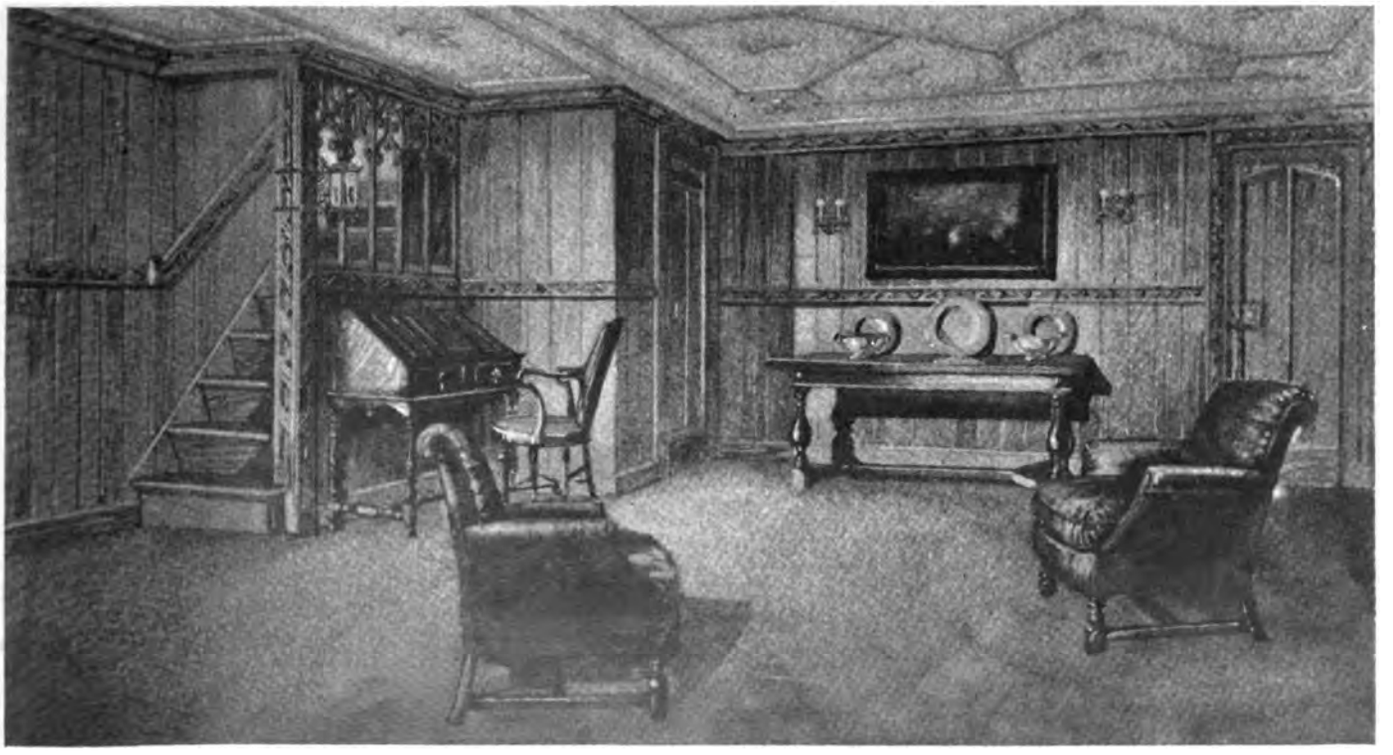
So far we have only given our opinion as to what is not good taste. The more interesting point is what is right?

Well, naturally the styles that may be adopted are as numerous as the persons designing them or those desiring them. There are however several rules that should be strictly adhered to; first, the general fitness for the place they are to occupy, as in all decoration, which unless designed for a special purpose should never irritate, nor even attract too much attention. On entering a place rightly decorated, it should charm or exhilarate, make us sleepy or gay without shouting to us that it is doing so.

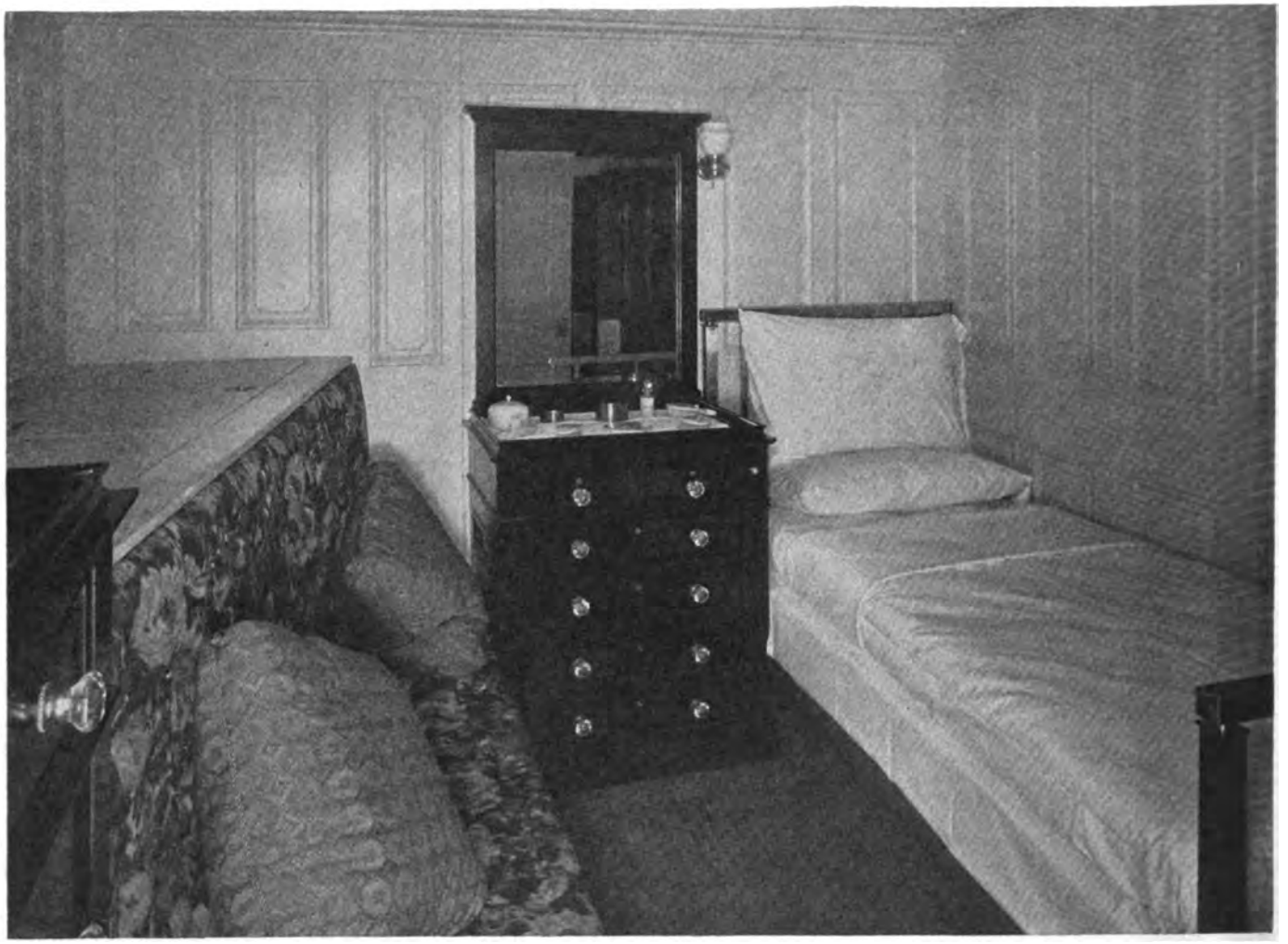
Interior decoration of yachts thus furnishes a wonderful opportunity for the craftsman who is a master of his art and to some extent is ship-minded.

He must recollect that people go to sea in pleasure craft to get rid of, or have a change from just the surroundings to which they are accustomed. He must, in thought at any rate, be able with them, to cast aside all business or domestic worries so as to enjoy to the full, the gladsome lightness of the summer seas and the exhilaration of speed and wave movement. When imbued with this spirit, it is in the winds and the waves, the birds and the fishes that abound therein that he will find his motifs for the whole scheme and the details.

In working out his scheme he will not disguise but



Smoking Room in Lyndonia. An Example of Treatment in Very Large Yachts



Stateroom on Small Yacht. Note the Long Narrow Panels Which Lend Height to the Room. The Brass Bedstead Is Questionable in So Small a Room

make use of the long flowing lines he finds everywhere to hand: the sheer, the camber and the fining to the ends, thus obtaining a light and gliding effect instead of the stationary feeling that squareness gives one.

As a model one might start with the old time clipper ship. Their cabins were not as a rule in, what we would today call, the best of taste, so far as the details went, but they had a dignity and fitness that may well serve as a starting point.

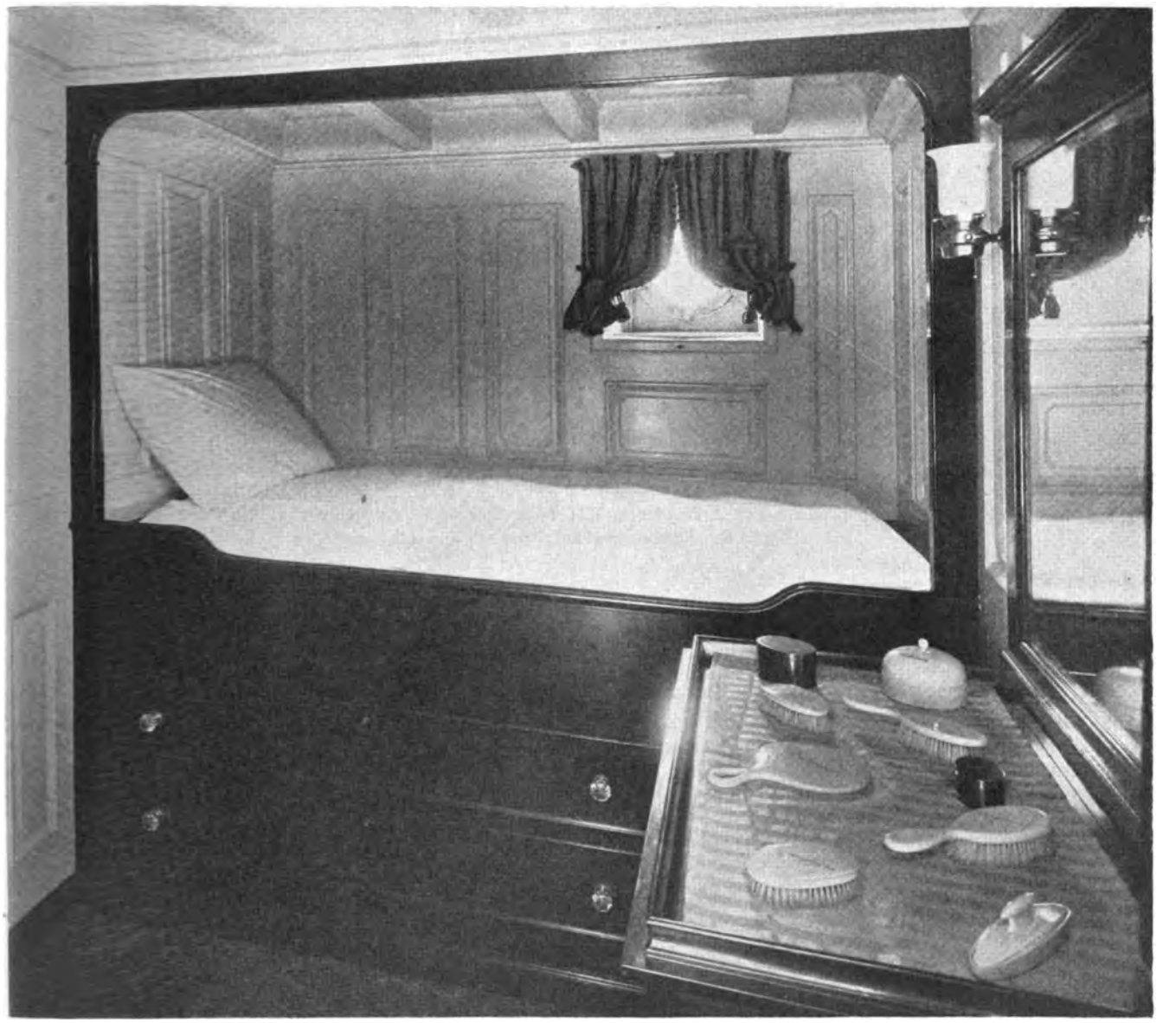
They were usually finished in polished wood, teak or mahogany, with maple or white panels and all too frequently some of that abomination, birdseye maple. Then there was a considerable amount of good carving. The white panels had one disadvantage that, very often the captain's wife or some other misguided would-be artist, would paint roses or poppies or such like in the centre of each, with perhaps a landscape with cows (lest the poor sailorman be homesick) on the doors. This however was not the fault of the designer, and the same misforturne has happened even to bulwark panels.

The following extract from *The Illustrated London News* of 1852 is interesting. It describes the decoration of the converted American Packet ship Marco Polo the first of the famous Black Ball Line of emigrant ships to Australia, the last vessels of which were Great Eastern and The Three Brothers, once Vanderbilt's yacht, famous for its unsuccessful chase of Alabama and now a hulk at Gibraltar.

"On deck, forward of the poop, which is now used as a ladies' cabin is a 'home on deck' to be used as a dining saloon. It is ceiled with maple and the pilastres are paneled with richly ornamented and silvered glass—coins of various countries being a novel feature of the decorations. Between each pilastre is a circular aperture about six feet in circumference for light and ventilation; over it is placed a sheet of plate glass with a cleverly painted picturesque view in the centre with a framework of foliage and scroll in opaque colors and gold. The whole panels are bought out slightly by rim of perforated zinc, so that not only does light from the ventilators diffuse itself over the whole, but air is freely admitted.

"The saloon doors are paneled in stained glass bearing the figures of commerce and industry from the designs of Mr. Frank Howard. In the centre of the saloon is a table or dumb-waiter made of thick plate glass, which has the advantage of giving light to the dormitories below. The upholstery is in embossed crimson velvet.

"The berths in separate staterooms are ranged in the 'tween decks and are rendered cheerful by cir-



Fine Example of Built-In Berth. This Gives an Opportunity of Placing Drawers Beneath the Springs. The Canopy Effect is Very Pleasing

cular glass hatch lights of novel and effective construction."

This may not sound very encouraging as a base upon which to build one's plans, but the fact remains that these cabins were designed and suitably decorated for their time. They had, through using long vistas, instead of being chopped up into many parts, a dignity and spaciousness, yet gave one on entering them a feeling of comfort and security from the winds and rains outside. A cabin is a place to eat, sleep and take refuge in. The real life aboard ship is on deck.

They were also inclined to make those who used them like one big family, which then, as now, is the right spirit.

Another point carefully watched was the best use made of available space, this does not mean that all space should be occupied or that there should be any crowding, but that furnishings should be compact, whether there is ample space or not. A bunk with drawers underneath is more suitable than a bedstead and is really more comfortable, especially if the vessel is rolling, but where space permits do not have it too close to the upper deck and try and have it with a porthole somewhere along its length. There are few things in this world quite so pleasant as to lie in one's berth in the early morning watching the sunlit waves, when the ship is gliding over the summer sea, a gentle breeze wafting over one, feeling it is good to be just alive.

These ships used to have well holystoned teak decks with just a carpet runner or two and for the main saloon this is still the nicest fashion.

The inside of the skylight, beams and deck were painted white, to give as much light as possible, as there is no objection to this, the plan should still be carried out. Colors or anything to attract the eye here should be avoided.

The division of the available cabin space is worthy of more than passing mention. The ideal is to try

This Bath Might Have Been Less Gloomy if the White Had Been Carried to the Ceiling. If the Crew are not Properly Cared-For They Cannot Be Expected to be Efficient

and obtain as spacious an appearance as possible. This is best achieved by making the individual cabins rather on the small side, so as to have a larger main saloon, with a long vista. On a private yacht there should be no need to cut this up into dining rooms, smoking room, music room and the like. The cabin should be just big enough to comfortably house a berth with drawers beneath, a settee and washing arrangements.

My lady may need a boudoir, and if she insists, one supposes it will have to be provided. In the decoration of this, one must be more or less guided by the future occupant's taste, (if she has any) and here one may more freely indulge in light and fluffy accessories. Keep the seafoam, the cirrus clouds, the nautilus in mind.

In the design and decoration all through a simple and somewhat severe line and general style should be aimed at, with as a rule plenty of natural polished wood in evidence and a restrained use of simple ornamentation employed. Mirrors, (though to be used with restraint and discrimination ashore,) may be rather freely indulged in aboard, they lighten the place up and add to its apparent size.

Wood carving is entirely suitable, through it we get decoration that stays in place and does not seem to crowd us. For the same reason pictures should only be used after much thought, because unless rightly selected and placed, they have just the opposite effect.

The carving used should be different from that in a church or home. Here we do not want a Corinthian column, beautiful though it may be, but rather one with a wave for a motif. A seagull is sufficient to support a deck beam and shells and dolphins are more to be desired than *acanthus* or *caryatids*.

The best of the sailing vessel cabins had a coal burning fire place, and although steam heating is more effective and to be desired, the former adds a cosy note for the chilly evening.

Main Cabin of Miss Liberty. Light, Airy and Comfortable. As the Cushions are Light in Color, Slip-Covers Should be Provided for Bad Weather. The Stateroom is Well Arranged, but the Glass Knobs are too Pronounced

OUTBOARD POWERED TENDER

Yacht Mahapa

We all can't have the beautiful yachts
That cost a fortune to run.
An outboard, a skiff and a pleasant day
Will pay dividends in fun.

MARGARET III

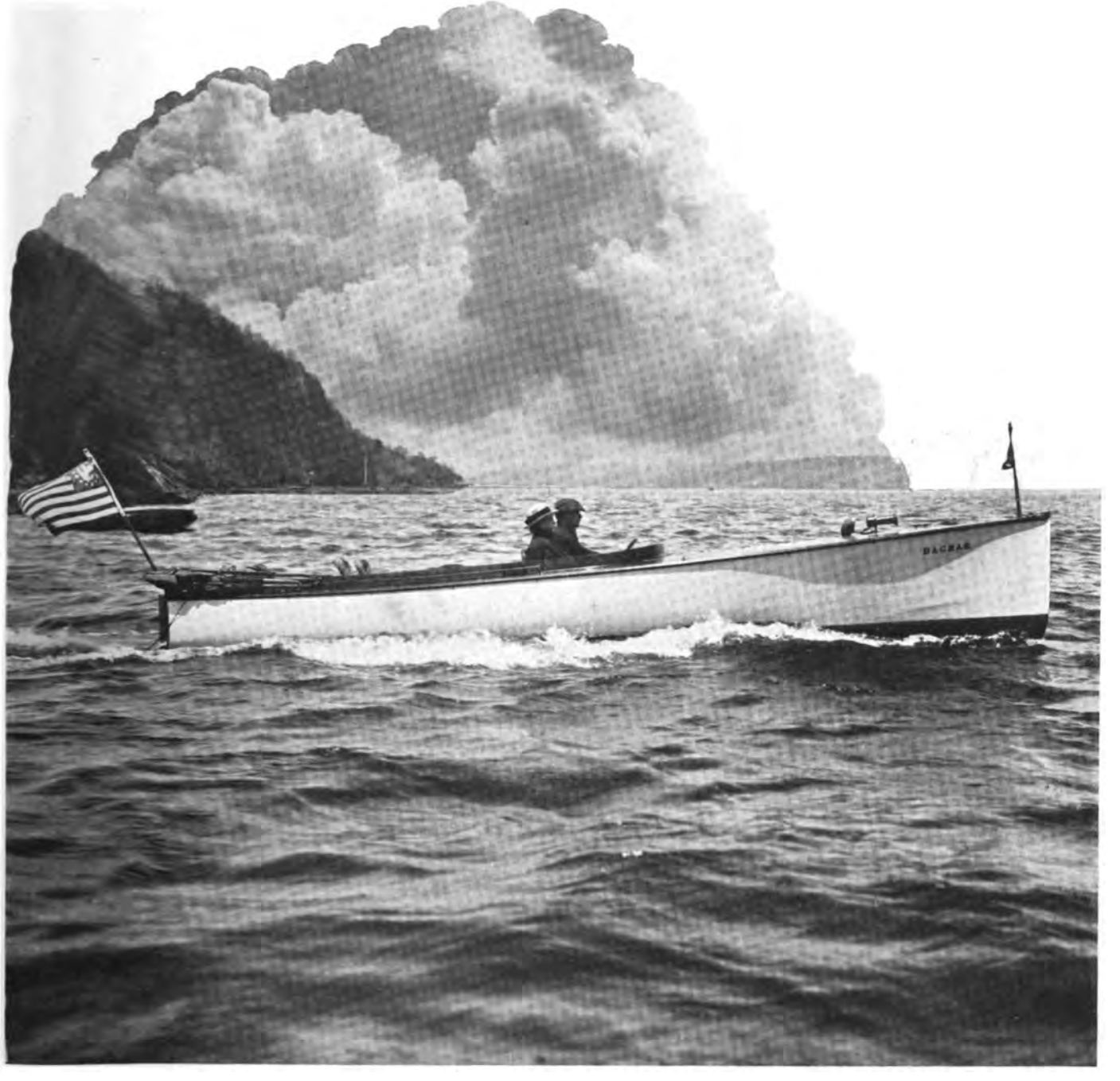
Champion Small Hydroplane

There's a roar and a bang,
A clash and a clang;
The wind and spray in your face.
The blare of the band;
The cheers of the stand
You win! You win, the race!

DAGMAR

For Those Who Like Speed and Comfort

It hasn't the speed of the hydro,
Nor the comfort of quarter-deck chair.
But a little of both, and, nothing loath
To take you anywhere.

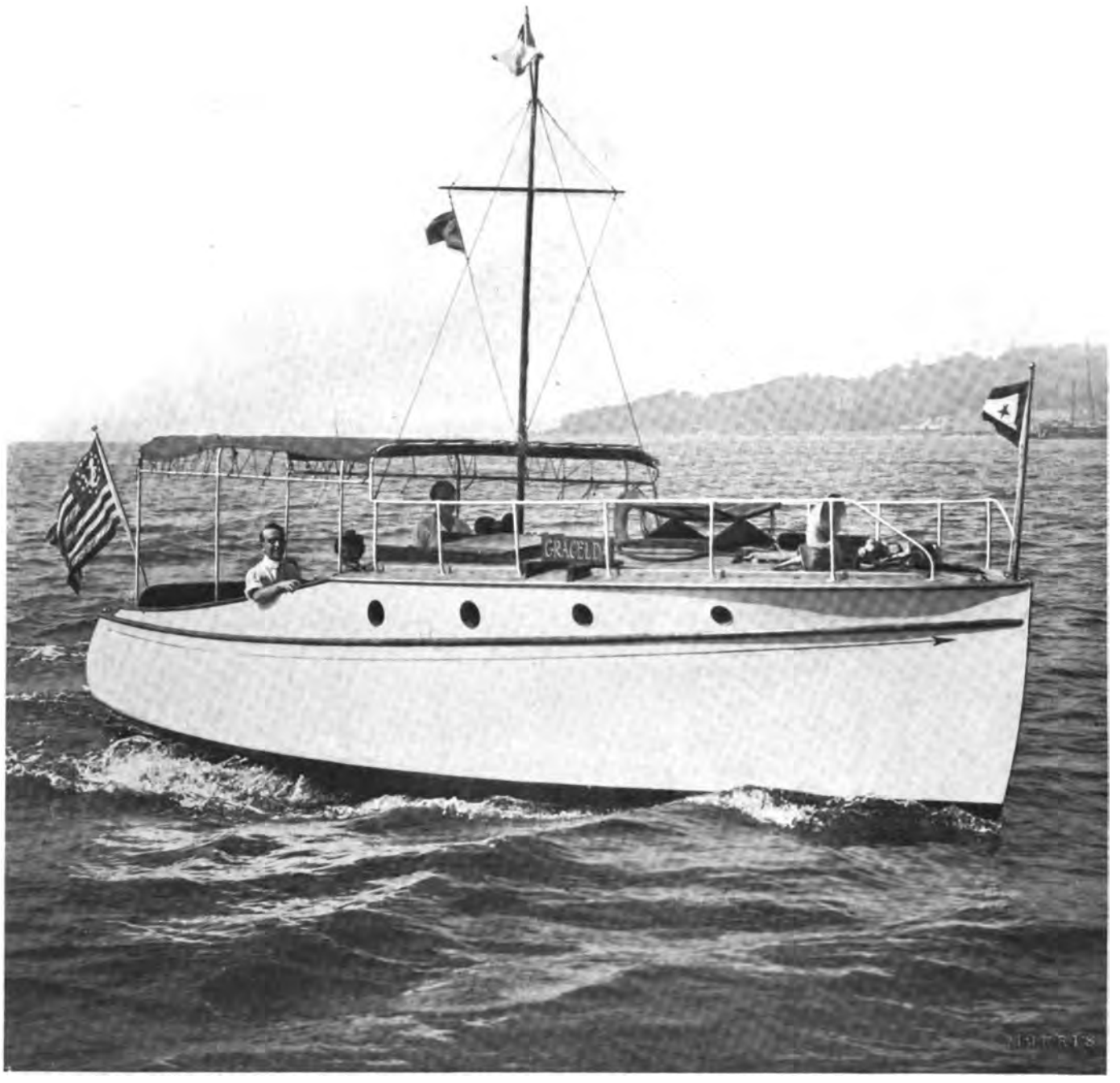


GRACELDA

Excellent Type of Family Cruiser

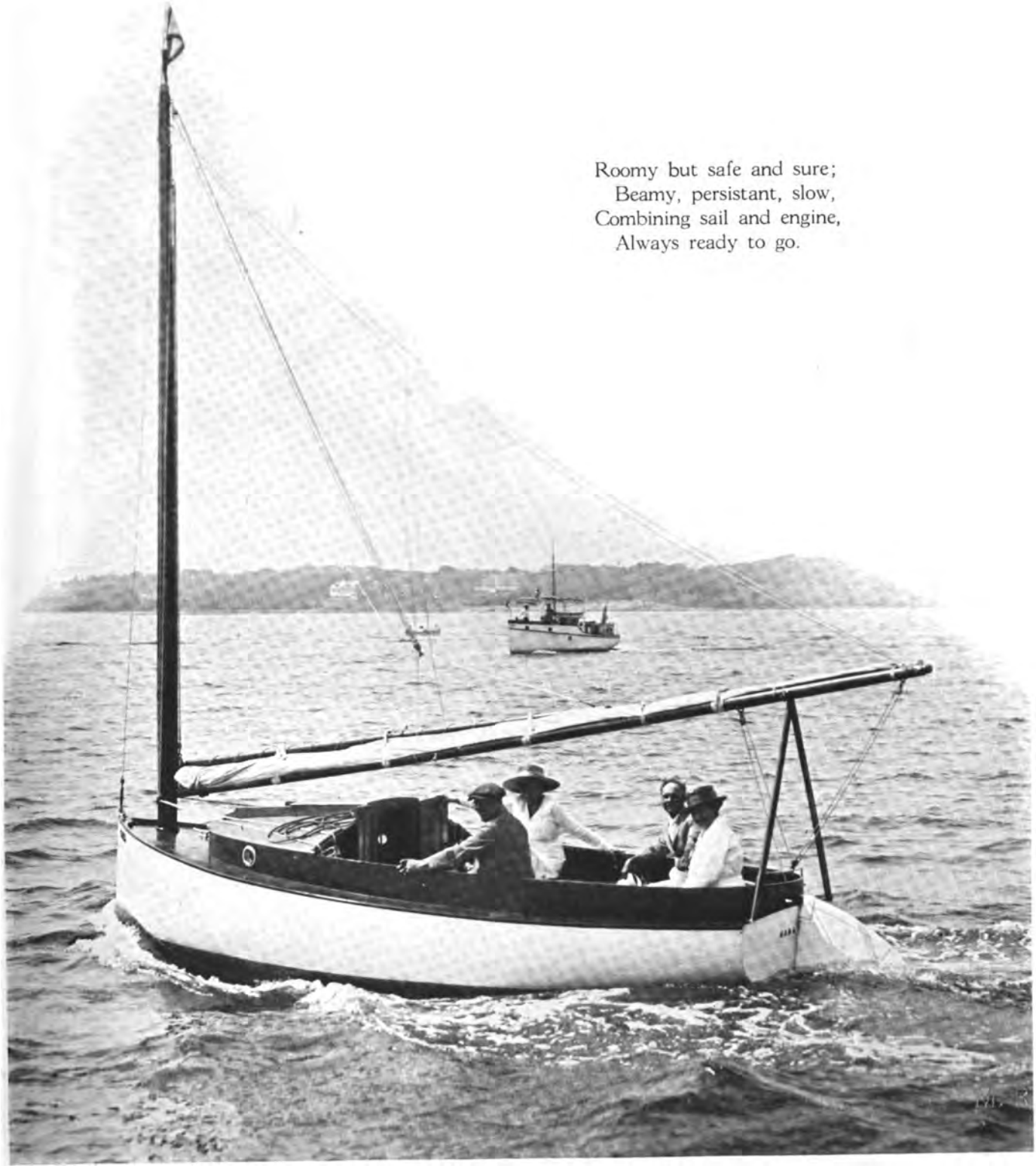
"Father and child and wife,"—
List to the cruiser's song.

Happiest days of your life
When you take the family along.



GADABOUT

Wholesome Auxiliary Catboat



Roomy but safe and sure;
Beamy, persistant, slow,
Combining sail and engine,
Always ready to go.

ALERA

New York Y. C., "Thirty"

There's the heel and thrill and the dash
And the song in the shrouds of the wind.
The tang of the air and the sting of the spray,
What more in this life can you find!

LADY MARY

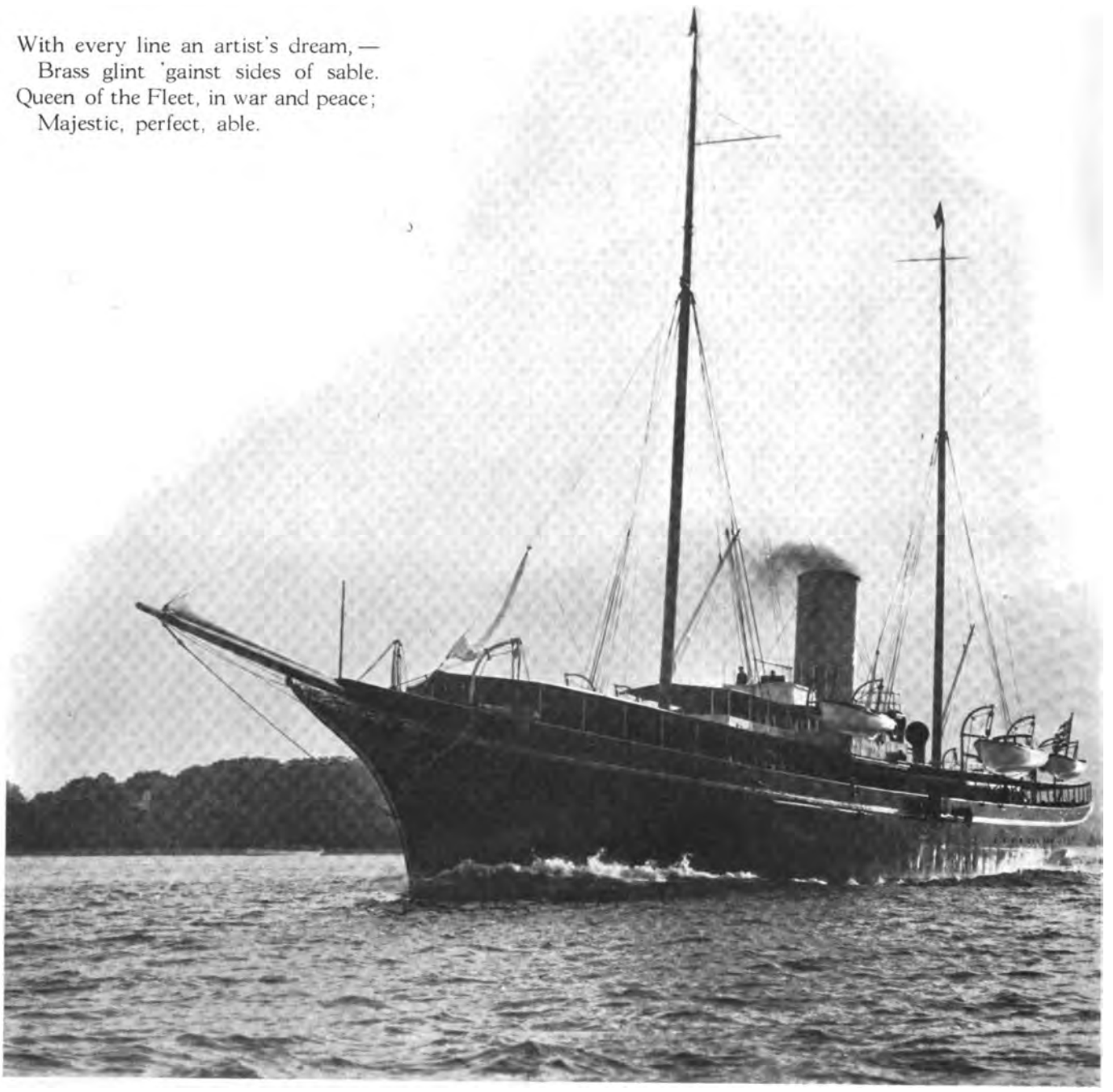
Ocean-Going Auxiliary

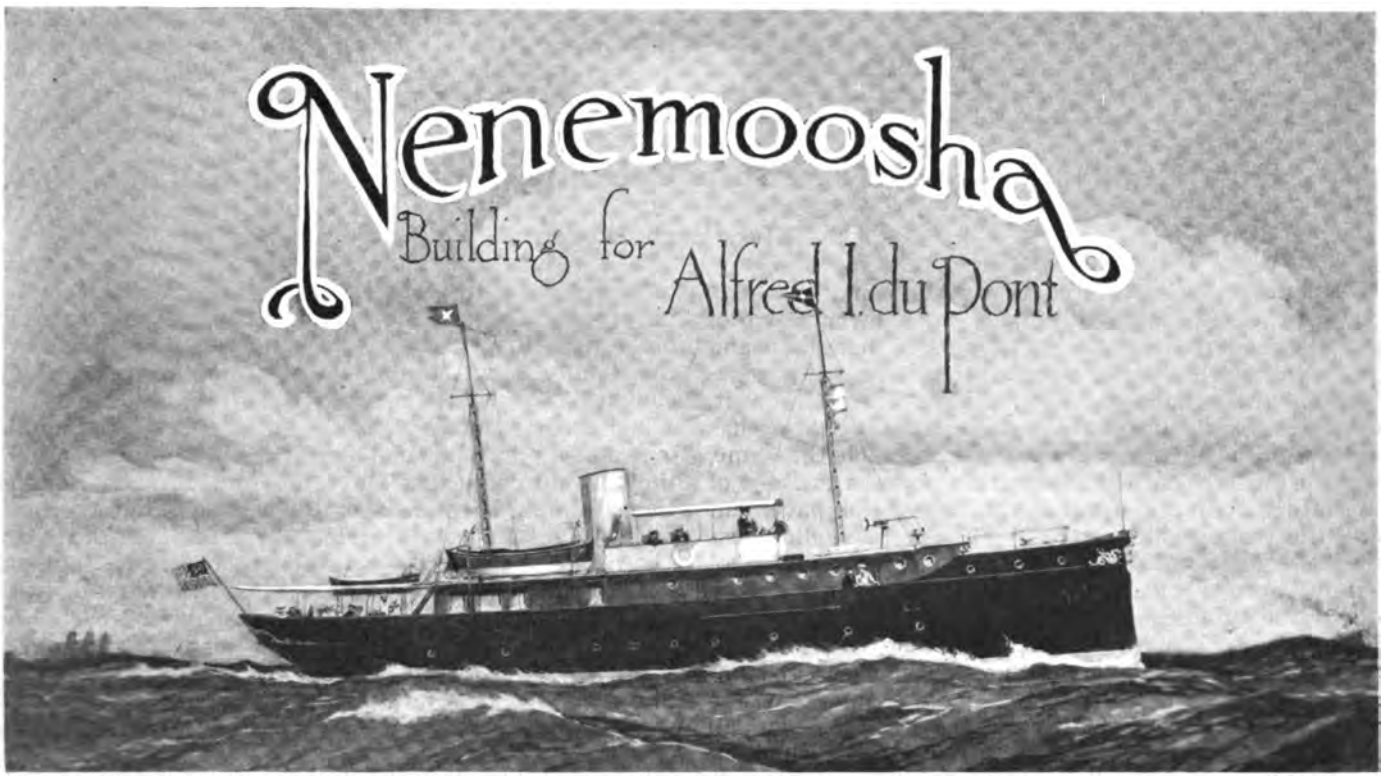
The ports of the Indies are open;
White reaches of coral strand.
Or the icy coast of Labrador
With Aurora on either hand.

CORSAIR

Most Famous of Steam Yachts

With every line an artist's dream, —
Brass glint 'gainst sides of sable.
Queen of the Fleet, in war and peace;
Majestic, perfect, able.





THE American Car and Foundry Co., at their Jackson and Sharp plant are constructing one of the most unique yachts which have ever been built. This new boat is to be called Nenemoosha and is building for Alfred I. duPont of Wilmington. The designs were drawn by Edward R. Carroll of Camden, N. J.

Nenemoosha is an excellent example of the trend in the science and art of yacht design. It is only a few years ago that a boat of the type of Nenemoosha would be looked upon as a freak. Yachts of those days, having as much room as this boat were at least 50 percent longer and required large crews. Modern yachts are coming more and more towards the houseboat type, and, aside from some fast express and ferry yachts, practically every yacht built during the last two years has been of the roomy, comfortable, semi-houseboat type.

Designers have found that it is possible to give a yacht the room of a houseboat without the boxy appearance and the unseaworthiness of the old-fashioned flatbottomed houseboats. These new boats, of which Nenemoosha is a type, are quite capable of going off for long cruises in any weather. The quarters for owner and crew, are equal to those provided in larger steamers and the cost of operation and upkeep is only a fraction of what the old time craft required.

In designing Nenemoosha a great many novel features were provided for the comfort of owner and crew. In the first place the owner's quarters are entirely on the main deck where light and air can be provided in the best fashion. The lower deck is taken up with the tank spaces, officer's and crew's quarters, machinery and galley. In the fore end of the main deckhouse there is an immense owner's stateroom with private connecting bath. This room is lighted and ventilated by means of ports on the sides and end. Next aft comes a pair of staterooms separated by folding doors so that the two rooms can be thrown into one if required. There is also a toilet and shower for these rooms.

The pantry takes up the next compartment aft, connecting with the galley on the lower deck. The feature of the deckhouse is the immense living room which takes up the entire after portion of the house. This room was designed by Carrere and Hastings, the famous New York architects. Large plate glass windows surround this room so that it can be used for observation as well as dining and lounging. The quarter deck is long and protected above by an awning and on the sides by high bulwarks. Here, in pleasant weather the social activities will center.

The bridge deck is arranged above the pantry space and provides an excellent navigating station as well as a social center in good weather. As the boat will be used for canal work at times the two military masts which carry the radio antennae will be arranged to fold down on deck. The after part of the upper deck is taken up with the two Universal-powered tenders. The plans of these boats are shown in the Designs section of this issue.

The machinery consists of a pair of 120-h.p. New London Ship and Engine Co., Nelseco Diesel engines turning Columbian propellers. The tank capacity is enough to give the yacht a cruising radius of 5,000 miles. Electric lighting, and power for the Hyde electric boat hoist, the American Engineering Co., windlass the Lebby searchlight and the Strombos horn is provided by two Universal generating sets.

Nenemoosha is now nearing completion. Her main dimensions are, length over all, 97-feet 6-inches Breadth, 17-feet 0-inches. Draught 4-feet 0-inches.

From Sandy Hook to Delaware Capes

How New Jersey Looks From the Ocean to the Small Boat Cruiser

By Mrs. Ezra Bowen

IT took me twenty-three summers to find out what the Jersey coast really looks like. Twenty-two of those summers were spent at one of her thousand summer resorts—a town strung out on a narrow island in lower Barnegat Bay. When I first knew it, the island could boast twenty-five trees. Now it has ten. Otherwise the scenery remains much the same. One of those cherished aspen trees perched in front of my father's cottage, between the wavy brick pavement and the wide, pebbly street. The glaring yellowness of this street was somewhat mitigated by a patch of sandy, burned out grass, which rambled carelessly down the middle. Our house was one of a row of large shingle structures built according to a form of architecture known only to the confirmed Jersey summer resorter. Its most distinguishing mark was a tower, rising triumphantly from the roof—set all round with colored panes of glass, and finished off by a lightning rod with a ball and a spike on top.

It was not, I repeat, until the twenty-third summer that I came to see this town from the ocean. Before that, I had sailed my sneak-box into every cove and onto every sand bar in Little Egg Harbor, but I had never been "outside". My four brothers, all much older than I, had departed for many short cruises in the family yawl—but I was only a girl; no, they couldn't take Kate cruisin'. Often in my sneak-box I had escorted them as far as Bond's Cove, (I could cut across the flat and beat them, too) but there they would catch and leave me, and pass on beyond Cedar Marsh, beyond the Point of Beach, out to those wide wastes beyond the Inlet where I so longed to go.

"I Had Sailed My Sneakbox into Every Cove and onto Every Sandbar in Little Egg Harbor"

And then I married a seaman, a real deep seaman, —although he is a college professor in "civil life". We boarded our ketch in Portland Maine—the C.D. B. She was my first keel boat, thirty-six feet over all, with an auxiliary engine, and she drew six feet. She was heavy built, and carried three thousand pounds of lead ballast. Designed on the lines of a Gloucester fishing schooner, painted black, she bore about as much resemblance to a New Jersey yawl as a Chinese sampan bears to a Hoboken ferryboat. We sailed her down the coast; the professor was captain, I was crew. Together we learned the thrill that comes when you sail out the Inlet and catch the first deep roll of the ocean swell, and the contentment that comes when at evening you enter the quiet waters of a snug harbor—when you hang up your anchor light and go below to the bright warmth of the cabin, to smoking hot food out of the all sufficient frying pan.

The C.D.B. was designed by Hand, the naval architect, for his own use in deep sea cruising. Flush deck, with twelve feet of beam, she stood up nobly in heavy weather—and, I may add, was never clumsy in a light breeze. She was built by the Portsmouth Construction Company. Six feet of headroom in the deckhouse,—where were roomy cupboards, lockers, a dropleaf table—gave me, the cook, ample comfort in cooking and serving meals. C.D.B. was provided with a Shipmate range, of which we were very proud, but which, on reaching warmer waters, we were forced to dispense with in favor of a two-burner, blue flame kerosene stove. This we found entirely satisfactory. The toilet was in the forecastle, and there was room there for a bunk. In the waist of the boat were our two berths—with the luxury of springs—and under each berth a sixty gallon tank for fresh water. Further aft, under a removable skylight, was the engine, a Fay and Bowen, one cylinder, 6-h.p., make-and-break ignition. Although captain and crew are sailboat people, who at one time scorned the combination of sail and engine, on our long trip the engine was to afford us substantial comfort. In fine weather we let Fay and Bowen sleep, even with a head wind, preferring quiet sailing to the few extra miles an hour she could give us. But she rescued us from more than one flat calm, once or twice from battering winds which no amount of reefing would take care of; she enabled us to make many a sheltered anchorage to which we could not possibly

have manoevered by sail alone. Canals, rivers, inland short cuts would have been closed to us without her. But the greatest value of the engine lay in the very fact of her existence; we knew she was there, ready to rescue us from storm or calm. In consequence, we attempted and achieved longer runs than would otherwise have been possible. For two sailors who want to go to sea without an extra man aboard, let us recommend, for handiness, comfort, and security, the auxiliary yawl or ketch.

Plymouth, the Cape Cod Canal, Buzzard's Bay, Newport, the Sound. One night spent at College Point (the captain's entry in the log reads, "College Point looks, acts, and smells like Southeast Philadelphia") —one night at College Point, and then the Hell Gate. It was a gray day in late August when we skirted Ward's Island; the wind blew in our faces in fierce gusts; we swept through the Hell Gate on a swirling, boiling tide of brown water which threw our poor peanut shell until she skidded like an automobile on wet asphalt. We passed Blackwell's Island, with the prisoners mowing the grass not fifty yards from us; the barges tied back of the Island pulled and tugged and swayed on their lines. Over our heads towered, one by one, the span of three great bridges, until we found ourselves in wider waters, dodging between tugs, steamers, barges, ferry boats—all the bewildering traffic of New York harbor. More than once had I passed out of those waters on the decks of an ocean liner, had marveled at the magnificence of New York's skyline, had waved goodbye to the Statue. But now the harbor seemed another world, a terrifying world, peopled with all manner of huge craft which threatened us, shrieking with steam whistles as though indignant that our little sail boat should dare to follow through to that deep channel dug for the steamers of many oceans. One lumbering ferry boat darted at us from her slip; she was painted red, and her two decks yawned snarling like the jaws of some monster gaping wide to swallow us up. I was steering (we had decided the New York skippers might be more merciful about running over us if they saw a girl at the wheel, and as I looked up at the rows of people gazing at us from the lower deck of the ferry, I thought that this was the end of our cruise, but in mid attack the monster's paddle wheel stopped suddenly and we escaped under her bow.

So we passed southward and left Brooklyn behind, and Governors Island, and Staten Island. Off Coney the sun came out, and the red buoys of Ambrose Channel flashed and danced on the deep blue, the rolling, heaving swell of the Atlantic. At sundown we anchored just inside the curve of Sandy Hook.

That night I began to discover my Jersey coast. On the chart the Hook had beckoned with a crooked finger which seemed to make a sheltering cove for small boats to find refuge overnight; but the reality was very different from the chart. All night we rolled and banged and tossed and rattled. And mosquitoes came upon us, for we lay within fifty yards of the shore, between the jetty and the first of the stiff yellow houses that constitute the military post of Sandy Hook.

When we woke it was calm. We had a long day before us, so we breakfasted hurriedly but rapaciously by lamplight, (it had been too rough the night before to attempt any cooking) and we beat out of the harbor in a misty dawn. As we rounded the point with the early fishermen, the stars and the Sandy Hook lights disappeared together. The sun rose, and with it there sprang up a vigorious northwest wind; just what we had prayed for to carry us down to Barnegat. The fisherman passed us in their powerful power dories—nearly all of them hailed us. They always grinned when they saw me at the wheel—I suppose it was the last place they would have wanted their wives to be.

"Put out your light, Captain!" shouted one of them, laughing, and I shamefacedly turned the wheel over to the real captain and ran forward to take down the anchor light, which I had forgotten in the excitement.

There was cause for excitement, real excitement, and plenty of it. We were headed south, for that very island where I had spent so many summers with my brothers. Before nightfall we were to anchor in that narrow channel just off the old dock—every stake and turn of which was as familiar as my own five fingers. And I was to sail in, not as Little Sister, not as a mere Girl, but as a part owner of a boat with a six-foot keel, a real seaboat which could just laugh at anything in Barnegat. We had come six hundred miles—outside—and we were to enter Beach Haven, not on the four-thirty from town (how many afternoons had I greeted my father and oldest brother as they stepped from that train!)—not on the four-thirty, not by the new "automobile road", but from the sea,

"To My Brother, the Sea was Built for Fish and Fishermen. His Small Son Inherits these Tendencies"

from those great deeps beyond the Inlet where in other days I had never ventured.

Hour by hour, as "C. D. B." ate up those hundred miles which lay between Sandy Hook and our destination, I watched the unfolding of that flat, sandy ribbon which was New Jersey. And she was whiter, and flatter, and more glaring in the sun than I had ever dreamed. Except Spring Lake, which was pleasant with rising ground and green trees, the town afforded no relief. Asbury Park, Point Pleasant, Bayhead,—rows of shingles on stilts almost falling into the ocean; blinking and staring at us like so many giant sand fleas turned impertinent. We sailed close inshore, making short detours to avoid the fish nets staked out at intervals of a quarter mile or so. Seeing these nets, I began to understand why there were no more bluefish to be caught by casting from the Jersey beaches.

At three o'clock we passed Barnegat Light—the houses on shore straggled few and far between; then came a succession of summer colonies of a dozen or more bungalows, and we sighted the water tower, the gas tank at Beach Haven. As we drew near I noticed on the shore a column of black smoke traveling with us. A long, shrill whistle sounded. It penetrated the very marrow of my bores.

"Ezra," said I, "its the four-thirty!" The tremendous significance of this remark was lost upon the captain. He grasped the wheel from my hands and gave it a rapid twirl.

"For goodness' sake look where you're going Kate!" he said. "If you want to see the people on the beach get the glasses. Don't run right up on the boardwalk. I should think by this time you'd know there was a bar here—didn't you tell me you used to swim out to it?"

Off Sandy Hook. "We Rounded the Point with the Early Fishermen"

"Designed on the Lines of a Gloucester Fishing Schooner, C. D. B. Bore About as Much Resemblance to a New Jersey Yawl as a Chinese Sampan Bears to a Hoboken Ferryboat"

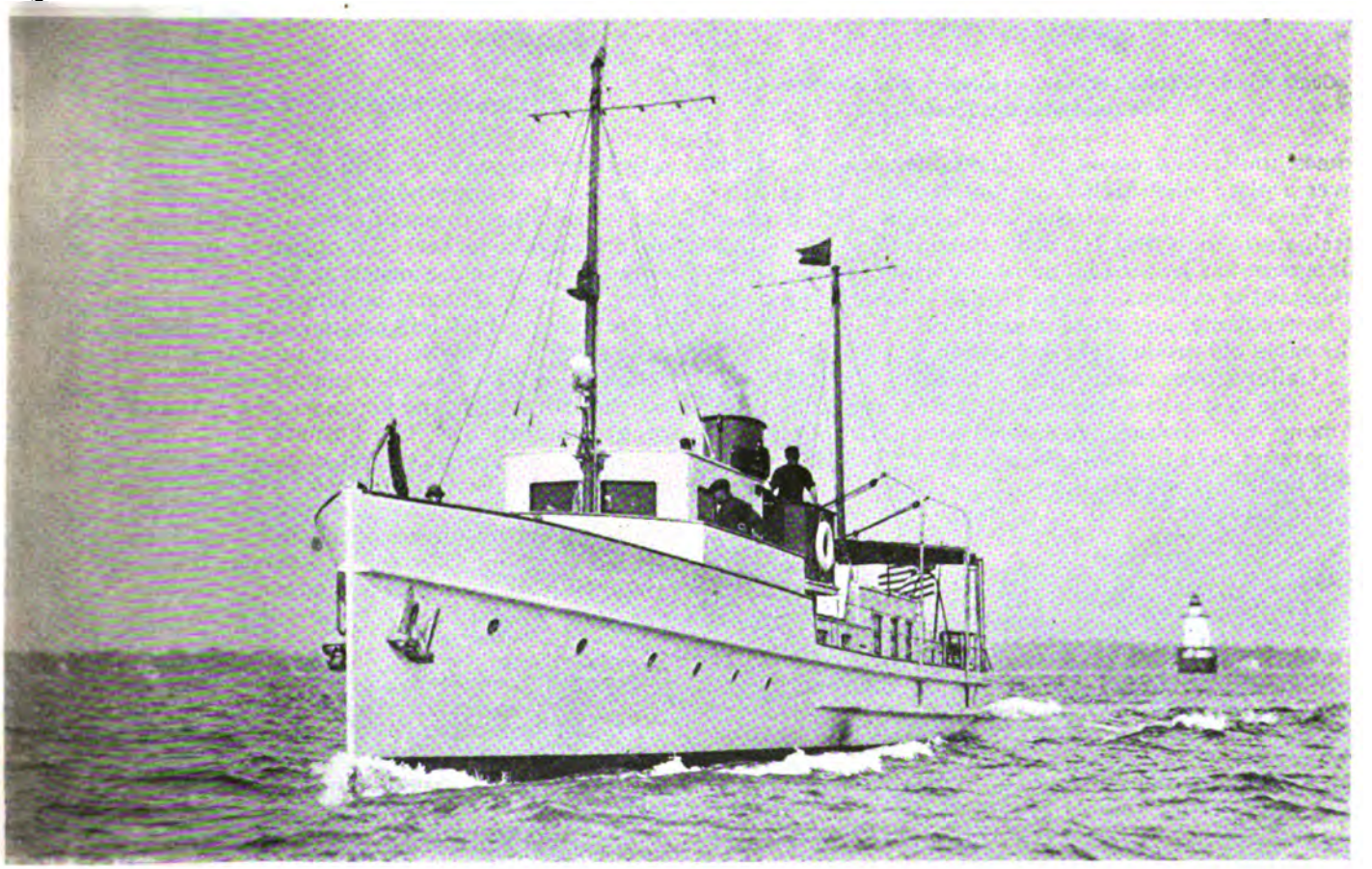
"It looks different from this side," I ventured weakly, but I ran below for the glasses and scanned the thickly clustered houses beyond the beach for a familiar brown tower. It should have been visible from where we were, but although there rose many towers; white, yellow, red (that was the Burnham's next door) I could not find my own. Three miles beyond Beach Haven proper we passed the Life Saving Station; another mile, and we rounded the first black and white channel buoy—all according to the chart; turned sharply westward, and made for the narrow Inlet. Just ahead of us we saw one of the Beach Haven catboats returning homeward with a fishing party. She cut inside the buoy, headed straight for the Point of Beach, and disappeared around the corner into the Bay—not at all according to the chart.

The captain watched her, puzzled.

Well," he said, "I guess she's taking a short cut. It's high water, but we'd better not try any stunts with six feet of keel under us. We'll keep to the chart."

Bump, scrape, bump—threatening yellow patches of water ahead—for ten agonizing minutes we bounced and slid over the bar. This was not exactly a triumphant entrance, I thought. But the catboat was far ahead; no else was in sight to bear witness to our shame, and we intended to keep dark all records of this performance. One more hour of easy sailing down the bay, and we anchored just off the channel leading between reedy marshes to the dock.

[illegible]a, Owned by Charles L. Harding and Designed and Built by Lawley. She is 56 Feet Long and 11 Feet 3 Inches Wide. Her Two Six-Cylinder Sterlings Drive Her about 24 Knots



Faith, Owned by Irving E. Raymond, is a Remarkable Yacht. She was Designed by Alden and is Equipped with a Mianus Heavy-Oil Engine of 60-H.P. The Operating Cost is 8 Cents per Mile. She is 77 Feet Long, 13 Feet 8 Inches Wide and Draws 6 Feet. Her Plans Appeared in March, 1921

The Galley Stove

THERE'S a chill wind and a drizzle of rain. Huddled in oilskins in the lee corner of the cockpit you wonder just where the joy of cruising comes in. For any sum over 15 marks you would chuck the whole business and go home by train. Just about then the aroma of good Java, accompanied by the sizzle of beacon seeps out through the companion slide. Life takes on a meaning. Your animal instincts come to the fore. You are to be fed!

Plop-r-r-r-r, goes the anchor! You slide down the steps, shuck the oilies and worm your rather damp knees under the corner of the table. Cookie slides over a plate piled high. Gee but cruisin's great!

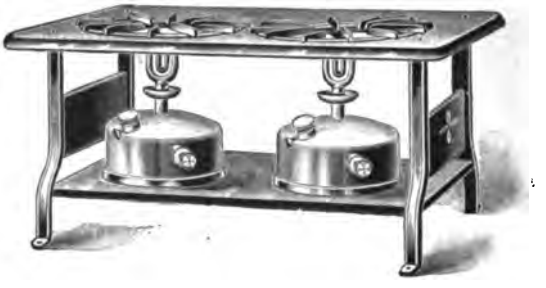
Coal, Wood, Charcoal, or, with an Adapter even Kerosene Can be Used with this Range

Some one has said that civilization started when prehistoric man first learned to make fire. Since that time man has learned no more important lesson. Fire, today is the same as it was in the beginning. It may be a hotter flame, and more conveniently kindled, but its the same old product of combustion.

Galley stoves can be divided into four distinct classes. The first is the stove of the miniature range type. Among old cruising yachtsmen this is the type of apparatus held in the highest esteem. A small range will burn coal, wood, charcoal, or, if a special fitting is used; kerosene, it will roast, bake, fry or broil in a remarkable manner, and, on cool days will heat the cabin. Banked over-night it will keep the cabin warm on those late Fall nights when you are wringing the last few hours of pleasure out of the boat.

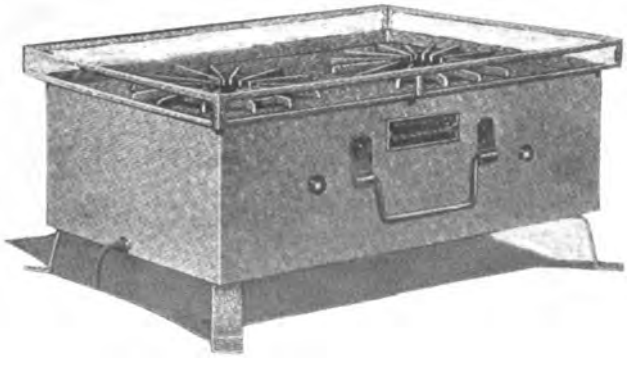
The gasoline stove is rapidly making many converts. The fuel is always at hand from the engine tanks. The flame is very hot, there is no soot and the entire stove is light and small. Space is a very important item in a small cruiser and large stoves are sometimes inconvenient. On a gasoline stove of the type shown it is possible to regulate the flame exactly the same as would be possible on the gas range at home.

Another stove which is advocated by many cruising men is the solidified alcohol type. As far as simplicity goes these stoves are about the limit. Safety is another point of importance in which they excel. The fuel is contained in small cans, a supply of which can be carried in a locker. To operate the stove all that is necessary to hold a match at the surface of the fuel. When cooking is done the flames can be put out and the remaining fuel left for the next meal. The heat can be regulated. No matter how the boat heels or rolls, the solidified alcohol cannot spill.



Kerosene Stove of the Torch Type

A fourth type burns kerosene in a sort of plumber's torch arrangement. The burners must be primed at first, and then, when the oil tube has become slightly heated the kerosene is turned on and vaporized into a gas. A slight amount of air pressure on the oil font is maintained by means of a small hand pump. Any of these gasoline, alcohol or kerosene stoves can be fitted with an oven for baking or a drum for cabin heating.



Gasoline Stove Which Can be Used Like a Gas Range at Home

This Stove Burns Solid Alcohol, Safe and Quick

Some Views of Half Moon, Ex-Germania

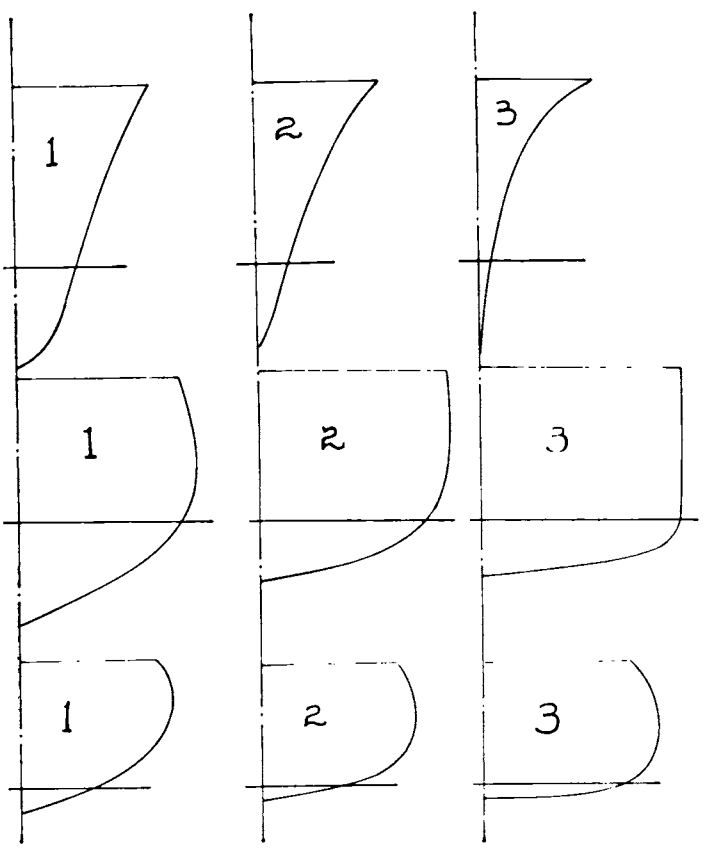
This Yacht, Formerly the Property of the Kaiser is Now Cruising with Her New Owner, Gordon Woodbury. During a Terrific Storm off the Atlantic Coast a Portion of the Crew were Swept Overboard and then Returned by the Next Wave. One Man was Lost. Amongst the Guests on the Trip was Charles Francis Adams, Skipper of Resolute

Seagoing Boats

THE term, seagoing, is susceptible to many definitions. The yachtsman who lives on an inland river often speaks of the action of his boat in a "sea." What he really means is that the water, considering the size of the river was rough. What is a heavy sea for a flatbottom skiff will be almost a flat calm to a larger boat. In this article we are going to talk over the shapes of hull most to be desired on boats that are to be used more or less in open water; either the ocean or some of the Great Lakes or exposed harbors and Sounds.

In the drawings below you will see three bow sections, three midship sections and three sterns. These sections are fairly typical of types intended for smooth, broken and rough water service. We make no claim that these sections show the only shapes desirable for the different services, but we do say that the sections numbered 1 will be better in rough water than those shown as 2 and 3. Number 3 is the shape found on many power boats of the cruiser and runabout types. As a rough water proposition such a boat is very bad. Fig 2 shows a boat intended more for general cruising conditions, and number 1 a boat for real open water work.

In the first place the chief requirement of a seagoing boat is that the draught be enough so that the hull will sink into solid water and not simply float around on the top. On any body of disturbed water you will find that there is a layer on the surface that is more disturbed than the water a foot or so deeper. The shoalboat floats about in this surface water the prey of every movement and, by not having a proper hold on the water, in danger of being blown sideways if the wind is at all strong. The deeper boat has sufficient hold on the water so that being blown off the course is prevented to a great extent.



Forward, Midship and After Sections of Three Types

As comfort is an important item, it must be given due consideration when designing a rough water yacht. The flat sectioned craft may be fast and may have a good deal of cabin width, but in a seaway all of this will be forgotten on account of the quick roll, the savage recovery and the pounding of the hull. Take the narrow bow section with the extreme flam near the deck and imagine it in a sea. The lack of a gradual increase in the sectional area means that she will plunge deeply into a head sea until the quick flam near the deck becomes immersed. The area increases so quickly that the downward motion is arrested almost instantly. The savage jerk is felt by all on board. With the bow section shown as number 1, the increase in area is gradual. Such a bow will plunge slowly and recover slowly.

The same thing applies to the sterns. When a following sea gets under number 1, part of the water will be split to one side while the rest will gradually lift the after portion of the boat. With a stern like 3, the wave will lift it high, leaving it suddenly to fall into the trough with a shock that almost knocks one off their feet.

Much rot has been written and spoken on the subject of roll. Many men boast of the fact that their boat does not roll to any extent. Such craft are mankillers when offshore. To be comfortable a boat should have a long, slow roll. Movement cannot be helped in rough water. It is far better that the necessary motion be slow and easy than it is to have it in a series of sharp, snappy jerks that try the soul, to say nothing of the stomachs of all hands. If it was possible to design a small boat that would have no motion except the one ahead, she would be an impossible craft to live aboard in rough weather. Instead of giving with a wave, she would allow the wave to strike her the same as a breakwater. She would live, so to speak, in her own surf. Every wave would break over her.

In stowing ballast in a rough weather craft this slow rolling is a most important item. If all the weight is placed over the keel and as low down as possible the roll will be quick. Spread the ballast out towards the bilges and the motion becomes slower and longer. In some cases it has been found that yachts are more comfortable in rough water when the tenders are swung outboard on the davits and partially filled with water. To many people such a move would seem the worst possible. Stowing ballast in the bilges, and placing tanks up under the side decks has the same effect.

Some Notes on the Uses of Gear Reduction

By E. Weston Farmer

THE growing use of gears as a medium whereby greater efficiency of propeller and engine is obtained, prompts the writing of these observations on the design and installation of such types of transmission.

The recognized success of a few boats, many boats, in fact, which have used gear transmission of power to the wheel will have the effect of seeing this type of installation in more and more hulls of suitable type. Any engine installation nowadays is one of highly developed, carefully laid planning, and only such men as are familiar with the marine type of gear transmission should be entrusted with the work of planning it out. It is a job for a specialist—one who has made a study of the problem—for no man is expert on all things and rough-and-ready job by a country blacksmith will court certain failure.

To begin with, the boat may not be a type adapted to the use of gear-reduction, because the idea of using gears as a medium of transmission has its inception in one of the four following problems of installation:

1. To make use of the very efficient power of the high duty engine in a heavy hull, which would not be suited to high wheel-speed.
2. To save the weight and space occupied by a heavy engine in a heavy hull.
3. To secure desired balance and high wheel-speed in the higher speed hulls; as for example, the displacement racer and hydroplane.
4. To combine the power of two or more engines on a convenient number of shafts.

A well chosen, solidly mounted, properly designed gear-box will do any of the above things and do it silently. It will offer other advantages, too, somewhat secondary to the above. For instance, less power (for a heavy type installation) is needed because if a heavy duty motor were coupled direct with the propeller the motor would be larger, and would be very much heavier. Increased displacement would have to be provided for this extra weight, and if the lines were kept fair the design would be deeper, or wider, or longer, and therefore the engine would be required to be of greater power to shove this extra weight along. This greater power would result in a greater consumption of fuel.

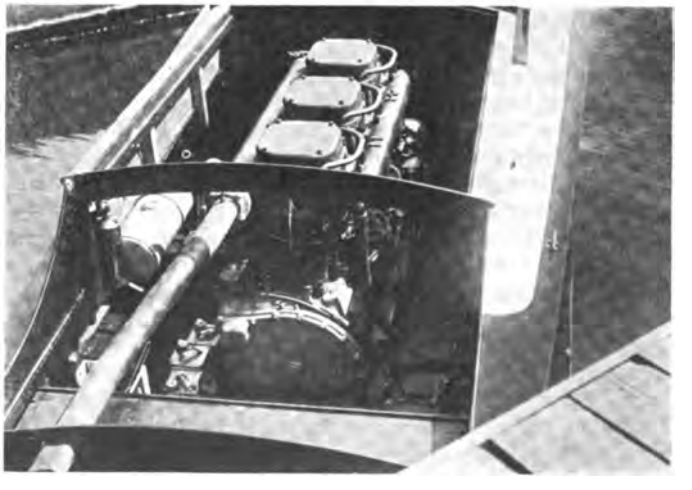
Moreover, the speed flexibility with a small motor and reduction gear is very much greater than with a heavy duty engine. A marine steam engine can start under any load it will subsequently carry, and will throttle again to bare movement while carrying this load. It is the acme of flexibility. The gasoline engine, though, has a minimum r.p.m. very much greater than that of the steam engine, and this handicap is cut in half with gear-reduction, while the maximum r.p.m. is about the same for the heavy and high duty types of engine.

The above advantages are merely secondary. As to the main reasons for the use of these plants in heavy boats such as cruisers, tugs, and particularly auxiliaries, they are as stated previously; briefly, to make use of the very efficient power of the high speed engine, coupled with the effectiveness of a large, slow turning wheel.

We venture to say that the high duty marine engine of today is very nearly as long lived per horse power-hours as her heavier sister. Be that as it may or may not be, certainly, from the standpoint of fuel economy she is more efficient by far. The first cost in the higher powers is less by hundreds and hundreds of dollars for equal quality and reliability of design. These are all outstanding considerations, and there are others of a particular nature.

In the auxiliaries, particularly, space is a valuable consideration in favor of gear-reduction. One may get much more boat in a given length because the power plant can be tucked away toward the lazarette, under the cockpit flooring, or elsewhere, where the use of a very much more bulky engine might hamper accommodation arrangement by the necessitation of a separate space for accommodating the engine.

The third reason under consideration is the use of gear-reduction with light, fast boats. Simply because one fast hydroplane uses gear-reduction is no sign that all hydros equipped with gear-boxes, bicycle chains and what not, will be fast or even mildly satisfactory, for here in this case in an element which is not so important in slower boats. This item is friction. With the heavy boat installation this does not enter greatly for the economy of fuel consumption and the saving of weight and space more than make up for the slight loss of power entailed through the use of gears. But in the hydroplane, with engines of equal piston displacement, and in many cases of identical design, speed is the only thing sought. At speeds from 40 miles down, the powers are somewhat limited, and as a reduction-gear may absorb between



An Example of the Compact Installation Possible When Gear Drive is Used. Sterling Engine Installed in Stern of P. D. Q. VI. Speed 45 Miles per Hour

1.5% to 3.0% of the power the consequent small loss of power may make all the difference in the world.

After much study we have come to the following conclusions concerning the adoption of gear-reduction in hydroplanes: with the present day engines available, classed as to weight, power, and r.p.m., in the classes of 705 cu. ins. and under, the boats having direct drive are favored as to speed. With hulls having engines of 1,000 cu. ins. and over, the benefits derived from gear-reduction become manifold and favor those hulls as to speed.

If you stop to analyze the purely logical, physical action, the question soon resolves definitely. With boats below 705 cu. in., the power, weights, and speeds are not great. To get the utmost efficiency is the main problem. From a superficial standpoint alone, the weight of the gear-box should handicap speed a trifle, though in actual practice we doubt if this works out. However, there is one thing correlative with efficiency in such classes and this balance By eliminating the gear-box and its weight and using the direct drive, the weight is concentrated more toward the forward step, which is about half again as efficient as the aft step at lower speed because it works in undisturbed water.

This putting of the load on a more efficient surface in what turns the trick, and since the fore and aft stability and absence from jumping is more inherent at low speeds, the decrease in stabilizing surface of the aft step, caused by a removal of the load, is not missed one bit. (The sole purpose of a well designed aft step is to insure fore and aft stability—to eliminate the "gallop" of a rocking horse). So the benefits resulting from this direct propulsion are the putting of the necessary load on a more efficient surface and the elimination of much unnecessary drag.

One argument on which we seem to stand alone is the question of just how much benefit is derived from high propeller speeds, which is one heavy argument where geared hydro drives come in. Lately however, the results obtained from such boats as Cadillac IV and Baby Gar furnish still greater evidence of the soundness of our contentions.

We have proven to ourself, time and time again, that after certain speeds are reached, the quantity of reaction rather than the quality, the velocity of the propeller stream, is the determining factor in performance. This accounts for the effectiveness of Hickman's surface propeller to a large degree, and in almost every case, it is possible to increase the wheel speed and stream velocity in more rapidly increasing ratio than slip, up to such tremendous speeds where frictional disturbances intervene. The limit of this is reached at around 3,000 r.p.m.

Now, by virtue of this, our argument concerning boats over 1,000 cu. in. piston displacement in substantiated. Such engines and hulls have considerable power and speed. The hull may be assumed to be incapable of further improvement in balance and refinement and attention is turned to the propeller question. With such tremendous power, the percentage of power required to drive a reduction-gear (should more properly be called a step-up gear in this case) becomes a negligible part of the whole, and that which is lost is more than made up by propeller results.

Also as speeds increase the tendency to jump and the need for fore and aft stability increases, which is very advantageous in this case as the main weights can be divided between the fore step and the aft step, which has grown more efficient with the increase in speed, and the engine and crew are placed nearer together.

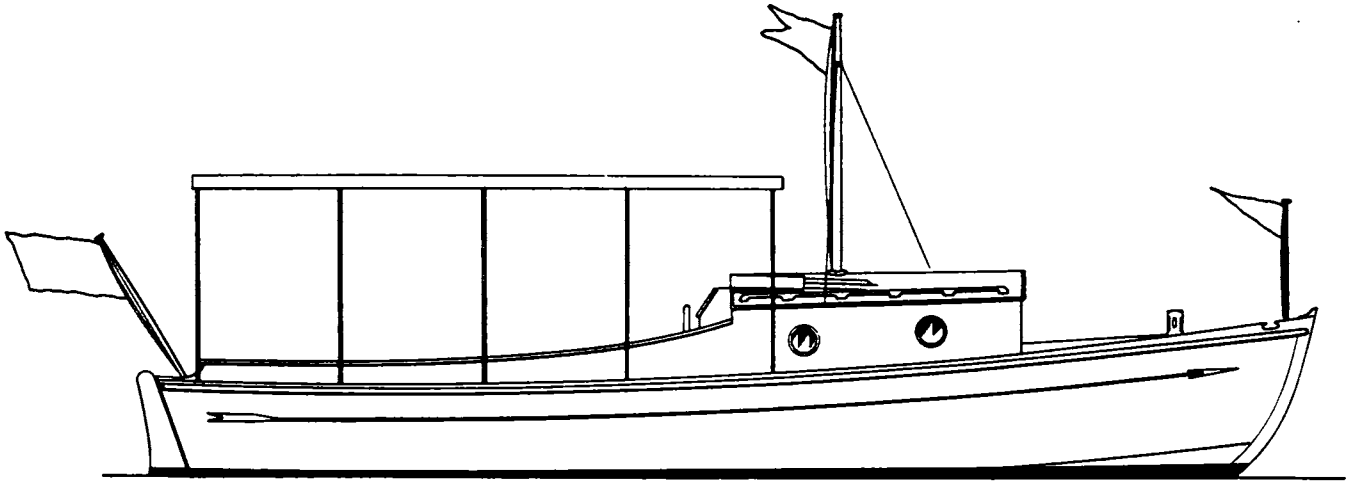
While considering the question of balance as afforded by the reduction-gear, let us look for a moment at the adaption of the gear to the runabout. Several boats lately have used the type, and many particular advantages are offered; for instance:

1. The accommodations are better since the cockpit is for'd of the motor. This gives more room and eliminates noise.
2. The balance of weight as regards center of lift affords better trim.
3. The paramount advantage in a runabout is the small shaft angle obtained, which is highly conducive to speed.

The fourth and last reason for the use of the reduction-gear is one concerning the express cruiser, as for instance the 104-foot Dodge cruiser Frances II recently launched by the Great Lakes people. She was powered with four 300-400-h.p. Murray and Tregurtha engines, which drove her well above 30 m.p.h. Her two wing engines were each direct connected, while two engines were installed over the center line of the keel with tail shaft of one connected to the tail shaft of the other through a gear driving a single center screw.

Taken as a whole the field of gear reduction drive is still in its infancy in the powerboat field, and there are almost unlimited opportunities to make use of the reduction-gear in either heavy boats or fast boats, but the restrictions are as before mentioned. The gear when intelligently applied is always satisfactory and is highly efficient. Otherwise applied in a slipshod, half guessed-at way it is always a dismal failure.

The subject of gear design is probably the most highly developed branch of machine design; there are many details which necessarily cannot be dilated on here. Generally speaking, though, the application to the gasoline engine introduces peculiar circumstances, because the power comes in impulses and not in a steady flow as in a turbine or electric motor. This impulse of power develops a slight tendency to wear the faces of certain teeth, causing an ultimate development of noise. This has been overcome by highly specialized steels and by using teeth large enough to carry generous overload. Great care has been given to lubrication, care in housing being made to prevent any foreign matter from coming in contact with the gears. An effectual method for eliminating noise, that is, metallic vibration, we have found to be obtained by the use of Thermoid universal joints on both pinion couplings, the mounting of the engine and gear case on bronze Z lugs, and by the use of as long and light a piece of shafting as possible between the engine and gear case. The use of Radix ball bearings, hardened shafts bearing on a single ball thrust, and the use of deadening gears (Wills method) all tend to make for longevity, strength, and silence. The gear-reduction transmission has a wonderful future in its proper field, but, as with any other problem in design, it is first best to weigh the advantages against the disadvantages and to find out what cannot be expected as well as what can.



Outboard Profile of Snapper on a Scale of ¼-Inch Equals 1-Foot. She is 24 Feet Long and 6 Feet 6 Inches Wide

How to Build 24-Foot Cruiser Snapper

By Gerald T. White

No. XIV in The Rudder's Series of Working Plans

Note—We cannot guarantee safety, speed nor seaworthiness of this boat if built at variance with the drawings and specifications. If changes are contemplated we should be consulted

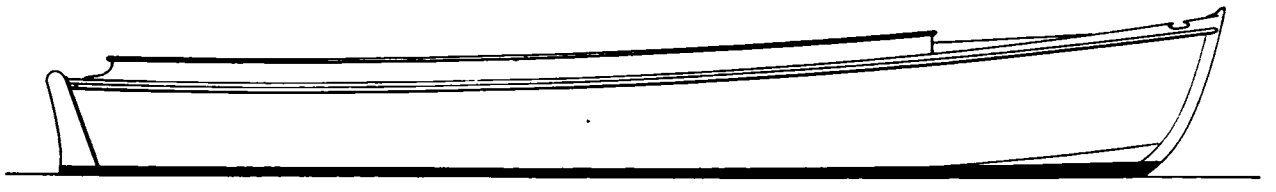
BEFORE any of the actual building work is done on Snapper it will be well to read over the specifications and study the plans thoroughly. Also make up your mind that Snapper is the boat that will fill your requirements. If you want a speed boat or a roomy cruiser don't attempt to build Snapper. She is intended for a general handy boat capable of providing accommodations in the cabin for a couple of people. You will note that we show no arrangement plans of the cabin. There is very little arrangement possible with the exception of two transoms on each side that can be used for sleeping. The designer's advice would be to arrange a toilet and galley space in the cabin as well as one seat and several lockers. Figure on sleeping out in the big cockpit under a tight awning as being the healthiest and easiest way. Two folding cots can be used in the cockpit unless your engine requires too long a box.

In reference to an engine for Snapper, you can have a wide choice. A single cylinder 6-h.p. engine will drive her at a speed of about 7 miles an hour. 10 horse will increase the speed about a mile. To get a 10 mile speed will take about 15-h.p. while 12½ miles will require about 30-h.p. Remember these are real miles, not the usual kind If you build Snapper as an open boat you will get about an extra mile out of the same power on account of the lighter weight and the decreased wind resistance. As an open boat the engine can be set slightly ahead of the position shown for a cruiser if desired, unless it is of the type that weighs more than 15 pounds per horse power. In any event Snapper will be better with an engine turning from 600 to 1,000 r.p.m. than she will with a slower speed and heavier machine.

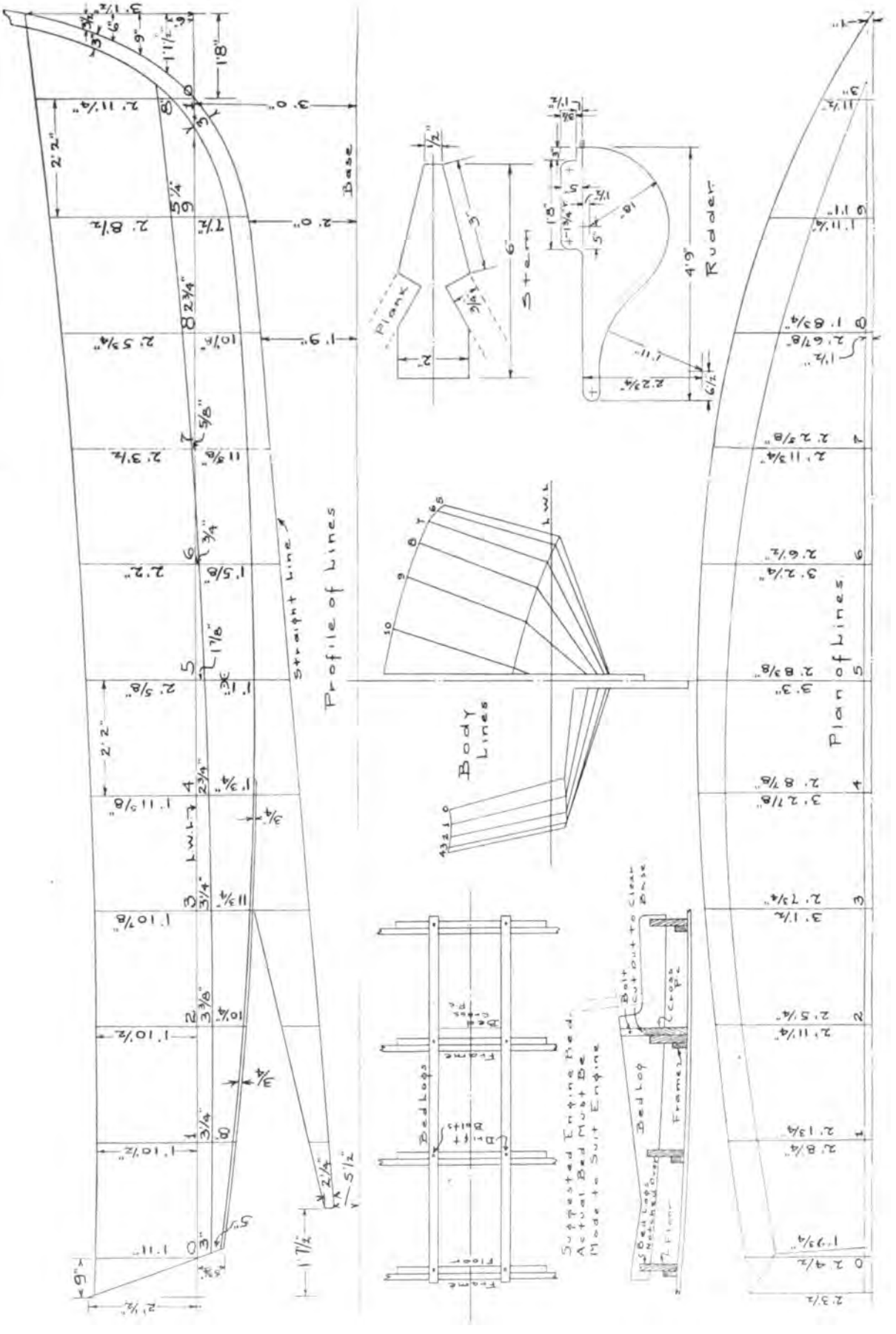
You will find that the drawings being on a big scale will make building easy, for all details can be taken directly off the plans with a scale rule.

The first step is to lay down, full size, the lines on the floor of your shop in chalk. Mark down center lines, base line and water line exactly as shown on the Lines drawing and draw in all stations. In fact, reproduce, full size everything that is shown on page 36 except the detail drawings that are shown on each side of the body plan. There is one point that must be remembered. The lines are drawn, and the offsets marked to the outside of the planking. Frames and transom must be built so that they are ¾ inch narrower than your lay-out.

The offsets are marked directly on the Lines drawing. By checking up with a ⅜th inch scale you can identify the marks if you get mixed up. In laying out templates of thin wood for stem knees, keel and stern knee take the thickness off the construction plans. Be sure and allow the keel to project upwards ¾ inch above the line shown on the Lines drawing as the outside of plank. The top plan on page 38 will give you an idea of how to erect uprights at each frame station to support the keel.



Snapper Can be Built as an Open Boat if You Desire. The Hull Construction is Exactly the Same in Either Case



LINES AND DETAILS OF SNAPPER

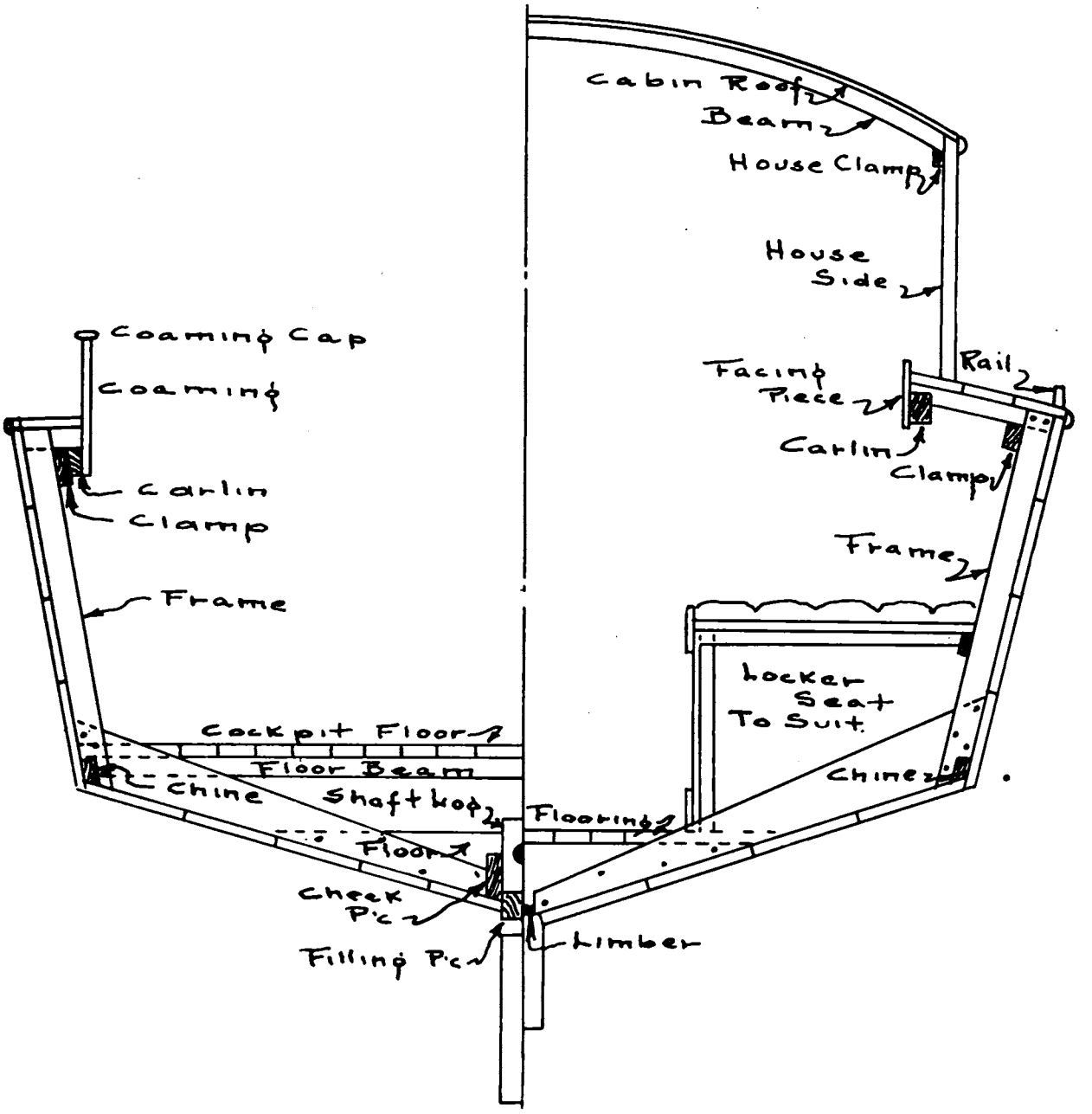
Profile, Plan and Body Lines as Well as Rudder and Engine Bed Details are on Scale of ½-Inch Equals 1-Foot. Stem is Drawn to a 3-Inch Equals 1-Foot Scale. Lines are Drawn to Outside of Planks in Every Case

The fact that the chine is composed of short pieces running from frame to frame and not notched into the frames and running from stem to stern makes the building of Snapper very simple. Usually the bent chine is the amateur's stumbling block and it is on account of this piece that causes the average boat builder to charge more for a V bottom boat than he does for a round bottom one. The short chine pieces are not quite so strong for a boat intended for heavy work, but they will work out satisfactorily on a light boat of this type.

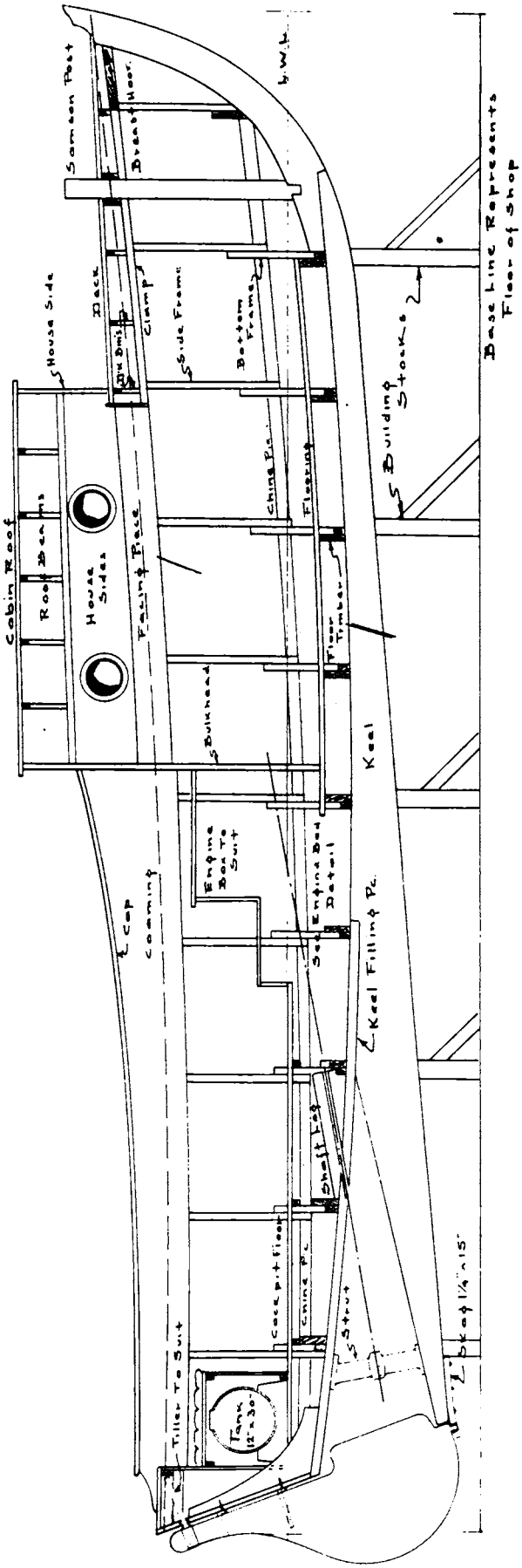
Here at THE RUDDER office we stand ready to help you out in any way we can with Snapper. If you decide to build her let us know and we will advise you as to any question that may come up. Already several have written in and said that they were ready to build as soon as the plans were received. We want to keep in touch with every one of you who build and we want pictures of your boat when she is done.

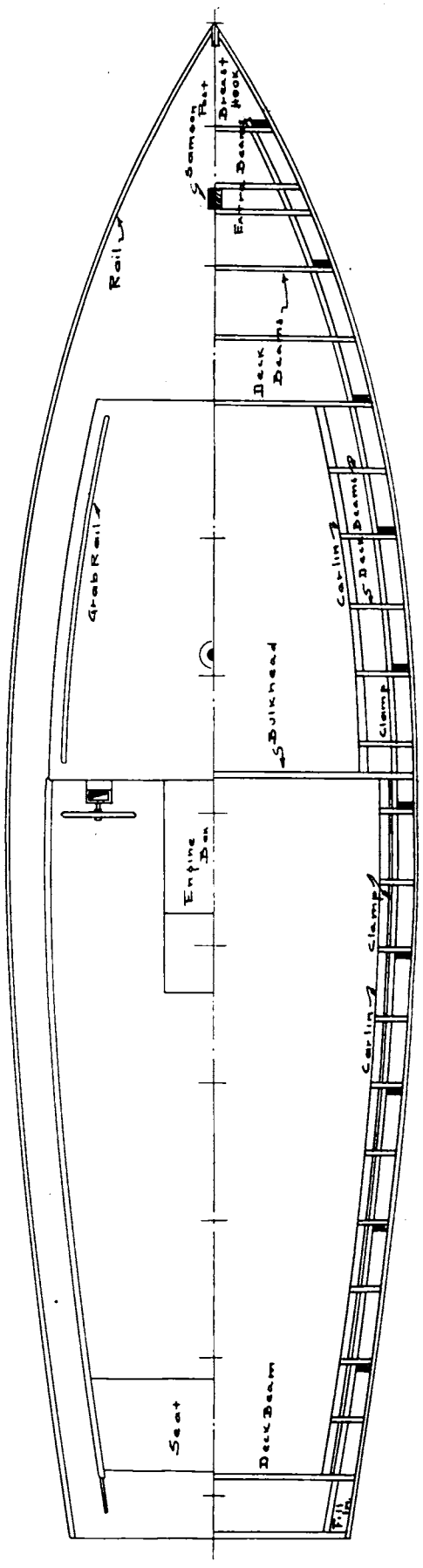
SPECIFICATIONS, 24-FOOT SNAPPER

In General—The plans are reproduced to scale, but in every case where a dimension is given in the specifications it is to be used in preference to a scaled one. Plans showing the outboard profile of the boat are drawn to ¼ inch scale. Lines and construction plans are to ⅜ inch scale and the midship section to 1 inch scale. Those who wish to build Snapper as an open boat should follow the drawings and specifications as for the cruiser except that the coaming will continue parallel to the deck edge all the way forward and should be constructed as per the after half of the midship section. In case certain lumber is specified and some other material is to be used, we should be consulted except that mahogany can be substituted for oak for everything except the keel, frames, stem and stern knees. Spruce can be substituted for yellow pine by increasing the given dimensions by ⅛ inches. Yellow pine can be substituted for oak in the keel



Amidship Section of Snapper Showing the Simplified Construction. Note Method of Setting House Down on Top of Deck and Fastening from Underneath. This is the Only Trunk Cabin Construction that Will Not Leak. Scale is 1-Inch Equals 1-Foot





Inboard Construction Plan, Deck and Beam Plan of 24-Foot Cruiser Snapper. The Scale is ⅜-Inch Equals 1-Foot. Note the Extra Large Cockpit for so Small a Boat

and frames if all dimensions are increased by ¼ inch. This latter substitution is not advisable. Cypress can be substituted for white cedar without change in dimensions.

Keel—White oak, sided 3 inches throughout except that from frame 8 it shall be tapered to 2 inches thickness at the intersection of the stem at frame 10. The keel molds to suit depths shown on the inboard construction plan.

Stem Knee—Oak, sided 2 inches, molded 6 to 8 inches as shown. Rabbetted for planking as shown in detail. Fastened to keel with two ⅜ inch bolts and one spike fastening. Joint between keel and stem to be well white-leaded before placing together.

Stern Knee—Oak, sided 2 inches and molded as shown in construction plans. Fastened to keel filling piece with two ⅜ inch bolts.

Keel Filling Pieces—Oak, sided 3 inches and molded 2 inches. Set into keel as shown and spiked with fastenings.

Bottom Frames—Oak, 1¼ inches thick and tapered from 2 inches at the keel to 4 inches at the outer end.

Side Frames—Oak, 1¼ inches thick, 2 inches wide.

Floors—Oak, 1¼ inches thick, 5 inches high. The frames will fasten together at the chine with lap fastening as shown with at least three rivets or bolts in the lap. The floors will connect the two bottom frames as shown with at least four fastenings on each side. Floors fasten to keel with one ¼ inch blind bolt 9 inches long. All to be beveled to suit planking. Note must be taken of the fact the floors are on the forward side of the frames from frame 5 aft, and on the after side from 6 to 10. The forward side of the forward bottom frames should touch the station mark and the after side of the after frames.

Planking—White cedar, ¾ inch finished thickness. Laid in strakes not wider than those shown on the forward part of the midship section drawing. Planking fastened to frames with 1¾ inch galvanized screws with countersunk heads.

Transom—Oak, ⅞ inch finished thickness. Shape to be taken off the lines as laid down full size on the floor. Around the outer, forward edges of the transom there will be oak cleats to reinforce the after ends of the planks. These cleats screw fastened to transom and are 1 inch thick and 2 inches wide.

Chine Pieces—Oak, 1 inch by 2 inches. To be short pieces just reaching from frame to frame. Fitted with care and beveled off on outside so that planks will fit snugly against chines and frames. Toe-nailed to frames and screw fastened on 4 inch centers to two adjoining planks.

Clamps—Yellow pine 1¼ inch thick and 2 inches wide. In single lengths from stem to stern. Fastened to each frame with two 2½ inch boat nails.

Breast-Hook—Oak, 2 inches thick, fitted against stem and planking from frame 10 forward. Screw fastened through plank.

Deck Beams—Oak, 1¼ inches deep by ⅞ inches finished thickness. Sawed to a crown of 5 inches in 6 feet. Rest on top of clamps and fasten to frame heads. Beams aft of 5 are on forward side of frames. Extra beams will be placed half way between regular beams and will fasten with one nail into clamp.

Carlin—Spruce, 1½ by 2 inches. One in way of cabin runs from frame 8 to bulkhead and sets 11½ inches in from the outside of deck edge. One in way of cockpit sets in 6½ inches. The latter will have to be trimmed off so coaming will stand plumb. Deck beams notch into carlin and fasten with one boat nail.

Decking—Spruse, ¾ inch T and G 4 inches wide. Nailed with 1½ inch boat nails to deck beams. Covered with 8 ounce canvas laid in white lead. If bright deck is wanted the material should be white pine ⅞ by 1¼ inches calked.

House Sides—Oak in one width if possible, 1⅛ inches thick. To be cut to shape and laid on top of decking with some of deck projecting inside as shown on midship section. After a good fit is obtained the edge of the house should be well white-leaded and then fastened to decking with 3 inch screws put through the decking from the under side. At three points on each side there will be a 4 inch screw through deck beam and into house. Care should be taken to bevel house to stand plumb. The fore end of house will be crowned as required and fastened by screws through the deck beam. The four house corners will be backed up with 2 inch by 2 inch oak corner posts.

Coaming—Oak, ¾ inch thick, shaped as shown on inboard construction plan. Screw fastened to carlin.

Coaming Cap—Oak, fastened on top of coaming. 1½ by ½, nicely rounded.

Cabin Roof Beams—Oak, 1⅛ inches deep, ¾ inch thick. Crowned to 8 inches in 5 feet.

Cabin Slide—A slide is shown on profile plan but it will not be needed unless cockpit floor is made selfbailing. In that case it is to be made with ⅞ inch coamings and top and beams same as cabin top.

Cabin Roof—½ inch by 3 inch pine or cypress T and G. Covered with canvas same as the deck.

Facing Piece—Oak, 7 inches wide, ⅜ inches thick to cover end of deck beams and carlin and to form rail for inside shelf.

Shaft Log—Oak, must be arranged to suit engine installed. About 6 inches high and 3 inches wide. Set in white lead and screw fastened from underneath the filling piece.

Cheek Pieces—In the way of the shaft log there will be 1⅛ by 3 inch cheeks fastened to log to take ends of frames.

Filling Pieces—Between the clamp ends and the planking from the transom to frame 1 there are to be filling pieces of spruce well fastened to brace stern.

Limber Holes—To allow bilge water to run fore and aft there must be a notch cut in the floors directly over the keel. Notch should be big enough so that floor blind bolt does not entirely obstruct it.

Rail—Oak, tapered from 3 inches high at the stem to 1½ inches high for the rest of the way and ¾ inches thick. Screw fastened on top of deck canvas from stem to stern.

Engine Bed—Oak, made to suit engine installed. The bed must be laid out for the particular engine used but the detailed drawing shows an approximate arrangement for the average engine. Bed timbers to be 2 inches thick.

Cabin Flooring—Pine, ⅞ T and G arranged to lift up in the center to get at the bilge. The cockpit flooring is to be the same unless it is raised 8 inches above the water line and made selfbailing. Then it must be same specifications as called for under bright finished deck.

Cockpit Floor Beams—Oak, ⅞ by 2 inches supported in center with stanchions to suit. Outer ends rest on chine.

Bulkhead—Oak, ⅞ inch T and G stock arranged in position shown and screw fastened from outside of hull. Door to arrange to suit engine and cabin arrangement decided upon.

Samson Post—Oak, 2½ inches thick and 4 inches wide mortised into stem knee and set between two extra deck beams at deck. Rounded and fitted with pin above deck.

Engine Box—Oak, to suit engine and reverse installed. Made from ⅞ inch stock.

Grab Rail—Oak, ⅞ inch thick and 1½ inch high, cut out for hand hold and screw fastened from under side of roof.

Seats—Oak, ⅞ inch stock arranged to suit.

Awning Frame—¾ inch galvanized iron pipe set in awning sockets and bent across top to the crown shown. Spruce slats 1¼ by ½ inch on 9 inch centers are to run over tops of stanchions.

Port Lights—6 inch clear opening. Two on each side and two in forward end of cabin.

Cleats, Chocks, etc.—Galvanized iron to suit, bolted through oak blocks set under deck.

Gasoline Tank—Installed under stern seat. About 12 inches in diameter and 30 inches long.

Rudder—Oak shaped according to detail. Stuff to be 1⅛ inches thick tapered towards fore and aft edges. Hung on two galvanized sets of gudgeons and braces and guided by a pin entering hole in skag as shown. Tiller to be of usual pattern 12 inches long.

Skag—Galvanized iron 1¼ inches thick and 15 inches long, lag bolted to keel.

Steering Gear—Smooth rim wheel mounted against bulkhead. Line leads under coaming and aft to tiller through sheaves 2½ inches in diameter.

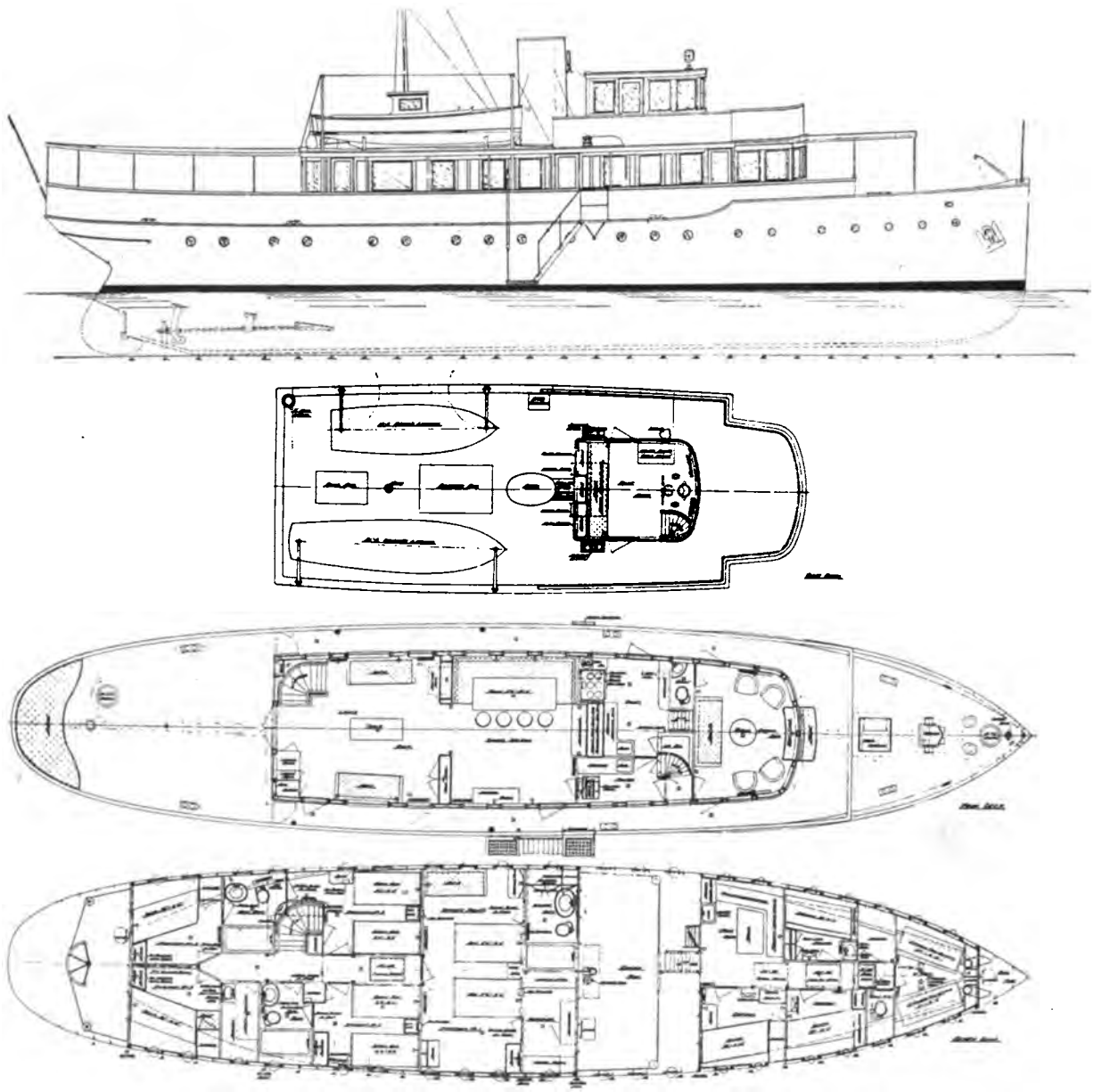
Signal Mast—Spruce, 2 inches at heel, 1 inch at top. 5 feet 6 inches high. Stepped in oak block at deck. ⅛ inch wire stays lead as shown.

Strut—Tobin bronze, babbitted bearing, about as shown in plan but fitted to take shaft installed. Must be made from pattern taken from work.

Painting, Varnishing, etc.—At least two coats of paint on inside of hull, three coats on topside, outside; two coats on bottom and two coats on inside in cabin. All to be colors selected.

Moldings—Sheer and cabin top are to be fitted with half round oak moldings as shown to cover ends of canvas and protect hull and house from damage.

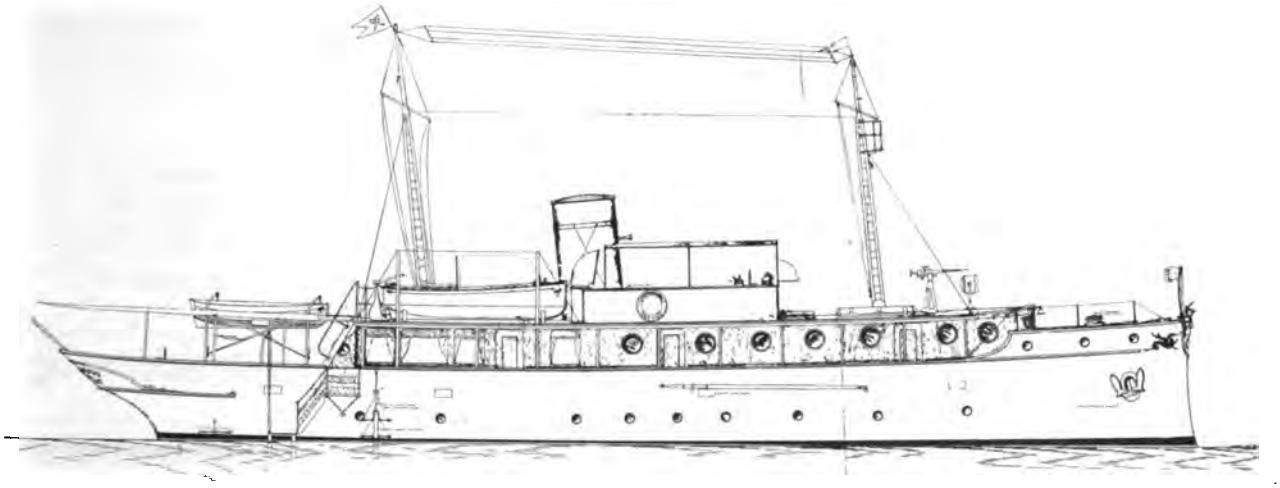
Designs



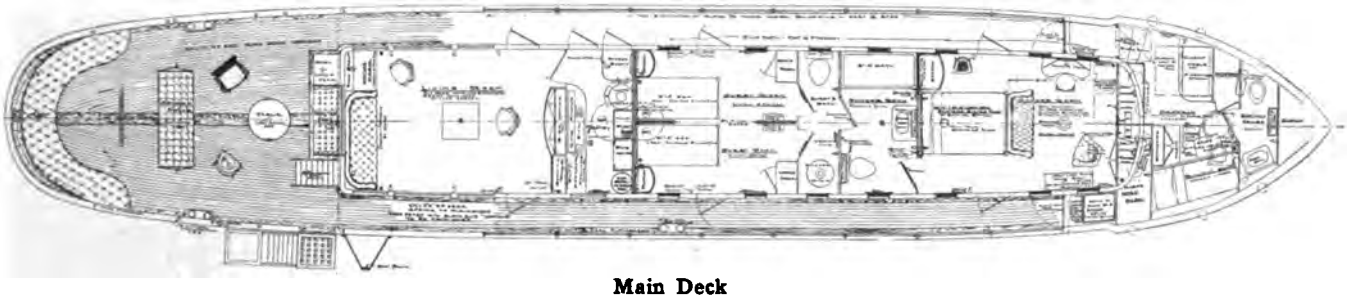
Power Yacht Caritas

Designed by Cox and Stevens for Joseph Percy Bartram of the New York Yacht Club, the yacht shown above is interesting from many angles. In the first place she is a fine example of the trend in large power yacht design. She is what would have been called a power houseboat several years ago still she has the seagoing qualities of the regular type. Considering that the length is under 100-feet, the amount of accommodation is exceptional. There is a smoking room, dining saloon and living and observation room in the main deck house. These rooms are all as large as one would get in a steam yacht 150 feet long. The galley is also located in the deck house, the logical place for this compartment. Below decks we find three double staterooms and two single, as well as three baths. The two Winton 125-h.p. engines are just forward of amidships, while the crew and offices are still further forward. The speed will be 12 miles an hour.

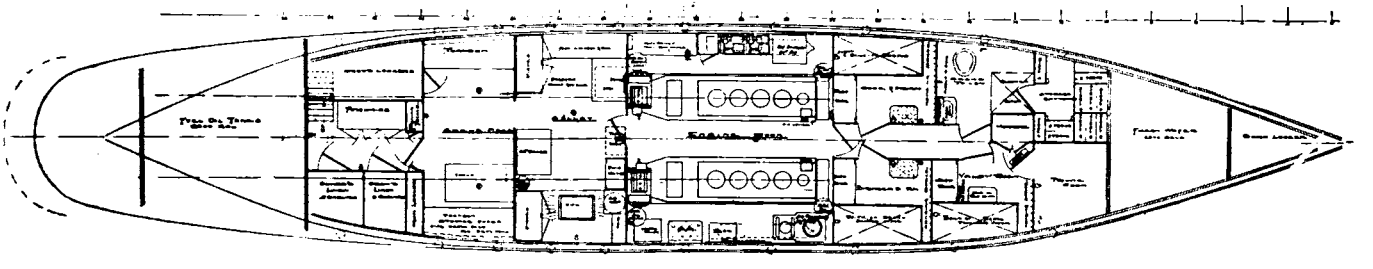
Length o. a.	98	feet	0 inches
Breadth	20	"	0 "
Draught	6	"	0 "



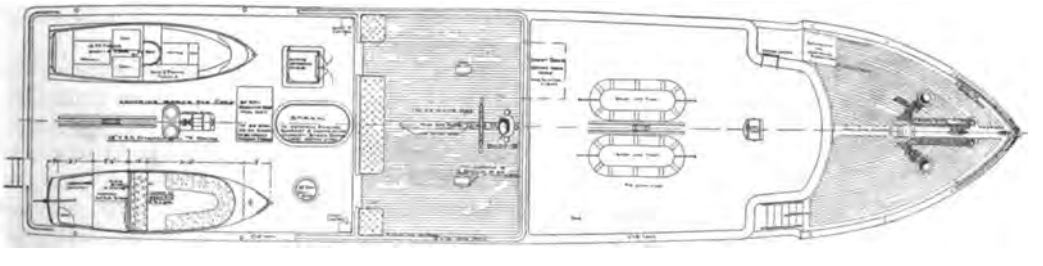
Profile



Main Deck



Lower Deck

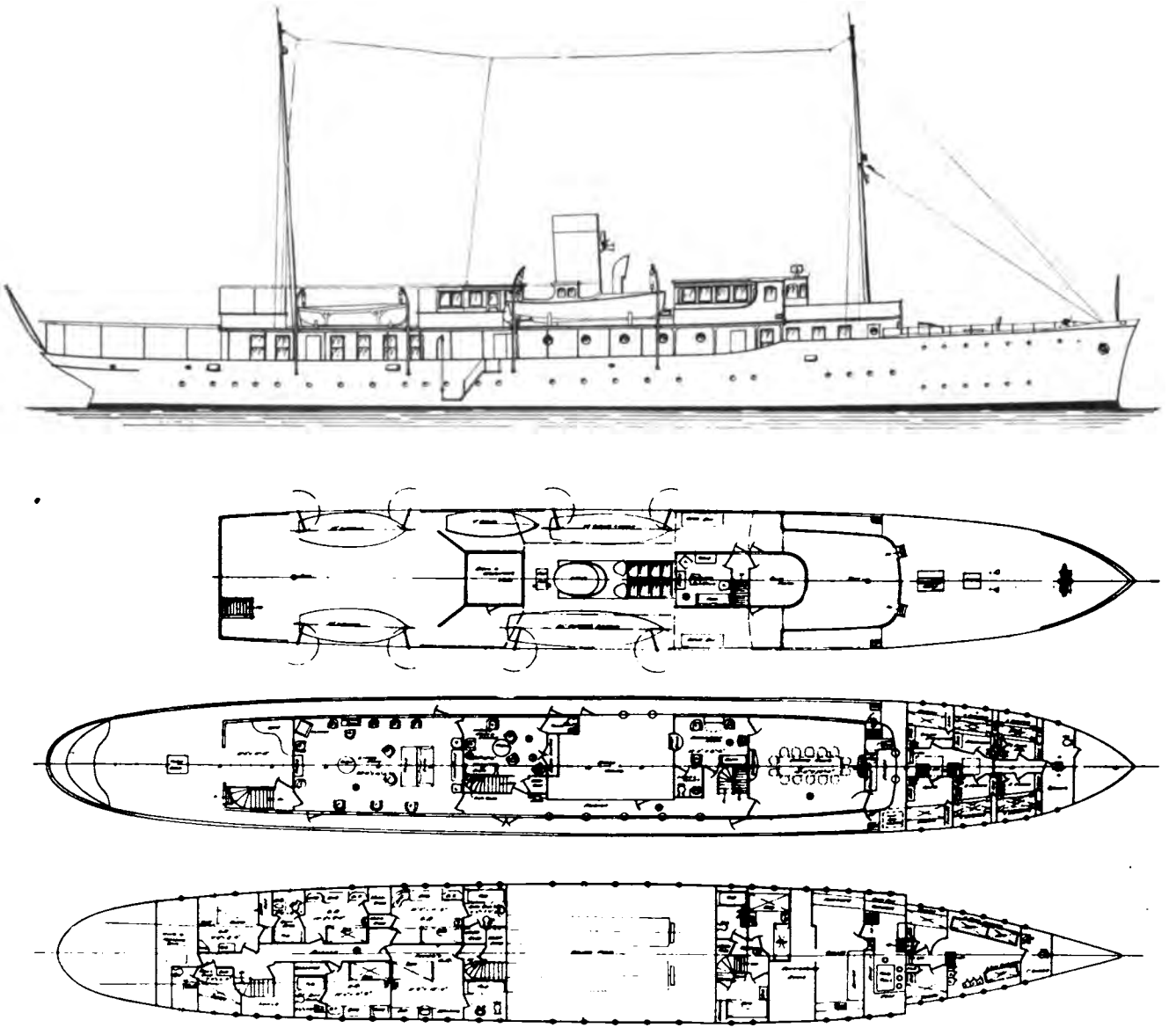


Boat Deck

Nenemoosha

Power two 120-H. P. Nelseco Diesel Engine.
Building by American Car and Foundry Company.
Designed by Edward R. Carroll for Alfred I. duPont.

L. O. A.	98	feet	0 inches
L. W. L.	90	"	0 "
Breadth	17	"	0 "
Draught	4	"	0 "



Dolphin Largest Diesel Yacht

No better indication of the trend of yacht design could be given than the publication of the above plans. They were drawn by Cox and Stevens of New York for a prominent Western yachtsman. The yacht which will be named Dolphin is now under construction at the yards of the Newport News Shipbuilding and Dry Dock Co. She will be delivered to her owner during the early part of the summer.

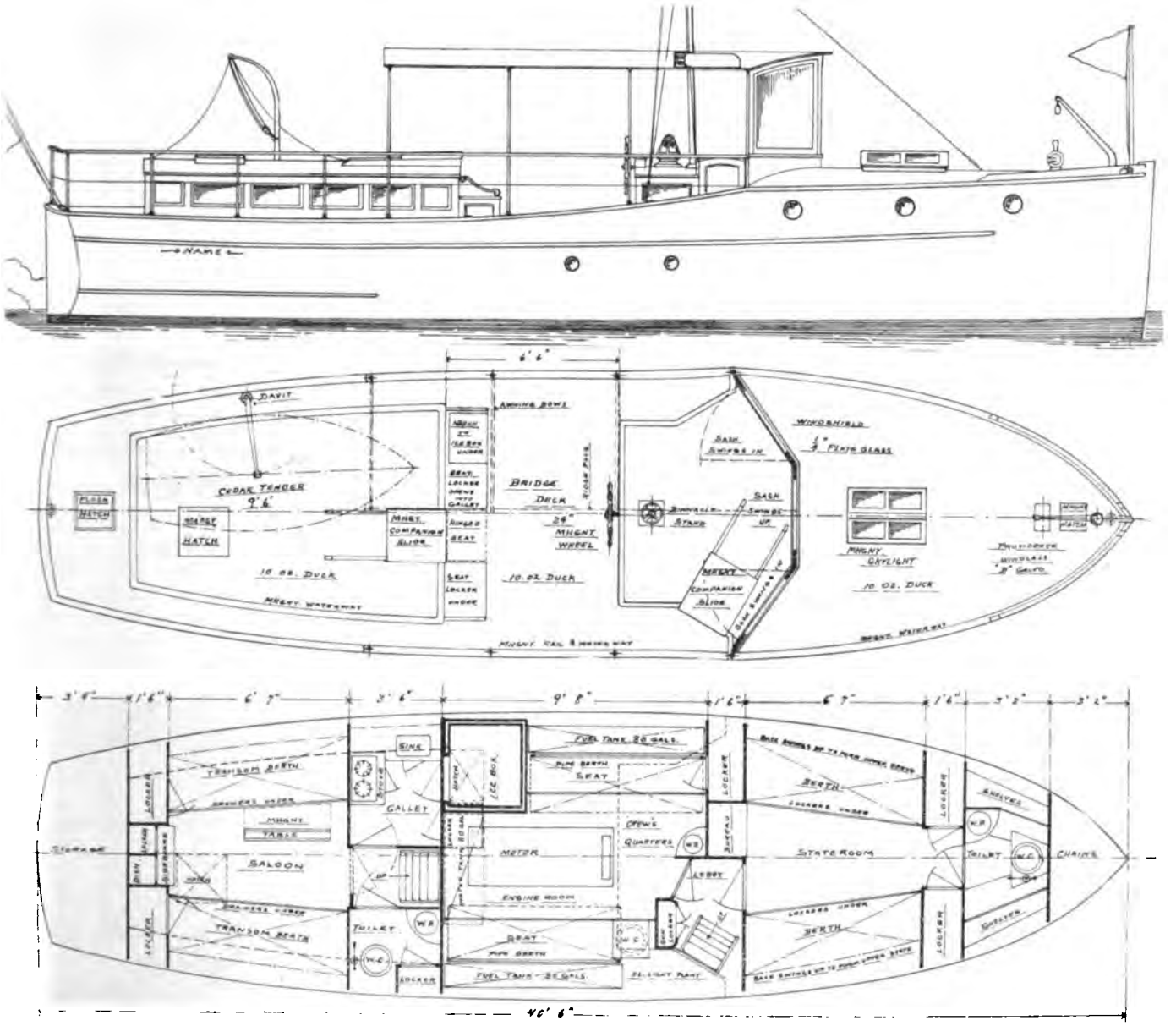
As the plans show, the craft is quite similar to Vincent Astor's Nourmahal, also a product of Cox and Stevens. The requirements of the owner were that the yacht be an excellent seaboat, have extremely comfortable quarters, relatively high speed and still be economically operated for coastwise and off-shore cruising.

The power will consist of two 8-cylinder full Diesel engines developing 500-hp. each at 250 r.p.m. They, like Nourmahal's engines, will be built by the Winton Engine Works. The operating cost of these machines is such that, although the service speed will be in excess of 16 miles an hour, it has been possible to provide tankage for a 6,000-mile cruising radius.

Dolphin will be a wholesome vessel in every way, for, in no case were the elements which make for comfort in rough weather sacrificed for speed. The cabin finish will be a radical departure from the usual practice. Instead of varnished hardwood, practically all the quarters will be finished in selected tints of paint to harmonize with the hangings and upholstery.

In arrangement the yacht follows Nourmahal except that the increased length permits more spacious quarters. The main deckhouse is laid out entirely for the owner with the exception of an engine room trunk and a small butler's pantry. On the starboard side there is a passage within the house so that every compartment can be reached without going on deck. Below there are six owner's staterooms and four baths. The galley, officer's and crew's quarters are arranged forward of the engine room. Accommodations are provided for a total of 21 men. This is about half the number that would be carried on a steam yacht of the same accommodations.

Length over all	180 feet 0 inches
Breadth	24 " 0 "
Draught	9 " 0 "



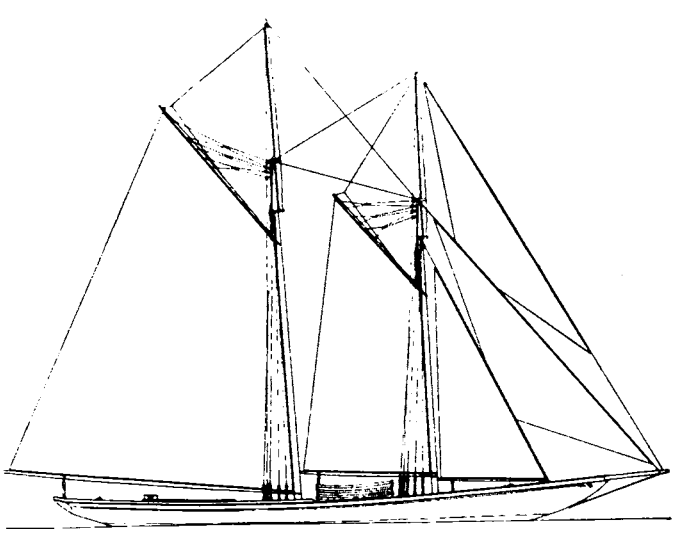
40-Foot Bridge Deck Cruiser

An interesting bridge deck cruiser is shown above from the board of Roger N. Haddock. She represents a type that is growing in popularity, having a maximum of room both on and below deck on a minimum over all length.

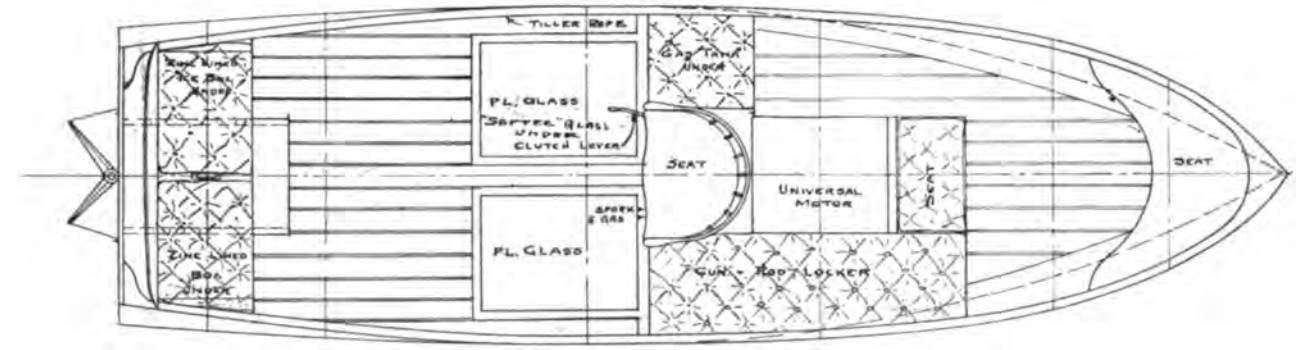
This boat is now building and will be delivered early in the Spring to her owner. The arrangements consist of a stateroom and toilet forward. There are two transom berths with swing backs forming uppers if desired. Lots of locker space is provided. The engine room contains a J. V. B. engine which will drive the craft at a 12-mile speed. Two additional berths are provided here.

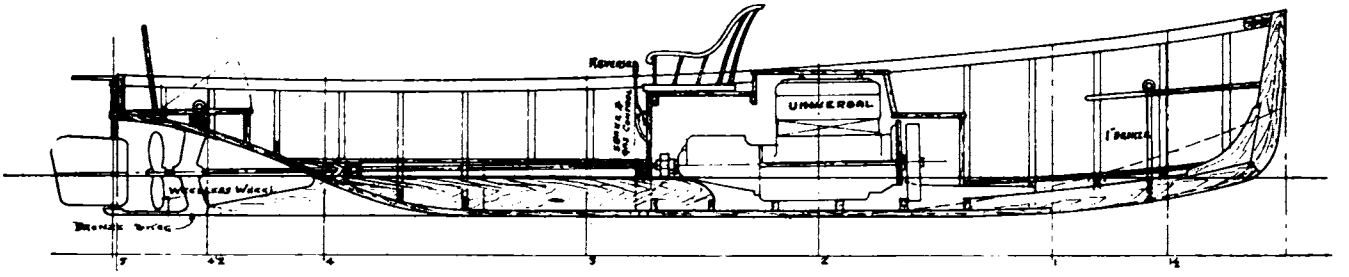
Abaft the engine room is the galley, the companion from the bridge and another toilet room. The remainder of the after house is given up to a main saloon with two wide transom berths. Lockers and a buffet complete the arrangements. The bridge deck is provided with glass shelter and a wide observation seat.

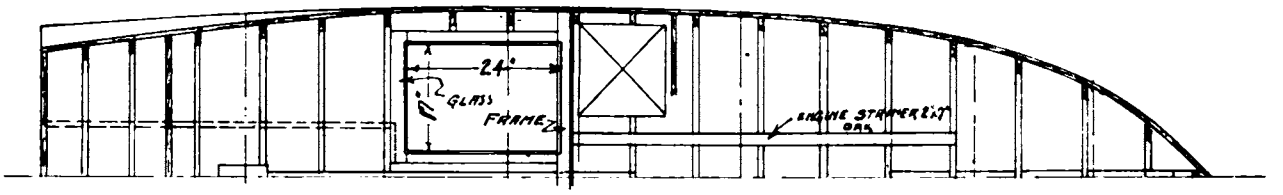
Length over all	40	feet	6	inches
Breadth	10	"	8	"
Draught	3	"	6	"

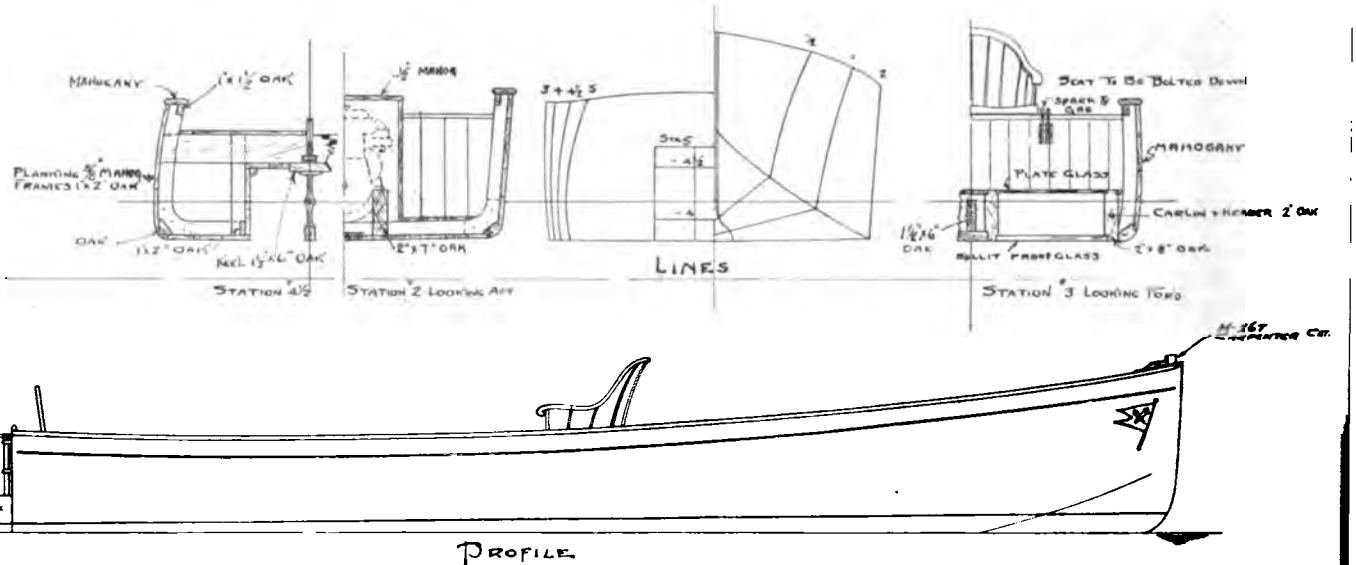


Puritan, 140 x 105 x 16-Foot Racing Fisherman, Now Being Built from Designs by Burgess & Paine







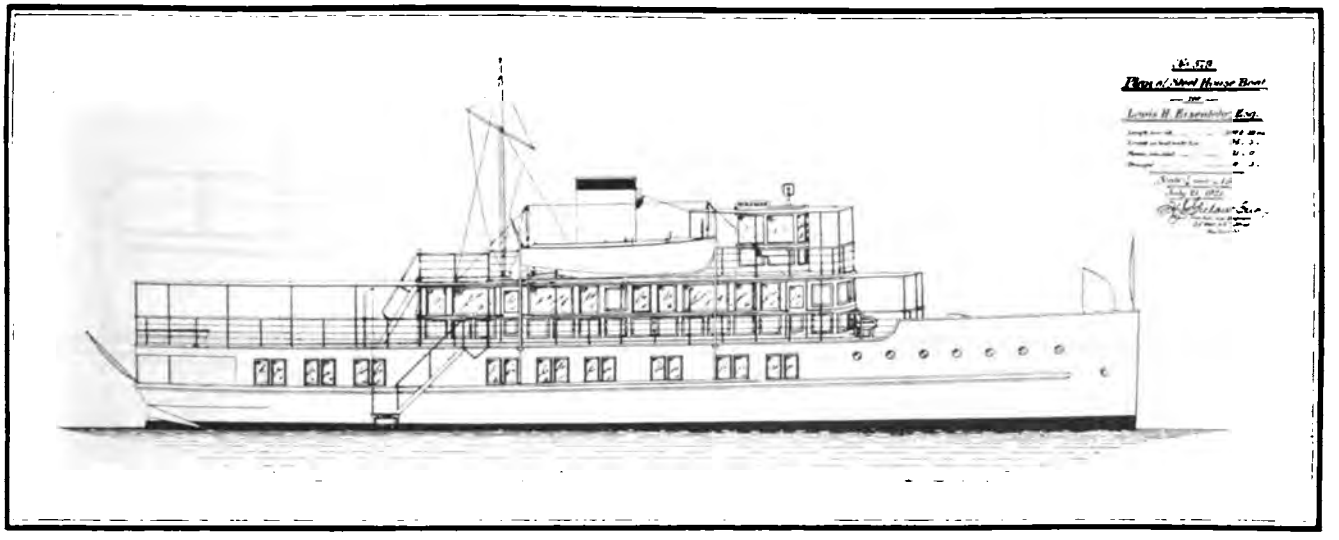


Two Yacht Tenders

Above, and on page 45, we show the plans of the two Universal-powered tenders for the yacht Nenemoosha. Both of these boats are of rather novel construction and the designer, E. R. Carroll, has not been bound by convention in getting them out.

The tunnel stern boat will be used for fishing service and is arranged so that the owner can control the boat entirely from his fishing chair. She is 15 feet long, 4 feet 2 inches wide and only draws 6 inches with 3 men on board.

The other boat will also be powered with a Universal engine and is strongly reminiscent of the English tenders. A feature is the crew cockpit and tiller steer arrangement. She is 16 feet long, 4 feet 6 inches wide and draws 16 inches.

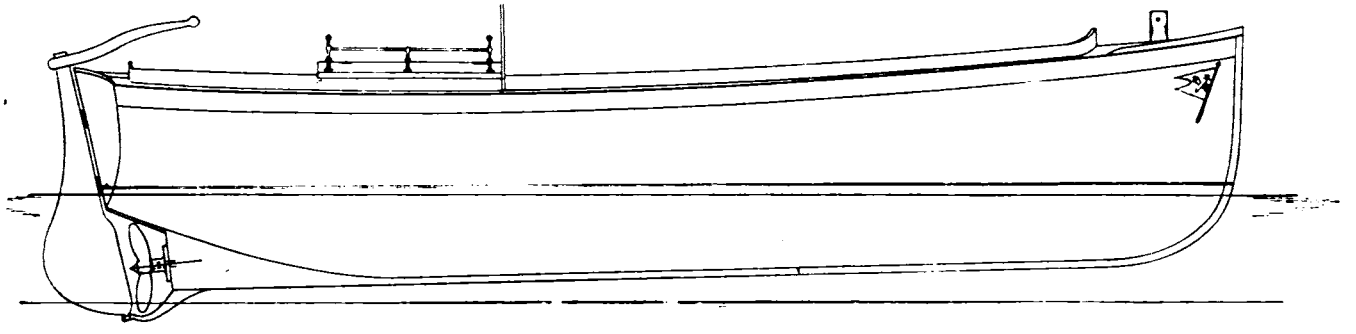


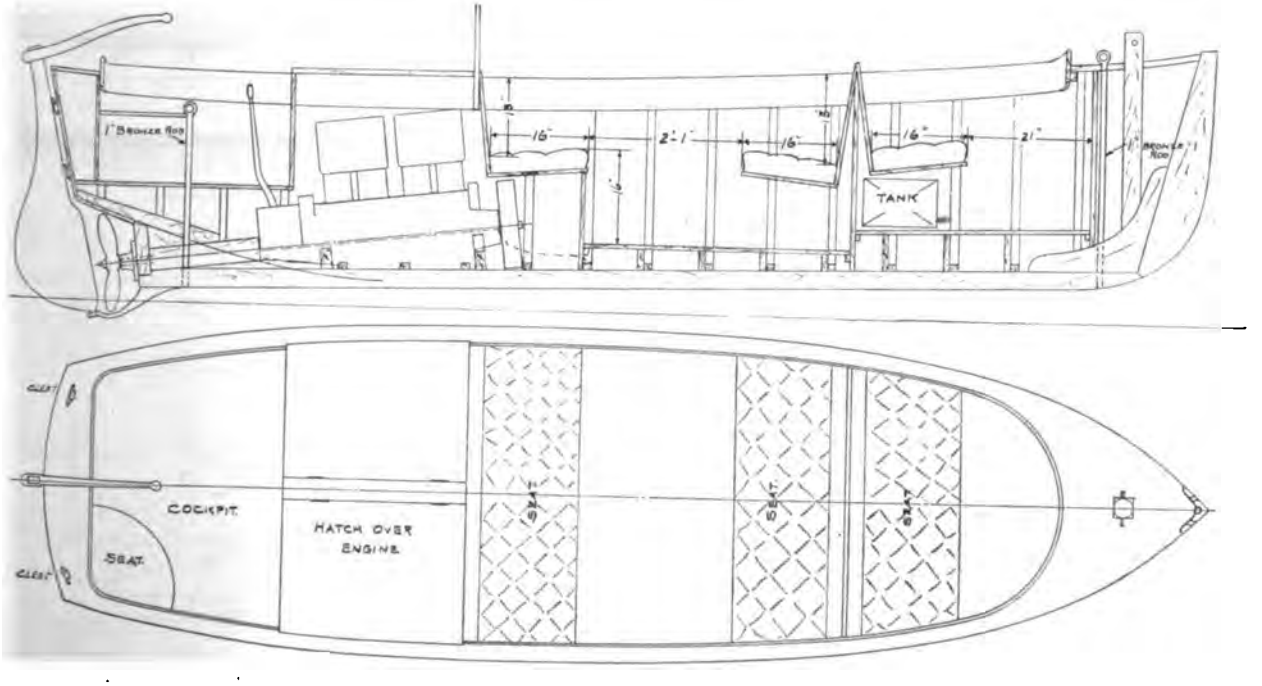
Large House-Yacht

The largest yacht now under construction in the vicinity of New York is the craft shown above. She is building at Kyle and Purdy's from designs by the veteran naval architect, Henry J. Gielow. When completed she will be turned over to Louis H. Eisenlohr of Philadelphia.

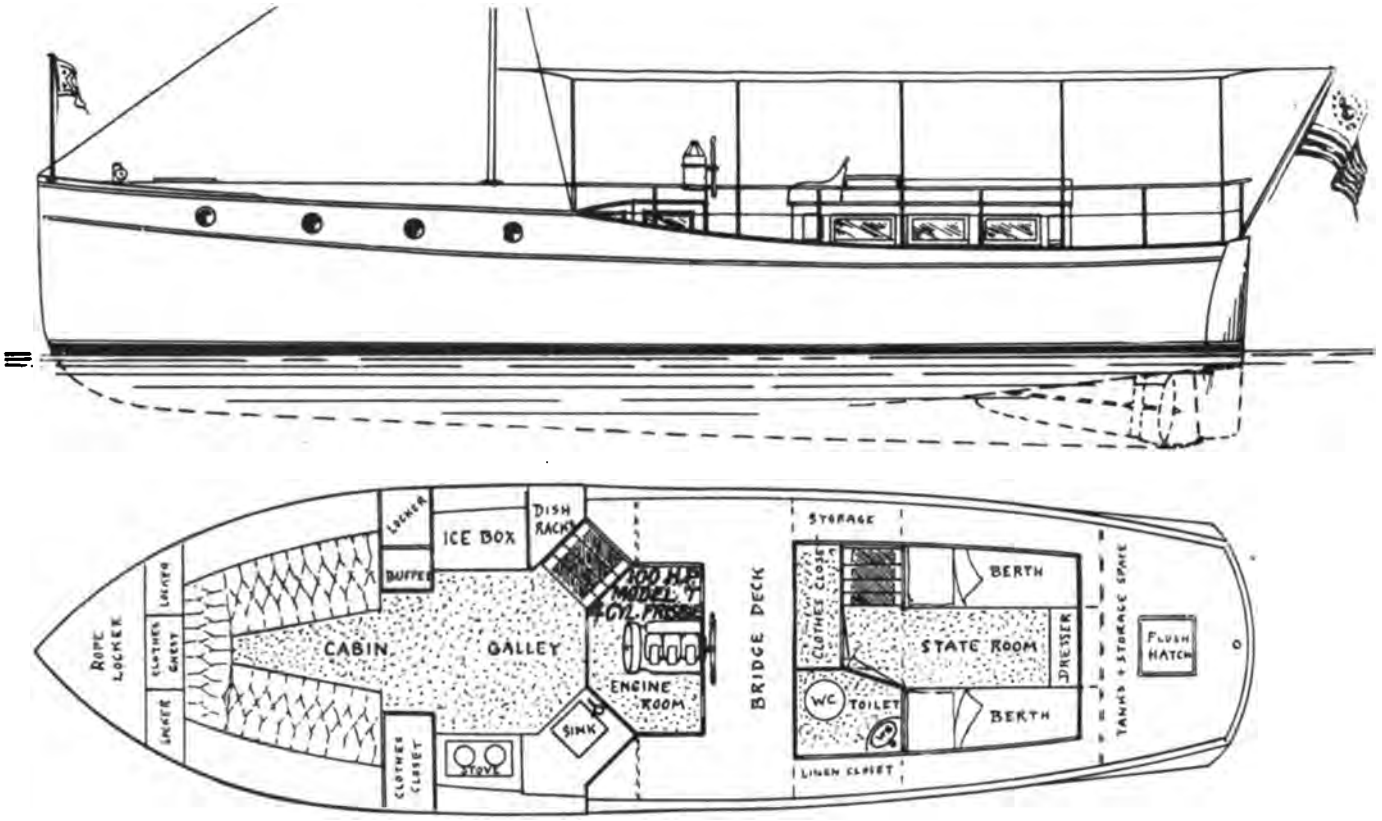
She will be powered with two 6-cylinder Nelseco Diesel engines of 120-hp. each, giving a speed of 12 miles an hour. The cruising radius will be 2,500 miles.

Length over all ..... 100 feet 9 inches
Breadth ..... 21 " 0 "
Draught ..... 4 " 6 "





See Page 44 for Description of this Tender

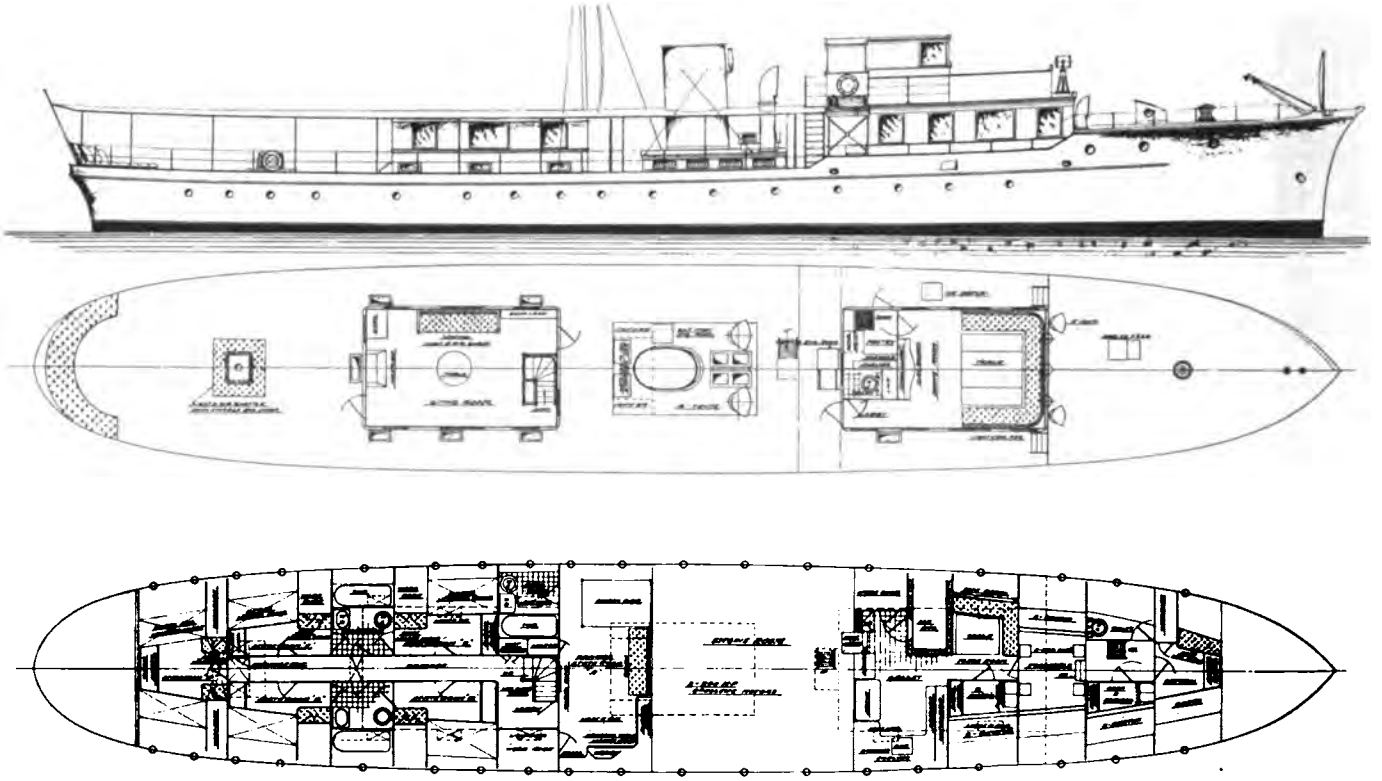


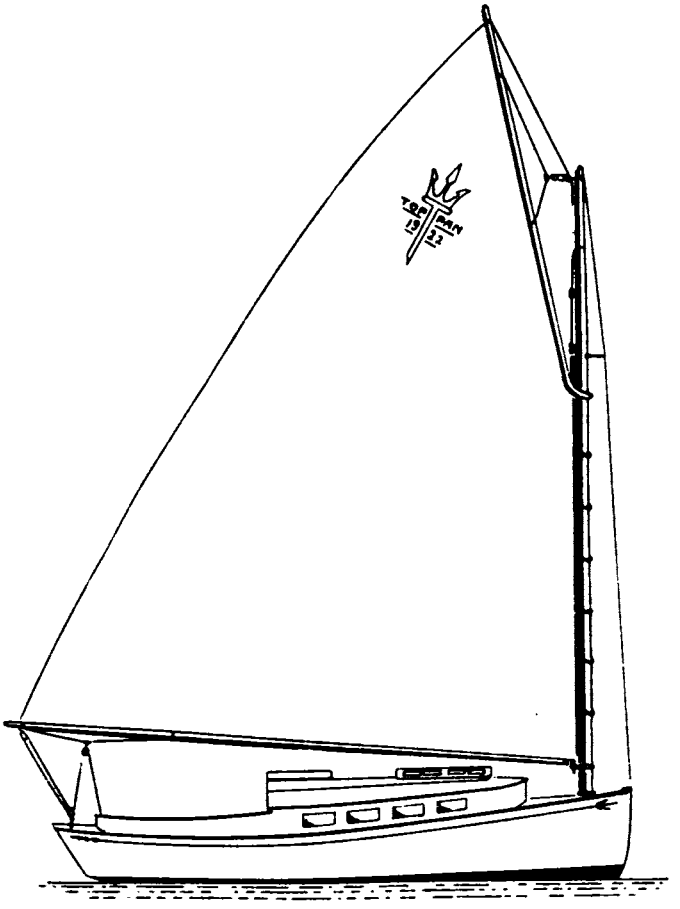
Frisbie-Powered Bridge Deck Cruiser

The above 40 by 10 feet 6-inch cruiser is being built by Palmer and Gardner from their own V-bottom designs for service on Long Island Sound. The power plant will be one of the new model T Frisbie engines of 100-hp. The speed will be about 16 miles an hour.

120-Foot Cruising Yacht

Ralph E. Winslow is the designer of the pleasing 120 by 20-foot yacht shown below. The profile follows the latest practice and the arrangement is cleverly worked out. With a pair of 200-hp. engines the speed should be 13½ knots with a cruising radius of 2,750 miles.



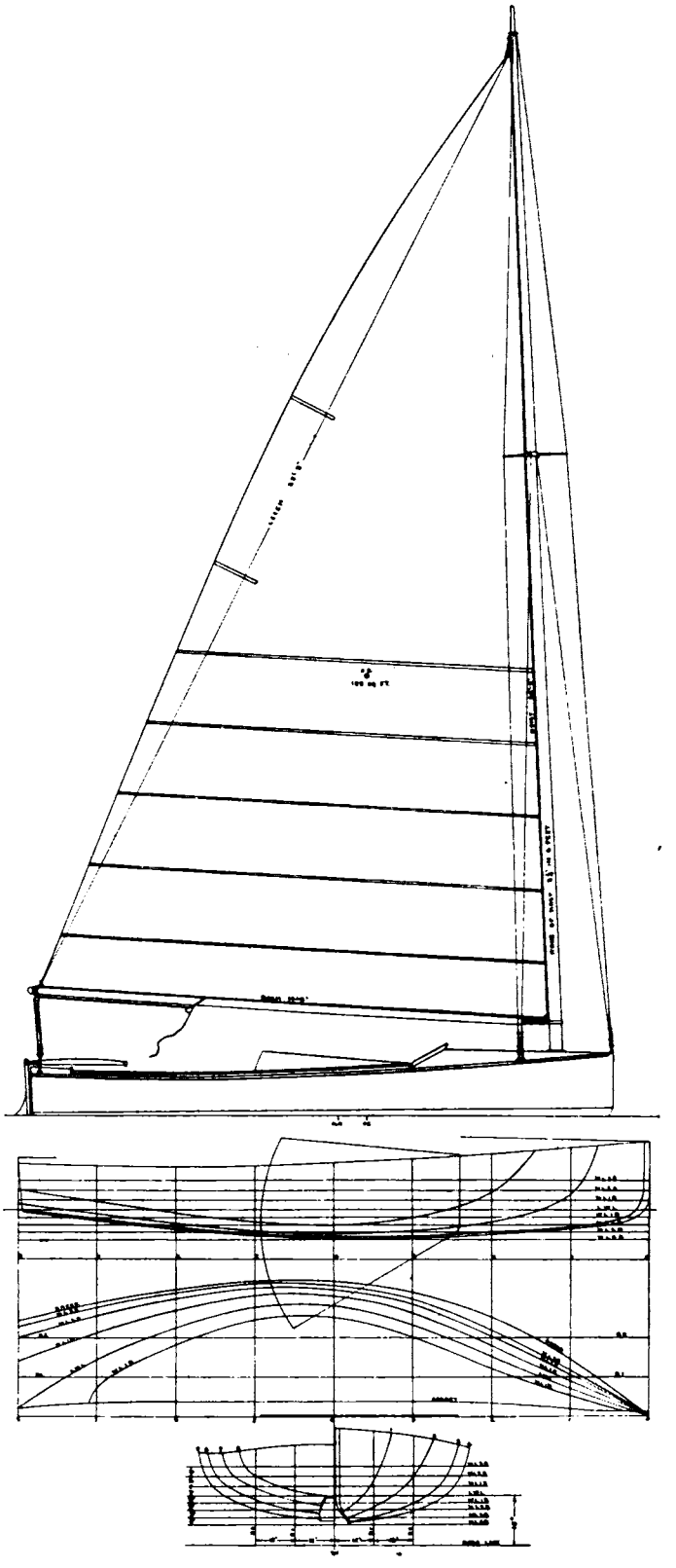


Toppan Cat with New Rig

In our January Issue we showed plans of the new stock catboat built by the Toppan Boat Mfg. Co. In that case the boat was rigged with a Marconi mast. The builders received a great many inquiries for this boat since the publication of the plans and find that many prefer the old-fashioned gaff-headed rig. They therefore had the designer, Harry L. Friend, draw up the plan shown above. This shows the roomy craft with a sail plan that should suit even the old catboat sailors who balk at the idea that any improvement can be made in their favorite craft.

The new boat is constructed according to the best practice, all parts being strong and well made so that the boat will last for years, providing a family cruiser that cannot be beaten for accommodations and comfort on a boat of the length. The dimensions follow:

Length over all	22 feet 0 inches
Breadth	9 " 6 "
Draught (least)	2 " 6 "



Marconi Rigged Sailing Dinghy

Ian L. McKensie of Hamilton, Canada recently designed the 16-foot sailing dinghy which we show herewith. This boat is of the type used on the Great Lakes and is designed to the rules of Lake Sailing Skiff Association.

The boat is of the slack bilge type, relying for stability upon the weight of the crew. The mast is about 27 feet high, carrying a single sail with an area of 187 square feet. With this sail and the easy lines the boat should be very fast. The hull is lightly but strongly constructed with 3/8-inch white cedar planking and frames of white oak spaced 6 inches apart. The center-board is metal and weighs 100 pounds.

A boat of this type would make an excellent day sailing craft in all ordinary weather, as well as a fine boat for the many races.

Length over all	16 feet 0 inches
Breadth	7 " 0 "

Beachcombings

Daddy, he's in again! Jack Hanna, the sand-flea of Done-eden writes as follows about our old friend Larry La Roche of Senator Bill.

"Harry Jackson says Larry La Roche is the best little hootcher of Travers Island. Larry was here today, and I'll say Harry is right if Larry totes the same brand to Travers as he does to Dunedin. It has left me feeling pleasantly mellow and benevolent even to editors of RUDDERS and painters of scow houseboats and such low persons."

We are somewhat peeved at being spoken of as a low person, but it sure is a relief to get a letter from Jack in which he is decent. Jack also says that he and Bill Gibb are friends. Bill violently refutes this charge. He says the only time he ever saw Jack was when the Florida Fusser wanted to borrow a dollar to buy paper for his local sheet.

* * *

They are picking on Phil Rhodes now. Rhodes is a mild inoffensive sort of a chap who is practicing how to get along without eating so he can be a naval architect. and a lot of big bullies led by a certain Florida party are picking poor Phil to pieces. 'Tis tuff turkey!

* * *

Among the gang of coin pitching coots who made the journey to Delanco to see the "27" was J. Worry Lotts the demon designer from the city of quiet. J. Worry was all togged out in a fur-lined benny. How they do it on $15 per week is beyond us. The only thing we can think of is that he won it with his trick pitching quarter. That coin would fall 3 feet from the line and then sneak up to the mark and lie down when you wern't watching.

* * *

Reward! If the stout,, good-looking, bald-headed man who shouted a remark to the Beachcomber through the door of a Pullman compartment en route from Philly to N. Y. will send his name and address to the writer he will be accommodated. Sassy Sue, Hotel Metropole, N. Y.

* * *

Notice! For Sale, one first class photo business. Owner going out of business on account of having to paint his boat. Morris, Nassau St., N. Y.

* * *

We wish to give you fair warning that the Beachcomber will be out for blood this year at the Show. Lock the door where you keep the family skeleton or take the consequences. There is no use trying to bribe us for we can't be brobe under ordinary circumstances. The extraordinary circumstances will be explained in person. Yes, thank you, I do drink Scotch.

The class will now arise and sing, "The Show, the Show the beautiful Show. You work like the devil and spend all your dough."

Biographies of Boatdom

Hats Off Gentlemen! No Laughter! We are now approaching an exhibit of great antiquity. You see before you the Grand-daddy of all power boat engines. This relic was built by the Consolidated folks when the Speedway was a row of farms and when John Amory was a young coltish person. Gaze upon it! Is it not a noble piece of mechanism? The mode of procedure with these old engines was interesting. You pumped 91 pumps, twisted 17¾ valve handles and lighted 8¼ boxes of matches only to have them blow out again. When the last match was reached it remained alight long enough for you to stick it in a small and elusive hole in the bottom of the biler. Immediately on or two things happened. Either the jewricksa coincided with the flaptoddle and the business went; or else there was a burst of flame, loud and painful words, singed eyebrows and general and complete reversed Hell. One didn't dress in overalls when working over one of these machines. One put on asbestos pants and sheet iron gauntlets. Look at this people and then stop yammering about the engine you have now!

Needed Information

In this department all questions are answered relative to the care, operation and equipment of boats. When answers are required by return mail, postage must be enclosed.

Bronze Cutwaters

Editor of THE RUDDER:

I have a problem which perhaps you can help me solve. Do you know where I can secure one of those sharp points to fit the bow of the boat for protection and cutting the water? I can't find anything like it here only half-round and flat bands to put on the nose. —L. B. G., Illinois.

The stem pieces you mention are made to order for each boat by the boat builder. They consist of two pieces of ⅛th inch brass, shaped to fit flat alongside the stem and then a triangular piece of brass is fitted between the two forward edges to form the knife-like cutwater and back the brazed joint which connects the two side pieces and the knife-edge together.

Handicapping Sailboats

Editor of THE RUDDER:

We have a fleet of several sailboats here of all sizes and types. We want to have some races on Saturday afternoons and holidays but are unable to come to any time allowance figures. We know that there is a method of measuring the boats to get an allowance but we have no time to go into anything very complicated. Is there any formula which can be used successfully with these boats and which is not too much figuring for ordinary morals?—H. Y. C., Massachusetts.

The formula used by most clubs is a rather complicated one and requires a good deal of hard work for the measurer. The simplest formula, which usually works out very well is known as the Seawanhaka rule. It is as follows.

$$\frac{\text{W. L.} + \sqrt{\text{S. A.}}}{2}$$

The result is a figure that can be used with any table of allowances as published in most year books and club organs.

Putty for Nail Holes

Editor of THE RUDDER:

My boat is fastened with galvanized nails with the heads punched in. I have tried putty over these holes but it cracks out and leaves a nasty hole. I have had the same trouble with putty cracking out of planking seams. Is there any other substance I can use?

If you use the best grade of white lead putty, not the usual product sold in paint stores, you will not have so much trouble with it cracking. The following formula will give you a cement that can be used instead of putty. It dries very hard and should be smoothed off before drying otherwise it will dull scrapers. Make a half and half mixture of coach painters japan and quick rubbing varnish. Then take some dry white lead and form it into a circle on a piece of board. Pour the mixed liquid into this circle and slowly grind in the powder. It takes some time to mix the stuff up and it dries so quickly that only small quantities which will be used within a short while can be mixed at one time.

Making Canvas Decks Smooth

Editor of THE RUDDER:

I am planning to lay a new canvas deck on my boat this Spring. On other ocasions I have found that it takes a great many coats of paint before a body is built up that will smooth over the weave of the canvas. As canoes are finished perfectly smooth I wonder if you can tell me how it is done?—R. J., N. Y.

To make a canvas deck smooth without using a great many coats of paint, apply a coat of paste wood filler with a blade of a knife. Spread it smoothly all over the canvas, scraping off all extra stuff. After that is dry apply two or three coats of the desired deck paint.

Thinks More Speed Possible

Editor of THE RUDDER:

I have a lightly built round bottom hull, 23-feet long and 5-feet wide. She is decked with light material and the whole hull without the engine does not weigh over 700 pounds. The engine is a two-cylinder two-cycle medium speed machine developing 8-h.p. My speed is only 8 miles an hour and I think I should get at least 12 miles with this engine. Can you give me any suggestions in regards to propeller or anything that will increase my speed?—B. G., Delaware.

As far as we can see you are getting all the speed you can expect out of this outfit. The hull is fairly wide for a speed boat and the weight of hull nothing exceptional. You have too little power to expect the boat to plane even if her bottom was designed so that this would take place at any speed. Our advice would be to leave well enough alone.

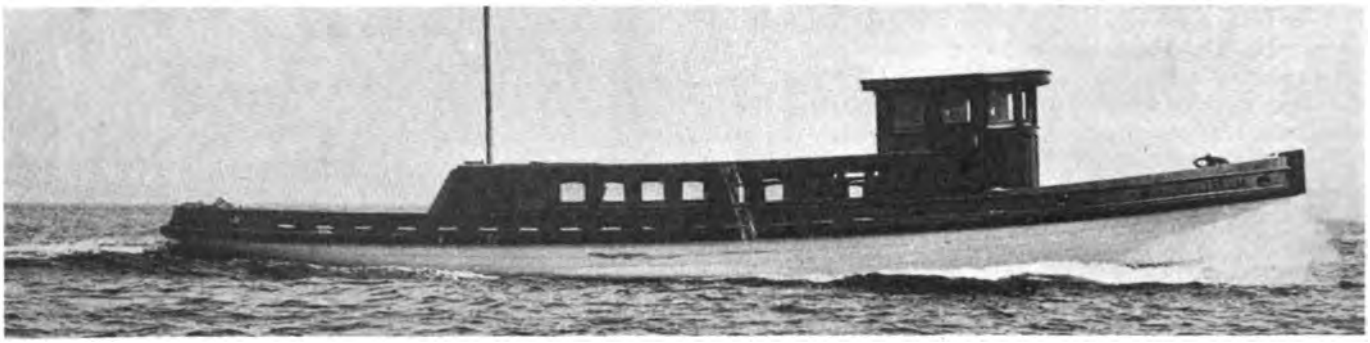
About Make and Break Ignition

Editor of THE RUDDER:

Is it safe to use jump spark ignition on a boat that has to go out in all sorts of weather and where the engine is not covered over?—G. N., Massachusetts.

There is no doubt but what make and break ignition will work better when wet than jump spark apparatus. A lot depends upon the type of engine used however. If the machine is of the medium or heavy duty type the M. and B. ignition will be all right.

Commercial Boats



Three Powerful Work Boats of the Pacific. Reading from Top to Bottom They are Powered with Standard-Corliss, Frisco-Standard and Union Gasoline Engines. All Operate at About Half the Cost of a Similar Steamer

The Young Skipper

Marconi Rig on a 12-Foot Sailing Dink

By Henry M. Devereux

Fred is a good friend of mine, we both are boating enthusiasts. He is also of an ingenious turn of mind. Last year he took a 12-foot rowboat, decked it over, and put a sloop rig on it, also making the alterations shown in the sketch as dotted lines. The resulting boat was a fine little sailer.

Now, being quite up-to-date, Fred wanted a Marconi rig this season. I drew up one for him, and he, being one of the Young Skippers for which your department was created, I publish the accompanying drawing in the hope that another Young Skipper will get some ideas from them, or may, in some measure be helped by them.

The following notes may also be of interest. All standing rigging is of ⅛ inch diameter, good wire rope with spliced ends looped over the mast and the shrouds fastened by galvanized turnbuckles to the chain plates on the sheer strake. The spreader adds greatly to the general appearance, but may be omitted if so desired; the shroud being then brought straight to the turnbuckle.

Where Fred is going to use his boat, the wind is at times rather boisterous, so I have put a row of reefing points on the mainsail. Having found a spinnaker very satisfactory last season, Fred wanted one again, so I have drawn it in. He also likes a double-ended mainsheet and I have also provided for that. The leaders for the jib-sheets can be well made of two brass screw eyes. The tiller is extra long so that Fred can sit well up and navigate easily. In the accompanying sketch I have shown a good way to secure the blocks for the mainsheet to the boom. The mainsail is laced to the boom with white marlin. The rudder was most satisfactorily secured last season with galvanized rudder braces and we will use the same arrangement this season.

* * *

EDITOR OF THE RUDDER:

By the same mail I am sending you the drawings and notes which comprise the whole of my contribution to The Young Skipper department of THE RUDDER. Please remember that I am only a young fellow myself, scarce past my 17th birthday and eager for further knowledge, and that any suggestions or criticism that you would be kind enough to make would be very gladly received by me.

Wishing you every success with your work, and prosperity to The Young Skipper, I am,

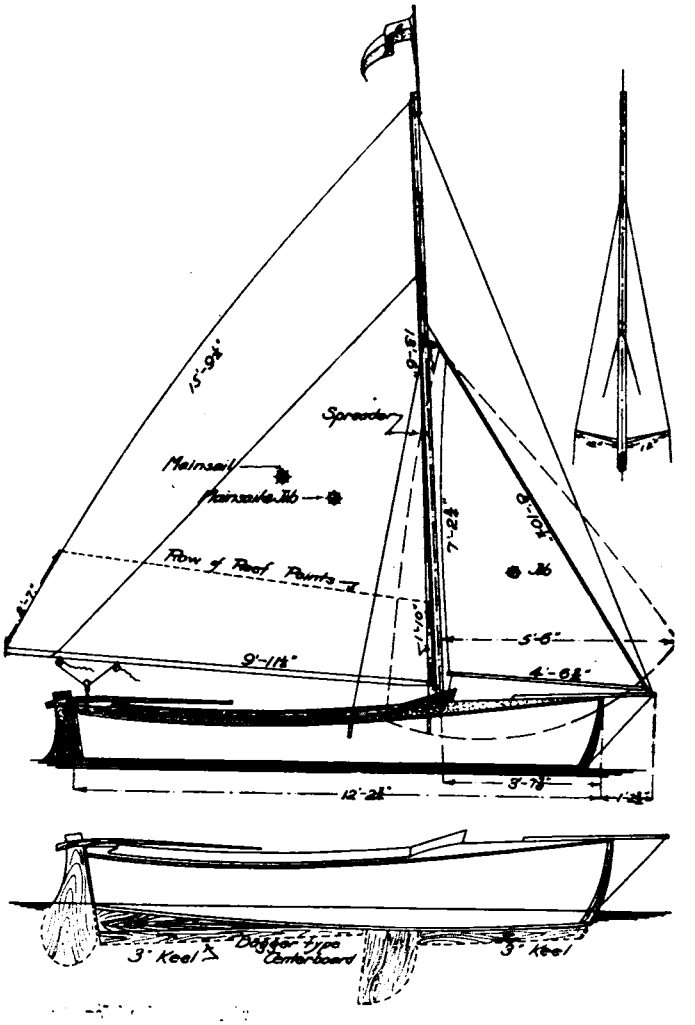
Yours truly,

HENRY M. DEVEREUX, New York

Editor's Note:—We think young Devereux has a right to a certain amount of pride in his work. The drawings are well done and the lettering good. The method of dimensioning all important parts is exceptionally well worked out. While there may be some question in regard to the use of a spinnaker on so small a boat it is a small detail and more a matter of personal taste than anything else.

It is work of this sort, done by young fellows for young fellows that caused the inauguration of this department. There are thousands of youngsters all over the country who have plans of dream boats tucked away in some private nook where the elders will not find them. For some reason the average boy is ashamed to be caught at any work not strictly in accord with the usual tasks or pleasures of youngsters of his age.

If you have plans or pictures of boats you have designed or which you own, send them in. We would like to hear from every boy who has been inoculated with the boat virus. Not only can we help him out in his boat questions, but the experiences he has had will be of great value to other boys. I want this department to be edited by our young readers. Won't every boy and girl enthusiast send in something of interest?



Hurrah's Nest

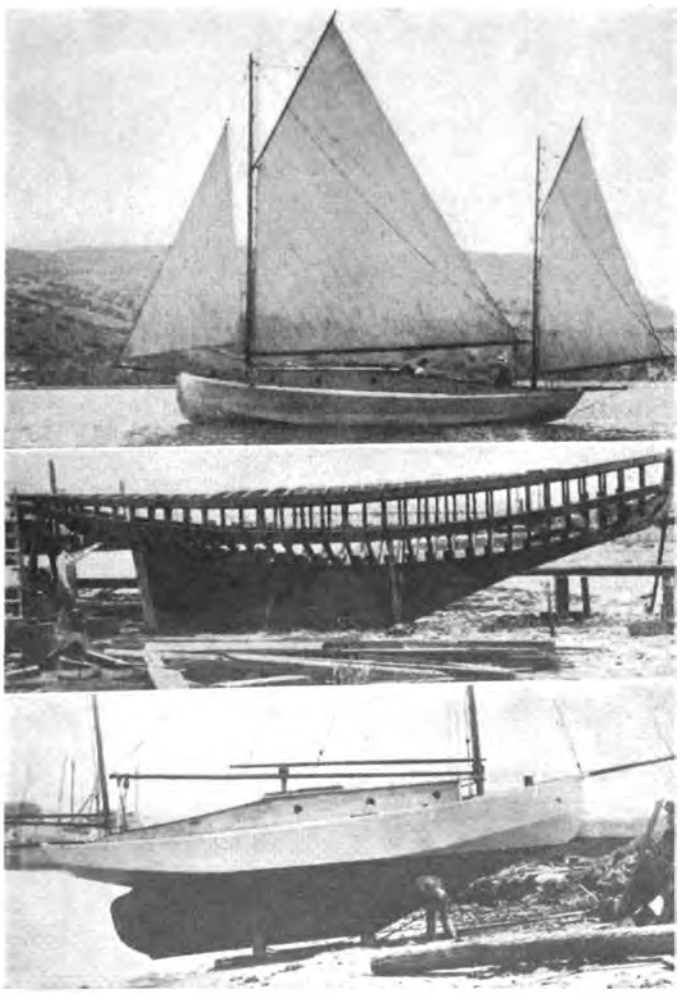
"A place for everything and nothing in its place!" Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 9 Murray Street, New York City, U. S. A.

Islander, Rudder Boat

The pictures below show Islander, built and owned by Harry Pidgeon of Los Angeles, California, from the article How to Build Seagoer which appeared in THE RUDDER for June, July and August, 1913. It will be remembered that Seagoer was designed by Fred Goeller of THE RUDDER staff after Thomas Fleming Day, former editor had returned from his famous trans-Atlantic trip in Sea Bird. Capt. Day wanted a boat that would have all of Sea Bird's virtues with some additional room and many other features that he had found by experience to be advisable. Seagoer has seemed to strike a great many as a fine ocean-going craft. A letter from Mr. Pidgeon to Capt. Day is reproduced herewith.

My dear Capt. Day:

I am sending you some pictures of Islander, built after the lines of Seagoer. My previous experience in boat building was limited to building a few rowboats and flat-boats for my own use. I did practically all of the work myself, even to ripping out the keel timbers and frames by hand. Owing to the cost, and the difficulty of getting oak here, I used Douglas Fir almost throughout, though the stem and timbers that joined the planking to the stern board are of oak. The frames are 1⅞ inch by 4½ inch. The planking is 1¼ inch above the bilge strake and 1 5/16 below. The sheer strake is 2 inch material and the bilge strake 2½ inch. There are no butts in the planking above the bilge. She is calked with two strands of cotton above the bilge and three below. The garboard seam has four strands. She is tight as a bottle and any water getting in comes through openings above deck.



Islander, a West Coast Ocean Cruiser, Built from Rudder Plans

In 1920 I sailed Islander to Honolulu single-handed. Sailing from Los Angeles Harbor June 4th and entered Honolulu Harbor at daybreak July 1st. It was the first landfall I had ever made by astronomical observation. In Honolulu I picked up a California boy, E. A. Brooks, for a mate and sailed on the return voyage, Sept. 26th, a little late in the season for a pleasure trip in a small boat. From the islands we ran up to 36 N. looking for favorable winds to make an easting. I don't believe we had the wind abaft the beam as much as ten days during the voyage. We met some rough weather, with winds that probably blew up to 45 miles an hour. Islander behaved beautifully, and once we hove to under storm jib and reefed mizzen when she rode over the big seas like a duck. We carried a dinghy, lashed alongside the house, though at times, when beating into a head sea, we had to reduce sail to keep from washing it away. We anchored off Santa Catalina in the early morning hours of Nov. 4th. Clothes white and stiff with salt but feeling fine.

I am intending to sail in a few days for the Marquesas Islands. I shall probably go alone, as the man who had made arrangements to go along with me has failed to keep the appointment.

Sincerely,

HARRY PIDGEON

High Speed Articles

EDITOR OF THE RUDDER:

May I send a few words of thanks for the interesting articles which you have given us from the pen of E. Weston Farmer? For years I have been interested in high-speed boat design, but after reading all the boating papers from cover to cover I had come to the conclusion that all speed boat architects had collected a mass of data which they valued as their life. To ask them to publish any of it would be like asking Mr. Childs the formula for his butter cakes. In other words, "nothing doing."

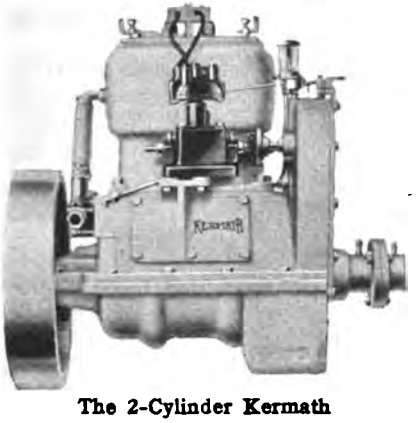
I had just about given up hope of ever collecting any valuable data without the expensive, and in my case, prohibitive procedure of building boat and junking them after trials, when along comes friend Farmer and clears up a lot of the haze. I thank you all.—C. F. G., New Jersey.

The Engine Room

The Kermath Babies

For years the name Kermath was synonymous with four-cylinder engines. In the past the small single and double-cylinder machines were usually of two-cycle type. The increasingly poor quality of gasoline has made the four-cycle engine more and more popular till the Kermath engineering staff decided that there was a market for a small, high-grade four-cycle marine engine. They were hardly prepared, however, for the rush of inquiries that immediately came in.

The first of the smaller sizes was the 4-5 and 6-8-h.p. double-cylinder machines. These were purchased by enthusiastic boatmen all over the world. The single-cylinder 3-4-h.p. came later and, if indications are of much value, the "one-lunger" may become the leader of the Kermath line.



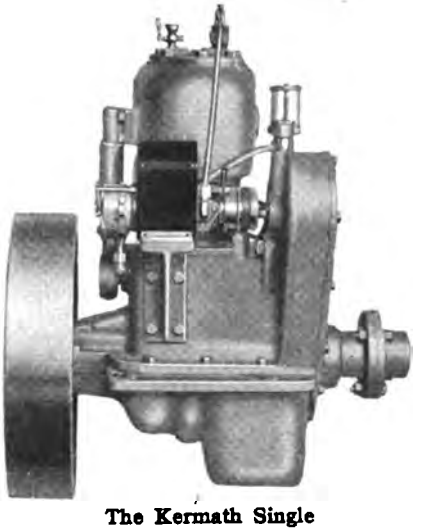
The 2-Cylinder Kermath

While there are many boats in which the 10-12 and larger sizes of four-cylinder engines will fill the bill, there is no mistaking the fact that the average boat in this country is a craft with not over 6-h.p. and where the smallest space possible is allotted to the engine. These boats are mostly family and fishing craft and the owners are not experienced engine men. They require a machine that can be started easily and which will run under its box cover all day long without a particle of attention. These men appreciate the Kermath Babies.

The Model SH Regal

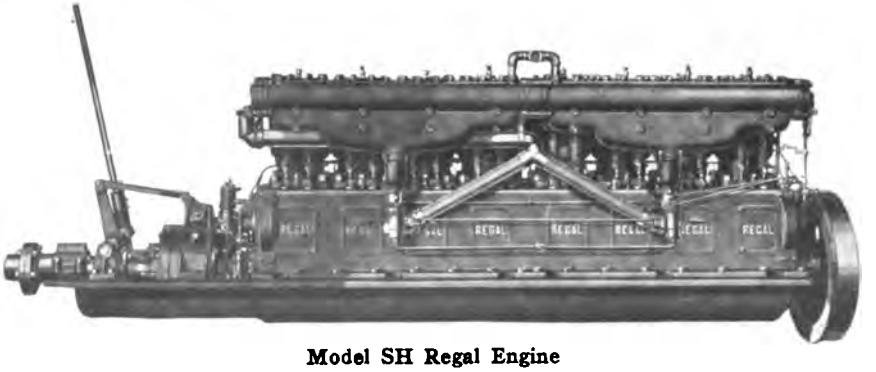
An addition to the well-known line of four-cycle engines made by the Regal Gasoline Engine Co., Coldwater, Mich., has just been announced. This is the 8-cylinder, 100-h.p. machine illustrated below.

This machine is intended for cruiser or work boat service and is built with all the experience that the company has had in the many years of their successful heavy-duty engine business embodied in this engine. The bore is 7½ inches and the stroke 9 inches, while the speed range is between 150 and 400 r.p.m. The weight of the engine complete is 8,500 pounds. The length from flywheel face to propeller shaft coupling is 12 feet 6 inches.



The Kermath Single

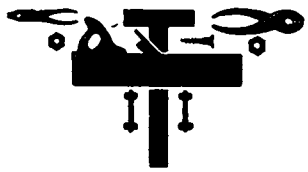
The crank shaft is hammer forged from a 3½-inch nickel steel billet, the finished shaft being 3 inches in diameter. There is a 4⅛-inch bearing between each cylinder. The ignition is by means of both battery and magneto, with two plugs to each cylinder. Owing to the number of cylinders the explosion impulses are so close together to give the smoothness of a steam engine. Arrangements are made to take care of the low grade of fuel now provided.



Model SH Regal Engine

The Work Bench

This is a monthly department for yachtsmen who build their own equipment. In each issue there is a question pertaining to the design and construction of some item of equipment for power or sailing yachts. For the best answer each month THE RUDDER *gives a credit order for $25.00, which will be accepted in payment for goods handled by any advertiser in the current issue. Contestants whose answers are published, but who are not first prize winners, receive a credit order for $5.00. Readers are invited to suggest questions. Prize orders will be mailed directly after publication.*



Drawings must be made with black ink on white paper or tracing cloth; lettering as large and clear as possible, and all dimensions plainly marked, as the reproductions will not be to scale. Descriptions limited to about five hundred words. Answers must be received on or before the first day of the month preceding publication. Address Contest Editor, THE RUDDER, *9 Murray Street, New York City.*

QUESTION FOR THE MAY ISSUE

Describe and Illustrate a wind-mill type bilge pump that can be quickly detached and which will keep a boat dry during the period between week-ends. Answers must be received on or before April 1st

Water Jackets Weakest Part

$25.00 Prize Winning Answer to Question in January

The weakest point of the light, high-speed engine is the jackets. Many inland manufacturers do not seem to know that salt water is very corrosive. They honestly try to make a durable engine, with oversize working parts, but have jacket and cylinder walls so thin that they often rust through in one year.

Automobile practice has been useful in some of these cases, but it should not be carried too far. Flywheel at after end is good engineering theory but poor installation practice. The farther apart bed logs are placed, the shallower and weaker they must be, unless the engine is raised to a bad shaft angle or unless the boat is flat-bottomed.

The valve-in-head type seems to be coming into predominance. Cylinder heads should be removable without disconnecting too many parts. This is desirable in all engines, of course, but hard to achieve in the valve-in-head type. In all types, crank-case hand holes are too often merely "eye-holes." They should be made, at all costs, big enough to work through.

Among heavier engines the worst fault is a recklessness as to space occupied, particularly length. In either work boats or pleasure craft space is too valuable to waste needlessly. Keep long bearings by all means, but hook up accessories alongside rather than forward and aft of the cylinders, and above all avoid building reverse gears that take up more space than the engine itself.

In the extremely heavy types the worst fault is a mania for exaggerating weight to the point of ridiculous caricature. Cast iron is cheap, and by plastering several hundred pounds of it in surplus slabs and gobs all over the casting, the ignorant buyer can be made to think that this weight proves strength, good design, perfect operation and long life, but this is poor business trickery. In particular, 20-pound pistons in an engine where 10-pound ones would have an enormous factor of safety, is bad engineering and costs the user many dollars a year in wasted power.

J. G. H., Fla.

Some General Suggestions

$5.00 Prize Winning Answer to Question in January

Great reliability and unfailing power are the claims of most marine engine builders. Buyers have come to expect this and discriminating ones to demand much more. Considering the high cost of gasoline and the quantity required to drive a boat of any size, the owner usually wants economy of operation. Evidently there could be some improvement in many designs along this line, while actual tests and data that would enable the prospective buyer to select the size and type of engine best suited to his particular hull, would undoubtedly increase the mileage of boats just as it has the automobile. Any improvement along this line will benefit the builder quite as much as the user, by advancing and increasing the popularity of power boating generally.

The experienced user also wants a marine power plant of the utmost accessibility. He knows, regardless of how well the engine was designed and built, that the time will come when some adjustment, repairs or at least a thorough inspection will become necessary. When that day arrives, the experienced operator knows what an advantage it will be to make adjustments and inspection without tearing down the entire machine.

It is generally conceded that some economy of operation can be effected by using the valve-in-head type. A removable cylinder head is to be preferred, as carbon is easily removed and the walls inspected. With the easily removed head the valves can seat directly on the water-cooled casting, eliminating expensive valve cages. In order to have the head easy to remove, no manifold should be connected directly to the head, but should be attached to the block proper and cored passages led to it from the head.

The cylinder walls should be made with a separate removable sleeve; easily replaced should one or more cylinders become scored or damaged. The advantage of this construction is that while the sleeve is not expensive to replace, serious damage to even one cylinder would require the replacing of the entire block. Another advantage is that the walls are the same thickness all around, almost an impossibility with the usual cast block.

The intake should be designed with a hot spot to take care of poor gasoline or even kerosene. Some method of adjusting the heat of this hot spot should also be provided so as to obtain the best results with fuel of any sort.

Any boat of any size needs a power bilge pump but this is rarely included as part of the necessary equipment of the power plant. Usually this pump is very difficult to attach to the average machine with all moving parts enclosed. A more satisfactory and less expensive job could be done by designing and including a bilge pump as part of the outfit. This pump should have a clutch or means of disconnecting it when not needed so as to prevent needless wear, and it should be located as low as possible to eliminate the necessity of priming.—C. H. C., Michigan.

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Yachts Building for All

One of the most encouraging signs of the renewal of yachting interest is the number of large yachts that are being built at the present time. There is no doubt that the usual boat owner is not personally interested in yachts of 100 feet or over, but the fact remains that when big yachts are being brought out the yards building the smaller classes are also busy. When the wealthy man finds his finances in such shape that he can afford to build a pleasure craft costing several hundred thousands of dollars, it is a good indication that business conditions throughout the country are on a sound footing. Good business for the big man can mean nothing but better times for the small man. The eventual result is more yachts of all classes.

Practically every boat yard in the country is on a full time basis. In the cases of those yards which have little work to do at present, the cause can usually be traced to one of two things. Either the yard has been so hard hit by the past year's bad times that they have stopped advertising, or else they still feel that the peak of war-time prices can still be charged for boats. There are only a few plants that have not dropped their prices way below the scale that prevailed during the last few years.

Labor and material charges have come down in almost every case and boats are now as cheap as they ever were. It is true that a boat cannot be purchased today for the same sum that would have been sufficient 10 years ago, but one must realize that the average income of the boat-owning public has increased in about the same proportion. A man who some years ago worked at a trade and was paid $3.00 per day for his services, felt that he could afford a boat of a certain price class. This same man is today, even with the reduction in wages that has been under way for the last few months, earning at least $5.00 per day. The same sort of boat will not cost him more than his proportionate wage rise if he buys it today.

There has been a great hue and cry about waiting until boat prices come down. They seem to think that boats will again reach the low prices that prevailed in the nineties. If such a thing would happen it will mean the collapse of the nation's finances. Boats are a commodity and their rise and fall in price must follow the general trend. Boat builders have always figured on making a living, and the fact that they do little more than that at present proves that the prices they ask are only fair. No one can argue that shops are run on a less efficient basis than they were in years past.

The results of the Show proved that boats are down to bed-rock. The writer only remembers one cruiser in the last 15 years that was priced as low as $1,500. Even at that she was not comparable to the 27-footer shown at the Palace. The same holds good in the open boat classes.

The Future of Racing

The elimination, even if only temporary, of hydroplanes from competition for the Gold Cup is a matter deserving of some thought by all who have the interest of the sport at heart. The indications are, that barring a possible challenge for the British International Trophy, we will see little or no hydroplane racing under the auspices of the American Power Boat Association.

The Mississippi Valley and International Power Boat organizations are planning many hydroplane contests, but naturally they will be held in the West, too far away for the East Coast enthusiast to take a very great personal interest.

Many boat owners argue that hydroplane racing is of no interest to them. They forget, or do not know that pleasure boating is divided into two great parts. On one side we have those who use their boats for recreation. To them a boat is simply a means of giving pleasure in the same fashion that other men take up hiking, amateur gardening or botany. They are perfectly content to sit at the wheel all day and slide along at a six or eight mile pace, smoking their pipe and conversing with friends. The other division includes those who take to power or sail boats as a sport. They put the same energy into it, and expect the same thrill out of it as they would from football, baseball, or polo. Boat racing to them is a contest of nerve and stamina. Discomfort is expected as part of the fun. A baseball player who held an umbrella over his head while waiting for the ball to come his way would be hooted off the field. Why then, should the racing boatman be considered a harmless, but nevertheless benighted being? One is led to believe that the sportsman of the East are being weaned into the recreationist class. The next step is the rocking chair and senility.

It behooves every sport-loving boatman to stand right up in meeting and voice his protest against the lack of racing spirit which is being shown all along the Atlantic Coast. If fast boats are not fostered here, the day will come when we will be incapable of defending the British International or any other trophy that some outsider should covet.

The use of fast boats cannot do any harm to the owner of slow ones, there is room enough in the rivers for both, and the lessons learned by the marine engine builders whose product is given the acid test of racing, is valuable to every enthusiast. The time is coming when, unless the existing power boat organizations pay more attention to fast boats it will be necessary for those who do love them to form an organization of their own which will consider nothing but craft of the runabout or hydroplane types. It is a foregone conclusion that you cannot mix recreationists and sportsmen until the day when oil and water will fraternize.

March Illustrated For Sale List

WHEN a yachtsmen of many years of experience says he does not wish to buy a second-hand boat, we immediately are led to believe that the years have taught him certain things which he desires to have incorporated in his next yacht. There is no doubt but what one does pick up certain points as boating experience grows, and, often these points can be worked into a craft by a clever naval architect. Boats built in this manner sometimes satisfy their owners, but more often they are simply stepping stones toward larger or more comfortable craft. No owner, and no architect has ever laid out a perfect yacht and the probabilities are that there never will be a boat without some point which could be improved.

A sure sign of a rank amateur in the sport, is the remark that no second hand boat will suit. No one is entitled to such a stand until at least ten long years of boating experience has passed on. For the newcomer to make such a remark is proof of the fact that he is repeating, parrot-like, what some older and more stubborn man has told him.

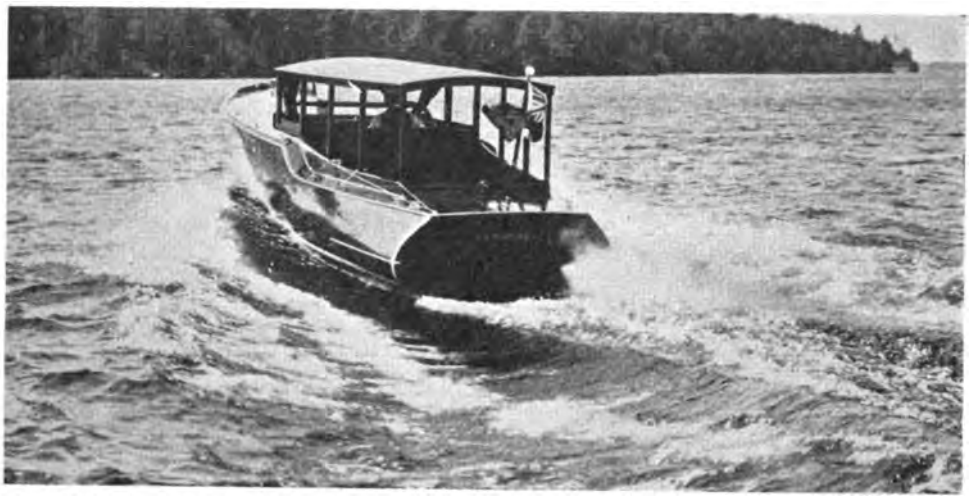
Does the foolish being who takes this stand ever stop to figure that at least 50% of the wealthiest and most experienced yachtsmen in the country are persistant buyers of used boats? These men have seen years of yachting, but they make a practice of purchasing all their boats from the secondhand market. They have a good and sufficient reason for this. In the first place they save money, and in the second place they get a product which has been tried out in service. Because a man wants to sell his boat is no reason for thinking that she has been a failure. He may have a dozen reasons for selling in spite of the fact that the boat is sound and satisfactory. One of the foremost reasons is that man is more or less fickle. His boat love of one season may grow cool the next. He has seen some other craft and wishes to own one like it.

A favorite remark of the youngster who has read all the books and consequently knows all that any one can hope to achieve, is that such and such a boat is no good because the cabin is 2 inches too high. Another will not endure a boat that has any oak trim. The third will stick up his freckled nose at any boat with a square window in the cabin because he has read that port holes will stand more of the sea. He never stops to think that all these boats were designed and built by men who had forgotten more boat lore than he has ever known.

The best thing a young man can do when he wishes to buy a boat is to approach the matter with an open mind. He should know what he wants in a general way, but should be able to amend his preconceived ideas to suit his pocketbook. If he starts out to buy a cruiser, he should by all means get one, but length can vary a little and appearance a lot without making any appreciable difference in the pleasureable service provided. An uneven spacing of port lights may be a glaring fault at first glance, but after a few weeks the matter will be forgotten.

It is often said that a camera does not lie. This is not quite true. Many a boat looks better than her pictures indicate, while others, unfortunately do not show up as well when portrayed. A camera will usually accentuate the room in a cabin or the length of a deck, but the position in which it is held may make or mar the outboard appearance. The average snapshot is far from complimentary. These things must be kept in mind when looking over pictures of Boats For Sale. On the following pages you will find illustrated approximately 120 pleasure boats of every type, size and power. There you will find speed craft, capable of taking you over the water with the same, or better speed than you could get with an automobile. You will find cruisers galore, from the little boat with a couple of berths up to a palatial seagoing yacht in which you could cruise to the far corners of the world.

Go over the list carefully, unless you are one of the callow youths or the seasoned cranks we mentioned above your will find a craft that will fit your requirements not only for service, but financially as well. Get in touch with the advertiser at once.



520

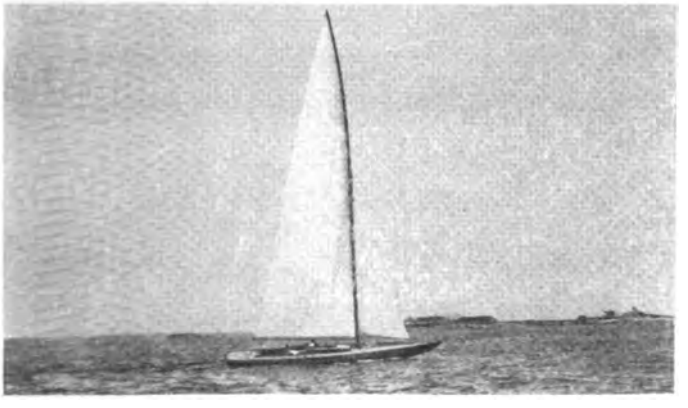
No. 520—For Sale—30x7x2½. Solid mahogany, natural finish, used only 3 months, motor 85-h.p. Sterling 4-cylinder self starter. Speed 20 miles. Designed by C. D. Mower, built by Ditchburn Cay, Gravenhurst. Cost $5,000. On account of owner's illness the asking price is only $3,000. On the cars at Gravenhurst. Nearest offer takes her. Equipment consists of electric lights throughout. Kopec filled cushions, life belts, anchors, fenders, ropes and canvas cover for storage. W. R. McGill, 130 Tyndall Ave., Toronto, Ont.

577

No. 577—For Sale—Auxiliary centerboard sloop. 27x9x3. Complete cruising equipment, outside lead 1,500. Cabin white enamel, 3 berths. Bright work mahogany. Speed under power 7 miles. This boat is in A-1 condition must be seen to be appreciated. Bargain for cost. W. E. Spencer 218 Cass St., Trenton, N. J.

* * *

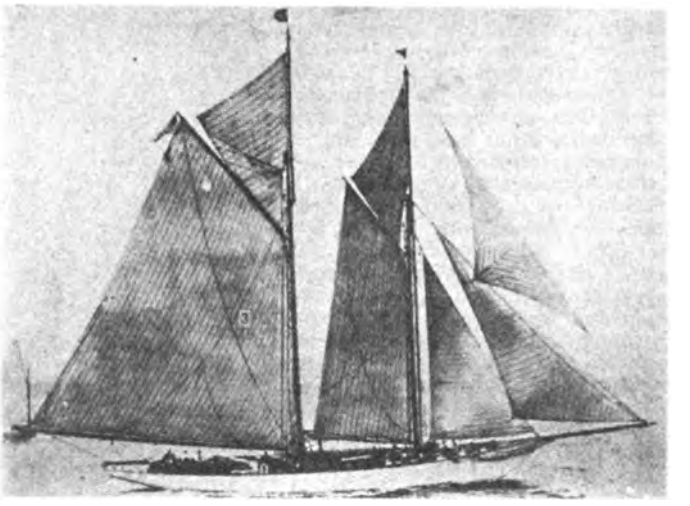
No. 25399—For Sale—Exceptionally fast and powerful R boat, 35.3 ft. by 24.55 ft. 7.78 ft. 5.56 ft. Mahogany planking and



25399

finish. New 1920. Rig modified to meet new rule requirements. Burgess & Paine, Yacht Brokers, 131 State St. Boston 9, Mass.

2468



1837

No. 2468—For Sale—Roomy raised deck gasoline yacht with bridge on the upper deck. 60 ft. by 52 ft. by 12 ft. 6 in. by 4 ft. 6 in. Powered with a six cylinder, 4 cycle, Sterling motor, new fall of 1917. Speed 10 to 13 miles per hour. Accommodations include large saloon amidships. Two staterooms aft; engine room and crew's quarters forward. Full headroom from bow to stern. Engine has electric self starter, generator and separate battery. Was not run over 500 miles in 1920-21. Delco lighting system with separate engine. Yacht must be examined to be appreciated. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., New York, N. Y.

* * *

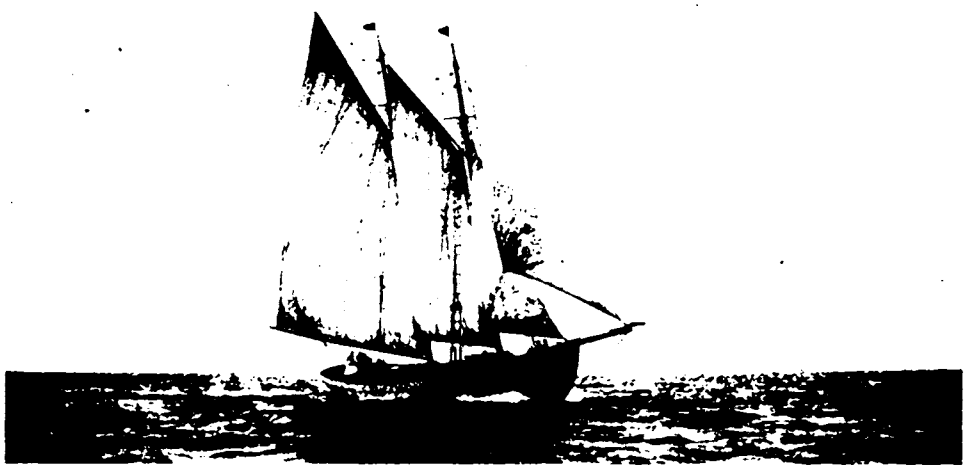
No. 1837—For Sale to settle an Estate—Comfortable old style flush deck schooner, 84 ft. by 66 ft. by 16 ft. 10 in. by 10 ft. Rebuilt from keel to truck by Lawley in 1903. Single and double staterooms, large saloon with 3 berths and transoms. Lead ballast; good equipment. Has cruised to Labrador. An old boat, but good for years of service. This offering is certainly worth investigation. Apply John G. Alden, 148 State St., Boston.

* * *

No. 422—For Sale—High Grade Class R knockabout, 36 ft. 8 in. by 22 ft. by 8 ft. 5 in. Built 1914 by Wood & McClure; mahogany planked, finished bright. Narrow house, good sized self-bailing cockpit. Cabin contains two good size berths and toilet. Not only desirable for racing in one of the most popular classes, but also ideal for afternoon sailing, and a splendid fast cruiser. Apply John G. Alden, 148 State St., Boston.

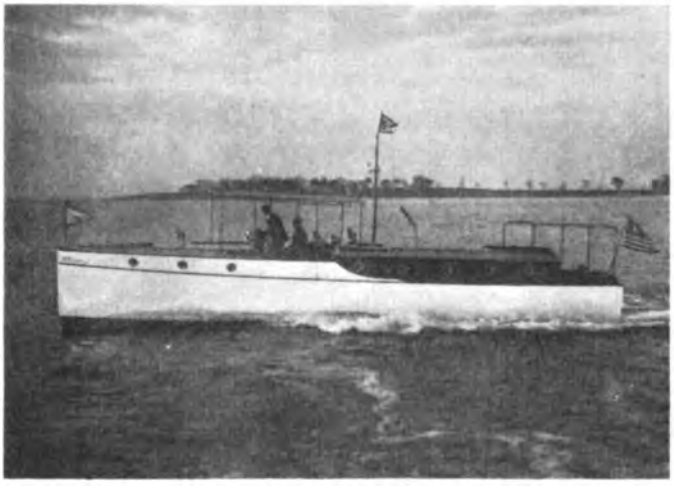
422

No. 522—For Sale—"Whistler"—A 61 ft. o.a. 15 ft. 6 in. beam, 7 ft. 9 in. draft, genuine fisherman type seagoing auxiliary schooner. One of the finest boats of this excellent type ever built. A rugged, sturdy little ship in which one may cruise in comfort and safety on deep water anywhere—across the Atlantic or to the South Seas. Splendid accommodations for eight. Motor, Sterling FH-4. Speed under power 9 miles. Fast under sail. Ample fuel and water capacity. Designed by Hand and built 1919 by Hodgdon Brothers for designer's own use. Absolutely complete in all details, most attractively finished and in perfect condition. May be inspected at New Bedford, Mass. For price and particulars address W. H. Hand, Jr., New Bedford, Mass.



522

No. 477—For Sale—Express cruiser, Emoh III designed by Frederick K. Lord, naval architect, and built by Greenport Basin and Construction Company, 1917, with new 6-cylinder 1921 Van Blerck Engine, 150-h.p. A-1 condition in every respect; now stored at Greenport Basin and Dry Dock Company; ready for commission April 1st or before. Ideal cruiser in every respect; sleeping accommodations, three luxurious masters' Pullman berths with springs and mattresses; also extra pipe upper berth. Galley mahogany, and arrangements perfect. Comfortable accommodations forward for crew of two—one sufficient to handle boat. Gasoline capacity 170 gal; water, 60 gal. length, 43 ft.; beam, 8 ft. 6 in.; draft, 3 ft. Extreme speed on trial trip, 24-7/10 miles. Best bargain for this class of boat in the market. Price, $9,800. Address Box 194 c/o The Rudder, 9 Murray St., New York City.



477

477

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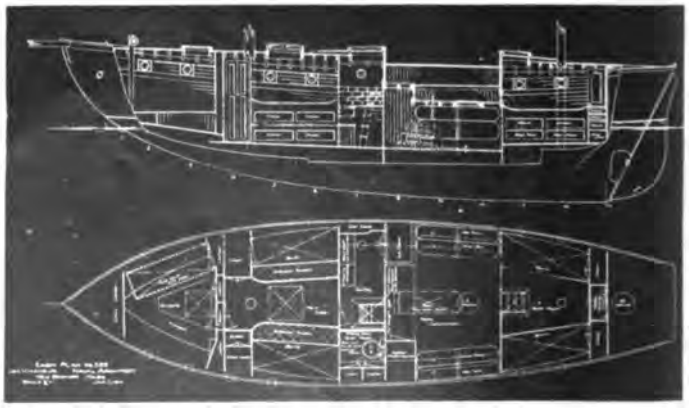
No. 529—For Sale—Auxiliary ketch Maiko, 44x37½x12x5½; 25-h.p. Sterling Engine. 12-ft. dinghy with Evinrude. Main cabin, 2 berths; 2 extension transoms finished mahogany. Aft cabin, two berths finished white and mahogany. Exceptional closet and drawer room. Galley and toilet. Forecastle with 2 pipe berths and toilet. Cockpit fitted for sleeping five, with awning usable at anchor, sailing or steaming, and contains wheel and engine controls. Cabins have ports and main cabin skylight. Electric lighted throughout. Best of materials and workmanship. Unusually comfortable, able, fast cruising boat in best of condition and fully equipped. Inspectable Marine Basin, Ullmer Park, Brooklyn, N. Y. Apply any yacht broker or W. B. Lloyd, 30 No. Dearborn Street, Chicago.

529



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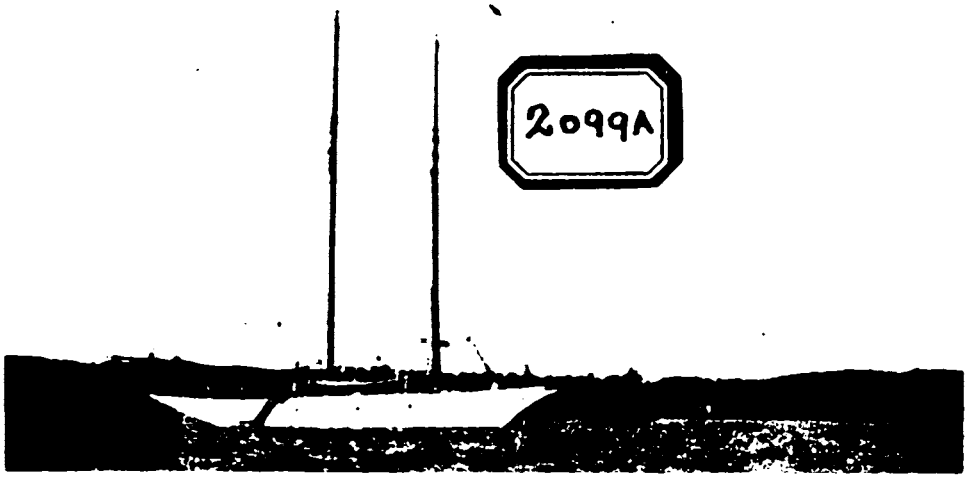
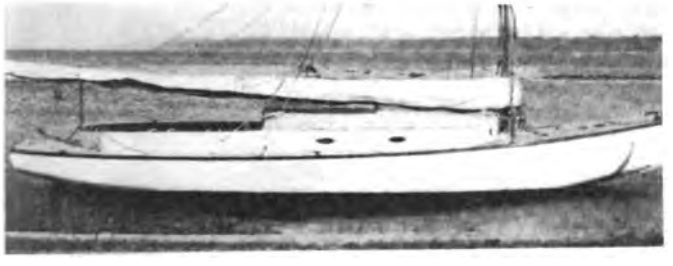


2099

No. 2099—For Sale—Flush deck, keel auxiliary schooner 60 ft. by 43 ft. by 15 ft. by 6.10 ft. draft. New 4 cylinder 50-h.p. J. V. B. motor installed 1921. Speed 8 miles per hour. Double stateroom, large saloon with four berths, toilet room, galley, etc. Electric lights, independent plant. Sails and equipment in good condition. Ample crew's quarters including captain's stateroom. This boat was thoroughly overhauled in the Spring of 1921 at considerable expense and is in excellent condition. Bargain for quick sale. Located near this city. Price and further particulars from Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

No. 394—For Sale—C. B.—Cape Cod Shoal draught cruising sloop 35 ft. by 24 ft. by 11 ft. by 27 in. draught: 3,000 lb. all outside lead ballast: large cabin: fine cushions: brand new suit sails cost $625. Very fast sloop, never been spoiled with motor in her: Cost $5,000 duplicate: just serviceable new boat: price $1,000. (No offers). E. V. Rosemond Specializing "Good Used Crosby catboats" Widow's Hole Basin, Greenport, L. I.



394

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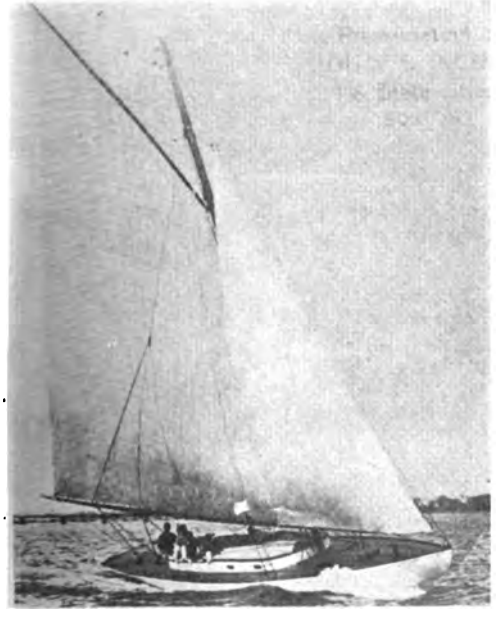
No. 1647—For Sale—Fast Lawley knockabout, 41 ft. by 25 ft. by 9 ft. 5 in. by 6 ft. Double planked, copper fastened, outside lead. Toilet new 1921. Sails and rigging good. Well found. Ideal for afternoon sailing, very handy, will cruise four comfortably. One of the most attractive and desirable 25-footers. Apply John G. Alden, 148 State St., Boston.



1647

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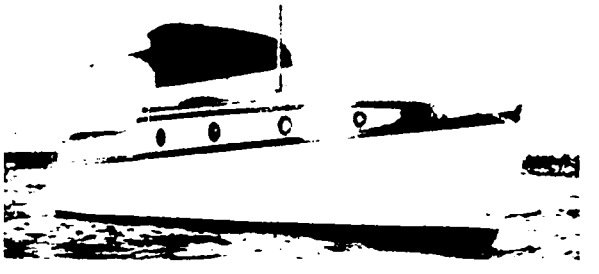
No. 539—For Sale—Splendid modern cruiser 26x8½x3 with head room. Very seaworthy, extra heavy planking and oak frames. Cabin finished bright. Sleeps four. Toilet and lavatory compartment, icebox, copper tanks, selfbailing cockpit. Lathrop engine operating either on kerosene or gasoline. Price reasonable. W. S. Brown, 201 Wentworth Ave., Providence, R. I.



539

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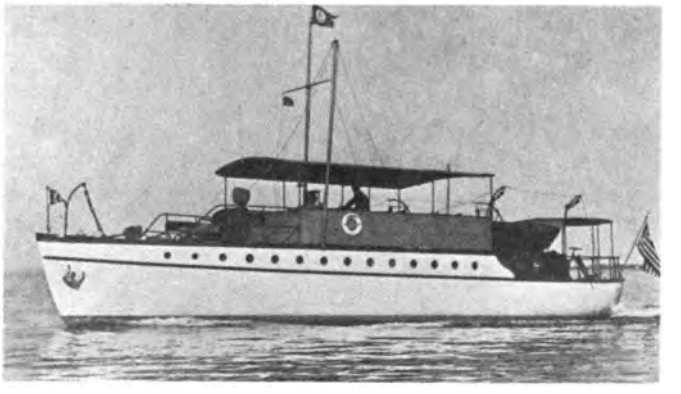
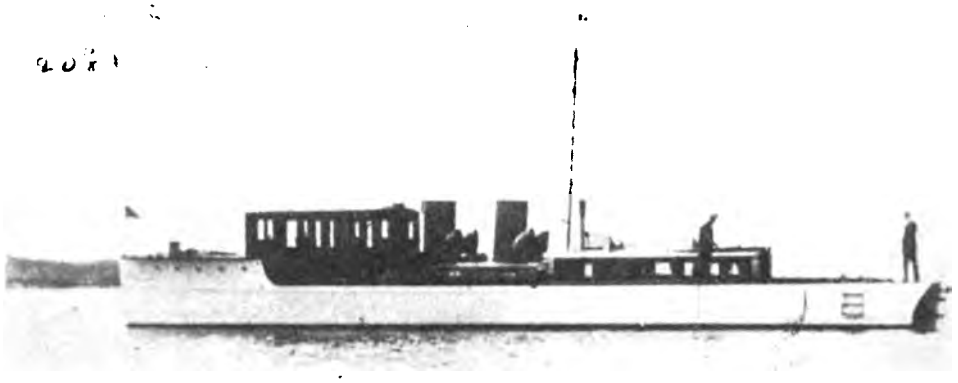
No. 1614—For Sale—Raised deck cruiser, 57 ft. by 13 ft. by 13 ft. 4 in.; 50-h.p.; 20th Century motor, electric lights, etc.; speed 11 miles. Has owner's stateroom, saloon with Pullman berths, two guests' staterooms, bathroom, galley, engine room and crews' quarters. Complete outfit including Nicholson log, two tenders, etc. Inspection invited. Apply William Gardner & Co., 1 Broadway, New York.



1614

No. 2081—For Sale—A most attractive and serviceable twin screw express cruiser 76 ft. 6 in. by 11 ft. 9 in. by 3 ft. Hull double planked mahogany. Two 6 cyl. Murray & Tregurtha 300-h.p. engines installed 1920 and in perfect running order. Recently overhauled by makers and pronounced by them to be good for ten years' usage. Cruising speed 20 knots at 950 r.p.m., maximum speed considerably more. Double stateroom and toilet forward; tanks, etc., under saloon; engine room next aft. Galley, toilet room and main cabin containing two berths under after trunk. 14 ft. deck saloon; roomy deck aft. Very trim in appearance. Absolutely reliable power plant. Apply John G. Alden, 148 State St., Boston, Mass.



2081

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No. 517A—For Sale—Well built and attractive raised deck power cruiser 30 ft. by 8 ft. by 2 ft. 5 in. Gray motor 20-24-h.p., installed 1920, 4 cylinder 4 cycle, gives speed of about 9 miles.

517A

Comfortable cabin. Three transom berths, toilet, washstand, etc. Laid up near Boston. Price very reasonable. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

491

No. 491—For Sale—Friendship sloop. Here's a corking good seaboat, oak frame and plank. 12-h.p. Lathrop that's human. What more do you want? 35x11½x6. E. A DeWolf, 10 So. Sixth St., New Bedford, Mass.

* * *

No. 3404—For Sale or Charter—Steel, Diesel motor yacht (only craft of type available); very able; heavily constructed; 95 ft. by 15.3 ft. by 6 ft. Speed 12-14 miles; 150-h.p. 6-cyl. Winton-Diesel motor (practically new). Remarkably economical to operate. Deckhouse, large main saloon, two double staterooms,

3404

bathroom, two toilets, etc. Reasonable figure accepted for quick sale. Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

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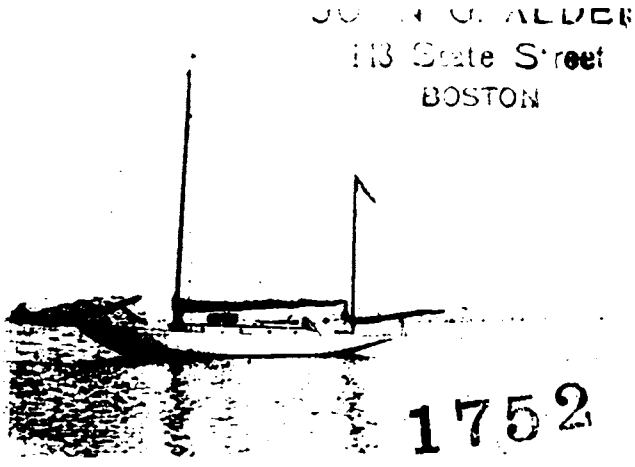
No. 2335—For Sale—Attractive, commodious, twin screw cruising power yacht; 83 ft. by 13.6 ft. by 3.6 ft. Speed up to 15 miles; two 75-h.p. 6-cyl. 20th Century motors. Deck saloon forward of engine room; dining saloon with two extension berths, galley, one double and one single stateroom, bathroom, and two toilets aft. Independent electric light plant. Handsomely finished and furnished. Deckhouse, etc. of teakwood. Unusual deck space. Excellent condition. Very reasonable price accepted for prompt disposal. Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

2335



1752

No. 1752—For Sale—Best moderate draft auxiliary yawl available. 46 ft. by 33 ft. by 13 ft. by 4 ft. 10 in. Built by Lawley 1916. Centerboard entirely below cabin floor. Thoroughly overhauled 1921 and splendidly kept up. Van Blerck engine with starter. Two single staterooms, two berths and two extension transoms in cabin. Toilet room, galley, etc. One berth and crew's toilet forward. Apply John G. Alden, 148 State St., Boston.

* * *

No. 2936—For Sale—Bridge deck cruiser; 45 ft. by 10.7 ft. by 3.6 ft. Speed 11 miles; 32-37-h.p. Standard motor. Double stateroom, saloon, toilet room, galley, etc. Good deck space.

2936

Price very reasonable. Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.

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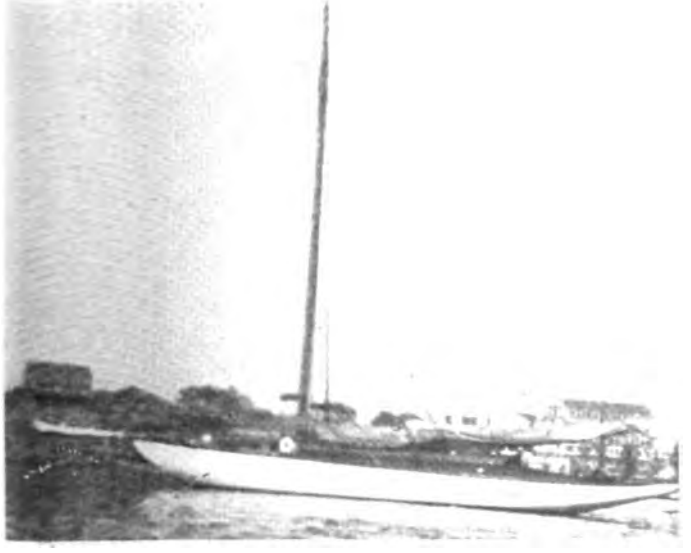
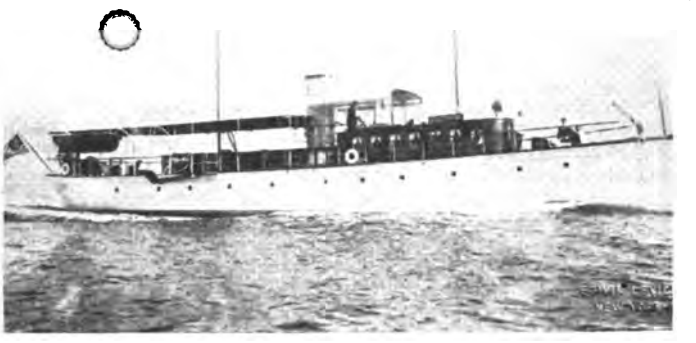
No. 511A—For Sale—Beautiful auxiliary sloop, built in 1906 with extra heavy construction. 53 ft. o.a. 37 ft. w.l. 14 ft. beam,



511A



3489

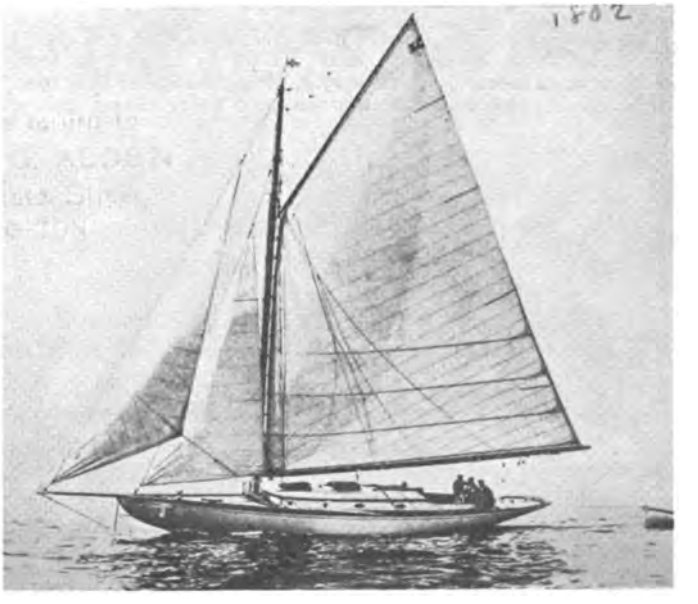
7 ft. 6 in. draft. Large main cabin finished in mahogany, large stateroom and galley, with full headroom. Two toilets. 16-h.p. 2 cyl. 4-cycle Frisbie motor new this year. New mainsail. Price reasonable. Easily inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

* * *

No. 3489—For Sale or Charter—Modern, handsome, flush deck, twin screw cruising power yacht; 90 ft. 7 in. overall, 16 ft. 3 in. beam, 5 ft. 2 in. draft. Launched August 1917. In excellent condition; remarkably able craft. Unusual deck space. Best construction. Speed 13-14 miles; two 115-h.p. 6-cyl. Winton motors. Deck dining saloon with large pantry adjoining, (galley below deck); aft are owner's stateroom (full width of vessel), one double and one single guest's stateroom, vestibule with berth, bathroom and guest's toilet room. Finish and furnishings of the best. Attractive figure accepted for immediate disposal, owner having purchased sailing yacht for Pacific Coast through us. Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

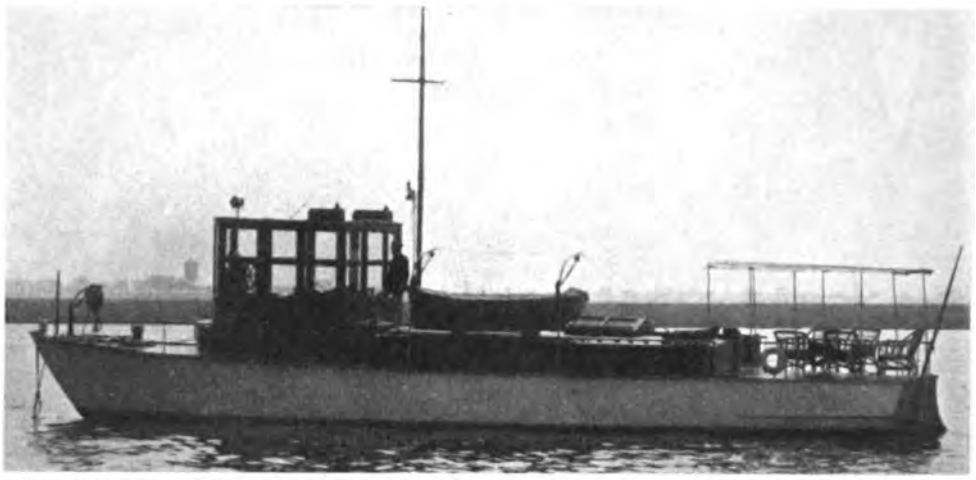
* * *

No. 1802—For Sale—Fast and able Lawley sloop, 46 ft. by 30 ft. by 11 ft. 6 in. by 5 ft. 6 in., c.b. in keel. Construction and upkeep A-1. In perfect condition throughout. Sails new August, 1921. Delco lighting plant 1921. Two berths, two extension transoms in cabin; toilet room, galley and crew's quarters forward. The best sloop of this type available. Apply John G. Alden, 148 State St., Boston.



1802

No. 4149—For Sale—Trunk cabin cruising power yacht; 59 ft. 6 in. by 12 ft. 4 in. by 2 ft. 9 in. Exceptional accommodation including large saloon and large double stateroom; also two toilet rooms. Finished in mahogany and white. Equipped with 60-h.p. gasoline motor giving speed of 10 to 11 miles per hour. Built in 1912 at Essington Shipbuilding Co. and since that time has had an enclosed bridge deck added. Complete equipment and exceptionally good condition; one man control. For further particulars apply Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.



4149

No. 9057—For Sale—Gardner designed 43 ft. sloop. Draft 7 ft. Two suits of sails used two seasons all in good condition.

9057

Hollow spars. Large cabin, toilet room, etc. So arranged motor could be installed under cockpit. Price reasonable. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

* * *

No. 2592—For Sale—Bridge deck cruiser (double end type); 58.6 ft. by 12 ft. by 3.10 ft. draft. Built by Lawley in 1918. Speed up to 12 miles; 6-cyl. Murray & Tregurtha motor new 1921. Large saloon, two double staterooms, two toilet rooms, galley, etc. Delco lighting system. Handsomely finished and furnished. Further particulars from Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

* * *

No. 534—For Sale—Beautiful power cruiser. 37 ft. 6 in. by 8 ft. 6 in. by 2 ft. 10 in. 25-h.p. 4 cylinder Jager motor. Main cabin, double stateroom, full headroom, hardwood finish. Gal-

534

ley, toilet, ice chest, etc. Fully equipped, everything of the best. An unusual opportunity to get a most desirable craft. Laid up in Boston. For further details apply to Hollis Burgess Yacht Agency 15 Exchange St., Boston 9, Mass.

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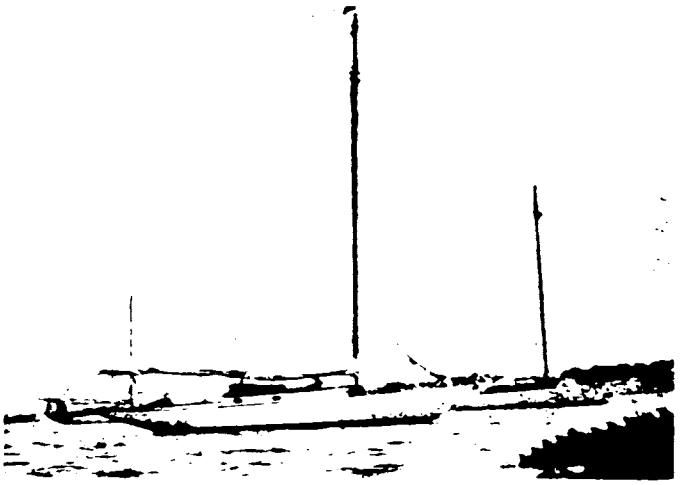
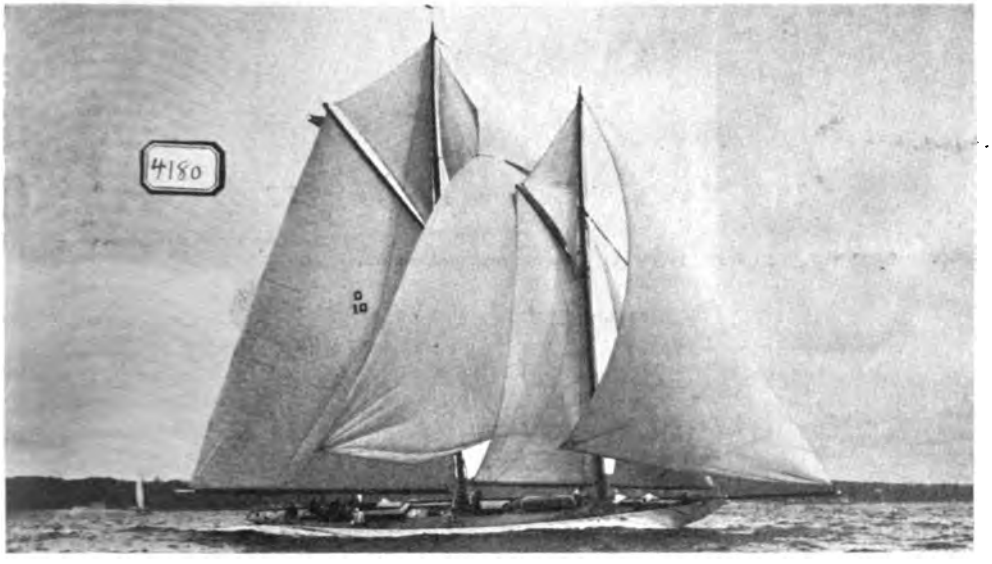
No. 567—For Sale—Auxiliary knockabout, 38 ft. o.a., 25 ft. w.l., 10 ft. beam, 5 ft. 6 in. draft. Outside ballast 6,000 lbs. lead. 7-h.p. Lathrop motor. Unusually large cabin, mahogany finish, full headroom, toilet room, galley, etc. Boat and equipment in fine condition. Will be sold at a very reasonable figure as owner has a larger yacht. Apply Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

2592



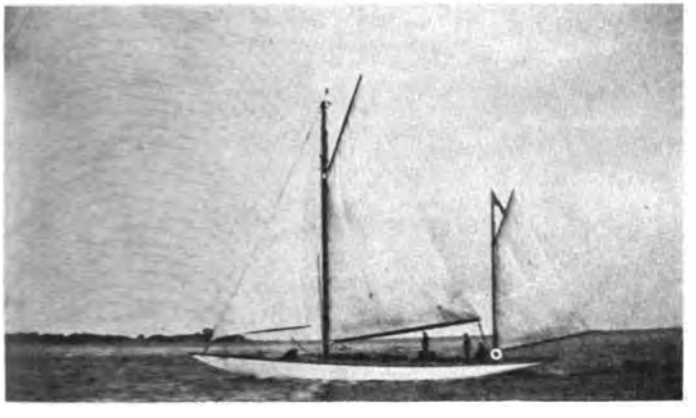
567



4180

No. 4180—For Sale—Well known Herreshoff, flush deck keel schooner yacht; 85 ft. overall, 63 ft. waterline, 16 ft. 7 in. beam, 11 ft. draft. Splendid craft for combined cruising and racing. Winner of numerous cups. Exceptionally good accommodation; three staterooms, saloon, two toilets. In excellent condition; has had careful upkeep. Low figure will be accepted for prompt disposal. For further particulars apply to Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

No. 570—For Sale—Able auxiliary yawl. Built 1912 in best possible manner. 73 ft. by 48 ft. by 13 ft. 10 in. by 8 ft. 6 in. Outside lead ballast. Standard motor. Ample accommodations, including double stateroom, 3 toilets, etc. A beautiful high grade yacht. Very fast and easily handled with crew of two men. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

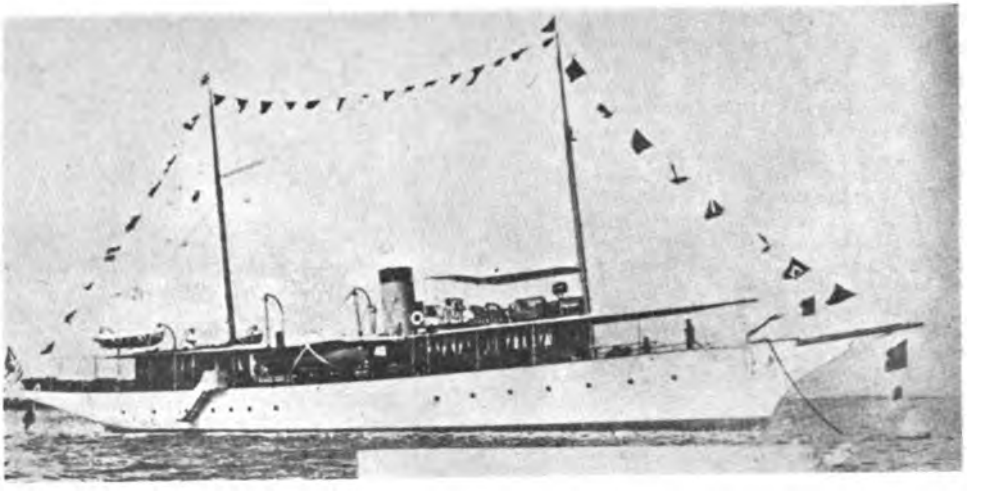


570

No. 173—For Sale—Moderate draft auxiliary yawl, 46 ft. 6 in. by 30 ft. by 10 ft. 10 in. by 5 ft. 4 in. Built by Herreshoff, double planked; outside lead. Speed under power 6 miles. Sails, rigging and equipment in good order. Four berths in cabin, toilet room; galley, etc., and berth for paid hand forward. Beautifully kept up. Apply to John G. Alden, 148 State St., Boston, Mass.

173

No. 9565—For Sale—This attractive 131 ft. off shore cruising steam yacht, kept in A-1 shape. Commodious accommodations Three double, three single staterooms, two bathrooms, two deckhouses, containing dining saloon and social hall. Beautifully finished and furnished. Can be purchased at attractive figure, located New York. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.



9565

519

No. 519—For Sale—Unusually attractive little cabin cruiser, 31 ft. by 8 ft. by 2 ft. 6 in. Atlantic motor, 3 cylinder, 15-h.p. Spacious cockpit, roomy cabin with toilet. Mahogany finish. Able and dry seaboat. To be sold at a very reasonable price as owner has no use for her. Inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.

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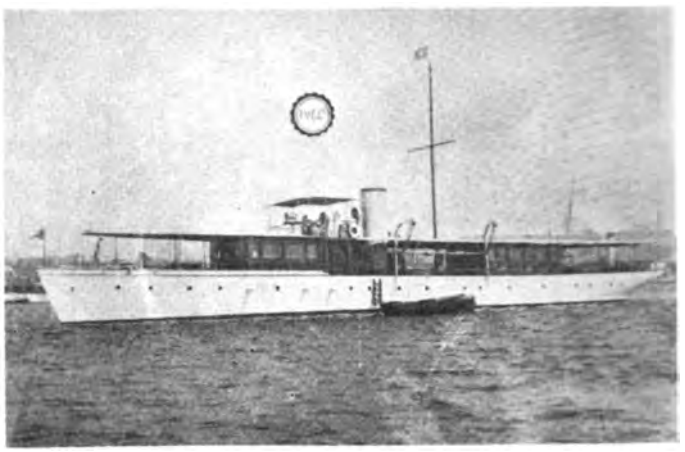
No. 513B—For Sale—"Viking," 36x9, built by Palmer Bros. 4-cyl. 4-cycle, double ignition. Bosch magneto, new 12 volt battery, electric starter and lights, toilet, set-bowl,

513B

sink, running water, ice chest. Stateroom and cabin, mahogany interior. Complete equipment. Excellent seaboat. Good condition $2,500. Edward A. Carr, 19 Pine St., Providence, R. I.



1466

No. 1466—For Sale or Charter—Particularly desirable 140-foot twin-screw steel cruising power yacht. Speed up to 18 miles; two 300-h.p. Standard Motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 baths and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Further particulars from Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.

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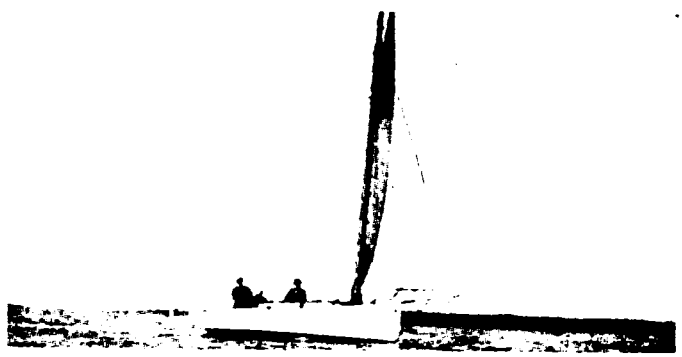
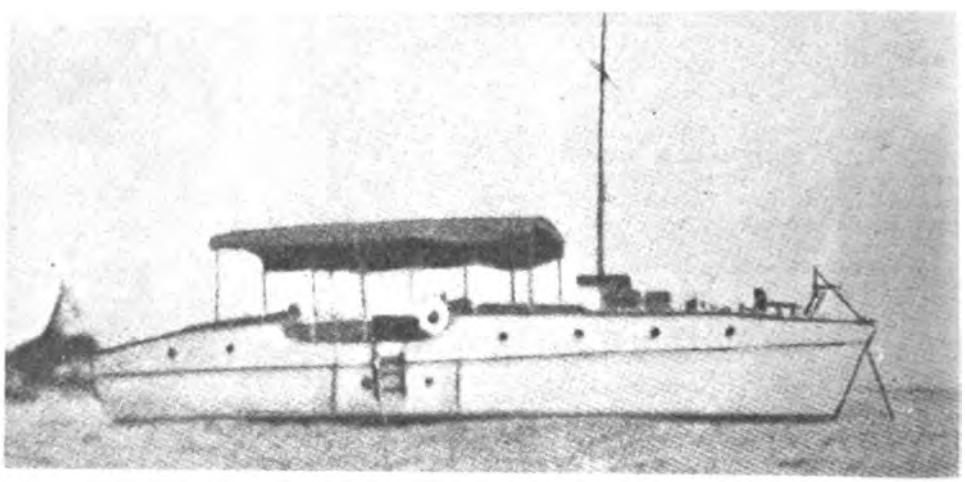
No. 518—For Sale—Auxiliary cruising sloop, Maine built. Very strong and seaworthy. 29 ft. by 11 ft. by 5 ft. 6 in. Stanley heavy duty 7½ h.p. motor. Complete cruising outfit includ-



518

ing tender. This is a type hard to get. Will go anywhere at any time. Price very low. Apply Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.

No. 521—For Sale—Power cruiser. 40 ft. by 8 ft. 6 in. by 3 ft. Built 1910, practically rebuilt in 1914 and now in best shape. Her design makes her an exceptionally able seaboat. Loew-Victor motor 25-h.p. four cylinders four cycle. Speed about 10 miles per hour. Two cabins with over six feet headroom in each. Galley, toilet room, ice chest, ample closet room. Unusually spacious cockpit. Complete equipment. An unusual opportunity to purchase a boat of this popular type at a very reasonable figure. Laid up near Boston ahd easily inspectable. Plans and other particulars on application to Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.



521

2425

No. 2425—For Sale—Seagoing, flush deck, twin screw cruising power yacht; 94 ft. by 16.6 ft. by 4.6 ft. Construction exceptionally heavy; copper fastened. Speed 12-13 miles; two 60/80-h.p. 6-cyl. heavy duty motors. Independent electric light plant. Large cruising radius. Remarkable deck space. Large dining saloon forward; unusually large owner's stateroom with private bathroom full width of vessel; double guest's stateroom with toilet room. Completely reconditioned and refurnished in 1919 at considerable cost. Owner anxious to sell; reasonable offer desired. Full particulars from Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

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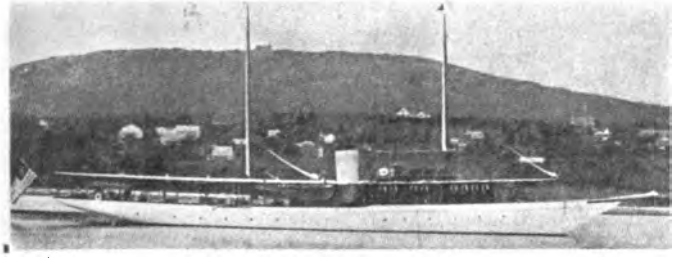
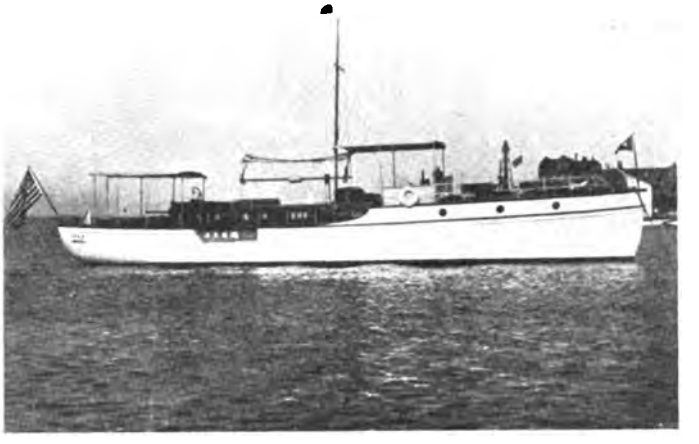
No. 1338—For Sale—Twin screw gasoline yacht, 135 ft. by 16 ft., Lawley built; flush deck and attractive bridge deck. Deckhouse contains dining saloon, smoking room and pantry. Owner's accommodation consist of 3 double staterooms, main saloon,



1338

bathroom, etc. Two 6 cylinder Speedway motors, 11 in. by 12 in.; speed 15 miles. Large cruising radius. Apply William Gardner & Co., 1 Broadway, New York.



1149

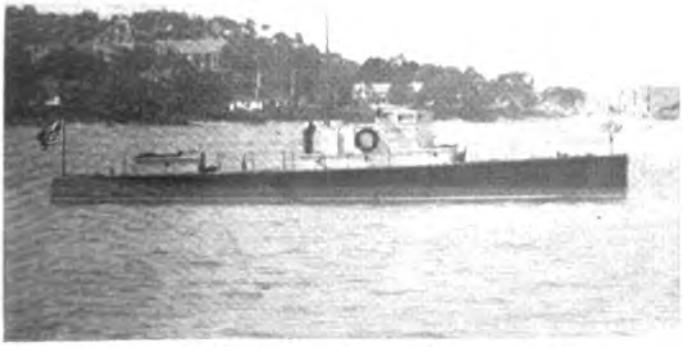
No. 2345—For Sale—Very seaworthy 60 ft. twin screw cruiser, Patrol type; flush deck with pilot-house. Crews' quarters, galley, saloon, motor room, fuel compartment, double stateroom, etc. Two 6-cylinder motors 250/300 each, speed 25 knots; under one motor 18/20 miles. Attractive figure. Owner using smaller boat. Apply, William Gardner & Co., 1 Broadway, New York.

* * *

No. 1149—For Sale—Bridge deck cruiser, 55 ft. by 11 ft. by 3 ft. 6 in. 40-50 h.p., 6 cylinder Standard engine. Cruising speed 13 miles. Roomy bridge deck; good cockpit aft. This launch was designed for day use, or for two to cruise in unusual comfort. Owner's quarters aft consist of large cabin with two berths, numerous lockers, toilet room. 3 berths for crew forward; galley and engine room. Fully found; always kept up in best possible condition. Apply John G. Alden, 148 State Street, Boston.

* * *

No. 568—For Sale—Able auxiliary keel yawl, 43 ft. by 30 ft. by 11 ft. by 5 ft. 8 in. Advantages of outside ballast with light draft. Extra heavy construction, unusual freeboard, magnificent seaboat and splendid sail carrier. A husky single hander. 6 ft. 2 in. headroom. Four berths in main cabin, spring slats, and wide transoms, besides berths forward, sleeps 7. Complete outfit, Shipmate, 100 gal. water tanks, new sails last year. 6-h.p. Mianus, overhauled and renewed. Will be delivered painted, rigged and in the water if desired. Apply Hollis Burgess or John G. Alden, Boston; G. W. Ford Agency, New York; or owner, 505 Tremont Bldg., Boston, Mass.



2345

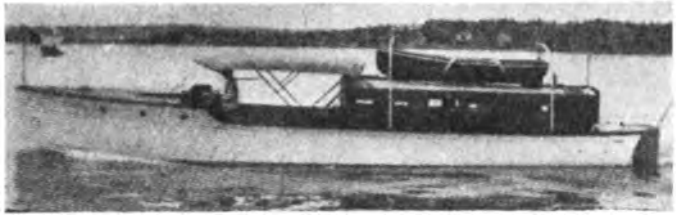
568

526

No. 526—For Sale—Family cruiser 30 feet long—Perfect condition. 4-cyl. Scripps 40-h.p. engine, electric self starter, lights, full headroom, very light and airy, all mahogany joiner work, fully found, compass and binnacle, phonograph and records, dishes, utensils, anchors and line, $2,700. Box 196, Rudder Publishing Co., 9 Murray St., New York City.

* * *

No. 1784—For Sale—At low price. High grade day cruiser, 44 ft. by 10 ft. by 2 ft. 6 in. Very well built. Mahogany cabin and trim; clear pine decks, varnished. Cabin with two berths forward, large comfortable cockpit amidships. Engine under



1784

trunk, accessible from all sides. Good toilet room. Stateroom for paid hand and galley aft. Speed 10-15 miles. Apply John G. Alden, 148 State St., Boston.

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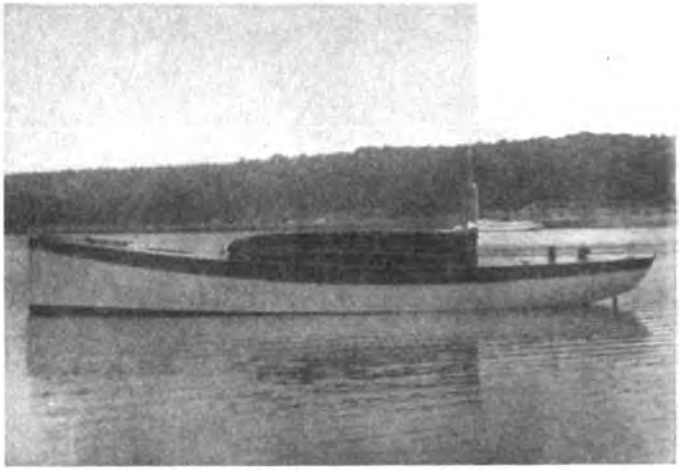
No. 979—For Sale—(might charter) especially desirable 98-foot twin screw cruising power yacht. Speed up to 16 miles; Standard motors. Deck dining saloon, three double and one single staterooms, two bathrooms, etc. Teakwood deckhouse and deck trim. Completely overhauled, new furnishings throughout. Price reasonable. Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.

979



515C

No. 515C—For Sale—Electric launch Barbara; 25 feet overall, equipped with Edison batteries. Boat, batteries and motor in fine condition. Also gasoline charging plant if desired. No noise, dirt or starting troubles. Apply William Minot, Executor, 18 Tremont Street, Boston, Mass.

* * *

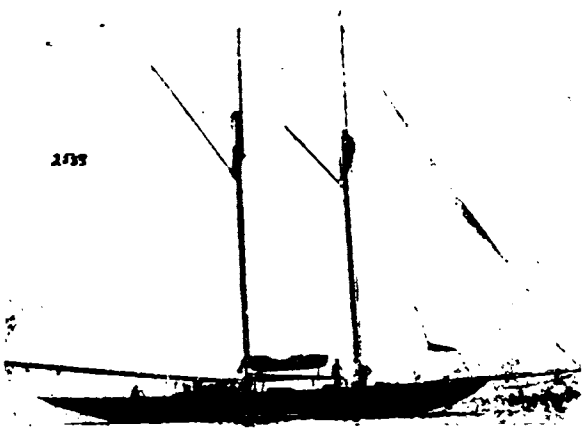
No. 533—For Sale—30 ft. launch Wolf. Quiet, well-built and tight. Schipps 6-cylinder, aluminum case, 50-h.p. engine, giving speed of 20 miles. Light use for three seasons and in excellent

533

condition. Life preserver cushions in cockpit seating seven. Excepting battery, which needs replacing, boat and plant are in first-class shape. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

* * *

No. 2533—For Sale—Very attractive and desirable flush deck auxiliary schooner; 75 ft. by 46 ft. by 15 ft. by 10.6 ft. Lawley built. Sterling motor new 1919. Saloon, double stateroom, toilet room, galley, etc. Sails new 1918. Excellent condition throughout. Price reasonable. Cox & Stevens, 25 Broadway, Cunard Bldg. New York. Telephone 2700 Whitehall.



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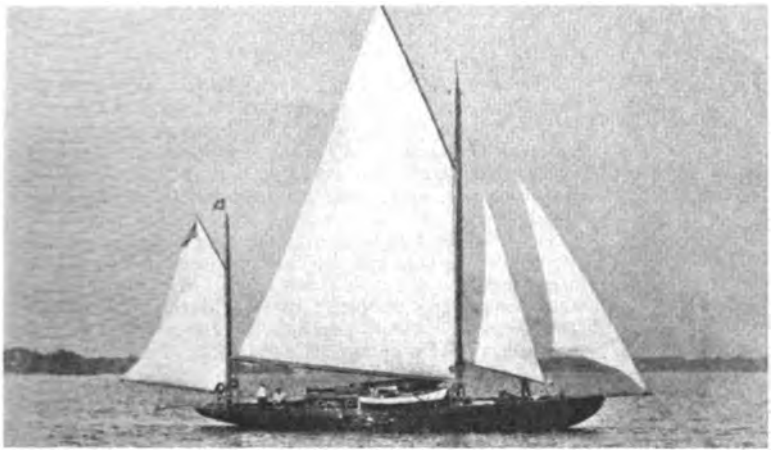

52B

No. 52B—For Sale—Medium draft cruising yawl sixty-five feet o.a., forty-five w.l., 15 feet 6 inches beam; 4 feet draught, 9 feet with board, 10,000 lbs. lead keel, 5,000 lbs. inside, oak frames, planking all cedar, smooth and durable, large cockpit, 24-h.p. Lamb motor underneath, main, cabin large, 6 ft. 6 in. headroom, transom berths, sideboard, lockers, starboard stateroom, width berth, toilet adjoining, port stateroom same, with toilet, large galley, refrigerator, pantry, roomy fore peak, toilet and mess table. Finest and fastest yawl of her class on the coast. Complete equipment. Address: Box 195, Rudder Publishing Co., 9 Murray St., New York City.

No. 4155—For Sale or Charter—Practically new, flush deck, oil-burning steam yacht; 100 ft. by 18 ft. by 6 ft. Extremely able; construction very heavy and of highest class. Speed 11-12 miles; triple expansion engine. Accommodations include deck dining

4155

saloon, two double staterooms, bathroom two toilets aft. Handsomely finished and furnished. Very economical to operate. For further particulars apply to Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

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No. 576—For Sale—Able power cruiser 40 ft. by 10 ft. by 3 in. Built from Alden design by Britt Bros. Launched last summer. Buffalo 30-h.p. motor, 4 cylinder 4 cycle. Cruising speed about 9 miles. Spacious cabin, full headroom, sleeping four persons. Large cockpit, large galley and toilet room. Everything about this yacht is of the very finest and the entire finish is mahogany. A very high grade boat and absolutely as good as new. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

* * *

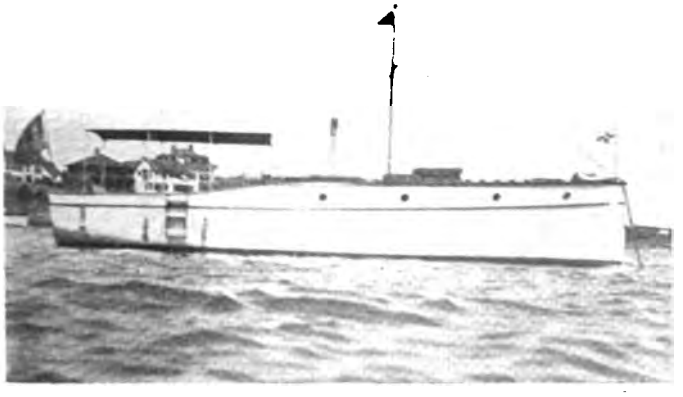
No. 364—For Sale—Coast cruising power yacht. 60x12x4. Designed and built by Frederick S. Nock. 2 staterooms; main saloon; bath. 75-h.p. 20th Century motor. Speed 11 miles. Exceptionally able outfit and one of the most wholesome cruisers offered. On account of owner desiring to purchase larger boat

364

he will consider any reasonable offer for immediate sale. Quick action will secure a bargain. Apply to Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 3877.

* * *

No. 578—For Sale—Crosby cabin cat. 20 ft. by 9 ft. by 2 ft. Stiff able boat, ten years old. 6-h.p. Lathrop motor 3 years old. Big sail in good condition. Fully found. Tight and sound. Located New Bedford. Wm. Taylor. 18 So. Fayer Hall, Hanover, N. H.



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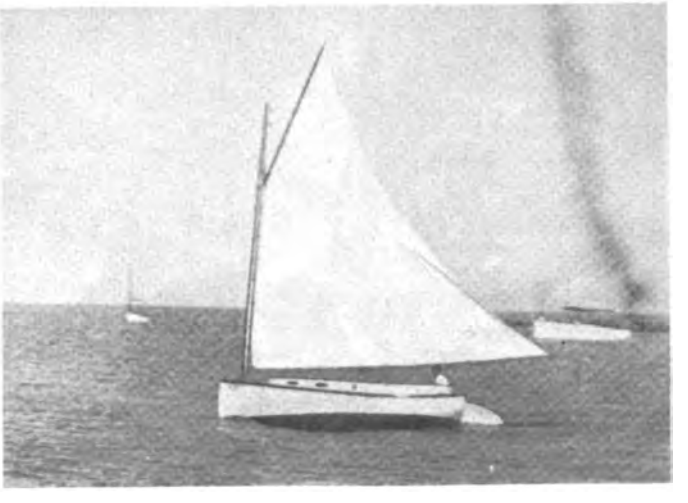
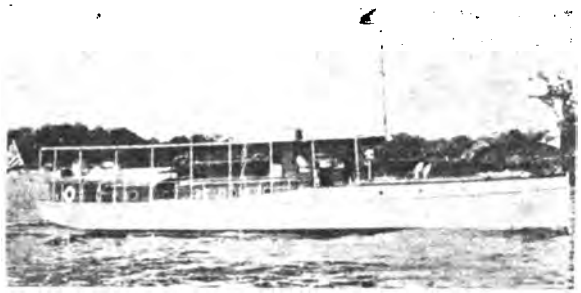


578

40

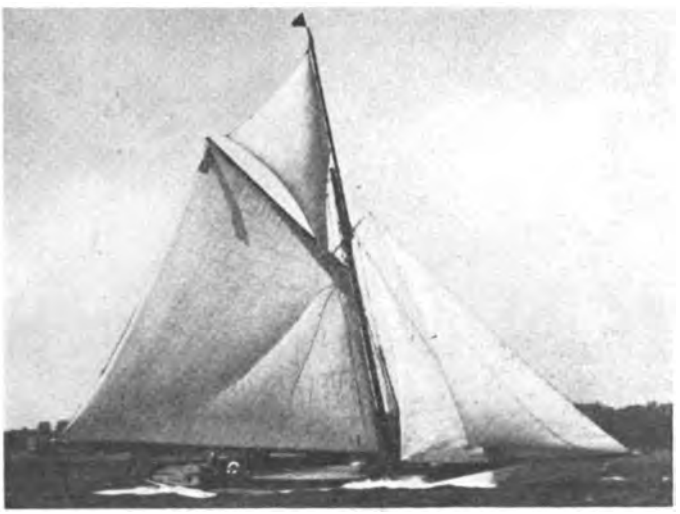
No. 40—For Sale or Charter—Particularly attractive, steel steam yacht; 140 ft. by 17.6 ft. by 7.6 ft. Lawley-built. Speed 12-14 miles; triple expansion engine; water tube boiler. Probably most desirable steam yacht of moderate size available. In 1916 had new main engine, boiler, and many improvements: condenser re-tubed and furnished renewed 1920. Was not in war service; had best of upkeep; in excellent condition. Mahogany deckhouses contain dining saloon and social hall: large owner's stateroom has two beds; three guest's staterooms (one double); two bathrooms. Low price entertained for quick disposal. Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

No. 530—For Sale—Motor yacht "Carol," formerly "Kathmar II." Designed and built by Luders Construction Co. Very desirable cruising yacht 60 ft. by 12 ft. by 4 ft. draught. Two staterooms; total sleeping accommodations 4 to 5 persons. Toilet and bath. Six-cylinder 90-h.p. 20th Century engine entirely overhauled in 1921. Cruising speed 12½ miles per hour. Motor compartment and crew's quarters forward. Complete equipment



530

of linens, silver and china. Has 1 cedar power tender, 1 cedar dinghy and 1 working dinghy. Located near New York. Price attractive. Apply to any one of the following brokers: Cox & Stevens, 15 William St., New York City, William Gardner & Co., 1 Broadway, New York City, Henry J. Gielow, 23 West 43rd St., New York City, Frank Bowne Jones, 29 Broadway, New York City, Harry W. Sanford, 501-5th Ave, New York City, Tams, Lemoine & Crane, 52 Pine St., New York City.



653

No. 653—For Sale—Bargain. Auxiliary keel sloop, 53 ft. by 35 ft. by 13 ft. by 6 ft. 6 in. Would make good yawl. Sails, rigging, equipment and Mianus engine in excellent condition. Speed under power six miles. Four berths in main cabin, two single staterooms, toilet room, two berths and galley forward. An excellent sailer, able, unusually good accommodations. Apply John G. Alden, 148 State St., Boston.

* * *

No. 666—For Sale—International 32-footer, 9 ft. beam, 3 draught. Built 1920. 20-h.p. Kermath engine; electric lights. Very wholesome single handed cruiser offered at low price for

666

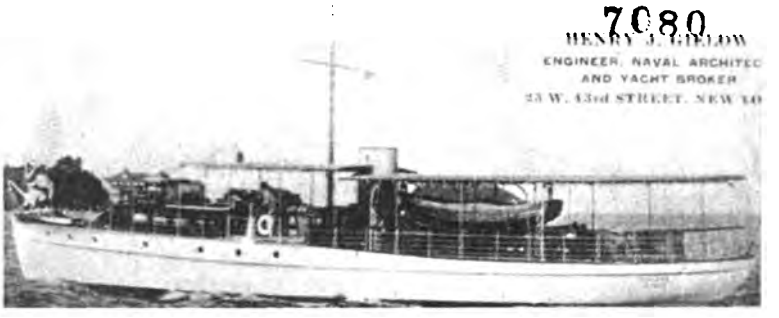
quick sale. Full particulars from Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 3877.

* * *

No. 7194—For Sale—This heavily constructed able sea going 60 ft. by 15 ft. 7 in. by 4 ft. 3 in. flush deck cruiser built in 1916. Double stateroom full width of yacht, one single stateroom, bathroom, two toilet rooms. Sleeps 6. Heavy duty 75-h.p. Murray & Tregurtha Motor new 1920. Speed 10-12 miles. Separate Delco lighting plant. All in excellent condition. Can be purchased at attractive price. Henry J. Gielow, Inc. 25 West 43rd Street, New York City.

7194

No. 7080—For Sale—This attractive 80 ft. twin screw power yacht. Owner has purchased larger yacht and will sell at reasonable price. Two double and single staterooms, large main saloon. Engines competely overhauled 1921. Inspectable Great Lakes. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.



7080

No. 4063—For Sale—Attractive Lawley built bridge deck cruiser; 64 ft. by 12 ft. by 4.6 ft. draft. Speed up to 13 miles; 6 cyl. 75-h.p. Sterling motor. Large main saloon with two extension berths, double stateroom, toilet room, etc. Handsomely finished and furnished. Very able boat. Built in best possible manner. Price and further particulars from Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.

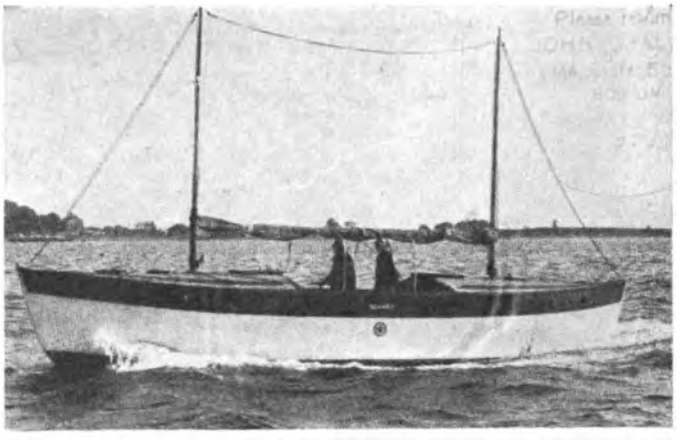
4063

* * *

No. 1787—For Sale—Ideal cruiser, fine seaboat, and in A-1 condition. Lawley built, 55 ft. by 11 ft. by 3 ft.; six cylinder Sterling installed 1919; speed 12 miles; independent electric plant; self starter. Attractive bridge deck with windshield, motor controls, etc. Comfortable accommodation for six in owner's party, and two in crew. Apply William Gardner & Co., 1 Broadway, New York.

1787

No. 439—For Sale—Able power cruiser of lifeboat type. Heavy construction, handsomely finished. 39 ft. 9 in. by 9 ft. by 4 ft. Speed 10 miles. Two berths and toilet in forward cabin. Engine under bridge deck with ample working space all around. Galley, lockers, two bunks and another toilet in after cabin. Lightly used, condition excellent. Apply John G. Alden, 148 State St., Boston.



439

* * *

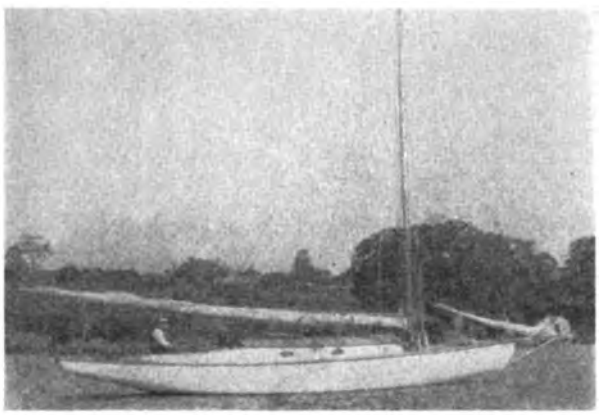
No. 512—For Sale—Fast express cruiser 40 ft. by 9 ft. by 3 ft., built 1917, thoroughly overhauled last Fall; very seaworthy; one-man bridge control; Sterling 6-cyl. 145-h.p. Full cruising equipment. Awning and curtains new. Inspectable New York City. Price $2,750. Edwin Jimenis, 45 William St., New York.

512

569

No. 569—For Sale—Able power cruiser. 48 ft. by 10 ft. by 3 ft. 6 in. Built 1912 by Britt Bros., designed by Deed. Blount & Lovell six cylinder 56-h.p. motor. Speed about 8 knots. Roomy accommodations with double stateroom, galley, 2 toilets, etc. Remarkably fine seaboat, in best of order and fully equipped. Further information of Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

No. 573—For Sale—25 foot waterline sloop, 40 feet 5 inches overall, 10 feet 6 inches beam, 4 feet 8 inches draft. 6,000 pounds of lead on keel. Very roomy cabin with 6 feet 2 inches

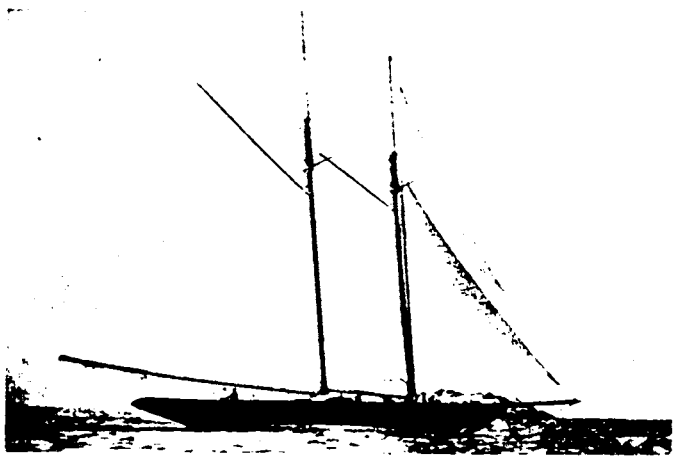


573

headroom. Extension transoms, toilet, man's berth forward and good galley. Very able, weatherly and fast. Splendid boat for cruising or day sailing. Apply to Hollis Burgess Yacht Agency, Boston 9, Mass.

* * *

No. 23—For Sale—Flush deck keel schooner yacht; 85 ft by 56 ft. by 10.6 draught; Lawley built. Large saloon with two transoms, one double and two single staterooms, two toilets, etc. Sails and rigging in first class condition. Teak decks. Fast sailer; winner of numerous prizes. Price attractive. Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.



23

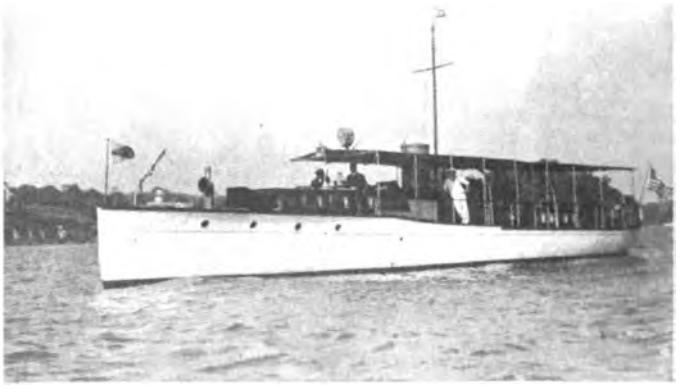
8173—For Sale—Twin screw steam houseboat, 80 ft. by 18 ft. by 3 ft. 6 in. Four single staterooms, and bathroom. Sleeps seven. Hot and cold running water. Boiler retubed 1920, also

8173

engine overhauled. Underbody coppered to waterline. Inspectable Florida. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

* * *

No. 1324—For Sale—Cruising power yacht; 70 ft. by 11 ft. by 3.10 ft. Speed up to 14 miles; 75-h.p. 6 cyl. motor controlled from bridge. Accommodations include dining saloon forward with two transoms, double stateroom, main saloon with two transoms aft, toilet room, etc. Roomy bridge. Has proven unusually able for boat of size. Splendidly finished and furnished. Price low. Cox & Stevens, Cunard Building, 25 Broadway, New York. Telephone 2700 Whitehall.



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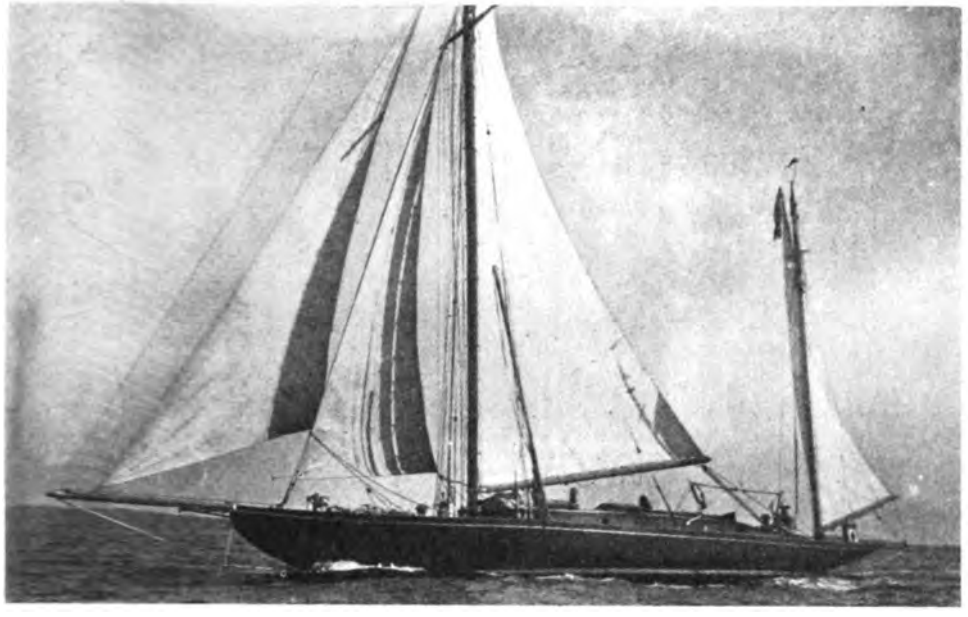


584

No. 584—For Sale—Able, comfortable, cruising, auxiliary yawl. 53 ft. o.a., 35 ft. w.l. 12 ft. 8 in. b. 7 ft. 11 in d. None speedier, or classier, of her type afloat. Fully equipped every detail, finest fittings. Sleeps seven. Full headroom, saloon, stateroom, galley, two toilets, two lavatories, electric lights. Engine Victor-Fairbanks, perfect condition, 2 cylinder, 2 cycle, gives six knots ever hour. Deck and top finished bright, mahogany trim. Off shore cruiser. Go anywhere. Survey 1921. A-1 condition. Hauled out City Island. Cruised to Maine last two seasons. Greatest bargain, most popular type yacht. Room 528, 2 Rector Street. New York, N. Y.

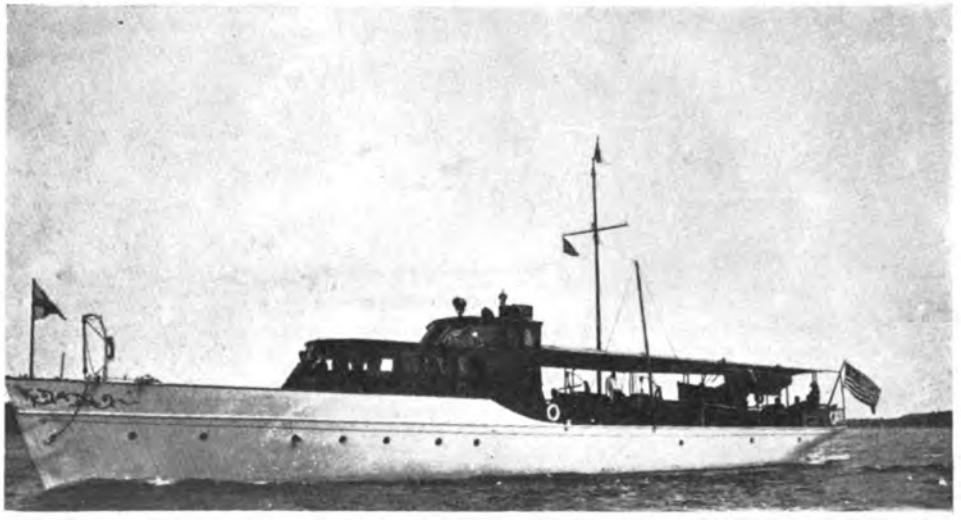
No. 517B—For Sale—International cruiser "Nereid." 32 ft. by 9 ft. by 3 ft. 20-h.p. 4-cylinder Kermath engine. Electric starter and lights. Running water, toilet, sink, two burner Khotal stove and refrigerator. Sleeps four in roomy cabin finished in white enamel and mahogany. Large cockpit. A very comfortable and seaworthy boat. O. L. Woodbury, 58 Rantoul St., Beverly, Mass.

517B

No. 31—For Sale—Runabout, exceptionally desirable for ferry service. 27 ft. 6 in. by 7 ft. by 2 ft. 2 in. Built by Consolidated Shipbuilding Corporation, used part of one season only. 22-h.p., 4-cycle Speedway engine. Speed 8 to 12 knots. Driver's seat and controls in forward cockpit. Small shelter cabin with toilet amidships. Roomy cockpit aft. Spray hoods for both cockpits. Apply John G. Alden, 148 State St., Boston, Mass.

31

No. 7609—For Sale—At reasonable figure, this attractive 103 ft. twin screw power yacht. Large deck dining saloon, three double staterooms, two bathrooms. Two 6 cylinder speedway motors, speed 13-16 miles, all in first class condition throughout. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.



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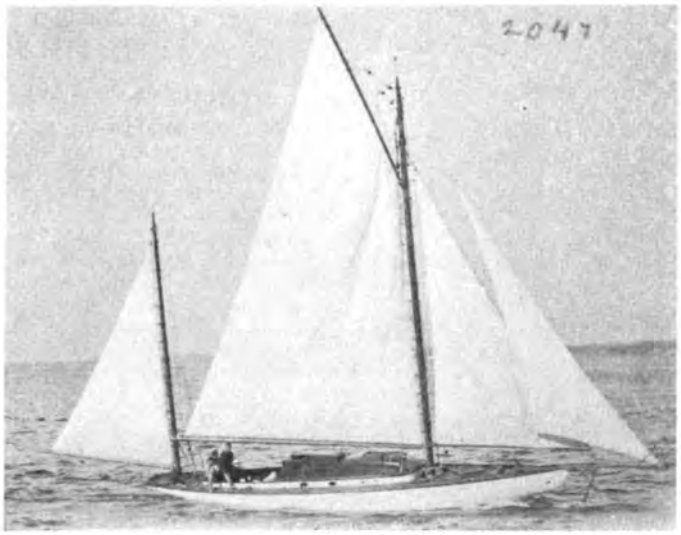


2047

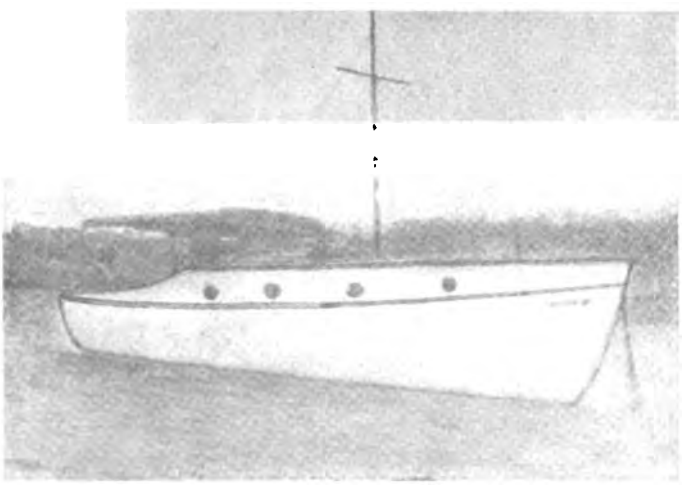
No. 2047—For Sale—Fast auxiliary keel yawl, 42 ft. by 29 ft. by 10 ft. by 7 ft. Outside lead ballast. 5-h.p. Mianus engine, new 1921. Sails and rigging new 1921. Cabin, finished in paneled mahogany, contains two extension transoms, dressers, lockers. Toilet room, galley, icebox, one pipe berth, etc., forward. Apply to John G. Alden, 148 State St., Boston, Mass.

* * *

No. 37—For Sale—Twin screw high speed cruiser, built by Lawley 1920. 75 ft. 8 in., 75 ft., 14 ft. 2 in., 3 ft. 9 in. Can be

37

bought at a very reasonable figure. Burgess & Paine, Yacht Brokers 131 State St., Boston 9, Mass.



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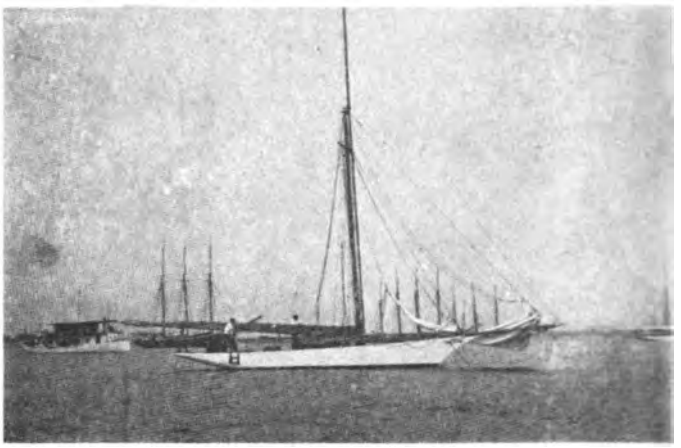


550

No. 571—For Sale—Raised deck cabin cruiser, 32 ft. by 10 ft. by 3 ft. 3 cylinder, 18-h.p. Palmer. Electric lights throughout. Mahogany trimmed, oak and cedar hull. Toilet, galley and complete inventory Owner building larger boat. Price, $1,500. F. A O'Neill, Marine Canvas Supply Corp., Pier 7, North River, N. Y.

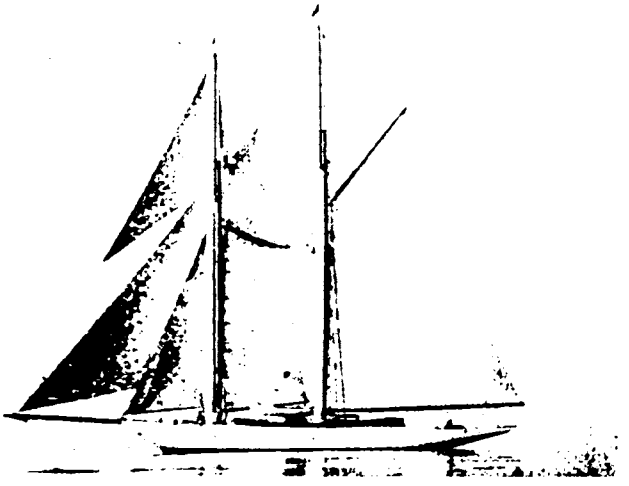
* * *

No. 550—For Sale—Lawley auxiliary sloop, built 1890, rebuilt 1900, 42 ft. 5 in. o.a., 30 ft. w.l., 10 ft. beam, 7 ft. 6 in. draught. 10-h.p. Standard engine, installed 1915, now in crate as received from manufacturer after overhauling. New, this engine now costs $1,000. Janney-Steinmetz gasoline tank. Sails in good condition. Double stateroom aft; cabin accommodates four; one berth in galley. Interior finished in red and white mahogany; cabin headroom 6 ft. Toilet, folding lavatory, 50 gal. copper water tank, large icebox, 2-burner alcohol stove with 6 gal. tank. Velvet cushions, corduroy curtains, mattresses, sheet, pillows, dishes, galley utensils 5 in. Bliss compass, binnacle and brass stand; Edson steering gear, mahogany wheel. Sail covers, skylight and hatch covers, awning, 12 ft. bright lap streak cedar tender. Great South Bay where owner now summers to shoal for her. Inspectable New York. Price $1,350. Address Box 196, Rudder Publishing Co., 9 Murray St., New York.

* * *

No. 515A—For Sale—Beautiful power cruiser built last summer by Britt Bros., Lynn, Mass. from designs of Ralph E. Winslow. 40 ft. by 10 ft. 2 in. by 3 ft. 6 in. Sterling motor, 6 cylinder, 85-h.p., self starter. Speed 11 to 12 miles per hour. Two cabins, galley and two toilet rooms. Bridge deck. A high grade boat. Further particulars of Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

515A



8773

No. 8773—For Sale—Lawley designed and built keel and centerboard schooner; 76 ft. 6 in. by 52 ft. 6 in. by 17 ft. 4 in. One double and three single staterooms, saloon, etc. Large galley and forecastle. All in first class condition. Can be purchased at attractive figure. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

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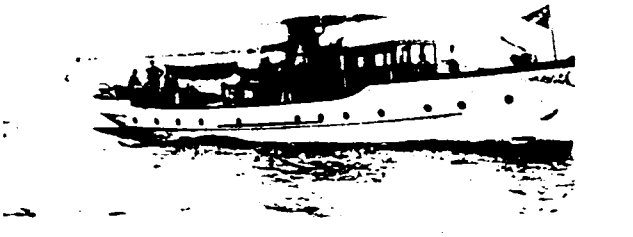
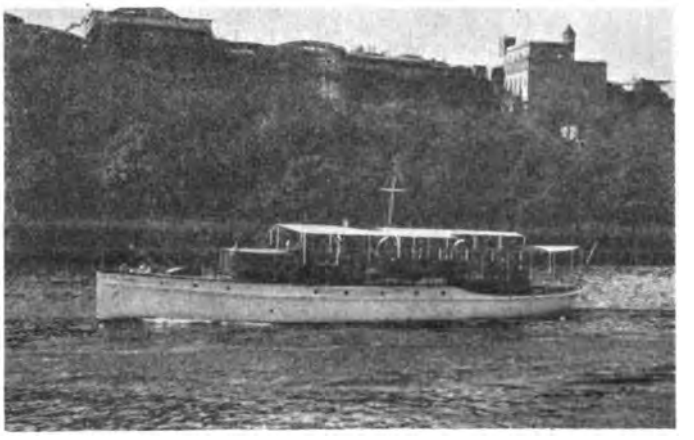
No. 3008—For Sale—Very attractive off shore cruiser. 75 ft. by 15 ft. by 5 ft. draft. Two double staterooms, extension tran-



3008

soms in main saloon and deckhouse. Total accommodations 12 persons. 6 cylinder heavy duty Sterling motor with speed up to 13 miles. Electric lights and hot water heat. Fully equipped. For further particulars, photograph, blue print, etc. apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd Street, New York City.



688

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No. 2060—For Sale—Might charter. Commodious twin screw motor yacht 97 ft. by 86 ft. by 16 ft. 7 in. by 3 ft. 6 in. Two Standard 6 cyl. 4 cycle engines. Accommodations include four staterooms and bath below. Large dining room on main deck forward. Lavatory in each stateroom. Power launch and two rowboats. Independent electric light plant. Designed for use in Florida waters so shallow draft and good ventilation have been given particular attention. Accommodations for nine persons. Yacht is now in Florida waters and can be delivered immediately. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., New York, N. Y.

* * *

No. 688—For Sale—Here is an unusual opportunity to secure one of the most elegant twin screw coast cruising power yachts ever offered. 70 feet long, 12½ ft. beam, 3½ ft. draught. Built in the most substantial manner and of the finest materials obtainable. Handsomely fitted and finished and equipped in the most luxurious manner—truly a gentleman's Yacht. Two double staterooms and bathroom; deck dining saloon. 20th Century motors; speed 13 miles per hour. No better craft of her size afloat. Price attractive for immediate sale. Address Simon Fisch, Yacht Broker, 185 Madison Ave, New York City. Telephone Vanderbilt 3877.

* * *

No. 338—For Sale—Hull only. Motor removed. 82 ft. by 14 ft. by 4 ft. 4 in. draft. Two double staterooms, saloon, toilet and bath. Exceptionally large engine room, suitable for any type of power. For further particulars, photograph, blue print, etc. apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd Street, New York City.

2060

338

7763

No. 7763—For Sale—Attractive cruising power yacht 64 ft. by 11 ft. 11 in. by 4 ft. 6 in. 50-60-h.p. Sterling motor. Speed 12 miles, motor controls from bridge. Double stateroom also large main cabin. Sleeps 5 persons, besides crew of three. Large deck space, all in first class condition. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

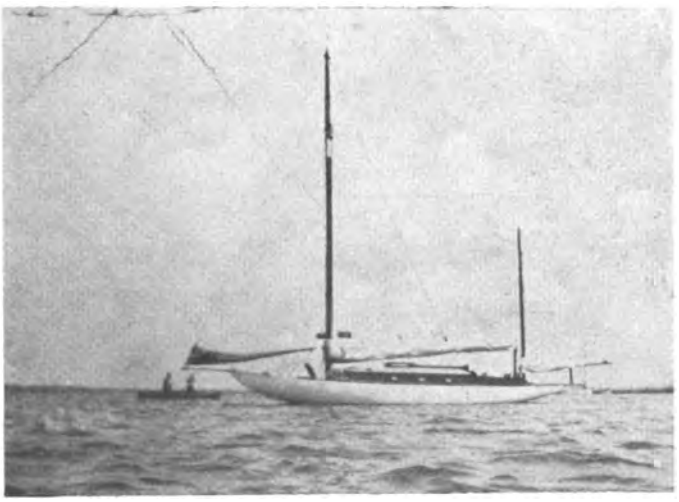
No. 567—For Sale—Keel auxiliary yawl. 43½x31x12.3x5.10. Designed by Small Bros. Double stateroom and saloon sleeps 5 people. Headroom over 6 ft. throughout. Brand new 20-h.p. Kermath engine controls from cockpit. Unusually complete in-

567

ventory—two tenders. Exceptionally able seaboat. Condition like new. Bargain for prompt sale. Further details from Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telphone Vanderbilt 3877.

* * *

No. 565—For Sale—C. B. & K. auxiliary cruising yawl. 40 ft. o.a., 25 ft. w.l., 12 ft. beam, 3½ draught. Designed and built by H. M. Crosby. Wonderful amount of cruising room Saloon and stateroom sleeps 5 comfortably. Over $3,000 spent on permanent improvements during 1921. Whole outfit good as new. Mianus engine drives yacht 5 miles per hour. Able seaboat and handles like catboat. Exceptionally complete inventory. No better boat of her inches available. Seen New York City.



565

Apply to Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 3877.

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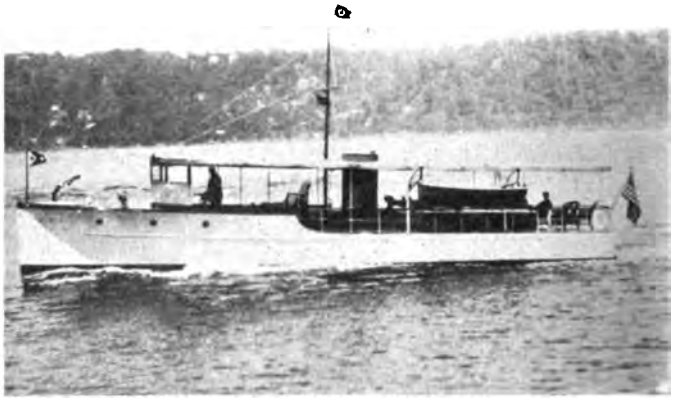
No. 385—For Sale—A very desirable fast motor yacht, 60 ft. by 11 ft. by 3 ft. draft. Two Speedway motors. Speed up to 23



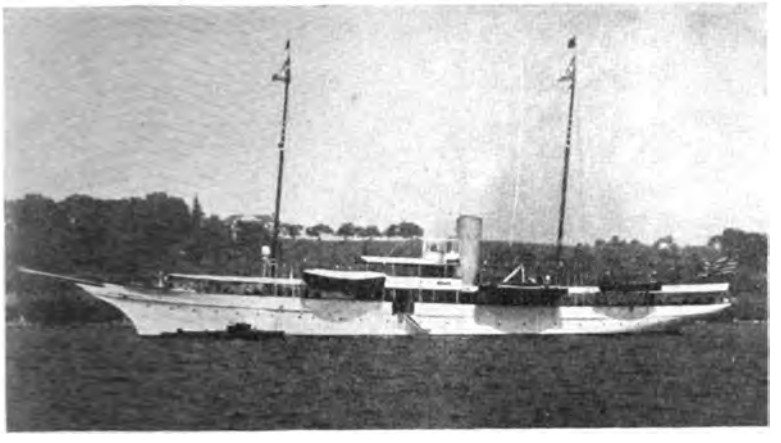
385

m.p.h. Double stateroom forward, saloon, toilet and galley aft. R. M. Haddock, 50 East 42nd St., New York City.

* * *

No. 316—For Sale—Very desirable motor yacht. 59 ft. by 11 ft. by 4 ft. 6 in. draft. 6 cylinder 90-h.p. Sterling motor. Speed up to 12 miles per hour. Heavily constructed and best workmanship throughout. Ideal for cruising in open waters. Price attractive. For further particulars apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd St., New York City.

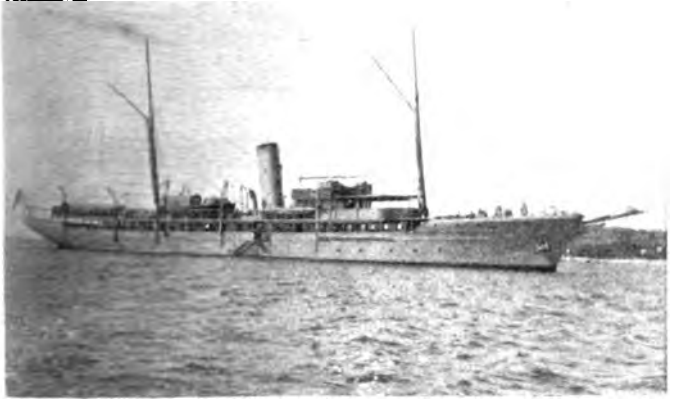
316



44

No. 44—For Sale or Charter—Exceptionally fine, steel steam yacht 199 ft. 6 in., 155 ft., 27 ft. 7 in., 14 ft. 6 in. Designed by Beaver Webb and built by Handren & Robbins. Henderson triple expansion engine. Burgess & Paine, Yacht Brokers, 131 State St., Boston 9, Mass.

No. 14—For Sale—Might Charter. Able steel steam yacht. 198 ft. o.a. by 173 ft. 10 in. w.l. by 24 ft. 5 in. beam by 12 ft. draft. Triple expansion engine, 1,000-h.p. Almy boilers. Speed 11 to 13½ knots. Converted from coal to oil burner in 1918 at an expense of over $100,000. Accommodations include large



14

deck saloon forward. Smoking room aft. Seven staterooms and three baths below. Finished throughout in mahogany and white. Extensive cruising radius with capacity for 30,000 gals. of fuel oil. Now in part commission with engines and boilers ready for sea. Price reasonable. Large country waterfront estate will be sold with this yacht if desired. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., N. Y. City.

* * *

No. 86—For sale or Charter—Steam houseboat. 100 ft. by 92 ft. 3 in. by 23 ft. 3 in. by 7 ft. Compound engine. Almy water-tube boiler, retubed in 1921. Large saloon 18 ft. long on the upper deck. Seven comfortable staterooms, and two baths. Owner's room runs the full width of the boat. New Ice making machine installed in 1921; completely equipped with silver, glassware, crockery; linen; china; cutlery; cushions, carpets, etc. Now in commission and ready for immediate delivery anywhere on Atlantic Coast. Price and charter terms attractive. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., New York, N. Y.

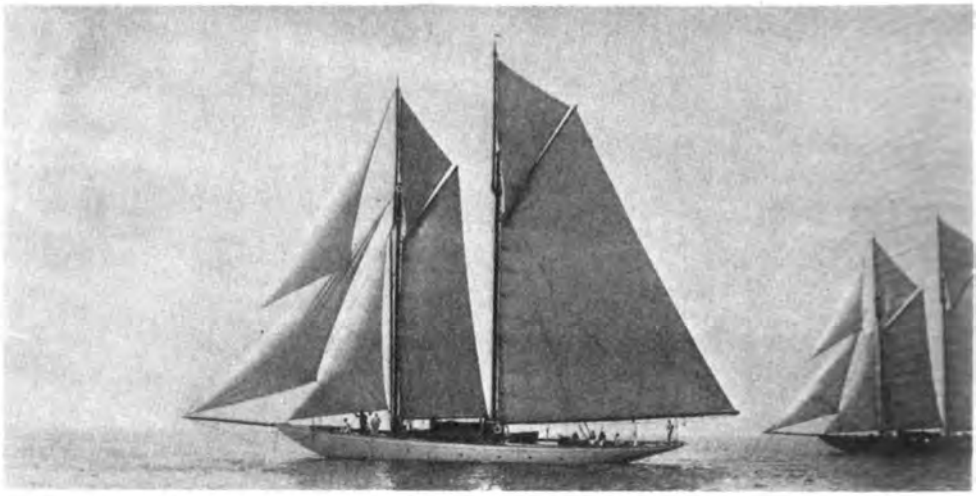
* * *

No. 611—For Sale—One of the most attractive class "P" racing sloops, with good cruising accommodations. 54 ft. by 33 ft. 6 in. by 10 ft. 2 in. by 6 ft. 10 in. Outside lead ballast Designed by Gardner, and built by Wood and McClure, City Island, N. Y. City. Mahogany planked. Marconi rig put on 1919. Mast made by Pidgeon. Two suits of sails. Also has gaff rig complete except mast. Well balanced cabin with four berths. Enclosed toilet room, separate galley. Full headroom. Water tank. Electric light. Berth for paid hand forward. One of the easiest handled sloops available. Price less than one third cost to build. G. W. Ford Yacht Agency, Agents, 41 East 42nd St., New York, N. Y.

86

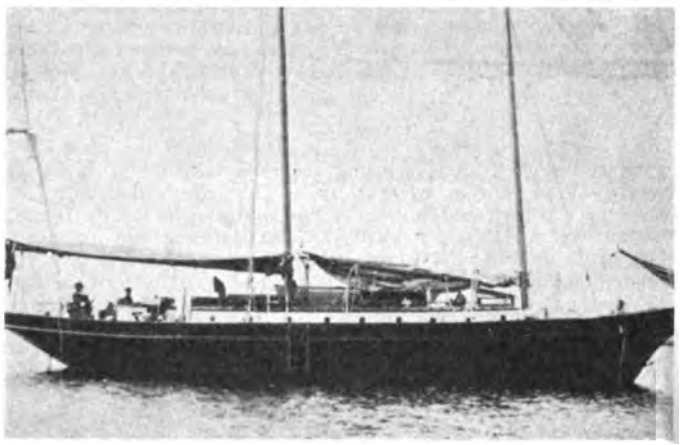
611

No. 776—For Sale—Smart and able auxiliary keel schooner, 90 ft. by 60 ft. by 18 ft. by 11 ft. Built by Lawley in 1910. 40-h.p. Sterling engine with starter. Independent lighting plant installed 1919. Speed under power 7 miles. Saloon, two single, one double staterooms, two toilets and bath aft. Beautiful finished in paneled mahogany and teak. Considered fastest and most desirable of Lawley built schooners. Winner numerous prizes on Eastern and N. Y. Y. C. Cruises 1921. Fully equipped including two suits of sails and fast launch. Condition A-1 throughout. Apply John G. Alden, 148 State St., Boston.



776

No. 1062—For Sale—Pole mast auxiliary schooner yacht. 60 ft. by 46 ft by 18 ft. by 13 ft. 10 in. Centerboard type. 4 cyl. 4 cycle Standard motor, 32-37-h.p. A splendid boat for Florida as she is a schoal draft, well ventilated, and very roomy. Large main cabin sleeping four. Stateroom sleeping two. Good sized bath and two toilets. The galley is unusually large. Completely



1062

equipped throughout, fitted with electric lights, running water etc. Would make an exceptionally attractive all year home for writer, or literary man who would want quiet surroundings. The shallow draft enables navigating through the back waters, and inland route clear to New Orleans if desired. Price right. See G. W. Ford Yacht Agency, Agents, 41 E. 42nd St., N. Y. C.

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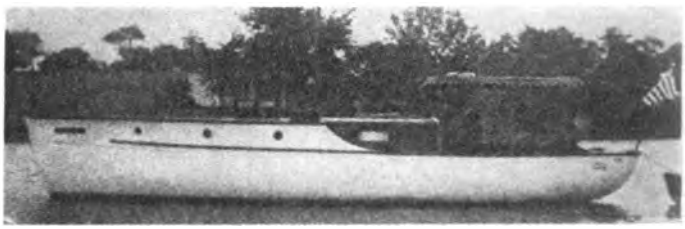
577

No. 577—For Sale—Keel auxiliary ketch. 42x31x10½x6. The only boat of her type available. Stateroom and saloon. New engine and suit sails. Fine equipment. Perfect condition. Price attractive for quick buyer. Seen near New York. Full details from Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 3877

No. 644—For Sale—Attractive power cruiser. Length 36 ft. 6 in., beam 9 ft., draft 3 ft. Built is 1914. Extra strong construction. Main cabin, stateroom, toilet room, etc. Good head-



644

room. Buffalo 4 cylinder motor installed 1917, giving speed of 11 miles. Price reasonable. Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

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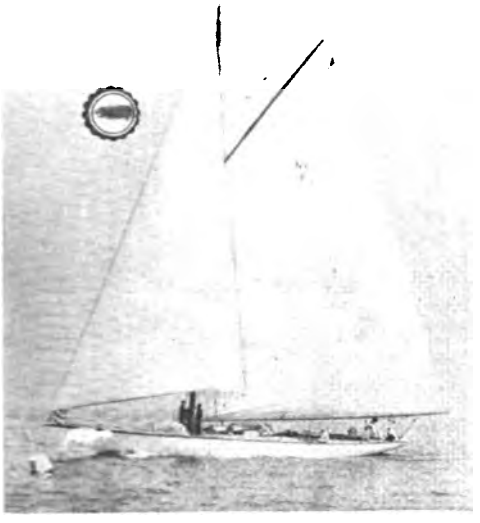
No. 1180—For Sale—One of the best auxiliary keel yawls on the market. 43 ft. 6 in. by 31 ft. by 12 ft. 6 in. by 5 ft. 10 in. Kermath engine, 4 cyl. 4 cycle installed 1921. Speed under power, 7 miles. Double stateroom with two very wide built-in berths. Large main cabin. Sleeping accommodations for five persons. In 1921 new carpets, upholstery, mattresses, pillows, and cushions were supplied. Fully found with dishes and cooking utensils. Two bright tenders, one a round bottom type. This yacht has always had exceptional care. Inspection near New York. Yacht is in very fine condition. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., New York, N. Y.

1180

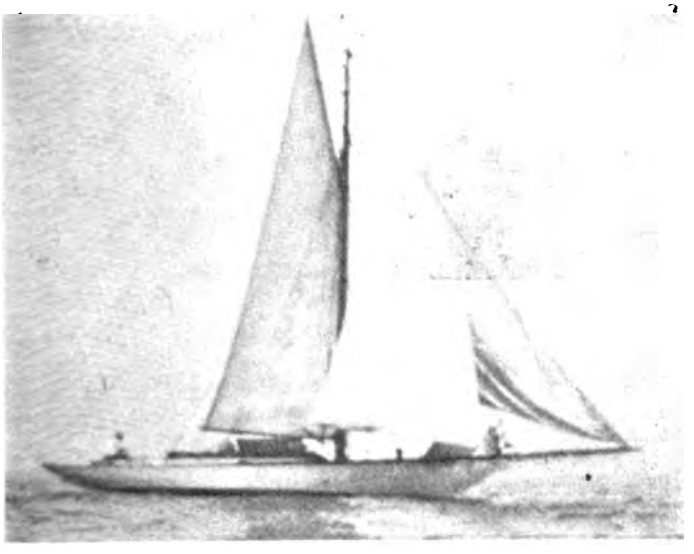


2672

No. 2672—For Sale—One of the popular New York Yacht Club 50-footers; 72 ft. by 50 ft. by 14.6 ft. draft. Double stateroom, saloon with two transoms, toilet room, etc. New suit sails 1920. Probably best kept boat in class. Price reasonable. Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.

* * *

No. 636—For Sale—Attractive auxiliary keel sloop, 40 ft. o.a. 26 ft. 6 in. w.l., 11 ft. 6 in. beam, 6 ft. 9 in. draft. Deck fittings and cabin finished in mahogany. Very roomy cabin, full head-

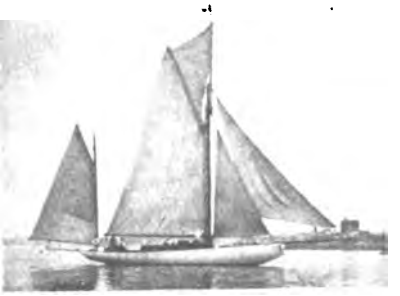


636

room, galley and toilet. 8-h.p. Lathrop motor 2 cyl. 2 cycle. Very reasonable price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston 9, Mass.

* * *

No. 537—For Sale—Auxiliary cruising yawl 43.8 ft. o.a. 29.9 ft. w.l. 13.4 ft. beam, 7.3 ft. draft, 15-h.p. Ferro motor. Unusually roomy, having four berths and two long transoms in main cabin, large galley and forecastle. A very fine seaboat, stiff and able. Can go anywhere. Laid up near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.



537

770

No. 770—For Sale—One of the popular N. Y. Y. C. 30 foot class. 43 ft. 3 in. by 8 ft. 6 in. by 6 ft. 3 in. draft. Full racing equipment. Designed and built by Herreshoff. Sleeping accommodations for 4 persons, in separate berths. Price attractive for a quick sale. For further particulars, apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd Street, New York City.

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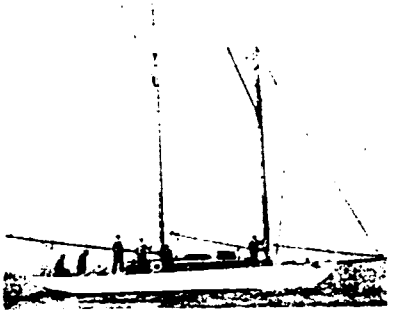


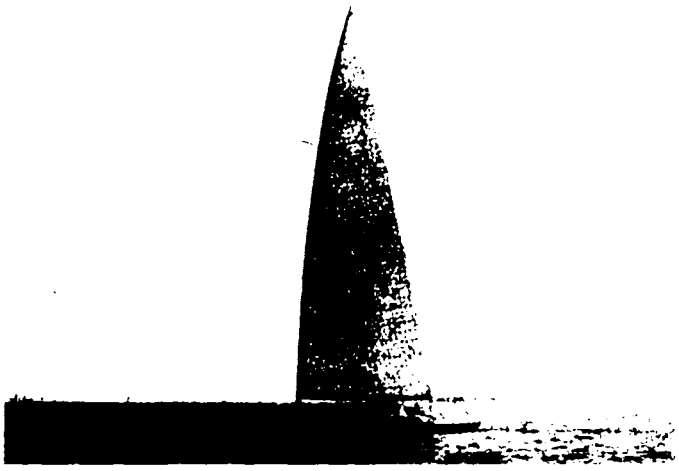
661

No. 661—For Sale—C. B. auxiliary schooner. 46½ x 32½ x 12½ x 4. Crowninshield design and recent build. Fine stateroom; main saloon. New Sterling engine 1921. One of the most wholesome types of small schooners available; can be handled with one paid hand. Remarkable seaboat and capable of any sort cruising. Attractive price. Address Simon Fisch, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 3877.

* * *

No. 430—For sale at low price—Smart and handy 18-footer similar to cut. 30 ft. by 18 ft. by 7 ft. 3 in. by 5 ft. Well built; outside lead; low trunk cabin; selfbailing cockpit. Two transom berths in cabin. Sails and rigging excellent. Just the boat for afternoon sailing or for two boys to use cruising. Apply John G. Alden, 148 State St., Boston.

430

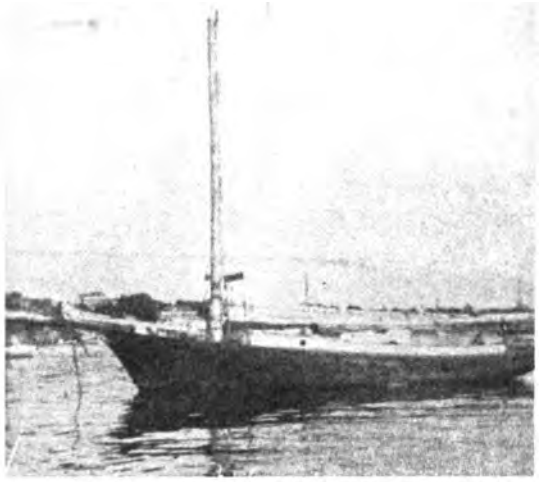


57

No. 57—For Sale—Champion R boat Massachusetts Bay 1920. 37 ft. by 26 ft. by 8 ft. by 6 ft. Mahogany planked, copper fastened. Rig has been altered and mast cut to fit new Universal Rule requirements. Very fast and powerful boat. Burgess & Paine, Yacht Brokers, 131 State St., Boston 9, Mass.

* * *

No. 634—For Sale—Friendship sloop, 36 ft. by 11.6 ft. by 5.6 ft. Mast and rigging 1919; sails 1920; selfbailing cockpit and bridge deck 1920. 10-h.p. Hubbard, separated from cabin. 2



634

spring berths. Cruises 5 comfortably. Apply J. Murray Watts, 326 S. 4th St., Philadelphia.

* * *

536

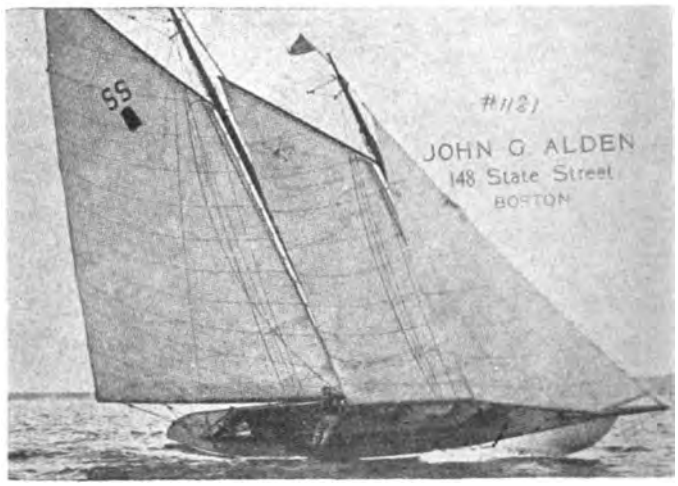
No. 536—For Sale—Centerboard sloop 40 ft. o.a., 25 ft. w.l., 12 ft. beam, draft 3 ft. 6 in. An unusually strong, roomy and comfortable craft. Very stiff and able with moderate sail plan. Large cabin about 5 ft. 6 in. This yacht is of a very desirable type, and not often obtainable lately. Price very reasonable. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

No. 538—For Sale—One of the famous Stamford 40 ft. schooners. 62 ft. o.a., 40 ft. w.l., 11 ft. beam and 7 ft. draft. Built by Robert Jacob in 1913. Buffalo motor installed 1917. Able, fast and easily handled. Double stateroom, main cabin, galley toilets, etc. Everything first class and in good condition. Inspectable in Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

538

* * *

No. 1181—For Sale—One of the Sound schooners 44 ft. by 30 ft. by 8 ft. by 6 ft. 3 in. Fast, able and easily handled; sharp ends; low trunk; roomy selfbailing cockpit. Two suits sails; well



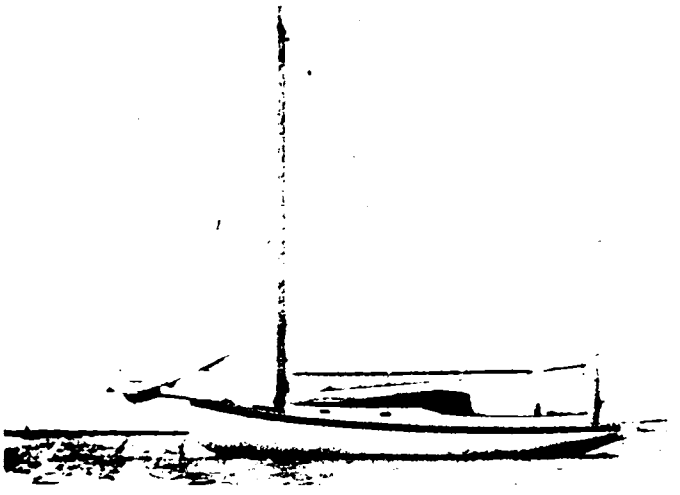
1811

equipped. Three berths, toilet, galley, etc. Put in best of condition 1921. Excellent fast cruiser. Keen racing in this class. Can be handled by one man. Apply John G. Alden, 148 State St., Boston.

* * *

No. 67—For Sale—Forty-five foot high speed mahogany day cruiser. 6 cylinder, 150-h.p. Speedway engine. Burgess & Paine Yacht Brokers, 131 State St., Boston 9, Mass.

67



637

No. 637—For Sale—Shoal draft auxiliary yawl 30 ft. by 10 ft. 11 in. by 32 in. Two sets sails, one set never been used. Heavily built, excellent condition, powerful sailer. Four bunks, stove, electric light, Sands toilet, selfbailing cockpit. 9-h.p. Palmer motor, one season old. Seen at my place, Amityville, L. I. D I. Whittelsey, 17 Battery Place, New York. Telephone Whitehall 1414.

* * *

535

No. 535—For Sale—Fast cruising keel knockabout 30 ft. 4 in o.a., 18 ft. 10 in. w.l. 9 ft. beam, 4 ft. 6 in. draft. Very safe, able and tight boat, with a very roomy cabin. Selfbailing cockpit. Sails and rigging new last summer. Price very reasonable. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

* * *

No. 8811—For Sale—One of the finest cruising yachts available. 51x33x12.4x7. Best construction, always well owned and is

8811

2453

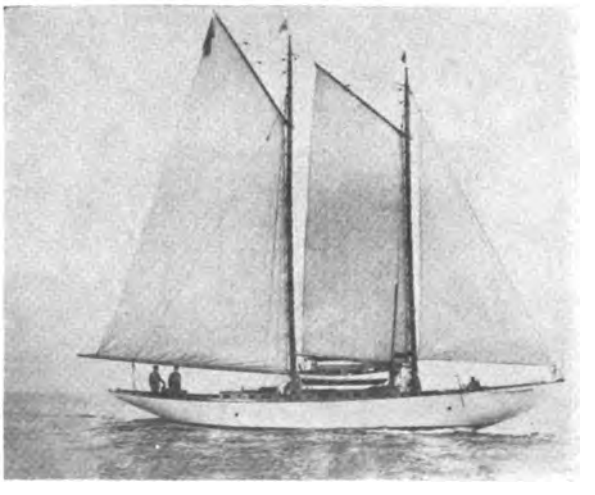
in excellent condition. Saloon and single stateroom sleeps 4. Headroom 6 ft. 4 in. Mahogany and teak trim. Complete inventory. Able and fast. Copper fastened and outside lead ballast. Henry J. Gielow, Inc., 25 West 43rd St., New York City.

* * *

No. 2453—For Sale or Charter— The Choicest little cruiser afloat. Designed by Ralph Winslow. 27 ft. by 24 ft. 3 in. by 7 ft. by 2 ft. 8 in. 2 cyl. 4 cycle Sterling engine, 10-h.p. Reverse gear, dynamo, storage battery; electric lights with switchboard in cabin. Also electric sailing lights. Enclosed toilet and wash basin. Running water from tank in bow. Copper gas tanks recently installed, that drain overboard in case of leak. Two berths. Icebox, etc. Mahogany trim, skylight; awning with brass staunchions. Round bottom varnished dinghy. This cruiser now being scraped, varnished and made ready for launching so whoever buys her will not have to spend much on her. Bargain at $1,200. Sails shown in picture no longer on the boat. G. W. Ford Yacht Agency, Agents, 41 East 42nd St, New York, N. Y.

* * *

No. 1101—For Sale—Fisherman type auxiliary schooner. 60 ft by 40 ft. by 13 ft. 6 in. by 8 ft. 6 in. New sails and standing rigging. Two tenders on davits. Murray & Tregurtha engine. Double stateroom, good sized saloon. Two toilets. Berths for two forward, but owner runs her with one paid hand. Engine is in separate compartment aft, bulkhead off from the rest of the boat. 13 tons of lead ballast outside. Bronze steering gear and copper gasoline tanks. Has cruised extensively along the Maine coast, and made one trip to Florida mostly outside. This is one of the ablest yachts afloat and carries full sail in a gale. Tight as a bottle on top and below and just the boat for any off shore trip. G. W. Ford Yacht Agency, Agents, 41 East 42nd St., N. Y. City.



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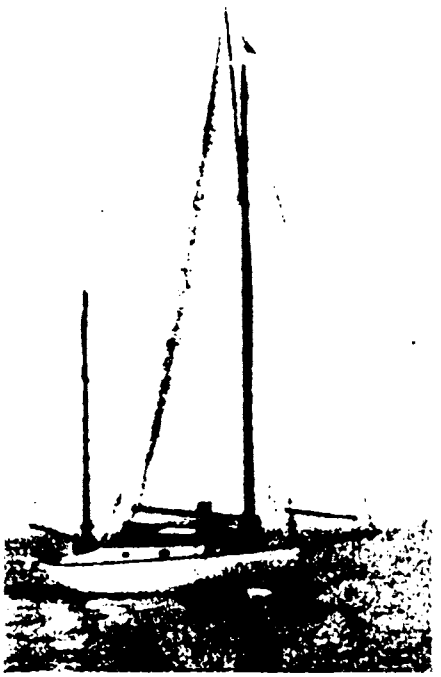


566

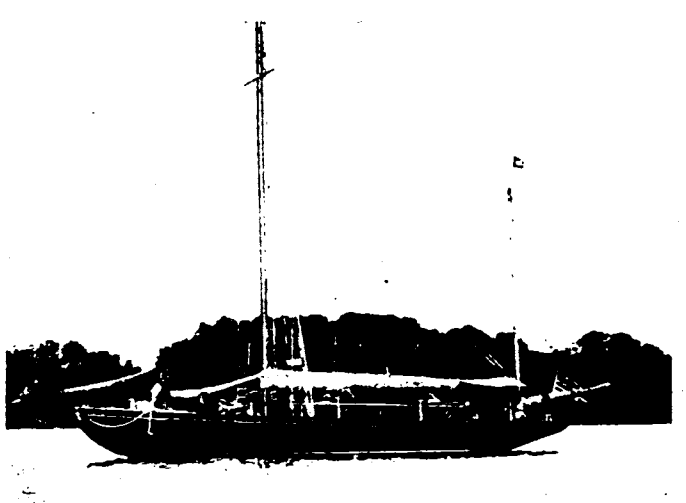
No. 566—For Sale—32 ft. o.a. auxiliary yawl. New Lathrop motor 1921. Fine cruiser. Toilet, wash bowl, icebox, electric lights. Sails excellent condition. Fully found. C. D. Heywood, 70 Winter St., Worcester, Mass.

* * *

No. 645—For Sale—Express cruiser. 50 ft. by 10 ft. 7 in Built in 1917. Van Blerck motor, 200-h.p. new 1921. 8 cylinders. Self starter. Speed 25 miles. Ample accommodations, including

645

main cabin, double stateroom, 2 toilets, galley, etc. This yacht is in perfect condition throughout and is offered at a very reasonable price. Laid up near Boston. Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.



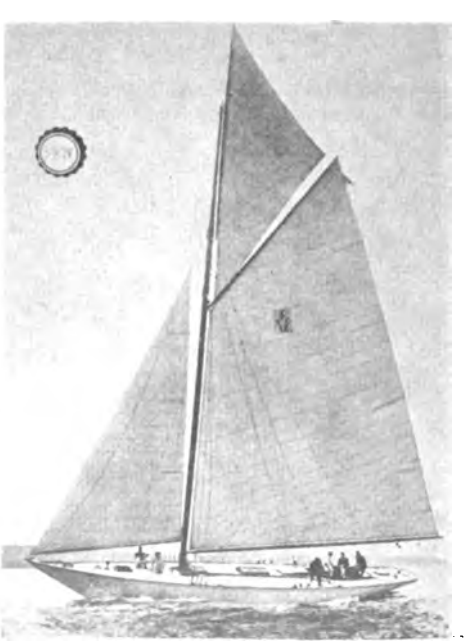
845

1036

No. 845—For Sale—Shoal draft auxiliary yawl. 64 ft. by 46 ft. by 16 ft. by 4 ft. draft. Combination keel and centerboard. 3½ tons of lead inside ballast, 5 tons of lead outside. Very able craft in a seaway and an excellent sailer. Price attractive. For further particulars, apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd St., New York City.

* * *

No. 1036—For Sale—Steel auxiliary schooner, 93 ft. by 64 ft. by 19 ft. 6 in. by 10 ft. 6 in. Designed by Gielow; built by Robert Jacob 1907. Beautifully finished in mahogany. Two single, one double staterooms, main saloon, two toilets and bath aft. Also deckhouse with two transoms. 55-h.p. Sterling engine installed 1915 giving speed of 8 miles per hour. Separate lighting plant. In fine condition throughout. Two sets Ratsey sails. Full equipment including launch. One of the best cruising schooners of this size. Apply John G. Alden, 148 State St., Boston.



3478

No. 3478—For Sale—New York Yacht Club 40-footer; 59 ft. by 40 ft. by 14.5 ft. by 8 ft. draft. Built 1916. Double stateroom and saloon with two berths, toilet room, etc. Sails, etc. in good condition. Especially adopted for combined cruising and racing Complete equipment. Cox & Stevens, 25 Broadway, New York. Telephone 2700 Whitehall.

578

No. 578—For Sale—Keel auxiliary yawl, 50 o.a., 37 w.l., 14 beam, 5 draught. Designed and built by Elco Co. Large stateroom and main saloon. New Regal 4-cycle motor. Fully furnished and in the best of condition. Low price. Apply immediately to Simon Fisch, Yacht Broker, 185 Madison Avenue, New York, Telephone Vanderbilt 3877.

* * *

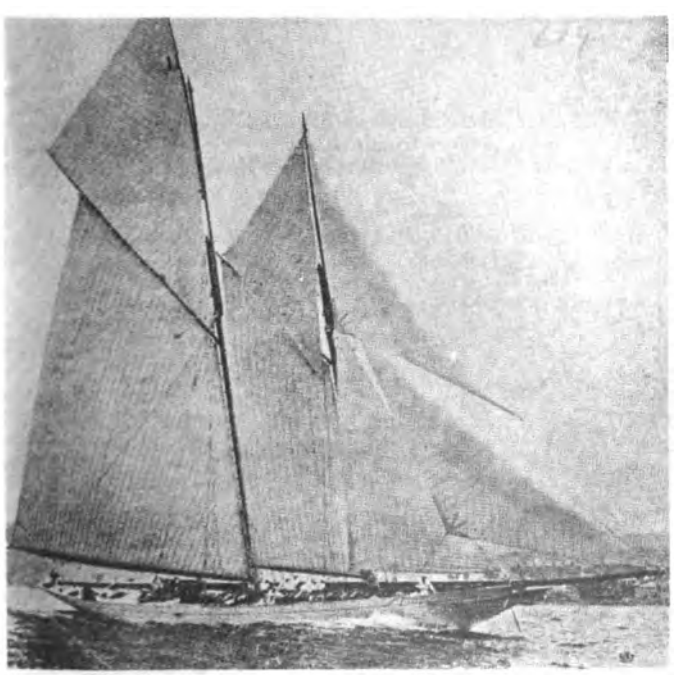
No. 647—For Sale—With full equipment. Cabin cruiser 27 ft. 6 in. by 7 ft. by 2 ft. 8 in. Heavy construction, white oak and

647

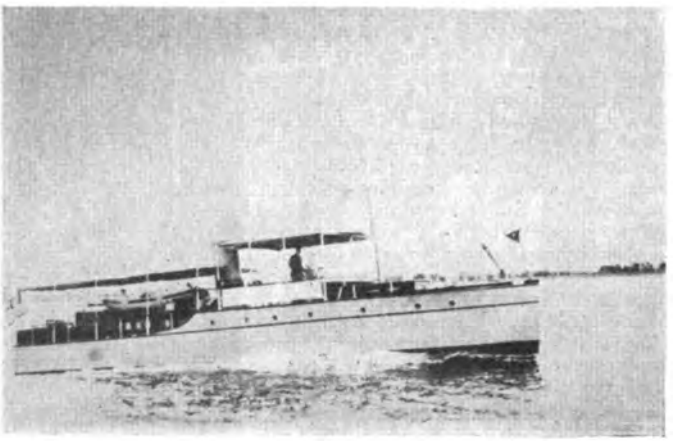
cedar copper riveted. Hull and 10-h.p. heavy duty Sterling in first rate condition. Speed 8½ real miles. Apply J. H. Mott, Woodbine Ave., Northport, L. I.

* * *

No. 524—For Sale or Charter—Schooner yacht, 105 ft. by 73 ft. by 18 ft. 6 in. by 11 ft. 3 in. Designed and built by William Fife Jr. at Fairlee, Scotland. Has demonstrated exceptional speed and seaworthy qualities on long ocean voyages having cruised to the Mediterranean and South America. Teak plank-



524



2539

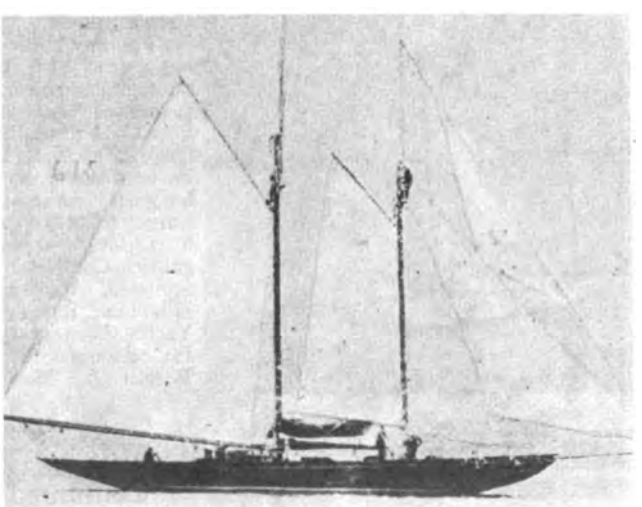
ing, decks, interior and deck trim. Coppered below waterline. Four staterooms, two bathrooms and large dining saloon. Teak shelter cabin on deck. Everything about the hull and equipment is in first class condition and vessel is ready for sea on two weeks' notice. Two suits of sails, one extra heavy for ocean sailing and one light suit for coastwise work. Can be handled by a small crew as present owner sails her with four men. May be purchased for one fifth cost to duplicate or owner would consider taking first-class smaller boat, sail or power, in part payment. Inspectable near New York. G. W. Ford Yacht Agency, 41 East 42nd St., New York, N. Y.

* * *

No. 2539—For Sale—Attractive twin screw bridge deck gasoline yacht. Designed by J. Murray Watts, 60 ft. by 59 ft. by 13 ft. by 3 ft. Built 1917. Two Sterling 6 cyl. 4 cycle engines. Speed 12 to 14 miles per hour. Controls from bridge deck. Has one double and one single stateroom; bathroom; sleeping accommodations for 5 to 8 persons. Equipment includes power launch and rowboat on davits. Awnings in first class shape, covering the entire decks. This yacht was designed for Florida waters, hence the very moderate draft. Special attention has been given to light and ventilation. Inspectable near New York City. See G. W. Ford Yacht Agency, Agents, 41 East 42nd St., N. Y. City.

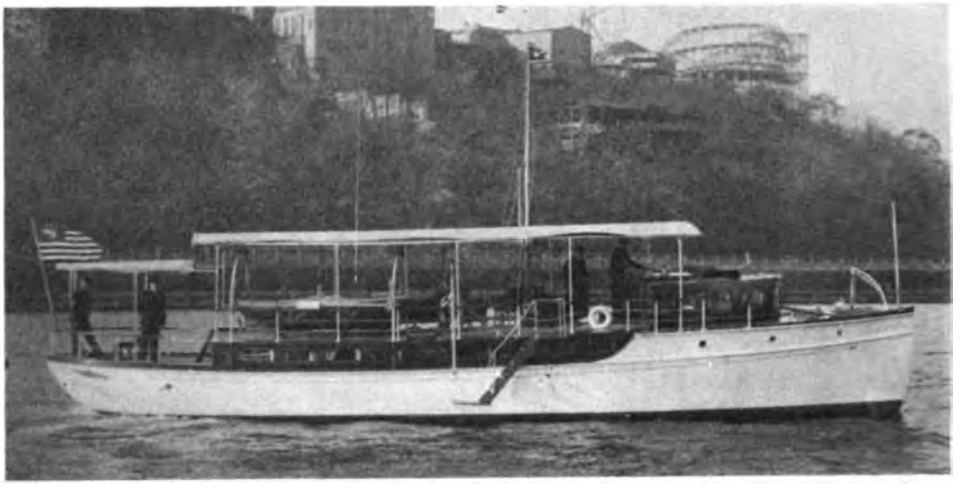
* * *

No. 615—For Sale—Very desirable auxiliary schooner yacht built by Lawley. 75 ft. by 46 ft. by 15 ft. by 10 ft. 6 in. draft, Sterling motor. Sleeping accommodations for 6 to 8 persons. Interior finish mahogany. For further particulars, photograph, blue print, etc. apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42nd Street, New York City.



615

No. 2495—For Sale—Bridge deck cruiser. 60 ft. by 54 ft. by 12 ft. 6 in. by 3 ft. 6 in. Extremely roomy hull, copper fastened. Excellent seaboat. Brand new mahogany and cedar motor tender and dinghy. Large gasoline, ice, and fresh water capacity, enough for 6 day's cruise. Hot water heat. Deckhouse entirely finished in mahogany. Staterooms and galley, white enamel, bath in toilet room and individual's w.b. in each stateroom. 6 cyl. 20th Century 65-75-h.p. motor. Speed 11½ miles. Double ignition system, permitting trolling. Andrade windless; lubricating tank and power bilge pump. New separate 110 volt lighting outfit and storage batteries. Engine room aft. Galley on starboard side 'midships. 2 single staterooms and bath and large deck dining saloon forward. Bridge deck control. Will accommodate 6 in addition to 3 in crews' quarters but present owner never needed more than 2 men. Boat was overhauled from stem to stern, including machinery since return from Government service at a cost of about $10,000. Has right from Navy Department to carry S. P. number with a bar. May be seen near N. Y. G. W. Ford Yacht Agency, Agents, 41 E 42nd St., N. Y. C.



2495

* * *

No. 640—For Sale—Sloop Bonnie Jean. Dimensions: 30 ft. over all, 10 ft. 6 in. beam, 2 ft. 6 in. draught. Cabin sleeps five. Equipment consists of 2 anchors, mushroom moorings anchor, cables, boat hook, 10 ft. oar, riding and sailing lights, compass, cooking utensils, oil stove, etc. Boat steers with wheel and is of heavy construction and a very able cruiser. Sails were new in 1920. Can be seen in Hiram Smith's Boat Yard, Perth Amboy, N. J., or address owner, Howard I. Campbell, 267 Amboy Ave., Metuchen, N. J.

640

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574

No. 574—For Sale—Auxiliary cruising yawl, 51 ft. o.a., 32 ft. w.l., 11 ft. 11 in. beam, 7 ft. 4 in. draft. Lawley built from designs of Crowninshield. 10-12-h.p. motor giving speed of 6 knots under power. 5 tons of lead on keel. Unusually large cabin, 6 ft. 2 in. headroom; mahogany finished. Large toilet room 6 ft. long. 6 ft. galley. Completely equipped. Apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston 9, Mass.

No. 635—For Sale—Auxiliary yawl 64 ft. o. a., beam 12 ft. Semi-keel, draft 6 ft. Sleeps 10. Now hauled out at Rowayton, Conn. Price $1,500. Cash. Reason selling, leaving district. Box 198, Rudder Publishing Co., 9 Murray St., N. Y. C.

635

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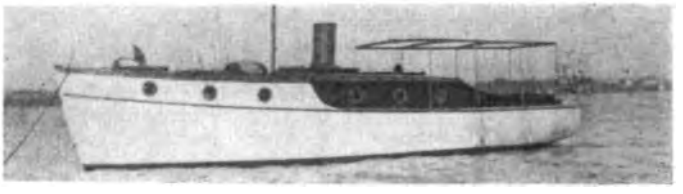
No. 643—For Sale—38 ft. motor cruiser, 9 ft. 6 in. beam. Built in 1912. Roomy cabin, 5 ft. 10 in. headroom, galley, lockers, and wide transoms. 30-h.p. 4 cylinder Jager motor installed in 1914 giving speed of 10 miles. Very well constructed and kept up in perfect condition. Price reasonable. Attractive in appearance. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston 9, Mass.



643

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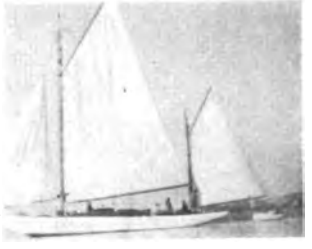


648

No. 648—For Sale—48 ft. by 33 ft. by 11 ft. by 6 ft. 6 in. Built in Maine in 1913. Very strongly constructed. Very roomy. Double cabin with full headroom, mahogany finish. 7-h.p. Bridgeport motor. This is a splendid cruising craft. Stiff, able and easy to handle. A bargain as owner is abroad. For further particulars apply to Hollis Burgess Yacht Agency, Boston 9, Mass.

(Continued on Page 106)

STUYVESANT YACHT CLUB OFFICERS

The new officers of the Stuyvesant Y. C. of City Island are: Commodore, W. E. Beardsley; vice-commodore, H. P. Fiske; rear-commodore, J. J. Donovan; treasurer, C. S. Ogden; recording secretary, Wm. Briesemeister; financial secretary, W. P. Purdy; measurer, C. H. Clapper; fleet surgeon, H. L. Stierer, D. D. S.; fleet chaplain, G. Tracy; board of directors (to serve three years), Dr. P. E. Dowe. Regatta Committee—C. H. Clapper, E. Veit, G. Tracy, E. W. Zumbuehl, A. G. Kirchner. Law Committee—F. L. Kelly, J. W. Armstrong. Auditing Committee—C. H. Clapper, G. Immish, A. J. Dipple. Membership Committee—H. P. Raben, J. Brachmann, J. A. Muller.

* * *

HAIDA SAILS FOR COAST.

The three-masted auxiliary schooner yacht Haida, owned by Major Max C. Fleischmann, N. Y. Y. C., recently sailed from Camden, N. J., for her new home port Santa Barbara, Cal., under command of Captain Charles Rodstrom. She will be a notable addition to the fast growing Pacific Coast fleet of yachts.

Haida was completely overhauled in every department and refurnished at the Mathis Yacht Building Co.'s yard, under the direction and supervision of Cox & Stevens of New York, which firm effected the sale of the yacht (which was formerly named Elise II) to Major Fleischmann recently.

It is expected that Haida will arrive at her destination early in the month of March. Major Fleischmann will, during the season, make several extended cruises, one trip contemplated being to Alaskan waters.

* * *

OFFICERS BROAD CHANNEL, N. Y.

By JOHN F. YOUNG

Commodore, William Kahl; vice-commodore, Albin Olsen; rear-commodore, Edward Hazen; treasurer, Albert Wunder; rear secretary, Edward V. Moore; financial secretary, Chas. Palmer; fleet captain, Jos. P. Stroschein; fleet surgeon, Dr. Peterson; measurer, John F. Young.

* * *

INTERNATIONAL POWER BOAT UNION DATES

Peoria, Ill., July 1-3-4th
Milwaukee, Wis., July 14-15-16th
Put-In-Bay, Ohio, July 19-20-21st
Chicago, Ill., August 3-4-5-6th
Buffalo, N. Y. August 10-11-12th
Hamilton, Ont., August 17-18-19th
Detroit, Mich., August 26-27-28-29th
Toronto, Ont., September 4-5-6th.

The opening meet of the season at Peoria, Ill. will be the annual regatta of the Mississippi Valley Power Boat Association.

* * *

NEW CLUB AT MIAMI BEACH

By F. ANDREW PROCTOR

The Miami Beach Yacht Club was recently organized at the popular Florida resort. The headquarters of the new organization are at the Hotel Flamingo. Carl G. Fisher was elected commodore, with J. H, Levi, C. W. Kotcher and Gar. Wood as vice-commodores. Charles J. Pease was elected governor and C. W. Chase, Jr., secretary-treasurer. F. D. Phelps is fleet-surgeon.

Among the prominent members of the new club may be mentioned J. C. Andrews, T. J. Pancoast, F. R. Humpage, F. B. Floyd. The club has applied for membership in the A. P. B. A. and races will be held under the sanction of that organization.

* * *

RUDDER SEA MEW ENDEARS ITSELF

Some time ago A. A. Brooks of the Canarsie Yacht Club obtained one of the 14-foot Sea Mew class of catboats which were built from RUDDER plans. He used it in his home waters and was so pleased with its service that he had it shipped to his winter home at Fort Lauderdale, Fla. It is seldom that a man finds a boat to suit him to such an extent that he ships it around with him wherever he goes.

Designing Marine Gas Engines

By Chas. Desmond

(Continued from February)

In an engine having a bore of 5 inches the piston is turned about 3/1000 smaller and upper end is made an additional 2/1000 small. Of course best results, as regards efficiency, will be obtained from an engine having perfectly fitted and sealed rings and piston turned so much smaller than bore that the space between the rings moves without friction against cylinder walls. And really when both ends of piston are fitted with rings there is no difficulty in making a fit of this kind providing the cylinder bore and piston are properly ground and rings accurately fitted and sealed against leaks at joints and past the edges.

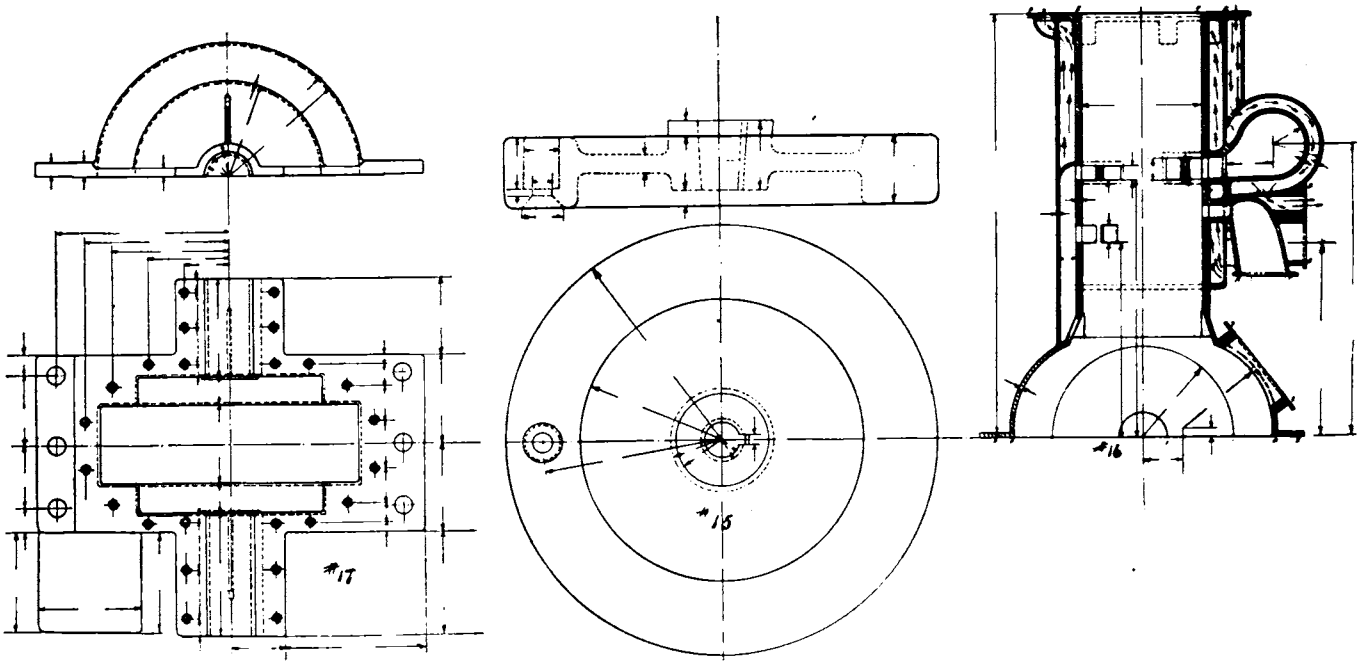
Now I will tabulate the dimensions of parts needed for the two stroke engine I am designing.

Bore, 5 inches.
Stroke, 5½ inches.
Power, 6 B.H.P. at 500 revolutions.
Gage pressure selected (approximately) 75 lbs.
Explosion pressure (approximately) 240 lbs.
The theoretical M.E.P. will approximate 81 lbs.
The average M.E.P. will approximate 65 lbs.
Cylinder walls thickness required ¼ inch.
Water jacket wall thickness to be about ⅛th inch.
Water space between cylinder and jacket walls must be at least ⅝th inch.
Number of cylinder head fastenings required—6.
Thickness of cylinder head metal ¼ inch.
Thickness of metal in piston top ¼ inch.
Thickness of metal in piston wall ⅛ inch.
Width of piston rings, $\frac{3}{32}$ inch.
Thickness of rings $\frac{1}{16}$th inch to ¼ inch.
Number of rings 5 (three above and two below pin).
Diameter of piston pin 1.225 inches.
Diameter of crank shaft 1.8 inches.
Length of crank pin 3.15 inches.
Length of main bearings. Fly-wheel end between 5 and 5.5 inches. After end bearing between 4.5 and 4.8 inches.
In multiple cylinder engines. Intermediate bearings 3.75 to 4 inches.
Width of crank throws 2.16 inches.
Thickness of throws 1.25 inches.
Connecting rod length centre to centre, 10 inches.
Cross section shape of rod I section.
Width of rod 1¼ inches.
Thickness of rod $\frac{9}{16}$th inch.
Diameter of fly-wheel 18 inches.
Weight of fly-wheel 102 pounds for single cylinder engine.

Remarks on designing

Up to this I have dealt with the preliminary work of predetermining dimensions and sizes of parts. I will now pass to actual designing work and explain how a designer works out his designing ideas.

In part V there appeared a copy of a preliminary drawing (Figs. 7 and 8) that illustrated my ideas of how the engine should be (my designing idea). My next work is to check details



Flywheel and Cylinder Plans Applying to Mr. Desmond's Article

(Continued from Page 86)

of the designing idea, analyse their correctness and correct, or change, any detail that can be improved.

The principal idea in my mind is to minimize the inherent defects of the two cycle system of operation, the principal of which are:—

(a) Wasted heat units through unburnt gas passing out with exhaust gases.

(b) Deficient charge volume due to short period inlet port is open.

(c) Loss of new charge owing to a portion passing through exhaust port while it is open.

(d) Leaks in base and past piston.

(a) Can be improved by proper proportioning of port areas and height measures of port.

(b) It is essential that base pressure be corrected for the inlet port area.

(c) Proper design of deflector will eliminate some of this waste.

(d) Is a mechanical defect and can be corrected by proper design of parts and correctness of machine work.

In this particular case I am tied down to certain conditions laid down by my customer and therefor it is not permissible for me to use certain details that have been found most economical and efficient in two stroke engines of a different type to the one I am designing.

Two stroke engines should give more power per unit of cylinder than is obtainable from existing engines of this type and they will do so as soon as designers forget simplicity and give the principal of operation a chance by adding to the engines some much needed appliances for aiding the removal of burnt gases, for completely filling the cylinder with a pure charge of gas and for burning all of the charge before the exhaust port opens.

The Simplicity "bogey" has done more to kill two stroke engines than inherent defects in the principle of operation.

After I have completed the design I am working on I will illustrate and discribe some very economical and efficient types of two stroke engines, unusual in design and ahead of four stroke engines in economy.

In the next part I will describe and illustrate the completed two stroke engine designs.

(To be continued)

GAR. WOOD RE-ELECTED

By W. D. Edenburn

Commodore Garfield A. Wood, national and international power boat champion, was re-elected Commodore of the Detroit Yacht Club. The attendance at the meeting set a new record for the club, more than 500 out of the 2,084 members in good standing turning out.

While the D. Y. C. is world famous for its power boats the directors' proposals in regarding to sailing activities in 1922 met with the approval of the membership. The catboat committee requested not less than three and five new catboats if possible be purchased. The directors announced the authorization of 10 new cats, giving the club the largest fleet of club-owned cats on the Great Lakes, a total of 26, in addition to the numerous privately owned boats in the fleet.

The directors also announced that the club would contribute a substantial sum towards the building of a sloop to compete for the Commodore Richardson International Trophy, emblematic of the Great Lakes championship, this Fall. This trophy was recently put up for Class R boats by the Yacht Racing Union, the deed of gift having called for Class P competition. The champions of Erie, Ontario and Michigan will meet in a final series in the fall for the cup, and the D. Y. C. is seeking the championship finals for the neutral waters of Lake St. Clair, in September. The Richardson Trophy was put up in 1913 but has never been raced for, due to the fact that the first race at Toronto in 1914 was called off when war was declared. Commodore A. A. Schantz, chairman of the building committee, reported that the contracts for the new $500,000 clubhouse, on the new island off the Belle Isle shore had been let and that the new clubhouse would be opened in the spring of 1923. He also announced that the 500 foot veranda would be ready in the fall for the members to use as a grandstand to view the Gold Cup and Harmsworth Trophy races.

* * *

ALKER ELECTED COMMODORE

The annual meeting of the Manhasset Bay Yacht Club of Port Washington, L. I., was held at the Hotel Astor, with Rear Commodore Frank E. Raymond presiding.

The election of the slate for the coming year, as prepared by the nominating committee, was unanimous. J. W. Alker will fly the commodore's flag. Frank H. Russell will be vice-commodore and F. E. Raymond will succeed himself as rear-commodore.

DETROITERS PLAN CONQUEST

By John F. Miller

Detroit may in another year annex the International Class "R" sailboat championship in the Commodore Richardson Trophy as the result of plans launched by a syndicate of Detroit yachtsmen headed by Commodore Kotcher, of the Inter-lake Yachting Association.

It has been decided to build and race a Class "R" yacht in an endeavor to win this event which in reality is a race between the craft of Lake Erie, Michigan and Ontario with the United States clubs competing in the Erie and Michigan events and Canadian clubs in the Ontario races. This new move is made possible by a change in the deed of gift voted by the Yacht Racing Union in Toronto in accord with the wishes of Commodore S. O. Richardson of Toledo to make his trophy for the Class "R" instead of the Class "P."

Commodore Kotcher has made the first subscription toward launching this project and the remainder of the fund will be raised by members of the D. Y. C. With the Harmsworth Trophy representing title to the International Power Boat championship now in Detroit, the possibility of lifting the Richardson Trophy, it is believed, will enable the Detroit syndicate to raise sufficient funds for a fast and properly equipped sloop without much difficulty.

The location of the three lake championship events is already decided, but the Yacht Racing Union will select the course for the finals. Detroit Yacht Club enthusiasts are also considering petitioning for the holding of the finals and to combine these events with the annual D. Y. C. Sweepstakes. One argument is that then the findals would be sailed on neutral waters, as the D. Y. C. Sweepstakes course is always laid in Lake St. Claire, the Michigan championship will be sailed in the Lipton Cup races annually conducted by the Lake Michigan Yachting Association; the Lake Erie title, in which the D. Y. C. boat will compete, may be sailed at Put-in-Bay at the annual regatta of the Inter-lake Yachting Association the week of July 17-22. The Ontario championship will be staged the second week in July in the Bay of Quinte by the Lake Yacht Racing Association of Lake Ontario, another annual fixture.

* * *

PROGRAM OF AMERICAN POWER-BOAT ASSOCIATION SOUTHERN RACES, MIAMI, FLA.

Thursday, March 2, start 1:30 p. m., Flamingo Course, 10 miles. Chance Race, open to boats of all types and sizes.

Thursday and Friday, March 2 and 3, start 3 p. m., Flamingo Course, race for the Fisher-Allison Trophy, 50-mile heats. Open to displacement runabouts powered with marine motors not exceeding 3,000 cubic inches piston displacement.

Friday, March 3, start 2 p. m., Flamingo Course, Free-for-All Runabout Race, 20 miles, open to all runabouts except those competing in Fisher-Allison and Wood-Fisher events.

Saturday, March 4, start 2 p. m., Ocean Course, 20-mile race for express cruisers.

Saturday, March 4, start 2:10 p. m., Ocean Course, 10-mile race, for cruisers having the speed of less than 20 miles per hour.

Saturday, March 4, start 3 p. m., Ocean Course, third heat for Fisher-Allison Trophy, 50 miles.

Tuesday, Wednesday and Thursday, March 7, 8 and 9, start 1:30 p. m., Flamingo Course, Handicap Cruiser Races, 3 heats—ten miles each day. Open to cruisers of all types.

Tuesday, Wednesday and Thursday, March 7, 8 and 9, start 3 p. m., Wood-Fisher Trophy Races, Flamingo Course, three heats, 50 miles each. Open to displacement boats of over 32 feet in length, powered with motors not exceeding 2,250 cubic inches piston displacement.

Starts of the ocean races will be off the Fisher Pier, Lincoln Road, Miami Beach.

Starts of the races held on the Flamingo Course will be off 10th Street, Miami Beach.

The story of these races, written by a member of The Rudder staff, will appear in the April Issue.

* * *

OFFICERS FOR MIAMI KANOE KLUB

The following were elected officers of the Miami Kanoe Klub for 1922: President, Donald Barnhill; secretary, H. H. Kline; Commodore, John Dorn. The club will hold a series of water sports throughout the season. The first series was held Christmas Day.

735,650 Horse Power of STANDARD Engines in Service

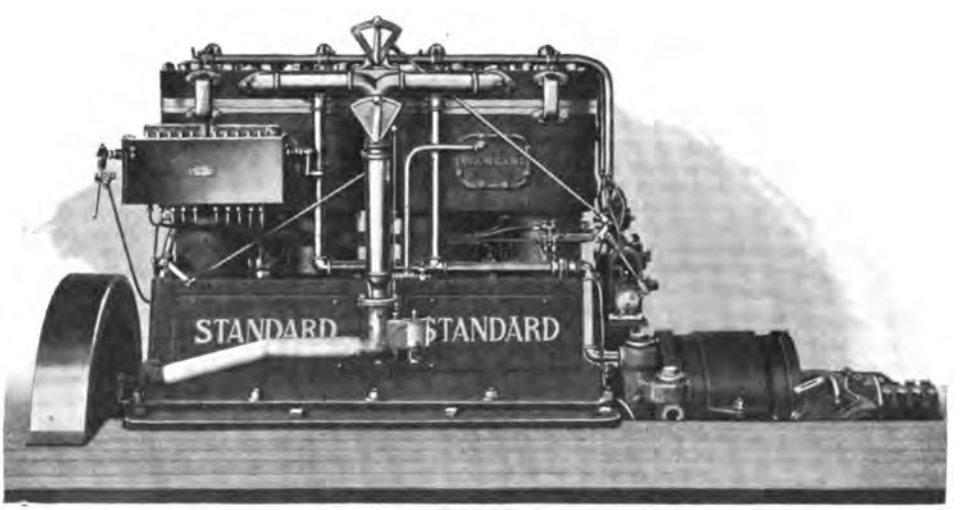
Marine Service Develops the Best Marine Engine

Silver Heels II. Ex-Commodore A. A. Schantz. 70-90-H.P.

The STANDARD Marine Engine: designed and developed under *constant full load* service—with bearings and strengths amply big for long life in the boat, for absolute safety, reliability, economy, low maintenance cost, under the steady relentless grind of motor boat service—is not an aero or auto motor developed under part load where life and efficiency are subordinated to lightness and high revolutions.

The STANDARD is best fitted to serve you in greatest measure for we have always been designers, builders and developers of the *marine* engine in the boat.

You will appreciate the driving power and economy of the STANDARD marine engine every day of its long life, and most of all, at the end of the season when you total the low per-mile-cost of the year's cruising.



32-37-H.P. Standard Engine

We will send you latest catalog and prices on request.

Back of the STANDARD guarantee is the

STANDARD MOTOR CONSTRUCTION COMPANY

127 Pine Street **Jersey City, N. J.**

MARSHAL FOCH AWARDS TROPHY

By D. B. O'Reilly

Active interest in the scientific sport of yacht racing has not been given such a boost in Southern Waters since Sir Thomas Lipton presented the Southern Yacht Club with a superb $4,000 trophy as was given it by the announcement made this month that Marshal Ferdinand Foch of France will present a trophy to the winner of the inter-club matches between the 21 foot (sail rating) cabin sloops of the Gulf Yachting Association.

The donation of this latest trophy came as a direct result of the Marshal's recent visit to New Orleans. The cup is to be designed by one of the most noted silversmiths in Paris and it is hoped that it will be delivered to the Southern Yacht Club before July so that the races of the 21-footers can be staged in conjunction with the Fish Sloop events.

In token of their appreciation, the Southern Yacht Club members elected Marshal Foch a life honorary member of the organization and directed that a specially prepared certificate of membership, done on parchment, be forwarded to him.

As in the case of the Lipton Trophy, ownership of the Foch Trophy will always remain in the Southern Yacht Club. When a craft of the fleet of another club wins it, that club will have the custody of it until some other club of the Association takes it, and will be required to furnish a bond to insure its safekeeping. The owner of the sloop that wins it each year will be presented with a silver miniature replica of the cup as a maker, which he will retain as his permanent property.

There are now six yacht clubs in the Gulf Yachting Association and it is expected that by next Summer Pass Christian will have reorganized their yacht club.

The 21-foot (sail rating) cabin sloop class of the Gulf Yachting Association, which now numbers nine, the Debutante and the Wanderer of the Mobile Yacht Club, and the Pretty Quick, Robin Hood II, Circe, Maid Marion, Sinner, Mettawee and Sis of the Southern Yacht Club, is soon to be enlarged by several others of these keen craft. One of these has been designed and is now being built by the great American designers, the Herreshoffs for B. S. D'Antoni. Another was recently purchased at New York by J. M. Kinabrew and is now on her way to New Orleans, and several yachtsmen from Bay St. Louis and Biloxi are making inquiries as to the prices of these boats, etc., so with prospects for new boats in the 21 foot class, the fish class, machine sloop class and all classes of catboats, it looks like the coming season will be a busy one for the Gulf Yachting Association.

* * *

STAR CLASS NEWS

The Star Class Yacht owners from every section of this country met at the Hotel Astor, Friday evening, January 20th, for the purpose of organizing a National Association. The name of the new Association is the Star Class Yacht Racing Association.

Charters were granted for the forming of five branches to be known as the Fleet, as follows:

Western Long Island Sound Fleet
Eastern Long Island Sound & Fishers Island Fleet
Lake Erie Fleet
Detroit River and Lake St. Clair Fleet
Narragansett Bay Fleet

The officers of the new Association are:

President, G. A. Corry, Manhasset Bay Yacht Club; vice-president, Henry Watterson, Cleveland Yacht Club; secretary, G. W. Elder, Jr. Port Washington Yacht Club; treasurer, Charles Burlingham, Black Point Yacht Club; historian, C. F. Searing, Bayside Yacht Club; executive committee, John F. Miller, Detroit Yacht Club; William McHugh, South Norwalk Yacht Club; Walter C. Wood, Providence Yacht Club.

There are now 108 registered Stars in the Association, fifty to be built in 1922 and other Fleets of which no definite records have as yet been obtained.

Committees were appointed to investigate the fleets existing on Lake Ontario, Lynn Harbor, Mass., Jacksonville, Fla. and Panama, and if found to be in accordance with the Gardner specifications, these fleets will also be admitted to the Associations.

It was definitely decided to hold the National Championship Race beginning in 1922 for a perpetual trophy known as the Star Class National Championship trophy. The first race will be held under the auspices of the Western Long Island Sound Fleet. Challenges were received from the other four fleets.

The Race will be held probably in September, immediately preceding the International Six Meter Race.

The Star Class believes that this is the first organized attempt to standardize racing of small one-design boats in this country and to hold National Championships for boats from all sections, bringing yacht racing up to the same standard as other nationalized sports.

* * *

DINGHY SAILORS ACTIVE

The 10th Annual banquet and election of officers of the Genesee Dinghy Club of Rochester, N. Y., was held Saturday evening, Jan. 14th, several visiting yachtsmen being present. The following officers were elected for the ensuing year; Commodore, T. Albert Sharp; vice-commodore, Jos. Hitchcock; fleet captain, George Roat; treasurer, Ross Nagle; recording secretary, Harry Vegiard; corresponding secretary, Charles A. Rawnsley.

Presentation of cups and flags was made to the winners of the past season's races.

Plans were laid for a determined effort to regain possession of the Emerson Cup, an international trophy put up by J. Everett Emerson of Lockport, N. Y., former Commodore of the Genesee Dinghy Club, and awarded to the winner of an annual race between the Genesee Dinghy Club and the Lake Skiff Sailing Association of Toronto. This cup now in possession of the Canadians, being won by them in 1920 and 21.

The enthusiasm toward dinghy sailing on Lake Ontario and waters in this vicinity is on the increase, several new clubs being formed and boats built, and some lively competition is looked for the coming season, in the 12 and 14 foot classes.

* * *

BILOXI Y. C. NOTES

By ANTHONY V. RAGUSIN

The present year appears as if it will be most successful in the history of the Biloxi Yacht Club. The Biloxi club will be the headquarters of the Gulf Yachting Association throughout the year of 1922. The Gulf Yachting Association is composed of the Houston Yacht Club, of Houston, Texas; the Southern Yacht Club, of New Orleans, La.; the Biloxi Yacht Club, of Biloxi, Miss.; the Eastern Shore Yacht Club, of Mobile, Ala., and the Pensacola Yacht Club of Pensacola, Florida. The annual meeting of the association will be held at Biloxi during the year.

The following officers have been elected and installed to pilot the Biloxi Yacht Club for the year: Commodore, J. P. Moore, Jr.; vice-commodore, F. H. Gower; rear-commodore, Dr. C. B. Warner; secretary-treasurer, G. J. Wiltz; governing board, Byrd Enochs, L. H. Williams, J. C. Baltar, H. P. Flanders, J. E. Breaux, Jr., and F. H. Kimbrough. Henry E. Gumbel was elected Honorary Commodore. W. H. Parham, secretary of the Southern Yacht Club, of New Orleans, has been elected an honorary life member of the club. The new house committee is as follows: D. G. Skinner, chairman; G. J. Wiltz, secretary; F. W. Elmer, Jr., Dr. Albert Russ and Fred A. Burgess. Dr. Russ is in charge of the entertainment division of the club, Fred A. Burgess in charge of the club equipment and F. W. Elmer, Jr., in charge of the repairs.

The Biloxi Yacht Club is in excellent condition, both financially and otherwise. Several thousand dollars has been spent recently on improvements to the club building. The total membership of the club at present is 358, which is composed of 219 active resident members, 116 non-resident members and 23 life members. The 116 non-resident members reside in various parts of the United States and either spend the summer or winter at Biloxi.

In the past few years the Fish sloop class of yachts has become very popular with the yacht clubs of New Orleans, Mobile and Pensacola. An effort is being made to interest the Biloxi club in this branch of yachting. The new officers are enthusiastic over the Fish Class boats and they are now looking into the matter with a view of having several of them built to carry the colors of the B. Y. C. in the future regattas for the Lipton Cup along the Gulf of Mexico.

* * *

SHATTEMUC ELECTION

The Shattemuc Yacht and Canoe Club of Ossining, N. Y., held its monthly meeting at the clubhouse Friday evening, January 6th, and the following officers were elected for the year 1922. Jesse L. Gorrell, Commodore; Ralph K. Cotton, vice-commodore; Herbert C. Gerlach, treasurer; J. D. Van Wart, secretary; George Beisheim, rear-commodore.

Quarter-Deck Talk

Automobile and Airplane Engines

History repeats itself and today we find many marine engine builders in panic due to the threatened invasion of the Marine Industry by engines entirely unsuited for the work. In 1906 an attempt to invade the marine field was made by automobile engine builders and it proved a dismal failure. Boat owners were offered engines at half the price asked for the marine types and were told on half the weight and size they would get twice the h.p. and speed.

The result was, a number of machines were installed in cruisers and due to the constant load, thin water jackets and the action of salt water, they proved useless and one season ended the invasion. The best automobile engines on the market today were designed by men whose early training was secured in the marine field, but their product is not designed for marine use.

Without a doubt there are engines which if redesigned, given a greater thickness of metal in the water jackets and suitable bases, oiling system, etc. could be used successfully for certain classes of boat. Aside from the very small high speed boat the automobile type of engine is useless—that is if more than a year's service is looked for.

The Government has disposed of a stock of airplane engines, which are being offered for marine use. In light hydroplanes they may last a season, but the purchaser will find for any other purpose they are unsuited.

While the prices the machines are offered at may seem cheap, they will prove to be expensive in the long run.

* * *

BOAT LIGHTING SETS

The lighting of cruisers has undergone some changes in the last few years. Boats 65 feet long and larger are generally equipped with separate engine and dynamo sets used in connection with a battery.

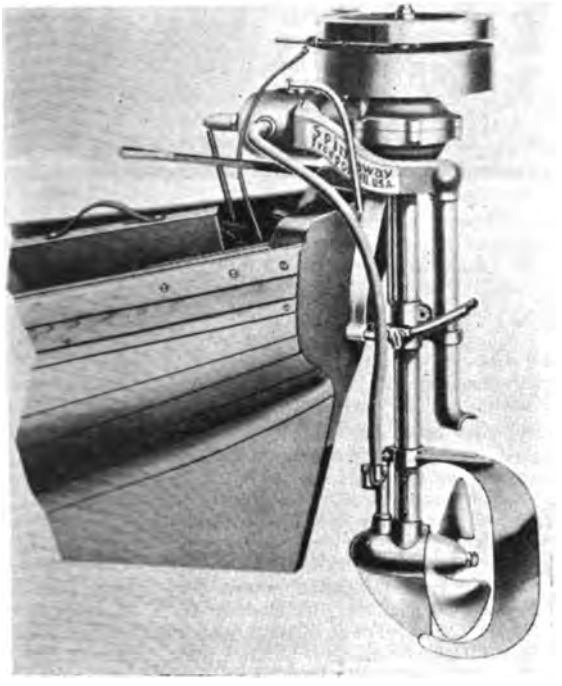
For the smaller launches and cruisers there is no better way than the dynamo run by belt either from the main engine or a smaller engine used for pumping air or the bilge. This charges a battery so that lights are available at all times.

The Champion outfit made by Hector MacRae of Baltimore come in three sizes—8-volt, 100-ampere-hours, 8-volt, 200-ampere-hours and 16-volt, 200-ampere-hours capacity. With these are used the standard automobile lamps of 5, 15 and 20 c.p. The result is a very brilliant and satisfactory light with no detriment to life of the lamps. The 8-volt, 200-ampere-hour is the most popular type and is ideal for the usual 50 foot cruiser.

The battery, which is the vital part of these outfits, is the Champion thick plate type with solid hard rubber separators only. It will stand all the hard usage that boat batteries must stand. The life is from eight to ten years. The dynamos are large enough to charge at a high rate so that even short runs will keep plenty of current in the batteries. Switchboards are small, compact and complete with automatic cut-outs of 10 and 25 ampere capacity.

SPINAWAY OUTBOARD ENGINES

Our illustration shows the Spinaway outboard, made by the Spinaway Boat Motor Co., Freeport, Ill. The little engine is rated at 2-hp. at 1,200 r.p.m. The bore and stroke is 2⅝ inches. Crank shaft is of carbon steel, heat treated and ground to accurate dimensions. The bearing lengths are ample for long wear. The weight of the engine complete for battery ignition, but without batteries is 52 pounds. With built-in magneto the machine weighs 58 pounds. The price is $90 for the battery type and $95 for magneto ignition.



Spinaway Outboard

STERLING MODELS NOW NAMED

The Sterling Engine Co. has decided that their former method of differentiating between their models by the use of letters, such as FH, GR, GRS, etc., is rather puzzling to many of their friends. They have therefor decided to name each of their models, taking the names from various parts of their coat of arms.

The models formerly known as GR and GRS will hereafter be called Sterling Dolphins. These engines have twice won the Fisher Trophy race. The medium speed models will be called Trident. The two new Sterlings which were shown for the first time at the Boat Show will be known as Viking and Sea Gull. The former will apply to the 7 by 8½ inch 300-hp. machine and the latter to the new high speed Sterlings which will be contenders for the Gold Cup race next summer.

* * *

PALMER ENGINE'S NEW HOME

Palmer Bros. Engines have moved their New York office from 31 East 21st Street to 128 Lexington Avenue (between 28th and 29th Streets, where they will carry a line of the Palmer marine engines, also a complete stock of parts and accessories suitable for use with the Palmer Engines.

E. E. Palmer will be in charge, Gustaf Blomgren, assistant chief; boat owners and Palmer customers are extended a cordial invitation to call.

They have also opened a branch office at 122 South Ocean Street, Jacksonville, Fla., where they expect to carry a full line of engines and parts.

* * *

CAPE COD SHIP OPENS NEW SHOPS

The Cape Cod Ship Building Corp. has had so much new business, partly occasioned by the marketing of their new 18-foot Baby Knockabout, a well-built, comfortable and fast boat of the centerboard type and a Marconi rig, that they have had to increase their building space. This new plant has been designed and built especially for building standardized boats as well as built-to-order

craft. The assembly shop is 200 feet long and 50 feet wide. Boats will be set up at one end of the shop and will move constantly along so that five boats can be under construction at one time, starting as a pile of lumber at one end and emerging as a completed craft.

* * *

TOPPAN BOAT CO. REDUCES PRICES

The Toppan Boat Mfg. Co. well known manufacturers of high grade dories and launches, have just issued their new 1922 price list, and they are offering some extremely reasonable prices on their finely finished dories, runabouts and Government model launches. They have reduced their 21 ft. by 5 ft. V bottom cedar planked runabout, equipped with 12-15-hp. Kermath, speed 15 miles, to $1,200. Their 16 ft. hydroplane Bullet, with Universal engine may now be purchased for $850. The 22 ft. dory launch, equipped with 9-12 hp. Universal engine, which is perhaps one of their best known outfits, combining speed, seaworthiness and carrying capacity, is now $950. The 22 ft. lapped straked fishing dory with Universal engine is only $800. Toppan sailing dories are all reduced 30%, and their well known 15 ft. detachable engine boat, cedar planked may now be obtained for $98.

A Toppan-Tot

Our readers who are desirous of getting something seaworthy, safe and absolutely guaranteed in every way, will do well to take it up with the Toppan Boat Co., Medford, Mass., at once to be sure of getting delivery when they want it.

Recent sales made by Toppan Boat Co., Medford, Mass.: 22 ft. Cruise-Cat, 4-hp. Barker engine, Marconi rig, toilet, cushions, and everything to make a most comfortable cruising cat, to F. W. Aymar, of Columbia University, New York. 22 ft. dory launch, Universal 9-12-hp. engine, brass rails, spray hood, to Arthur Letchworth, president of the Quaker City Iron Works, Philadelphia, Pa. 18 ft. power dory, Universal engine, to Thos. J. Smith, Cortland, N. Y.; this is second Toppan power dory Mr. Smith has had. 15 ft. Toppan-Tot sailboat, to Rodney Unz, 24 Broadway, New York. 15 ft. Toppan-Tot to Karl Adams of Boston, Mass., member of Boston and Nantucket Yacht Clubs. Two 15 ft. Toppan-Tots to Commodore Ernest Lee Jahncke, president of the Jahncke Dry Dock and Ship Repair Co., New Orleans.

* * *

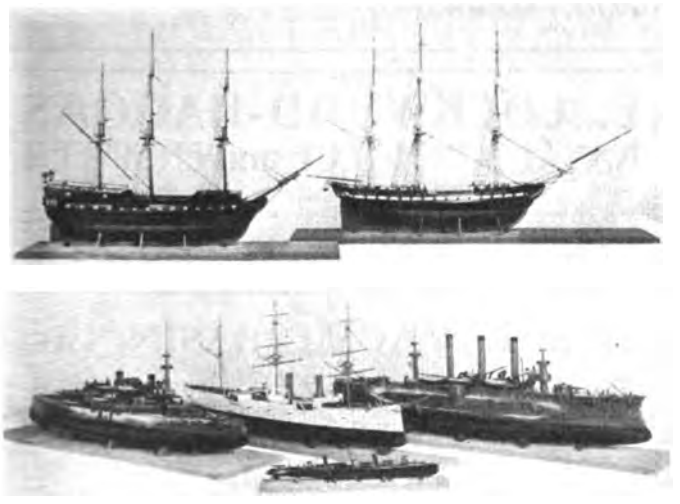
GEAR DRIVE EQUIPMENT

In this issue we have an article written by an authority on fast boat design, advocating the use of reduction or step-up gears in power boats. In this connection it is interesting to learn that the Cross Gear and Engine Co., of Detroit, is prepared to furnish gears of this type for all powers up to 100-hp. and revolutions up to 2,000. These gears are enclosed in specially lubricated cases and are ball bearing. They can be made either angular or straight. The firm also specialize on a new type universal joint of the ball bearing type which it is claimed, is the smallest diameter joint on the market.

Speed boatmen will also be interested to know that they make a special reverse gear for Liberty, Fiat, Mercedes and Hall-Scott engines. They maintain a staff of engineers who will be glad to advise you in connection with your installation problems. In writing them for information it will be advisable to mention THE RUDDER.

BOUCHER SHOWS HISTORICAL MODELS

The H. E. Boucher Mfg. Co. have recently completed a set of models showing the history of the U. S. Navy. This series will be used for exhibition purposes. A few of these wonderful pieces of workmanship are shown in the accompanying picture. The



Boucher Models of U. S. Navy Vessels

two sailing ships are of course of the period of the early days of the Republic, but the steamers shown below are of vessels which were in service at the time of the Spanish War. Reading from right to left, they are, Oregon, Chicago, Brooklyn and Winslow.

* * *

COX & STEVENS REMOVE TO NEW QUARTERS

The firm of Cox & Stevens, well known naval architects, yacht and vessel brokers, will remove on March 1st to more spacious offices in the new Cunard Building, 25 Broadway, New York. Their new quarters are directly accessible from the Morris Street entrance, and will be sufficiently large to accommodate in addition to the executive staff their designing force which for the past several years the firm was obliged to place in Brooklyn due to scarcity of available office space in lower Manhattan during and after the war period.

Cox & Stevens report a considerable improvement in the outlook for yachting during the coming season, having several large pleasure craft under construction from their designs, with immediate prospects for additional contracts for new yachts, in addition to several important commissions for the designs of commercial vessels which are now being built.

The members of the firm are Irving Cox, Daniel H. Cox, Bruno Tornroth, and Thomas C. Landi.

* * *

MANY BIG YACHTS

The various designers and builders of yachts, from Chesapeake Bay to Gloucester, Mass., report more inquiries for craft this Winter than last, and there is more activity at the many yards. Lawley of South Boston is building a 125-foot powered cruiser for H. S. Borden of Fall River. The Borden yacht, which was designed by Purdy, will be driven by Speedway engines.

Another 125-foot powered yacht, from designs by Gielow, is being built at the Morris Heights yard of the Consolidated Shipbuilding Company for J. H. Ringling.

Gielow is also the designer of a 42-foot powered yacht for use on the Great Lakes. This boat, which is for Walden Shaw, a Chicago yachtsman, will have as many luxurious appointments as can be crowded into her somewhat smaller dimensions.

* * *

NEW ANDERSON AGENTS

The Canadian Boat & Engine Exchange of Toronto have added another American Engine to their line by taking on the Anderson of Chicago, U. S. A., which they expect to carry a stock of in the near future.

-and mind the Paint!

YOU'LL paint that boat of yours this Spring, of course. If you want a better paint job than ever before,

Why Not Use Debevoise Marine Paints?

DE-PA-CO MARINE FLAT WHITE STAYS WHITE

It *likes* to be scrubbed; the surface is automatically kept in a perfectly smooth condition for repainting, without the usual preliminary burning and scraping.

De-Pa-Co. Marine Flat White will not blister, crack or peel. It is highly resistant to salt water action—a finely ground, smooth-flowing, dead white—

"THE WHITE THAT STAYS WHITE"

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No. 667—FOR SALE—Cabin Sloop 21 ft. water line; 32 ft. overall; 8-ft. beam and 6-ft. draft. Lead keel about 3,500 lbs. A good boat for day sailing or short cruises; has about 4 ft. headroom. She is an old boat but is

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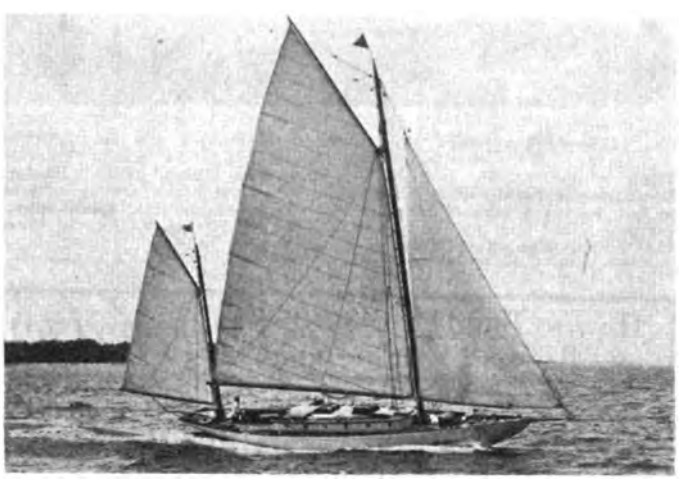

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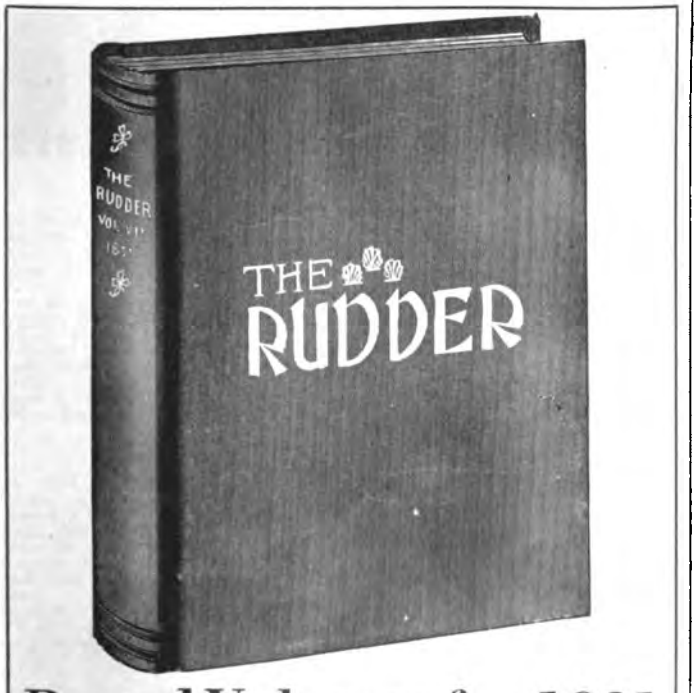

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WANTED—A Hand V bottom cruiser, 28 or 30 feet long; speed, 14 miles an hour. Must be in first class condition throughout. Photographs and descriptions will be returned. Box 199, Rudder Publishing Co., New York City.

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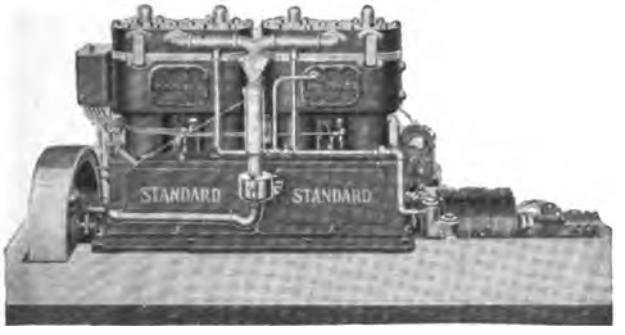

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It is this, what the engine does by its power and ruggedness, what it earns and saves in thousands of boats, that has won it World recognition.

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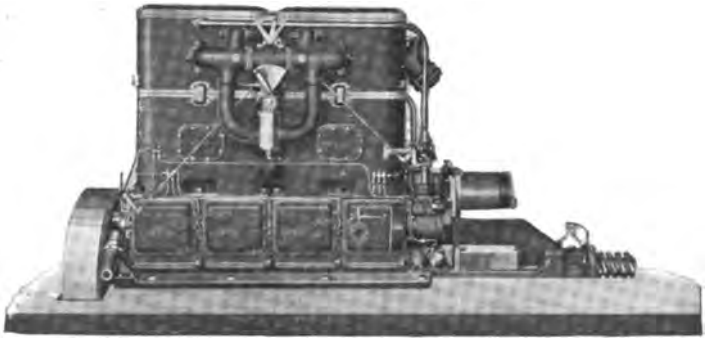

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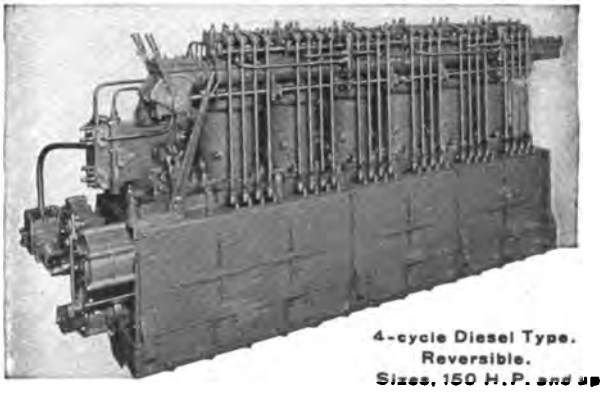

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April
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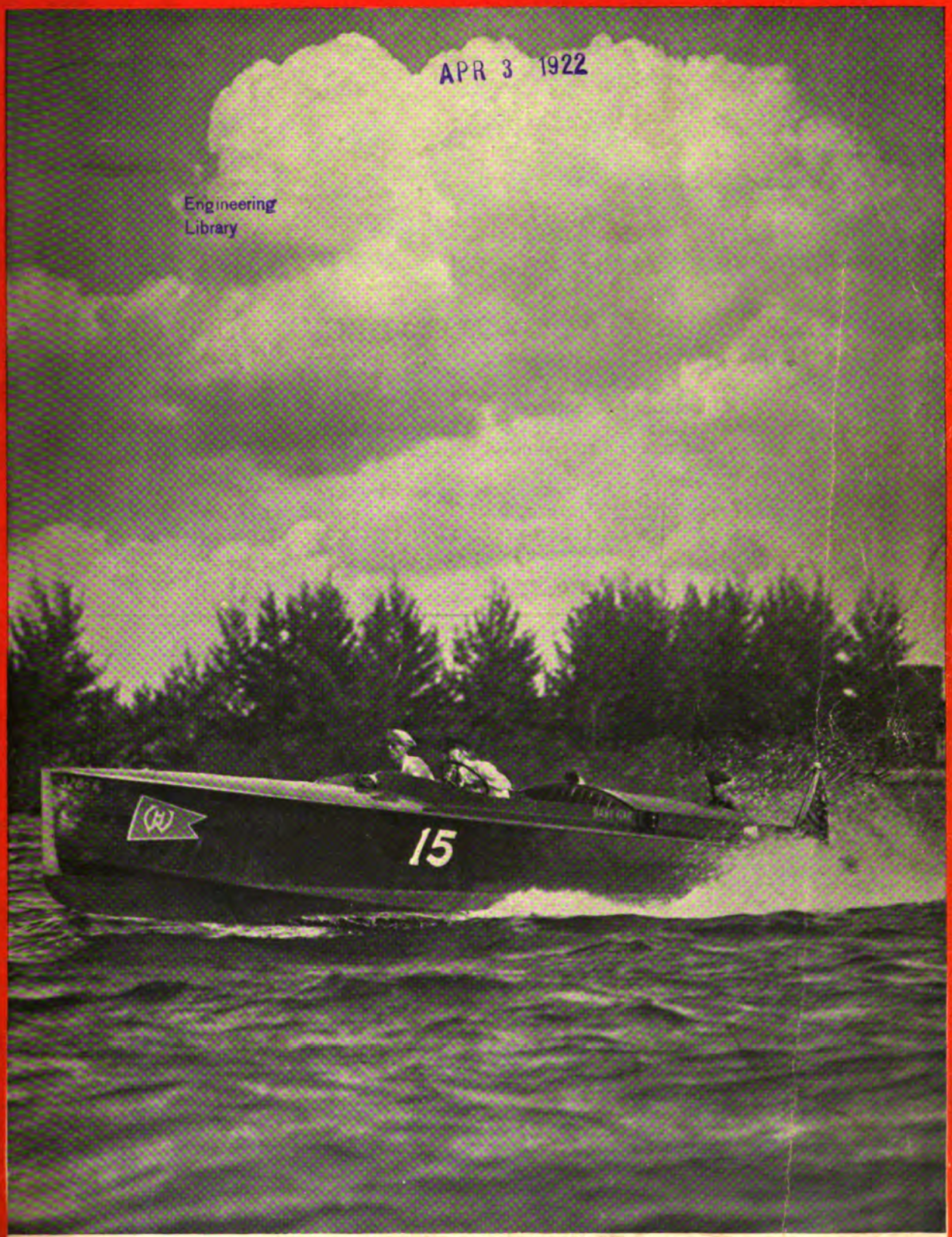

Baby Gar, Winner of the Wood-Fisher Race

PRICE 25 CENTS

Vol. XXXVIII

THE RUDDER

No. 4

Registered United States Pat. Office

Published on the 24th of the month by THE RUDDER PUBLISHING COMPANY. Entered as Second Class Matter February 4, 1895 at the Post Office at New York, N. Y., under the Act of March 3, 1879

9 Murray Street, New York, U. S. A.

Opposite City Hall Park

SUBSCRIPTION RATES.—Anywhere in the world, $2.00 a year; $1.00 six months; 50 cents three months, payable in advance. Single copies, 25 cents. Back numbers, over six months old, 50 cents each, when in print. Bound volumes (for previous years) $6.00 postpaid in United States and Canada. Foreign countries, $7.00.

CHANGE OF ADDRESS should reach this office by the 10th to affect the next issue. Both old and new address must be given.

THE RUDDER can be procured or subscribed for at the following Foreign Agencies:
THE YACHTSMAN, 168 Strand London, England.
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BRENTANO'S 36 Ave. de l'Opera, Paris, France.
GORDON & GOTCH, Sydney, Australia.
Or at any Bookstall.

Contents for April, 1922

Advertising Index, Page 71

Plotting the Course

WE are just about recovering from the strain of getting out our big March Issue when we find ourselves deep into this one. We believe this is a good issue but our ideas are secondary to yours. Won't you please write us and say frankly whether you like this number? Let us know what changes you would suggest! Your opinion is of the greatest value to us.

The May Issue of THE RUDDER will, as usual, be the Annual Export Number. Boating in other lands influences our sport to a great degree. How would you like to own a power boat where gasoline is $1.75 per gallon? Yet there are lots of folks who pay that much for their fuel and are glad to get it at any price. Anything that will increase the sale of boats and engines helps all of us out, due to the workings of the old law of supply and demand. In May we will have an article by a famous naval architect who points out features of the export trade so that manufacturers can increase their productivity by working up a foreign field.

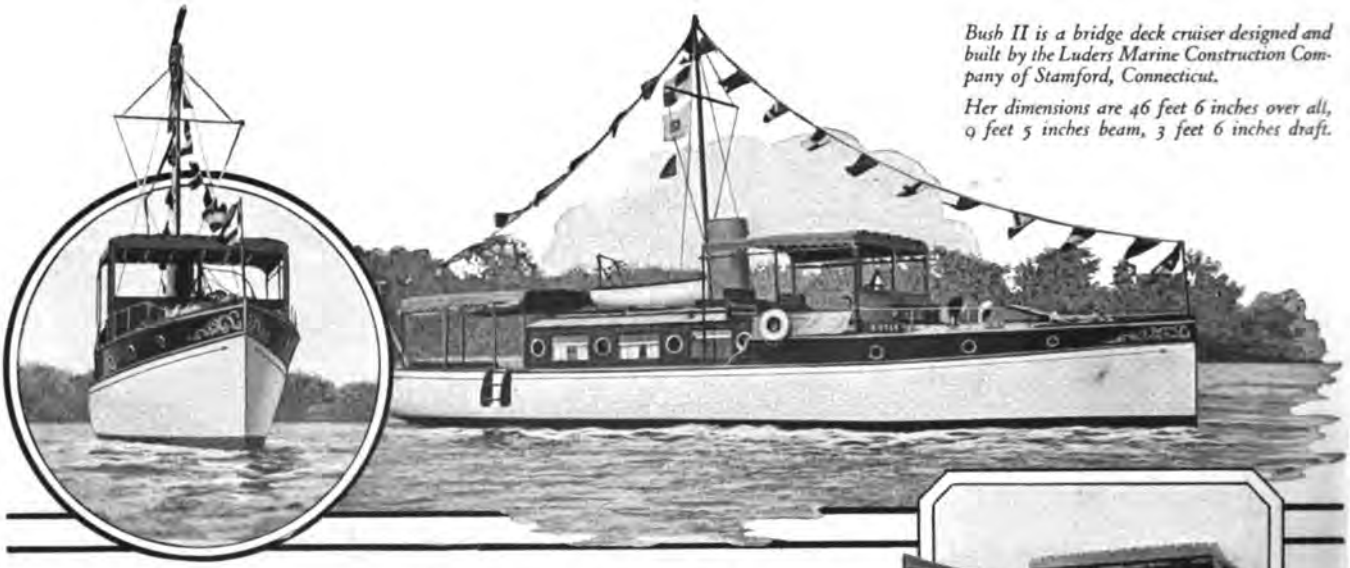
The article in this issue about fast steam yachts we think is valuable and in May we expect to show you the modern gasoline driven express boats. While it is true that the present day gasoline boats are not quite so fast as the old steamer Arrow, they are more comfortable in every way.

For those of you who love small seagoing boats we have a treat. We have finally received full details of the wonderful little auxiliary schooner Widow. This little boat will be fully described with pictures, plans and an article by her owner. Remember, she is only 23 feet long but is used constantly for cruising in open water and is often skippered by a youngster who won't wear long pants for some years to come.

K. M. Walker has contributed an article on Stability and Trim that will explain many of the mysteries of why your boat rolls and how to stop it.

The regular departments, Beachcombings, Work Bench, Hurrah's Nest etc. will all be there. Incidently, do you know how to rig a windmill pump for your boat? Look in May Work Bench for the answer.

The Editor



Bush II is a bridge deck cruiser designed and built by the Luders Marine Construction Company of Stamford, Connecticut.

Her dimensions are 46 feet 6 inches over all, 9 feet 5 inches beam, 3 feet 6 inches draft.

Valspar Bronze Bottom Paint Keeps Your Boat "Clean as a Whistle" All Season

Mr. August C. Buscher, of New York, is one of the many yachtsmen who have eliminated mid-season scraping. In speaking of his experience with Valspar Bronze Bottom Paint, Mr. Buscher says,

"I have used Valspar Bronze Bottom Paint for three seasons on my boat, *Bush II,* and on hauling out at the end of the season have found her to be entirely free from barnacles and other sea growth.

"I have found that this paint flows freely under the brush and covers a great deal of surface. I gladly recommend it to anyone who wishes to eliminate mid-season hauling out, as the Spring painting is sufficient for the entire season.

"For a number of years I have been experimenting with bottom paints of all kinds, but have yet to find one equal to Valspar Bronze Bottom Paint, for both durability and anti-fouling properties."

Valspar Bronze Bottom Paint is a compound of Valspar, the tough and durable waterproof varnish, with pure French Leaf Bronze. Two coats of this absolutely anti-fouling paint in the Spring will keep the bottom of your boat clean as a whistle all season.

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Rud. 4-22

THE RUDDER

Commercial Boats and Equipment | Yachts and Yachting | Engines and Accessories

Volume XXXVIII | April, 1922 | No. 4

Outboard Engine Facts and Fancies

WHEN the Red Gods call you to the Great Outdoors there are many ways in which you can journey upon the Outbound Trail. Deep down in the heart of almost all of us is a love for the water. Probably this is inherited from our forebears who had to cross the ocean in cockshell craft to reach these shores. Commercial necessity has pushed the population away from the coasts, but even though the environment is changed the old love for smiling waters and the sting of spray is with us all.

There have been days when one could not commune with Mother Nature without an amount of laborious travel that did much to dull the keen edge of enjoyment. The outboard engine has been one of the great factors in the increasing love of the open spaces and the possibility of reaching these places from the marts of trade without labor to which office-bound muscles are not suited.

Rowing, as an exercise, is without doubt beneficial, but when taken with this result in mind, it must be assimilated in small doses. Even in the best of cases it becomes irksome at the end of a day when picnicking has brought somnolence. It is in cases of this kind that the diminutive outboard pays dividends. The modern outboard is probably the best example of *multum in parvo* that science has perfected.

If you have any doubts as to the progress of science and the untold values of engineering experimentation, look at your outboard. Small, concise, light in weight and economical, yet it opens up opportunities for exploration which may bring to the not too literal minded the supreme satisfaction of the discoverer. Carried up a woodland stream by the faithful engine, you too, may stand on a spot like Robinson Crusoe, "Monarch of all you survey."

You May Own a Yacht as Big as a Liner or as Fast as a Hydroplane, but You Must Acknowledge that this Family is Having Fun

A Crowd Does Not Seem to Bother this Outboard. For Towing a Fleet of Canoes to the Camp Site an Outboard is Ideal

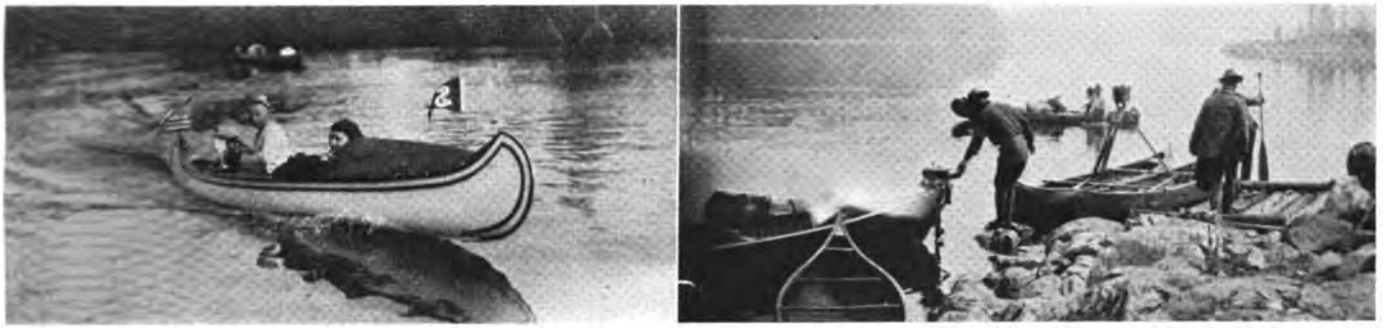
Picture to yourself the situation. Above, the trees arch over the stream forming a green canopy tempering the rays of the summer sun. The rustling of the leaves are tuned by the Divine hand with the sweet songs of the birds into a sublime melody which no composer of this or any other day has even approximated. Ahead—there is another bend, other vistas of delight which ever beckon onward. Here the stream widens out into a quiet pool, the home of many turtles who plop merrily into the water at your approach. From an overhanging branch a chipmunk scolds you for disturbing his apparently aimless scamperings. A bit of white water is ahead. A touch of the throttle and the boat springs ahead. Careful there! Watch your course till you jump into the still water above the rapid.

The character of the stream changes. Instead of the gently rising, wooded banks, you glide through a stream-carved cut in living rock. Far above a bald eagle wheels, and wheels until it seems that his baleful eye has spotted you and he is ready for the sickening drop into your boat. Mr. Eagle finally swoops out of sight as you swing around another turn and find a shelving sandy beach which says "welcome" just as surely as if a host was standing with outstretched hand.

With a swing of the tiller and a snap of the switch you glide up the beach and come to rest for luncheon. Spread a blanket, dig up the basket of lunch and a pile of cushions and sit you down to a feast that rivals the nectar of the gods. Right here you realize one of the great beauties of the outboard. There is no need of fussing with an anchor because the boat cannot be brought close to shore. There is no dinghy into which everything must be piled and several trips ashore made until you are worn and sulky. The boat will wait for you safely until ready for the down stream journey.

If the trip is a long one it may be necessary to pour a little more gasoline into the tank from a spare can. Add a bit of oil and she is ready again. Compare this with the procedure of getting a larger boat under way. If the stream happens to be a mountain one it may be necessary for you to carry the boat around some particularly difficult rapid or a dam. With the ordinary launch this would be impossible without a wagon and a gang of men. With a light rowboat or canoe and the faithful engine, you can

All Ashore for Lunch! The Young Skipperess Has Made Her Landing in Exactly the Right Spot



An Outboard Will Turn Your Canoe into a Speedster in Short Order. This Crowd of Campers Have Been Saved Many Hours of Paddling by Using One Outboard to Tow the Fleet

make a portage and be off on another stream in a short while.

Of course all of us do not live where we have woodland streams for our week-endings. Possibly we have homes on the coast where boating is more strenuous. Even then the little engines will come to be a most valuable part of our equipment, for they can be clamped to the dinghy and used to take us out to the moorings as well as saving the back-breaking row to favorite fishing grounds.

To the sailboat owner the outboard is a godsend, giving the advantages of an auxiliary for small sailers without the disadvantages of having a machine permanently installed. Either the engine can be hooked to the yacht's stern or, if clamped to the dinghy, will turn that obsequious little craft into a tow-boat. For making the trips to shore for mail, ice, picture postals and pie, which are the chief articles needed on a cruise, the outboard engined dink is worth its cost every trip. Naturally under these conditions the outboard is as useful to the power boat man as it is to the windjammer.

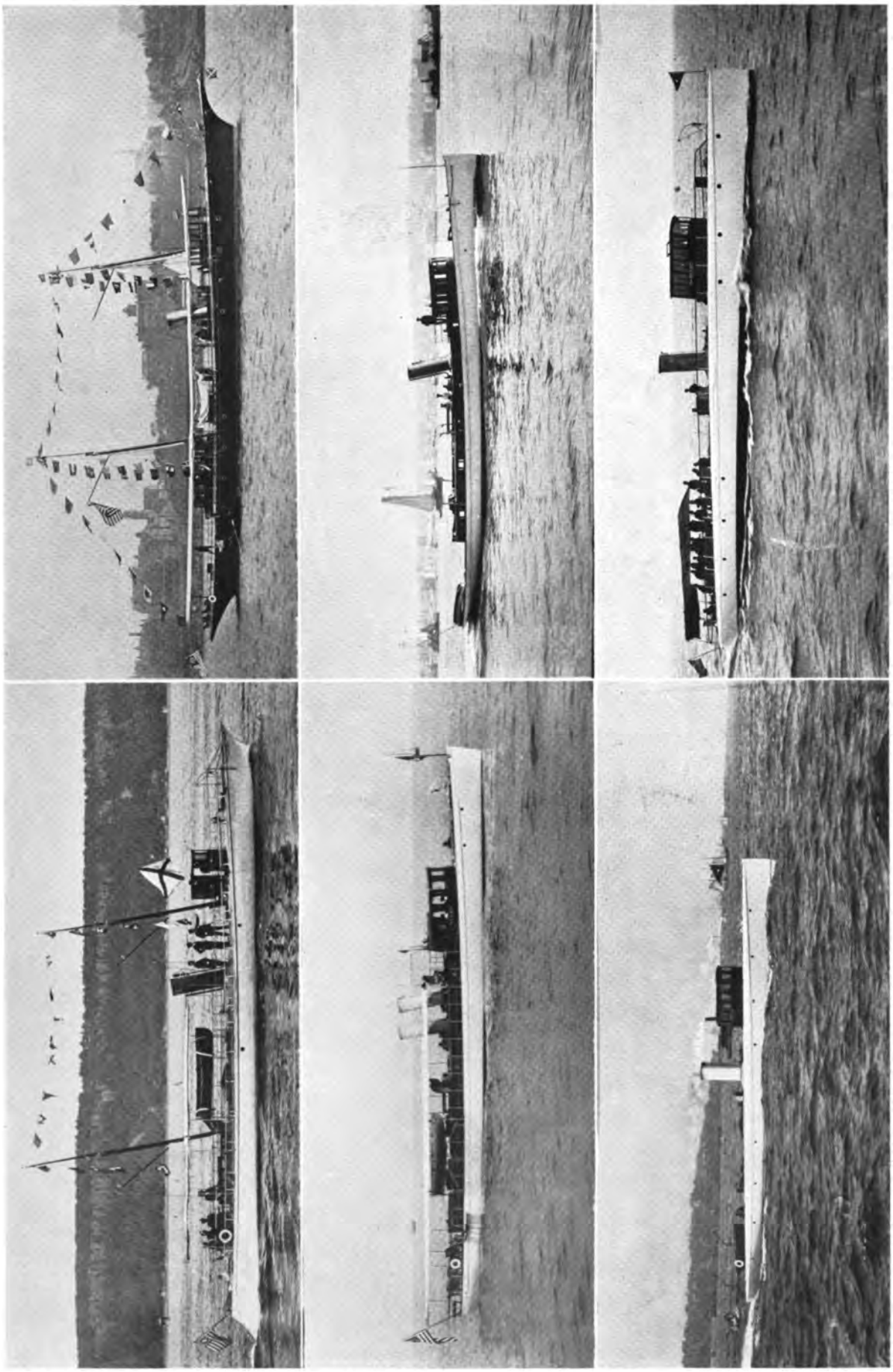
When an outboard is carried on a power cruiser it gives one a sense of security. Even the best engines ever made will fail under certain conditions. Instead of waiting around for a tow, the owner drops the dink overboard, hooks on the outboard and tows home. The speed may not entitle you to entry in the express cruiser class, but you will get there, which after all is the main item.

Outboards are now made in a variety of sizes, speeds and weights to accommodate them to practically every service that lies within the limits of their power. Some of the double cylinder engines are made up to 3-h.p., although the average is about 2 horse. This has been found by experience to be the power range required by the majority of rowboats and canoes. For many years some people considered the outboard as a sort of mechanical toy until they suddenly realized that all over the world thousands were being used by fishermen, guides, forest rangers and wilderness freighters, in their everyday occupations. If outboards are satisfactory prime movers for men engaged in making their livelihood from water transport, no one can claim that they are not suitable for pleasure service.

Travelers from all over the world, men who have braved snow-blindness in the frozen north and fever in the miasmic jungles of the Equator, come back and report outboards. A caller recently told the writer that on a 1,200-mile trip by steamboat through the Canadian wilderness, the only power boat he saw was powered with an outboard. It was engaged in towing food supplies up a rapid-torn river to a mining camp.

It must be remembered in connection with the use of outboard engines that a boat so equipped is a power boat in the eyes of the law and must be equipped with fire extinguisher, life preservers for all hands, whistle (a mouth operated one will do), a combination red and green bow light and a white stern light, as well as two copies of the pilot rules obtainable from any custom house. On boats of 16 feet or more length the numbers required by law must be displayed.

If This Does Not Exemplify the Spirit of the Great Outdoors You Must be a Chronic Cynic



EXPRESS CRUISERS OF OTHER DAYS

Top Row:—Now Then, a Herreshoff Flyer, Built in 1887. Say When is Another Herreshoff Creation, 138 Feet Long, Built in 1888. Center Row:—Vixen was Designed by Charles L. Seabury and Built by What is Now the Consolidated Shipbuilding Corp., in 1902, for John D. Archbold. Helvetia was Designed by Edward Burgess and Built by Lawley in 1891, for Columbus O'Donnel Iselin. Bottom Row:—Javelin and Vamoose, Built by Herreshoff in 1895, and Rated as the Fastest Craft of the Period

Kanawha Was One of the Fastest Yachts of Her Type Ever Built. She Beat Hauoli in Their Famous Race

High Speed Steam Yachts

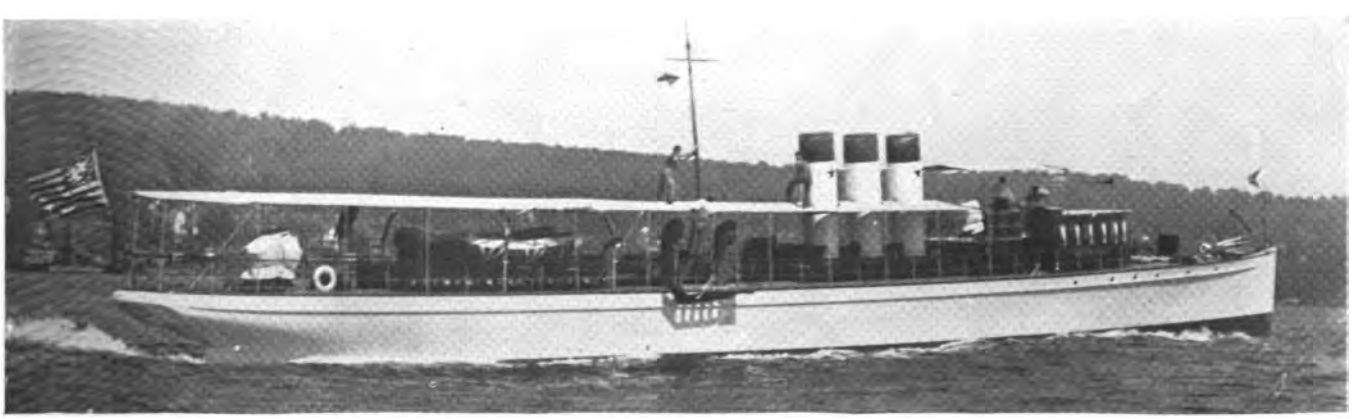
Photos by M. Rosenfeld & E. Levick

THOSE of us who have not studied the history of express yachts are apt to believe that the present day, gasoline driven express boat, is the fastest thing in the cruiser line that has ever been built. It will suprise many to know that the unofficial speed of the steam yacht Arrow, built in 1901 is greater than that reached by any express boat of the present day. In the past there was no organization of racing men such as the American Power Boat Association or the International Power Boat Union to collect and tabulate the speed records of racing boats.

Aside from the speeds made in a few races in the early days of the twentieth century, we have little to guide us in determining speeds, outside of the records kept by the builders and owners of fast boats. It is possible that some of the old boats were not quite as fast as they were believed, there is no doubt but what speeds greater than we now see have been obtained.

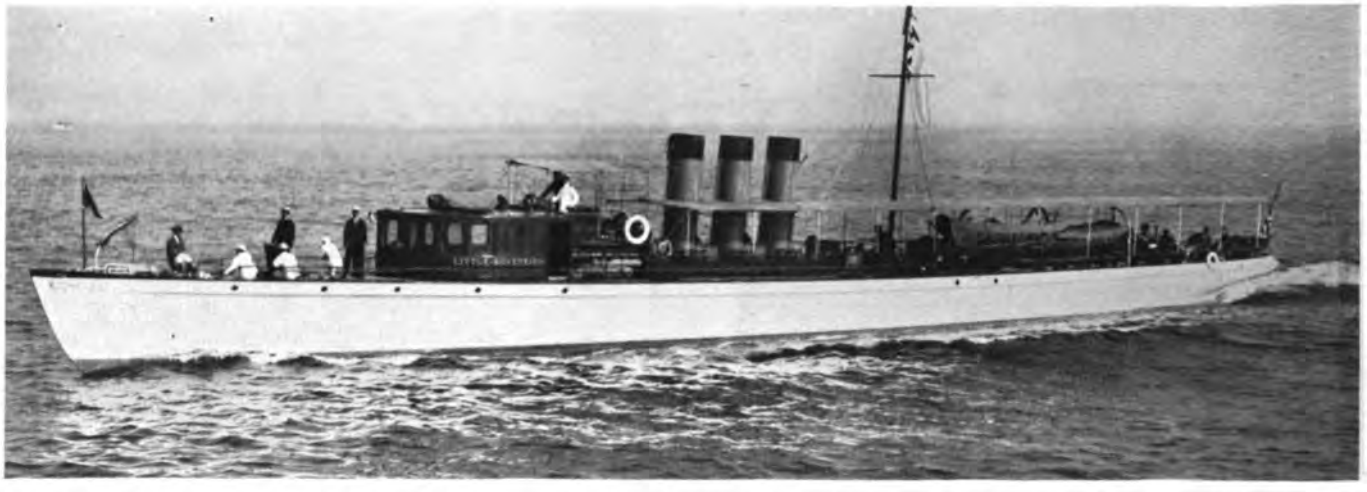
It is interesting to note that all of the early speed craft were considerably longer than the express boats of today. This was due almost entirely to the room taken up with the big boilers and long triple and compound expansion engines. In the case of Arrow there were two big Nixon boilers and 2 eight cylinder engines. This boat was a product of the designing skill of C. D. Mosher who was one of the leaders in the growth and popularity of swift steamers during the period extending from about 1888 until 1902. After that date interest in extremely fast boats dropped considerably.

The majority of these boats were between 80 and 130 feet in length, but the offering of the Lysistrata Trophy was responsible for the building of two fast yachts of the real seagoing type. One of these fine vessels was Kanawha, designed and built at Morris Heights by what is now the Consolidated Shipbuilding Corp. and the other was Hauoli, a product of the designing genius of Henry J. Gielow. Other very

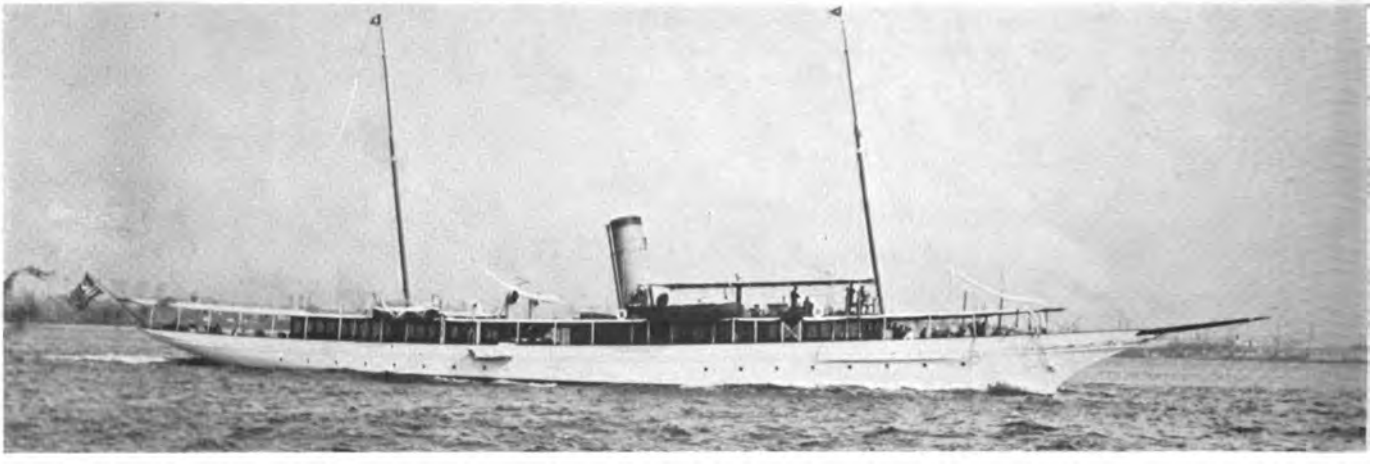


Vitesse, Built by Consolidated Shipbuilding Corp. for General Brayton Ives. A Remarkably Fast Yacht. She is Now Named Greyhound and is Owned by Dr. John Harriss

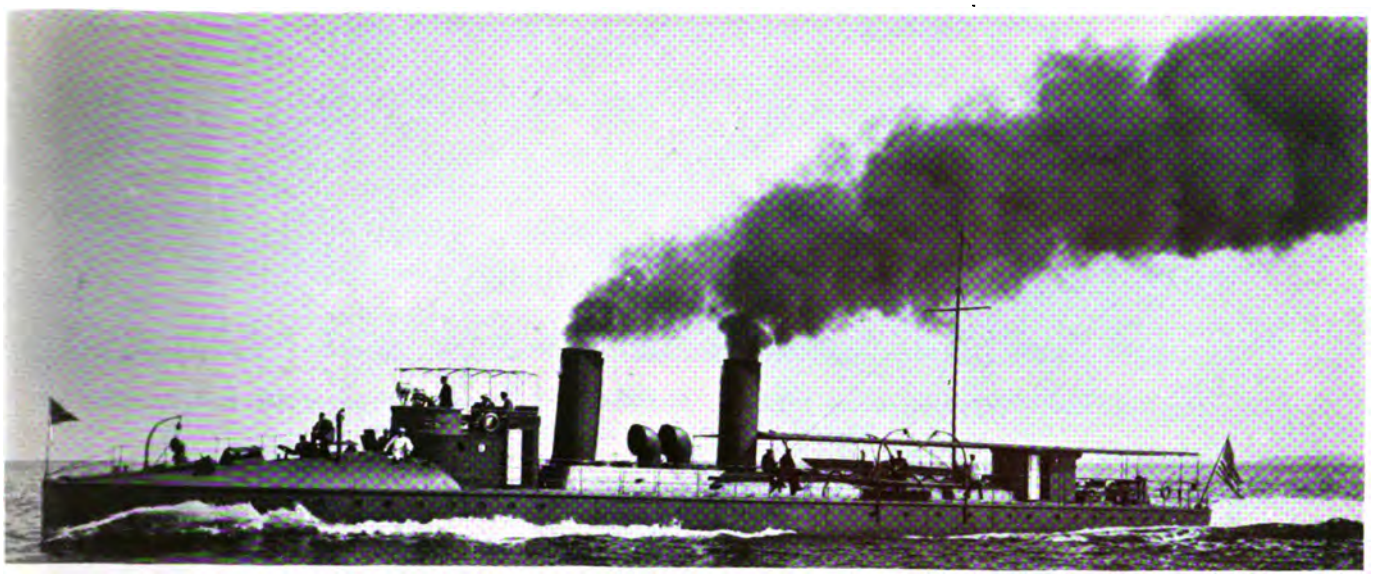
This Picture of Howard Gould's Niagara IV was Taken During Her Race with Tarantula for the Niagara IV Trophy. Note the Crew Lying Flat on Deck to Reduce Resistance



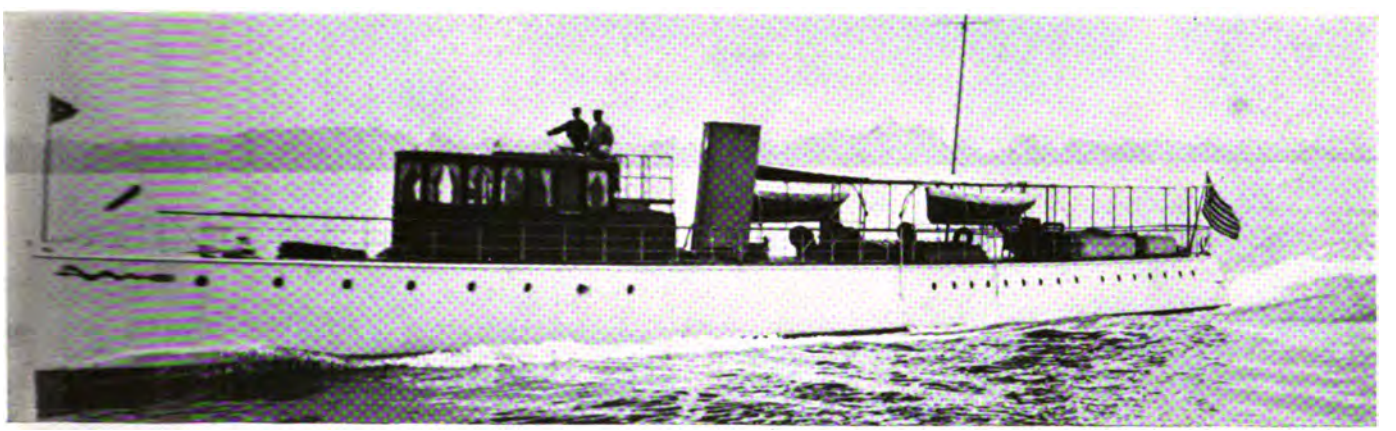
Little Sovereign Represents a More Modern Type of Fast Steamer. She was Built by Consolidated in 1909, and Had a Speed of About 35 Miles. She was Twin-Screwed and 137 Feet Long



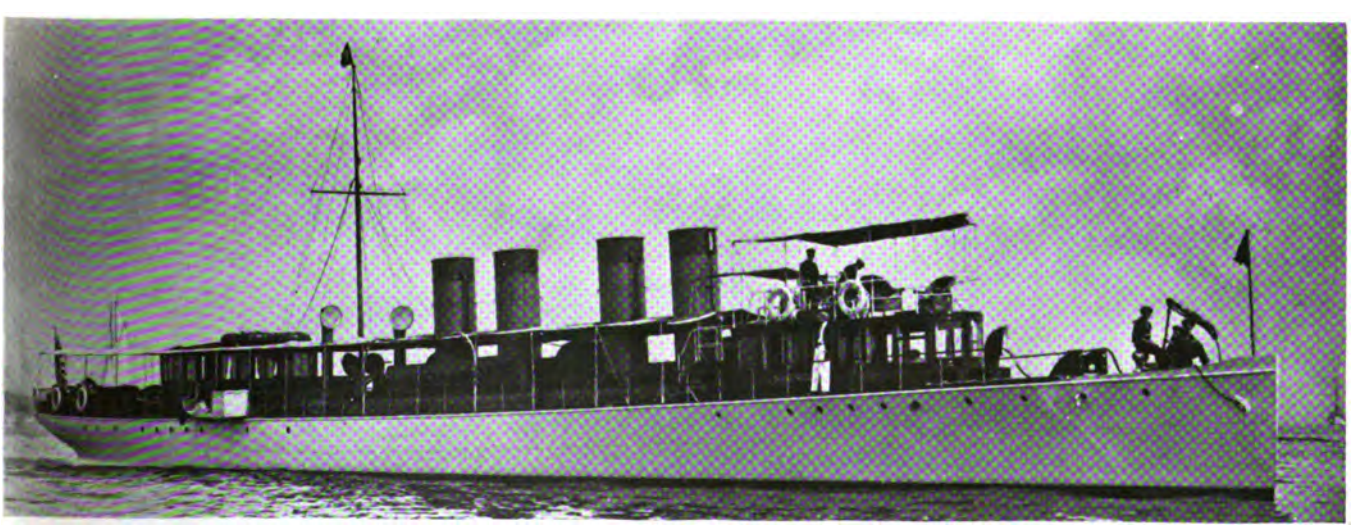
Hauoli was Designed by Henry J. Gielow to Succeed the Smaller Yacht of the Same Name, Owned by F. M. Smith, of San Francisco. In Spite of Her High-Speed She is a Wonderful Sea Boat and was Used During the Last War for Patrol Duty. She is Rated as One of the Handsomest of American Yachts



Tarantula was Built by Yarrow as a Torpedo Boat and Later Purchased by William K. Vanderbilt, Jr., and Used as a Yacht. She Beat Niagara IV for the Trophy, Named After the Latter Yacht. One of the Most Spectacular Yachts Ever Built



Arrow, Designed by C. D. Mosher and Built by Sam. Ayres, at Nyack, in 1901, is Undoubtedly the Fastest Cabin Boat Ever Built. While Her Speed Records are Hardly Official She was Credited with Approximately 45 Miles. It Would be Interesting to Race Her Against the Present Gar Jr., Which Holds the Cruiser Speed Record of 42 Miles an Hour



Sovereign, 166 Feet by 16 Feet 6 Inches, was Built in 1911. She Probably Came Nearer the Arrow's Speed Than Any Other of the Flying Steamers. Built by Gas Engine & Power Co. and Powered with Curtiss Turbines Burning Oil She was the Most Powerful Yacht of Her Size Ever Built

Adroit, Formerly Winchester, Designed by Henry J. Gielow. The First of the Famous Winchester Fleet and the Only One Powered with Reciprocating Engines

fast steamers of the regular clipper stem type designed by Gielow, were Marietta, now owned in Buffalo and called Mary Alice; Felicia, which recently saw war service and an earlier yacht than the famous Hauoli, having the same name.

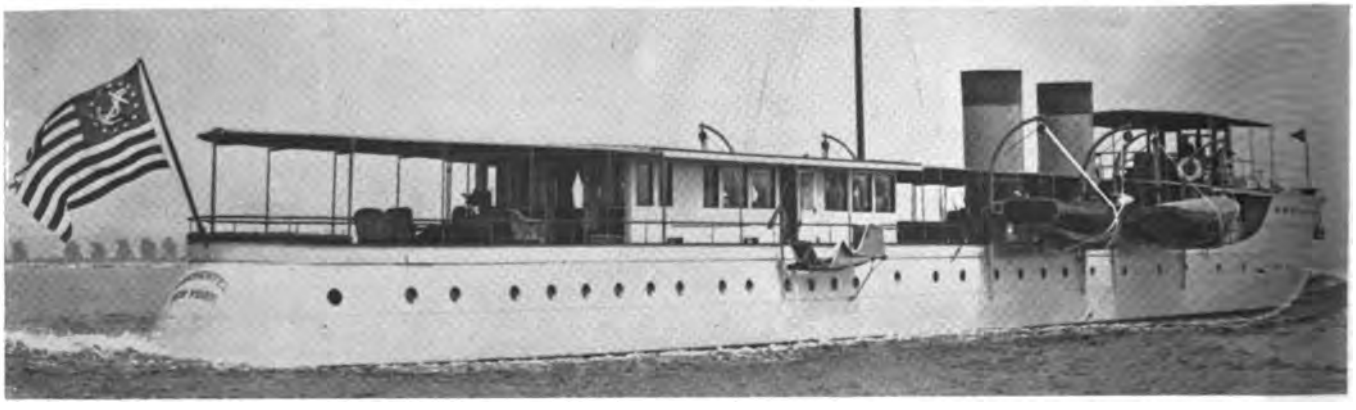
The last Hauoli had a speed of 21 knots but a still faster Gielow boat was Winchester, now called Adroit. She however was of what might be termed a torpedo-boat type. Her maximum speed was about 22 knots.

Among the early Morris Heights boats which were known for their great speed may be mentioned Niagara IV and Vixen. A little later they turned out the pair of speeders, Little Sovereign and Vitesse. Both of these boats are now in commission. Following these successes came the big four-funneled, turbine-driven Sovereign. The latter is sometimes considered the fastest steamer built since the days of Arrow. Possibly the best known of the fast yachts were those designed by Cox and Stevens for Peter W. Rouss and all named Winchester. Actually there were four of these yachts, three being from Cox and Stevens designs.

The first Winchester, as mentioned previously, was designed by Gielow and was a coal burner. The next boat of the line was a 27 knot, turbine driven, oil-burner by Cox and Stevens and built by Yarrow. She is now called Flying Fox. Then came a 31½ knot Winchester, also from Cox and Stevens designs and Yarrow built. During the war she was used as a Canadian Torpedo boat. The last vessel of the name was built by the Bath Iron Works and has a speed of about 33 knots, or about 38 miles an hour. This boat is still in Mr. Rouss' possession and unofficially is probably the fastest yacht of her size in the world. Her length is 225 feet, or nearly twice the length of Arrow. The only cabin boat that has come anywhere near this speed is the 50-foot, 900-h.p. gasoline-engined Gar Jr., II.

Two of the early fast yachts which covered themselves with glory were Say When and Now Then, both coal burners designed and built by Herreshoff and fitted with Herreshoff machinery. As may be seen from the pictures, these two yachts cannot be rated very highly from an esthetic point of view as determined by present day express boats, but in 1887 and 1888 when they were built, they were the last word.

One of the famous flyers was Tarantula, originally built by Yarrow as a torpedo boat, but purchased by William K. Vanderbilt, Jr. and brought to this country for ferry service on Long Island Sound. With very low freeboard, two slim funnels and a turtle-back forward deck, Tarantula looker every inch a thoroughbred. In one race with Gould's Niagara IV, Tarantula was the victor and no one who saw that race can help but regret the passing of these spectacular contests with the lean hulls belching clouds of inky smoke and the crews lying on deck. The modern runabouts and hydroplanes cannot compare with these old yachts for picturesque speed.



The Present Winchester, 225 Feet Long, Powered with Two Oil-Burning Turbines. Designed by Cox & Stevens and Capable of a Speed of About 33 Knots. Probably the Fastest Steam Pleasure Vessel in the World at Present

Miami Races Start Season

Photos by M. Rosenfeld

AS long as nothing but the truth is required in the writing of the story of the Miami Races, we cannot state that they were an unqualified success. The most enthusiastic of press agents could not find many bright spots in the regatta. Mechanical difficulties with new and untried boats and engines coupled with a disinclination on the part of racing men to attend is chiefly responsible for the fiasco. The two main events were naturally to be the Fisher-Allison and Wood-Fisher races. Cruiser races to Havana, Key West and Palm Beach were added attractions, although from the spectators point of view, the cruiser events are always of secondary interest.

This was to have been the fourth running of the Fisher Trophy event. The first was held at Detroit in 1920, and was won by Rainbow owned by Harry Greening and Sterling powered. The second heat was run in March, 1921, at Miami, and resulted in a victory for Adieu owned and driven by Webb Jay and powered with a 6 cylinder Hall-Scott marine engine. Rainbow, although owned by another party, took the third heat at Buffalo last summer. For this winter's Miami race Adieu was entered by Webb Jay and Aye Aye Sir II by Carl Fisher co-donor of the trophy. The latter boat was an untried experiment and sank twice while tuning up and was finally withdrawn. This gave the series to Adieu by default. This gives Webb Jay two legs on the trophy which must be won three times to become the permanent property of the winner.

The Wood-Fisher series has been run twice, once at Detroit last summer when it was won by Baby Gar powered with a Smith-Liberty engine. The second race was during the Miami meet and again Baby Gar won owing to Adieu having engine trouble and not finishing any of the three heats.

The ocean races for express cruisers were also expected to bring out a crack fleet of the speedy cabin boats. Gar Jr., II, Shadow V, Altonia II and Sea Horse were all entered for the race from Miami to Palm Beach and return. After being postponed on account of rough weather the race was finally started on Feb. 23rd. Gar Jr., Shadow and Sea Horse were the only starters. Gar Jr. finished the 129 mile run in 4 hours, 34 minutes and 26 seconds. Shadow was second about an hour later and Sea Horse followed at the end of another hour.

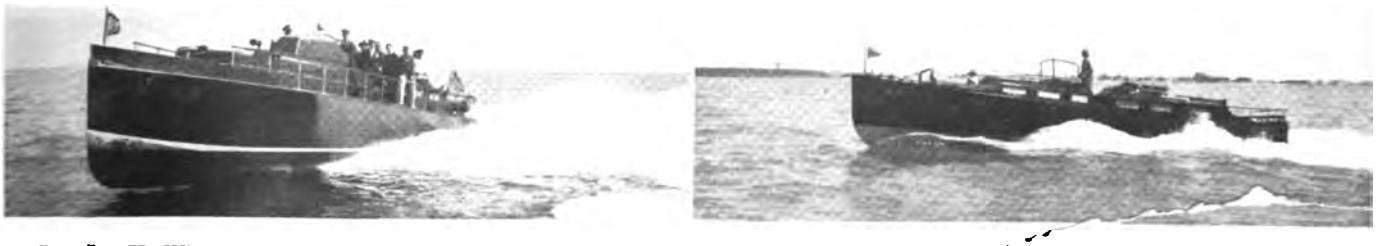
The greatest interest in the ocean races was over the race from Miami to Havana. This was started on Feb. 25th, distance 240 miles. Gar Jr., II and Shadow V were the only competitors. As the Wood boat has a total of 900-h.p. and Shadow only has two 150 horse Speedway machines the real element of competition was missing. The race was run in a fairly rough sea and Gar Jr. finished at Havana after an elapsed interval of 9 hours and 23 minutes. Shadow took 12 hours and 45 minutes to negotiate the course. From Havana another race was scheduled to Key West. The same two boats competed in this event and again Gar Jr. won. The 100 miles was made in about 4 hours. Shadow was about half an hour behind the Wood boat.

The final ocean race was to be from Key West to Miami. It was hoped that Altonia II could make repairs to her engines in time to go to Key West and race the others north. This was impossible however so Gar Jr. and Shadow again set out together over a fairly rough sea, especially in the stream. Gar finished off Miami with an elapsed time of 5:04:30. Shadow made the course in 6:37:45.

A 20 mile express cruiser race was scheduled for the Biscayne Bay course but no boats showed up for the event. The one race of the whole regatta that had a good number of starters and created much interest for those who had paid their 50 cents to get into the reserved spaces along the sea wall was the Chance Race which was run at the suggestion of Commodore Schantz of Detroit.

In this event 29 boats, including 50 mile runabouts, one hydroplane called Miss Peggy, express cruisers and just plain boats, started. Baby Gar was the first boat to finish followed by Sue Jay. Miss Peggy would probably have cleaned up the fleet as far as actual speed was concerned if she had not hit some obstruction which knocked a hole in her bottom. Her owner-driver, C. R. Pease hastily divested himself of his trousers and stuffed them in the hole, but his efforts were futile and Miss Peggy settled gradually, luckily being towed into shallow water before she went down.

The rules of the chance races are that a boat gets as many chances to draw a winning number out of a hat as there are boats behind her in the race. At the drawing the following were lucky:

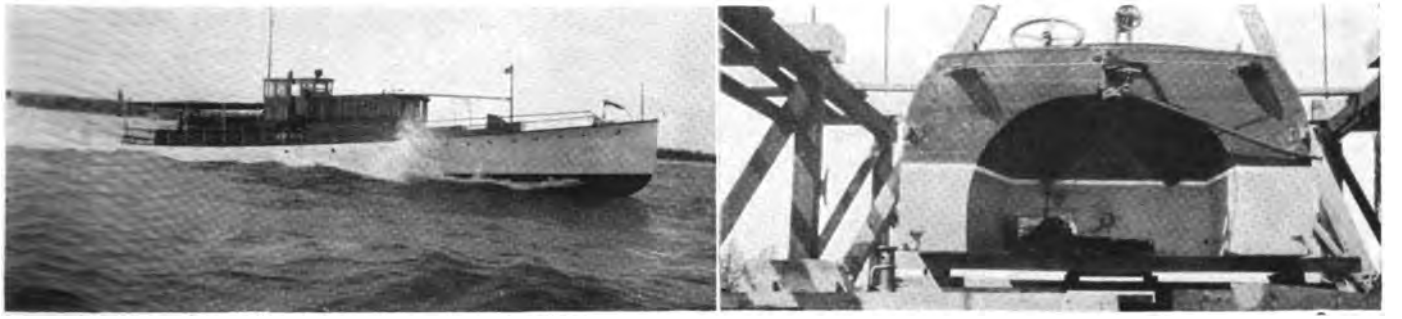


Gar Jr., II, Winner of the Ocean Races, is Powered with Two Smith-Liberty Engines, with a Total of 900-H.P. Shadow V Shown at the Right, Only Has a Total of 300-H.P., Developed by Two Speedway Engines

Baby Gar at Full Speed. Note the Absence of Spray at the Sides. She Won the Wood-Fisher Race with Ease

Gar Jr., II and Shadow V Lying off the Dock at Havana, After the Finish of the First-Half of the Long Race

Baby Gar and Adieu Running Neck and Neck Just After Making the Lower Turn During the Wood-Fisher Race



James A. Allison's Big Sea Horse, Which Failed to Start in the Havana Race. She is Powered with Two-400-H.P. Allison Engines

1st prize, Sea Horse Jr., James A. Allison.
2nd " Corsair Jr., Charles Pease.
3rd " Corsair, Charles Pease.
4th " Lets Go, Dorn Boat Livery.
5th " Cosy, O. A. Ham.
6th " Helaimgra, E. A. Lindberg.
7th " Tramp, Theo. Dickinson.

Marie S., Sue Jay, Mecca, Shadow VI, Baby Gar, Margaret, Anna S., Ilsaso, V 8669, Phoebe and Boomerang also won prizes.

The race for professional fishermen was also a popular one with the crowd. There were 10 competitors all racing for cash prizes. The money was distributed to the winners in the following order: $50 to Nelly, Lou Dodge; $25 to Lilly B., John Burkhardt; $15 to V 9279, H. Zinkund.

In a free-for-all- race for runabouts Sue Jay, Hoosier IV and Tramp made an interesting race of it for 10 laps. Sue Jay covered the 20 miles in 42 minutes, with Hoosier IV only 13 seconds behind. Tramp took practically 45 minutes for third place.

The handicap race for cruisers was won by Boomerang, Huston Wyeth, with Anna S., Chris Smith, second and Helaimgra, J. W. McLaren, third.

WOOD-FISHER TROPHY SUMMARY

First Heat 50 Miles

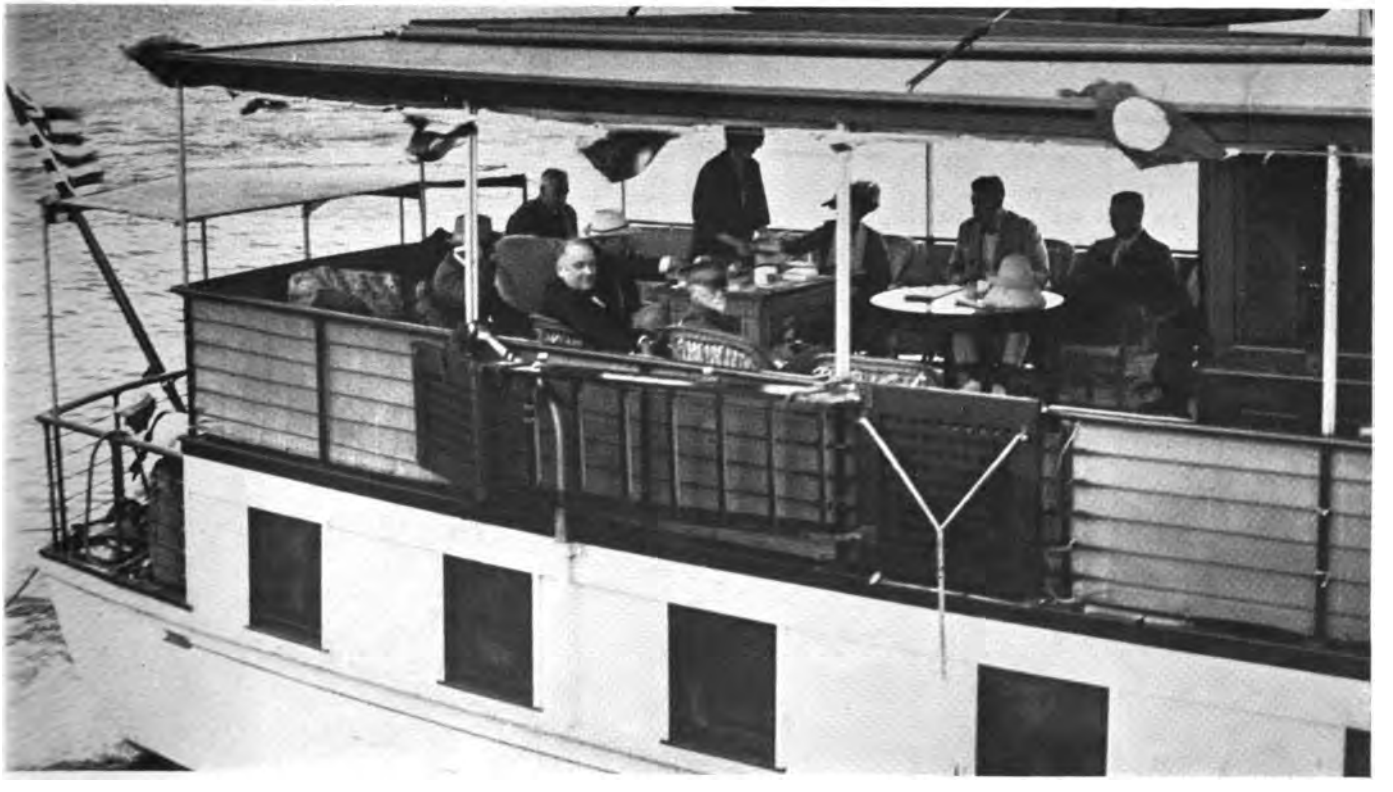
Baby Gar, G. A. Wood, elapsed time 1 hr. 23 min. 14 secs.
Adieu, Webb Jay, dropped out on the 11th lap.

Second Heat 50 Miles

Baby Gar, G. A. Wood, elapsed time 1 hr. 15 min. 7 secs.
Adieu, Webb Jay, dropped out on the 12th lap.

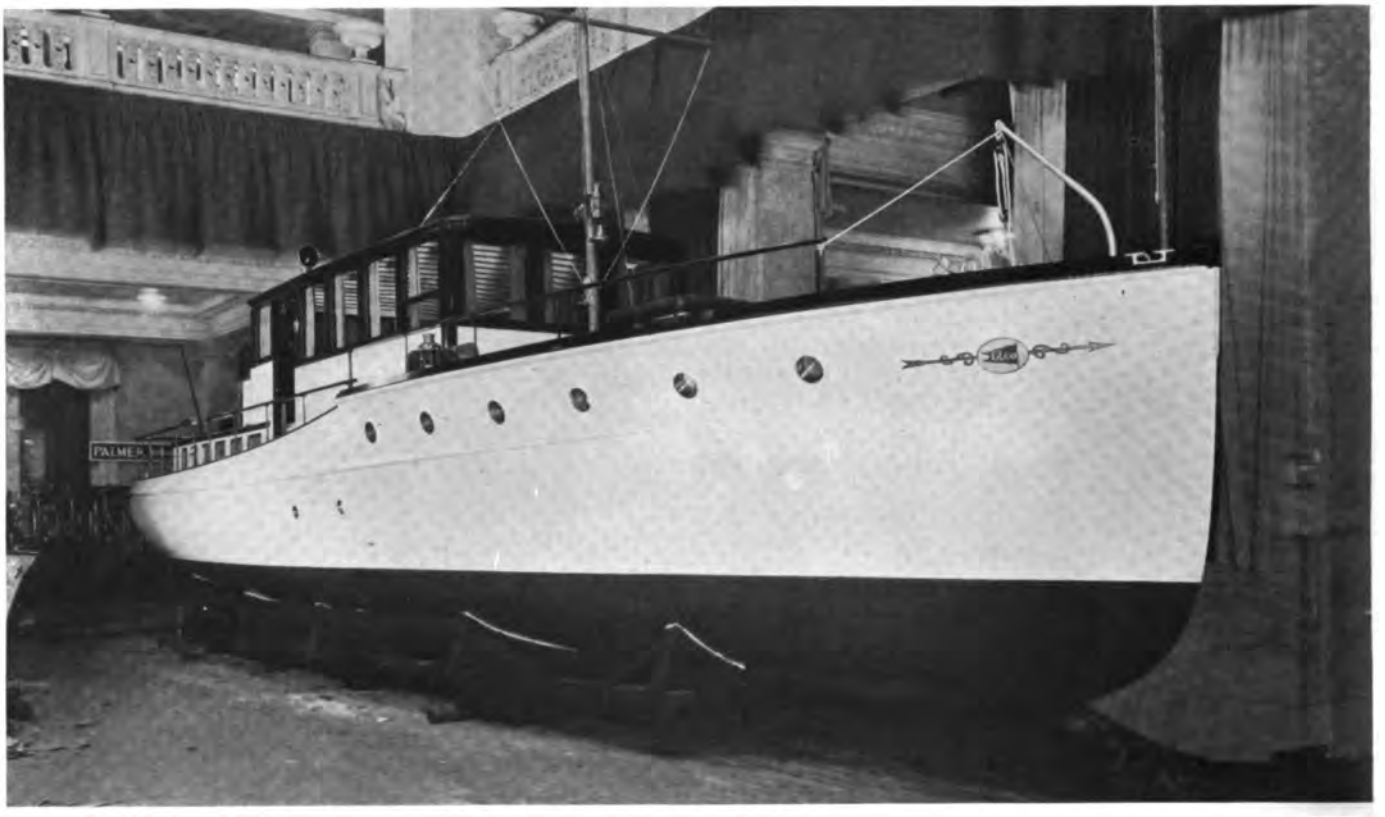
Third Heat 50 Miles

Baby Gar, G. A. Wood, withdrew on 13th lap for lack of competition. Time for 13 laps or 26 miles, 38 min. 20 secs.
Adieu, Webb Jay, dropped out on 3rd lap.



PRESIDENT HARDING GOES YACHTING © *Underwood & Underwood*

This Picture Taken Just As We Go to Press, Shows the President Aboard Nahmeoka, Charted to Edward B. McLean, of Washington. The President Enjoyed a Several Days' Cruise Through the Inland Waterways of Florida. Nahmeoka Was Built by Mathis, and is Powered with Two 6-Cylinder Standard Engines



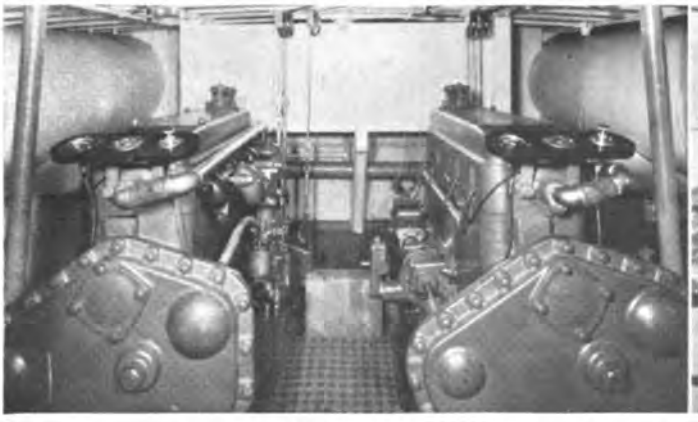


Photo by M. Rosenfeld

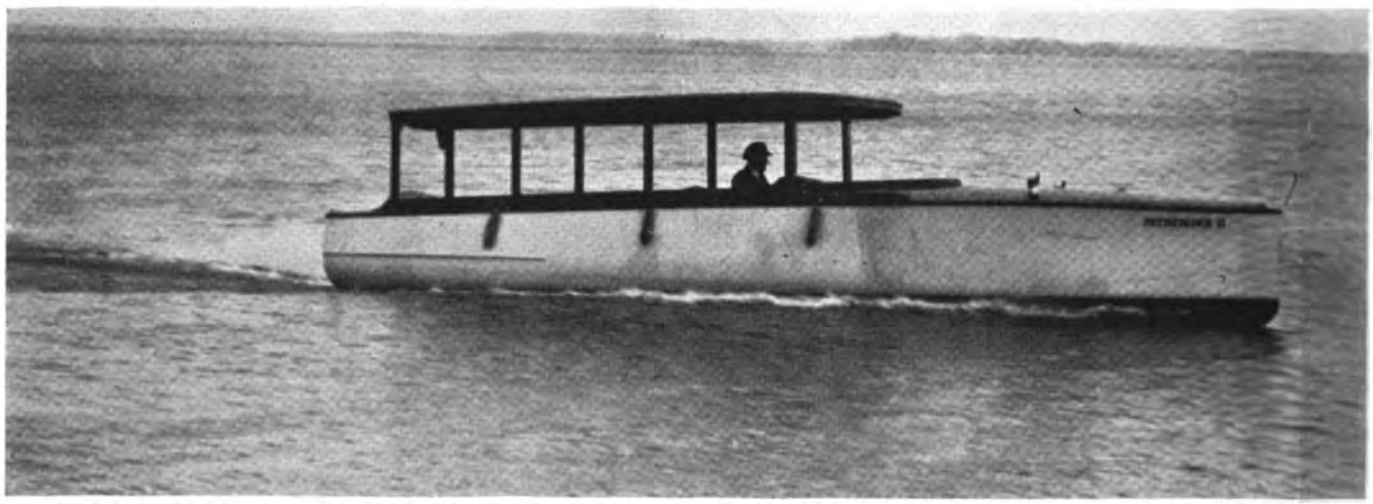
AFew Intimate Views of the Elco Standardized 54-Foot Cruiser. The Largest Boat Exhibited at The Show

Palatka, a Raised Deck Cruiser, Owned by A. V. C. E. Hayes and Built from Rudder Plans, Which were Drawn by Bowes & Mower. Her Power Plant is a 40-H.P. Wisconsin Engine

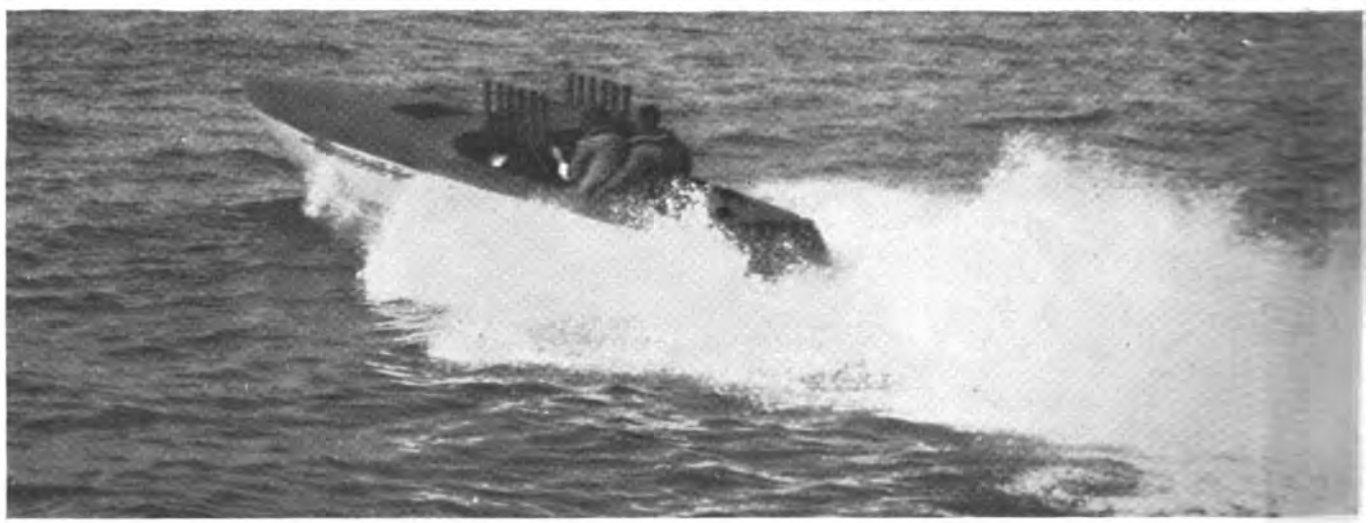
Myrno II, 50-Foot Day Cruiser, Designed and Built by Luders and Owned by Norman De Vaux, of Oakland, Cal. She is Used on Lake Tahoe, Cal., 6,000 Feet Above Sea Level. The Power Plant is a 200-H.P. Hall-Scott Marine Engine

Junior, 45-Foot Cruiser, Owned by R. T. O'Dwyer, of New Orleans. She is a Hand-Designed Craft and Has a Maximum Speed of 28 Miles an Hour, with an 8-Cylinder Sterling

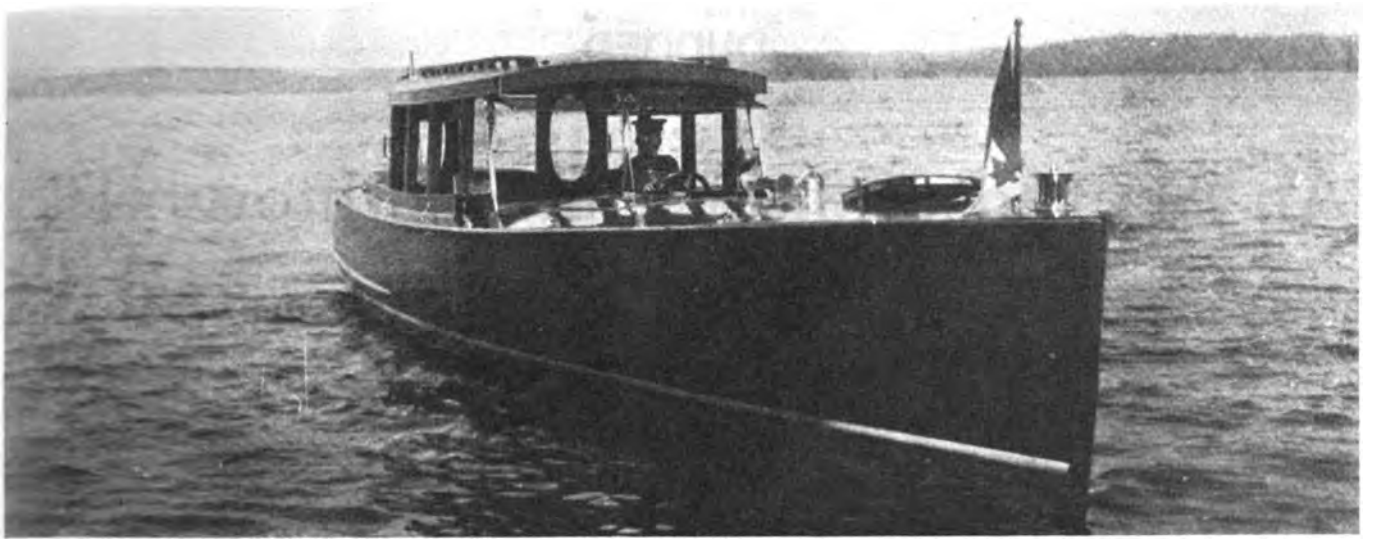
Ricochet is a Lawley-Designed and Built Runabout Powered with a 200-H.P. Hall-Scott Marine Engine. She is Owned by Horatio N. Slater, of Port Washington, Who Takes Full Enjoyment from Her 38-Mile Gait



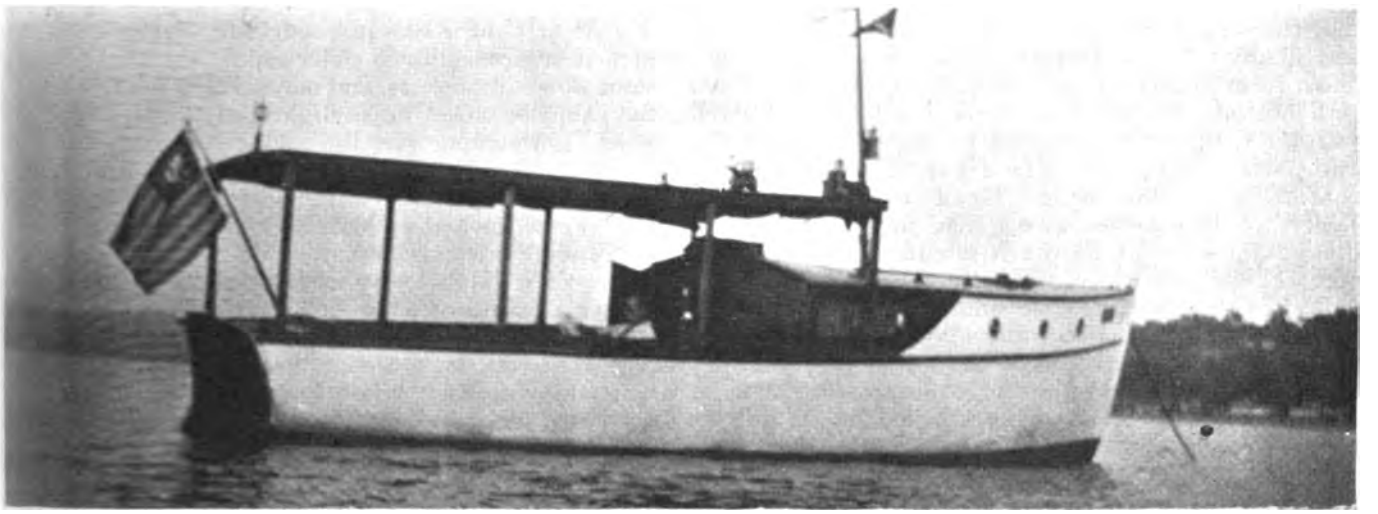
Pathfinder II was Built by The McAlary Boat Mfg. Co., in Canada, for George McCormick. Powered with a Scripps 4-Cylinder Engine She Proceeded Immediately Upon Launching on a 300-Mile Trip to Her Owner's Home. She is Intended for Family Service Where Comfort Comes Before Extreme Speed



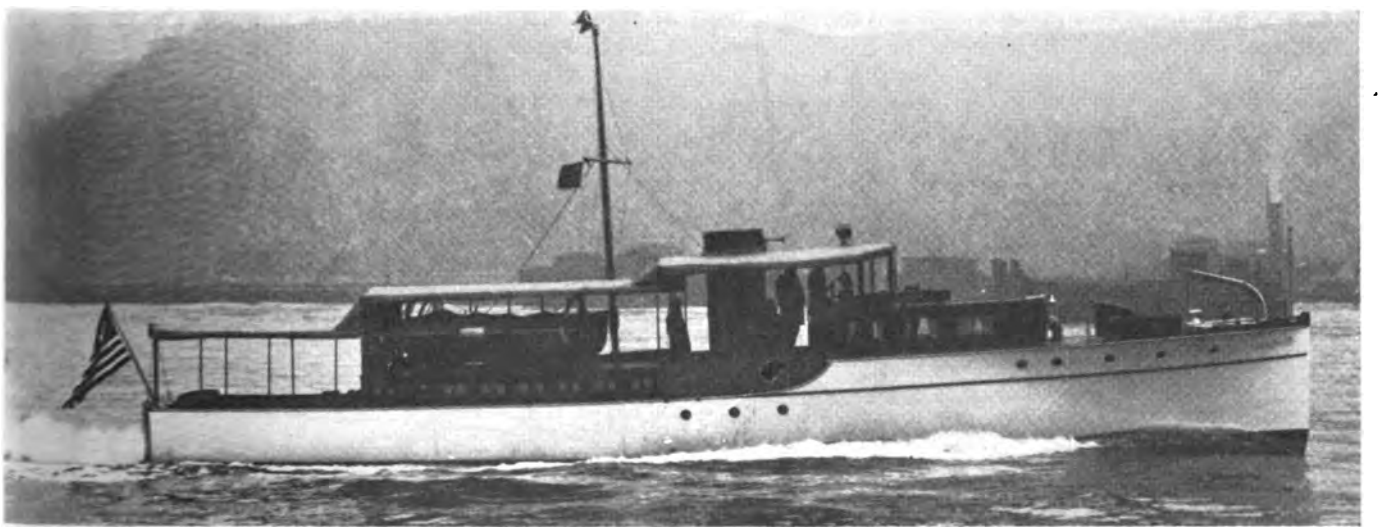
Hurricane II, Built by the Newport Harbor Marine Corp., of Balboa, California, is One of the Fastest Hydroplanes on the Pacific Coast. She is the Fore-runner of Many Such Racers, for the West Coast Yachtsmen are Keen Racing Enthusiasts



Irene is Owned by Col. J. R. Moodie, of Hamilton, Ont., and was Built by Ditchburn from Designs by Henry J. Gielow. She is 38 Feet by 8 Feet and is Powered with a 4-Cylinder Sterling, which Drives Her 30 Miles Every Hour



Elk is a Sample of What the Average Boat Owner Desires in the Way of a Small Cruiser. She is 28 Feet Long and is Powered with an Old Kermath Engine. Her owner, James M. Kirshner, of New York, is Enthusiastic About Both Boat and Engine



The Consolidated Shipbuilding Corp. and J. H. Nunnally are Both Proud of Atlantan. She is a Recent Morris Heights Product with a Speedway Engine, Giving an 18-Mile Speed. She is 75 Feet Long and Arranged for Real Cruising

An Afternoon Shower in Smithtown Bay

By F. T. Lander

WE were anchored in Lloyd's Harbor, and were glad to be there for an Easter was on and things were sloppy out on the Sound. There was plenty of rain, too; and although it was fairly snug in our cabin, a trickle of water would occasionally cause some discomfort when the downpour was unusually heavy.

Jack Carter said he had never seen it rain so hard, but Joe Simmons scoffed at the idea and declared that what was then going on outside was merely a gentle shower compared to a rain-storm he and Bill Dawson had gone through the summer before.

"Why" continued Joe, "it came down in such sheets that the dink filled up as fast as we could bail it out, and finally when everything was ready for our run down from Port Jefferson, we just had to tow the old skiff bottom side up so as to keep her dry. I'll tell you, boys, that was some sail we had that day under rain-power. But say! There goes the gun off that boat from New Rochelle. Hand us over the light, Jack; we had better swing her up anyway, even though there won't be much moving about here tonight."

When Joe returned he admitted it was raining harder than he supposed, and allowed it was a good thing the old hooker didn't have a stern like Bill's boat. "For if it did," he said, "the rain might exert enough power to start her ahead, just like it did the time we got caught out in the shower last summer."

"Now, see here Joe," said the owner of the boat who during Joe's discourse on the weather had been busily engaged in putting away the supper dishes, "what's all this hot air about rain-power, anyway?"

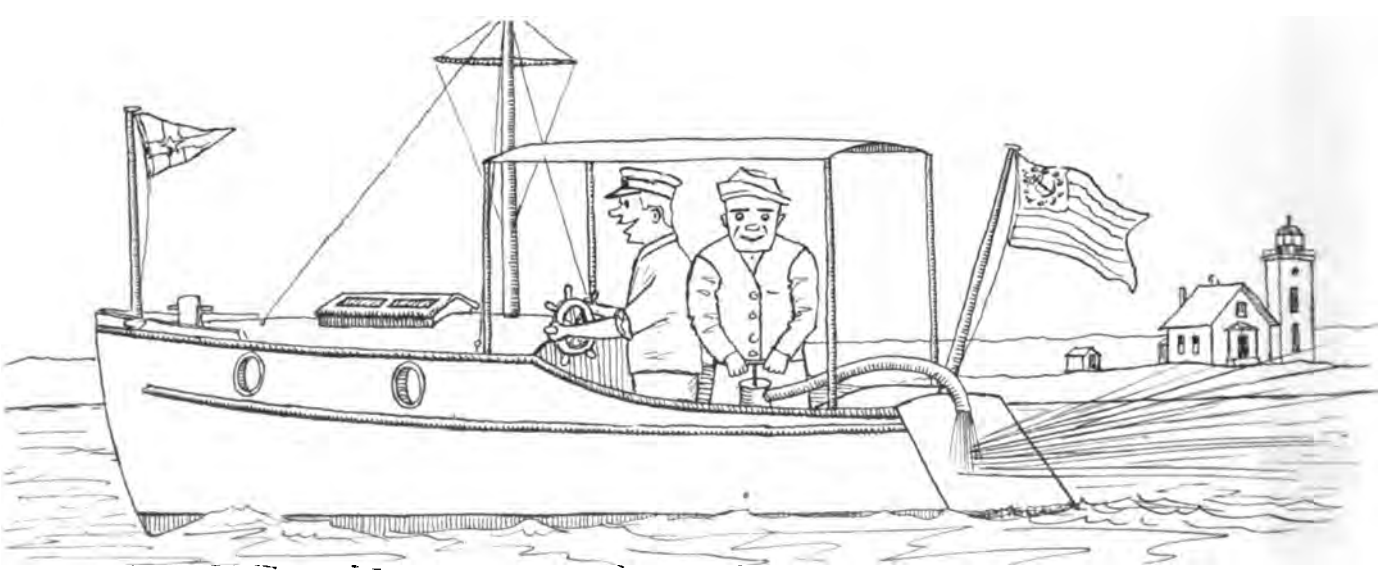
"Well, I'll tell you," said Joe, "you see me and Bill had been up Setauket way for flounders, and after we had ketched a pretty good mess we thought we'd better start her up, for we wanted to make Lloyd's that night. Just as we got through the jetties and out in the Sound we noticed a knocking noise. At first Bill thought the spark was advanced too far, but we soon found out it wasn't that but a burned out crank bearing. We were off Old Field Point by that time and we knew it wouldn't do to run her that way no further, so Bill shut her off. It weren't no use to try and patch her up, so we looked around to see if there was someone about who could give us a tow back to Port Jeff. But there was nothing doing, so we just sat there cussing our luck when presently it started in to rain.

"At first there was just a drizzle, but in a few minutes it increased to a right smart shower. Then it came down in buckets, and me and Bill made a dive for the cabin to close the skylight and ports. We had a good tight awning over the cockpit, so after awhile we decided to go out there again, as it was pretty stuffy down below with everything closed up tight.

"Well sir, when we looked around to see how things were, we discovered we were off Crane Neck Point. At first we didn't know what to make of it, for there wasn't a breath of wind and what tide there was, was running east, just opposite to the way we were heading. Then we looked over the side and could see the water moving past; and believe me, this kind of made us scared for there was some mysterious force driving us steadily down the Sound at about a five knot clip. All the while it was raining cats and dogs.

"Then Bill took a look over the stern, and as he straightened up I could see he had made a discovery. He stepped forward to the wheel and put her hard over. It didn't make no difference how he swung her, she'd always go ahead at the same gait. Bill then

(Continued on Page 39)



"—We Pumped Our Way into Lloyd's All Right—"

Odd Hours on a Four and a Half Tonner

By Edward Roberts

NOW is the fitting-out time and in all the boat yards, the little and the big ones are being scraped, overhauled and refitted for another season. Scattered here and there are some little twenty-seven foot auxiliaries with snug cabins giving comfortable sleeping room for two, and it is to the owners or prospective owners of such that this article is offered.

There is probably no better way in which to make the acquaintance of salt water than in a little boat of this kind, especially so when she is owned by a couple, both lovers of the sea, when the "master" can attend to the navigation while his better half looks after the production of a tempting meal to be enjoyed, perhaps, at the end of a long day's peaceful cruising, when anchored in the placid sunlit waters of some sleepy little coast town. Such a boat, easily handled by one, forms an economical summer home, and in the winter when she is laid up, a hundred different cruises can be planned and as many small improvements in the boat itself thought of, as experience makes one better able to suggest them. An automobile may be of greater utility, but for unalloyed joy and restfulness, the sea is the wiser choice.

Most of us who have owned a boat not equipped with an engine, have, sooner of later found ourselves faced with the problem of installing one. A four and a half ton boat does not allow anything big to be installed, but there are times when the ability to catch the right train will prevent "Hubby" from being "bawled out" at the office. Now, with all due respect to the erudite writers for boating journals and others who, at considerable length, explain how easy it is for anyone to install a little engine in a little boat, the writer offers as his dictum that those who spend their working hours holding a pen will find little profit in spending their leisure hours holding an auger. It is a decided tragedy to sweat from daylight to dusk, endeavoring with painstaking care, to bore the hole for the stern tube, only to find as the sun is setting, that the plaguy thing has somehow gone crooked. If you have the money to spend on an engine, look around and find a good solidly constructed one with a little less finish and fewer gadjets about it, and with the money you have saved pay a reliable boat-builder to do the work for you. True, there are some men who have a natural aptitude for handling tools, but there are many more who simply cannot drive a finishing nail straight, much less tackle the operation under discussion.

There are dozens of good medium priced engines on the market. In fact, if one considers that the manufacturer's best "ad." is the fellow next door who bought one, it is not hard to realize that poor engines are hard to find, the only point being that, as the old Highlander said about whiskey,—"All brands are good, but some are better than others." The owner of a four and a half tonner is usually forced to consider his outlay, and he cannot do better than follow the lead of the fishermen when buying an engine.

Shamrock is a boat of the type mentioned, with roomy sleeping accommodation for the owner and his wife or friend and some of the happiest hours afloat have been spent aboard her. When it came to installing an engine, the argument between the navigating and culinary departments was hot and strong, economy (kerosene) on the one hand being vetoed by the claims of the culinary department that cleanliness and lack of odor (gasoline) were of more importance, and as was to be expected, gasoline won the day. The next thing was to look about for a single cylinder machine of about 5-7-h.p., and the back numbers of THE RUDDER were brought out and the ads. looked over. In the office, where so many cruises were planned when other things should have been, was a large sign, "SUPPORT THE HOUSE THAT SUPPORTS YOU," and we had several times noticed that on the manifest of almost every ship that sailed, Doman engines occupied a place, so when Shamrock was hauled out the next spring, a Doman was brought out of its crate and a crisp greenback handed to the local boat-builder to pay him for the work of installing it.

To anyone who has been accustomed only to multi-cylinder engines, the running of the humble one cylinder comes as a surprise, and more than once friends, when inspecting the engine ticking round dead slow, have declared that "seeing was believing."

When the engine was installed in Shamrock an unusual method was adopted which has never been regretted. It was found almost impossible to make a decent job of installing it except at an angle that would have been too extreme for efficient working and the other alternative, double universal joints, was not favoured. In addition to this, the engine would have been almost inaccessible as it would have had to be beneath the cockpit floor, and as considerable ballast, enough to offset its weight was carried, it was decided to place it above the cockpit floor and use a Hans-Reynold high-speed chain. In this way a reduction of gear (33%) to the propeller shaft was secured and absolutely no trouble resulted, while from the point of view of accessibility, everything was gained. In addition to this, a neat teakwood housing over the engine serves as a convenient table for mealtime, and a well made tarpaulin cover is carried for use when needed.

There is one little plan which is never varied on board Shamrock and that is,—on the port locker is a typewritten list of stores, consumable and otherwise, including gasoline, and before sail is hoisted or the engine cranked, this is checked over to see that we haven't "left the baby behind" so to speak, and while, during the time we are getting things shipshape, the other fellow may get a mile or more ahead of us, we

(Continued on Page 38)

The 6-Metre Class Prospects

By Charles D. Mower

THE event of greatest interest and importance in sailing yacht racing for the coming season is the international match which has been arranged by the Seawanhaka Yacht Club and the Royal Thames Yacht Club of England. The match will be sailed on Long Island Sound, off Oyster Bay, early in September and will be a series of team races between four boats representing the English club and an equal number of American boats. Trial races will be sailed during the latter part of August for the selection of the American team and the Seawanhaka Club has sent invitations to all of the leading American Yacht Clubs to enter boats in these trials.

The class selected is the six metre class under the rules of the International Yacht Racing Union which includes practically all of the countries where yachts are raced with the exception of the United States and Canada where the so-called "Universal" rule is in force. The six metre class was chosen in deference to the wishes of the challenging club as it would have been very difficult under the existing conditions to interest English yachtsmen in building boats to our rule for class R; as R boats would have no racing in English waters and would be of low sale value if unsuccessful in America.

The type of boat developed by the International Rule is, in a general way similar to the type of rating rule boat developed here, although the International Rule really allows the designer greater latitude in his selection of general dimensions and form of hull.

The average dimensions of the new six metre boats will be about 21 ft. 6 in. water line; 32 ft. over all; 6 ft. 9 in. beam and 5 ft. draught with about 500 sq. ft. of sail. They must be keel boats of rather large displacement and will have about two tons of outside lead ballast. The displacement is fixed by the rule, as the cube root of displacement in cubic feet must not be less than .2 L.W.L.+.5. This gives a 21 ft. w. l. boat a displacement of 6,600 lbs. which is about 600 lbs. more than the old 21 ft. raceabout class was required to have.

The boats are not required to have either cabin or water tight cockpit so that the majority will be open boats with rather deep cockpits.

The boats must be built to Lloyd's rule and under Lloyd's special survey which insures a well built hull that will last for many years of hard racing and be a good boat for day sailing or as a small cruiser after her racing days.

The formula for determining the rating measurement is:—

$$\frac{L + \frac{1}{4}G + 2d + \sqrt{S} - F}{2.5} = \begin{cases} 19.68 \text{ feet} \\ \text{or} \\ 6. \text{ meters} \end{cases}$$

L is the length measured 1.5 percent of the class rating above the actual L.W.L. plus one and one half times the difference between the girth at the bow ending of this length and twice the height of side at this station; plus one-third of the difference between girth and twice the height of side at the ending of the length measurement.

The ¼ G is one fourth of the chain girth measured from covering board to covering board less twice the free board measured at 55 percent of the L.W.L. length from the forward end.

2d is twice the difference between the chain and skin girths measured on two sides of the boat to a point 12.5 percent of the class rating below the L.W.L. at the girth measurement station.

$\sqrt{S}$ is the square root of measured sail area which is actual area of mainsail plus 85 percent of fore triangle.

F is the average freeboard at the three points where girth measurement are taken and is a minus factor so that high freeboard is encouraged. There are various other restrictions and limits in the rule all of which tend to prevent abnormal and freak features.

The girth measurements place a heavy penalty on full ends and cut away midship sections so that the rule produces a rather deep bodied, narrow boat with sharp ends.

A great deal of interest in the class has been aroused and the keenest racing that has been seen on Long Island Sound for many years is promised with the best amateur racing men represented. It seems certain that there will be between fifteen and twenty boats in the trial races with all of the leading professional and amateur designers in keen competition.

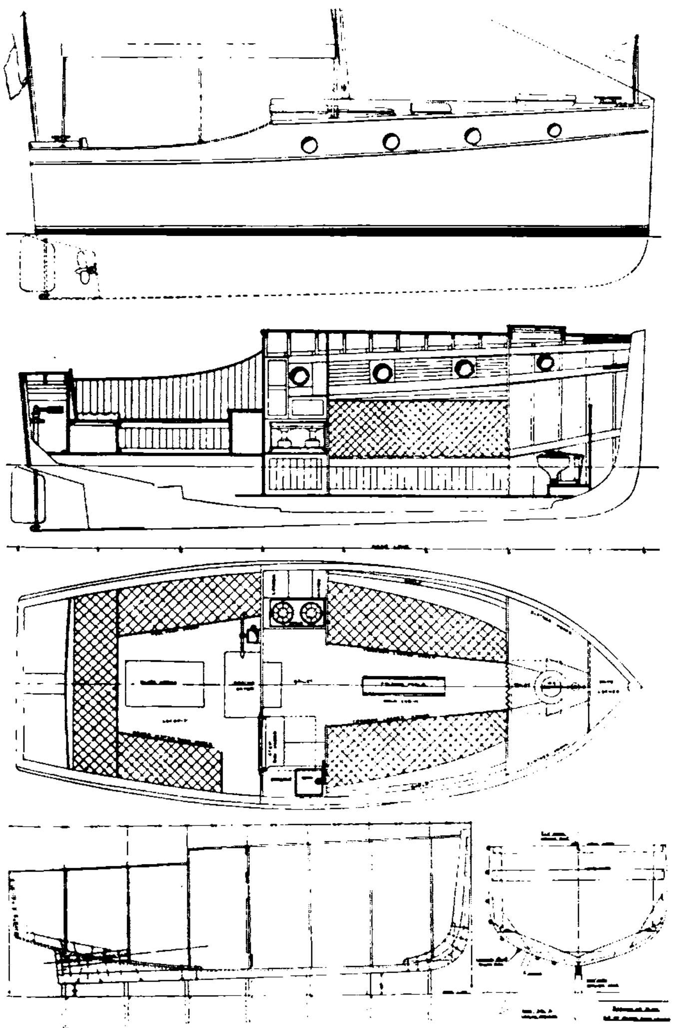
Addison G. Hanan, whose reputation both as a helmsman and amateur designer is well known; will have two boats in the class. Both are being built by wood at City Island, one being owned by Mr. Hanan and will probably be sailed by his son Richard Hanan who is already showing some of his father's skill as a racing man. The other Hanan boat will be owned by Commodore W. H. Childs and will be handled by Butler Whiting.

Mower will be represented by a greater number of boats than any of the professional designers as there will be at least five boats from his board and all will be in good hands. Mr. Mower has as an associate in his designing work Frederick M. Hoyt who was formerly associated with William Gardner and Mr. Hoyt's data on the six metre boats of last year has been used to good advantage in the new designs.

Of these designs one for Henry B. Plant and one for Johnston de Forest are being built by Nevins of City Island. One to be owned by Messrs. Clinton H. Crane and Hendon Chubb is being built by Wood and the fourth for Adrian Iselin 2d is building by Robert Jacob. The fifth boat is for the Larchmont Yacht Club syndicate and will also be built at City Island. She will be sailed by "Connie" Shields, one of the

(Continued on Page 40)

Designs



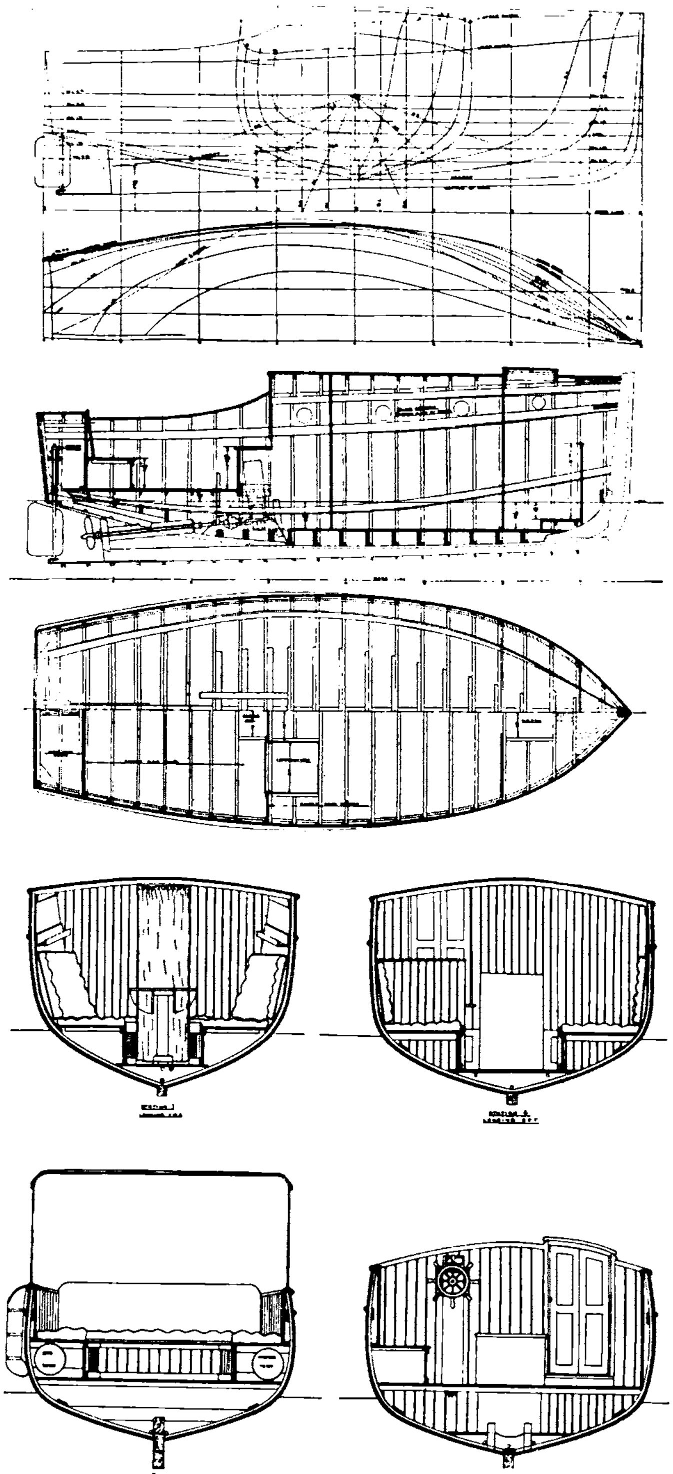
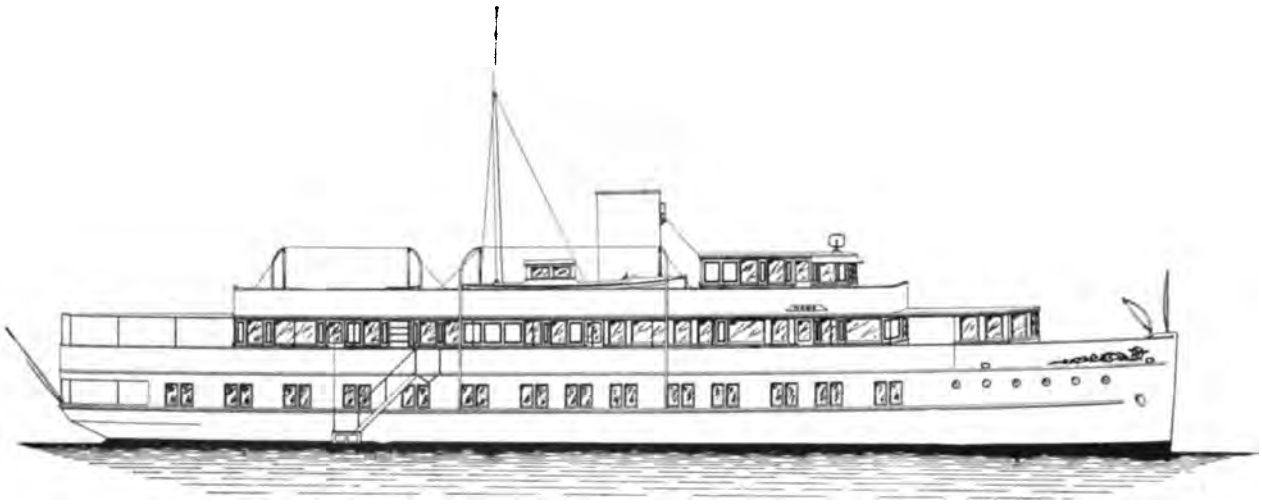


TABLE OF OFFSETS											
	STATIONS	0	1	2	3	4	5	6	7	T	8
HEIGHTS ABOVE BASE	UPPER SHEER	7-3-6	7-9-0	7-6-3	7-4-7	7-3-2	7-1-6	6-9-5	6-1-7	6-1-1	6-1-1
	LOWER SHEER	6-11-4	6-9-3	6-4-7	6-2-1	5-11-6	5-10-1	5-8-7	5-8-3	5-7-7	
	RABBET		1-6-6	1-3-6	1-3-1	1-2-5	1-3-2	1-6-7	2-2-1	2-11-6	
	BOTTOM OF KEEL		1-2-1	1-0-4	0-11-6	0-10-6	0-9-6	0-8-6	0-7-5	2-8-0	
	B 1		3-2-1	1-11-6	1-6-2	1-4-7	1-5-5	1-9-1	2-3-6		3-0-5
	B 2		7-6-4	2-8-2	1-11-3	1-8-6	1-9-7	2-0-4	2-6-7		3-3-5
HALF BREADTHS	UPPER SHEER	0-0-2	2-9-2	3-6-6	4-2-6	4-3-2	4-4-2	4-1-6	3-7-5	3-8-4	3-3-4
	LOWER SHEER	0-0-2	1-7-7	3-6-5	4-2-2	4-5-5	4-5-0	4-2-2	3-8-1		3-1-1
	RABBET		0-1-7	0-1-7	0-1-7	0-1-7	0-1-7	0-1-7	0-1-7	0-1-7	
	BOT OF KEEL		0-1-7	0-1-7	0-1-7	0-1-7	0-1-7	0-1-1	0-1-7	0-1-7	
	WL 3A		1-3-1	3-0-4	4-3-7	4-5-5	4-6-2	4-2-7	3-8-4		3-2-4
	WL 2A		1-1-6	2-0-4	3-11-5	4-6-2	4-5-4	4-2-2	3-7-4		3-0-1
	WL 1A		1-0-1	2-7-7	3-5-6	4-3-7	4-4-2	4-0-7	3-8-3	2-6-4	2-6-3
	LWL		0-10-2	2-3-4	3-8-6	4-1-1	4-2-0	3-9-2	2-11-7	1-3-5	1-9-3
	WL 1B		0-7-5	1-8-0	2-10-2	3-6-2	3-9-4	3-1-5	1-4-1		
	WL 2B		0-4-3	1-1-2	1-11-7	2-7-0	2-7-6	1-9-0			
DIAGONAL 1			1-10-6	2-9-0	3-1-4	3-3-2	3-2-4	3-0-6	2-4-5		1-7-0
2			1-4-3	2-8-3	3-3-0	3-5-6	3-5-1	3-0-1	2-10-2		2-0-4
3			1-2-7	2-10-2	3-10-5	4-4-7	4-0-1	4-1-6	3-0-4		2-3-1
DIMENSIONS IN FEET INCHES & EIGHTHS TO OUTSIDE OF PLANKING											
STATION 1 SPACED 2'6" AFT OF STATION 0 ALL OTHERS SPACED 3'0"											
BASE LINE 4'0" BELOW LWL BUTTOCKS SPACED 12" WATERLINES 6"											
DIAGONALS INTERSECT ℄ ABOVE BASE						D1 4'6"		D2 4'6"		D3 4'6"	
DIAGONALS CROSS LWL FROM ℄						5"		1'5"		4'4½"	

OFFSETS OF STEM AFT OF STATION 0					STERN OFFSETS
	AFTER FACE OF STEM	BEARDING LINE	RABBET LINE	FORWARD FACE	AFTER FACE AFT STATION NO. 7
UPPER SHEER	0-6-2		0-1-5	0-8-0	0-8-0
LOWER SHEER	0-7-3		0-2-1	0-0-3	2-10-7
WL 3A	0-10-4		0-2-4	0-1-5	2-9-2
WL 2A	0-9-6		0-3-7	0-1-4	2-9-0
WL 1A	0-11-6		0-4-3	0-1-6	2-8-0
LWL	1-1-4		0-3-4	0-2-2	2-7-4
WL 1B	1-6-4		0-7-6	0-3-2	1-1-4
WL 2B	2-4-2		1-8-7	1-6-2	0-5-5

Complete Plans of a 23-Foot Raised Deck Cruiser, Designed by Ian L. McKenzie, of Hamilton, Ontario. She is an Excellent Example of What May Be Done with a Short Length. **For Description See Next Page**



23-Foot Raised Deck Cruiser

On page 21 we show complete plans of a small raised-deck cruiser from the boards of Ian L. McKenzie of Hamilton, Ontario. In designing this boat Mr. McKenzie's idea was to get out a craft that would give the greatest amount of service for the least amount of expense. Her construction is plain but substantial with no unnecessary gingerbread work and no varnished trim.

Twenty-three feet is about the minimum length for getting proper accommodations and headroom in a raised deck cruiser without going to extremes in freeboard. In this design 5 feet 9 inches of headroom is obtained at the lowest point in the cabin. For comfort in a boat of this length a good breadth is necessary so this was fixed at 8 feet 10 inches. The usual objection to breadth is lack of seaworthiness, but in this design the dead rise is considered thus obviating much of the pounding. Her lines while full will allow easy driving up to an 8 mile speed which will be obtained with an 8-h.p. engine of the single cylinder heavy duty type.

In arrangement she is cleverly laid out. Forward there is a rope locker accessible from the toilet room which follows directly. Above the toilet is a hatch so that one does not have to crawl forward over the raised deck in bad weather to handle the anchor lines. By standing in this hatch the work can be done safely. In the toilet room there is a bow-type toilet, folding wash basin and ample shelf room. Separated from the toilet by a partial bulkhead and curtains is the main cabin, with upholstered transoms on either side with lockers under. There is a folding table in the center of the space and shelves under the clamps for odds and ends of equipment.

Next aft is the galley with stove, dish lockers and pots and pans spaced to port, while sink, dresser, food storage and icebox are to starboard. The locker forming the step into the cockpit is useful for holding small equipment.

Length o. a.	23	feet	0 inches
Length w. l.	22	"	6 "
Breadth	9	"	0 "
Draught	2	"	5 "

Displacement in Salt Water 8,203 pounds

Large Steel House-Yacht

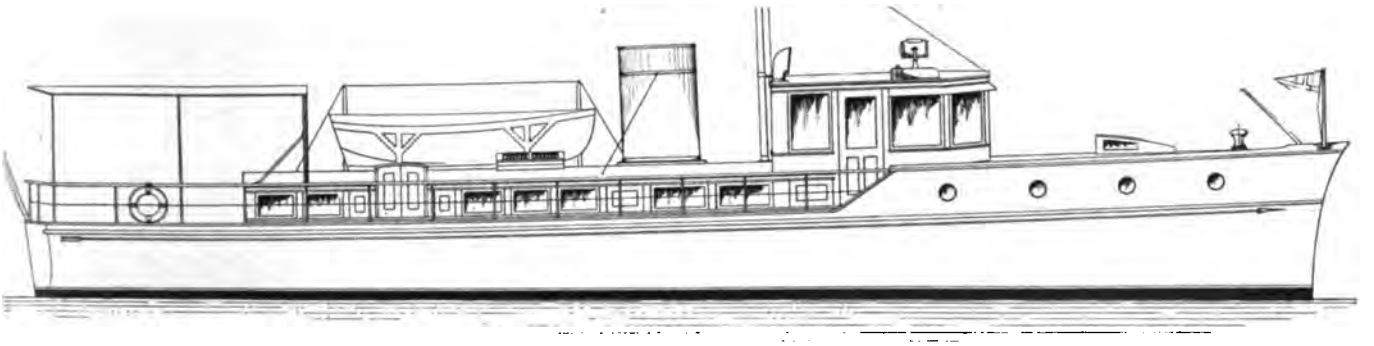
The power houseboat now building for John Ringling will when completed be the most uptodate vessel of her type afloat. The yacht is to be finished in time to attend the college boat races next June and will be seen at all yachting events on the Coast. She was however primarily designed for use in Florida waters and will go South soon after the close of the northern season.

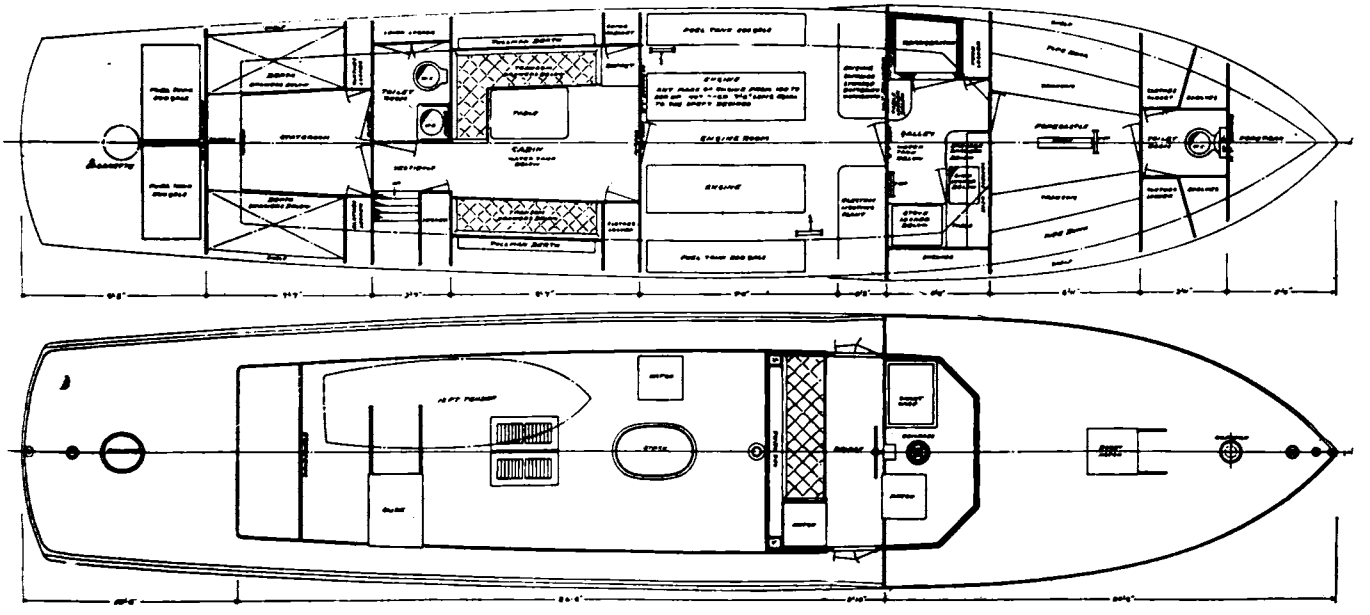
Henry J. Gielow the veteran naval architect, who during the past 25 years has developed and refined the houseboat type to its present high standard of perfection has prepared the plans and specifications for this yacht, which is being built by the Consolidated Shipbuilding Corporation at Morris Heights, N. Y.

This new yacht will have an overall length of 125 feet 7 inches; length on load water line 117 feet 9 inches; breadth 21 feet 3 inches; and draught when fully loaded 4 feet 3 inches. She will be constructed of steel, the shell plating being carried up to the upper deck thus insuring a thoroughly substantial construction. The lines are a combination of seagoing qualities with a minimum draught and if it were not for the square windows would show all the characteristics of a seagoing power-yacht. These windows however add much to the owner's comfort both in regard to light ventilation and the fact that the yacht is to be used in Florida waters, made it advisable to use them instead of the very much smaller ports.

The propelling machinery will be two of the latest design 6 cylinder Nelseco, heavy oil engines of 180-h.p. each which will drive the yacht 13 to 14 miles an hour. The oil fuel tanks are of large capacity sufficient to give the vessel a cruising radius of 5,000 miles at a speed of 11 miles an hour. Among other mechanical equipment are an electric lighting plant, searchlight, electric pumps and compressors, storage battery, refrigerating plant, ice making machines and thermofan system for heating, cooling and ventilating the yacht. She will carry four small boats, two being power tenders.

Aft of the owner's quarters is the engine room, with steel watertight bulkheads at the forward and after ends. Aft of the engine are quarters for the officers and crew. There are staterooms for the captain, engineer and steward and a messroom.

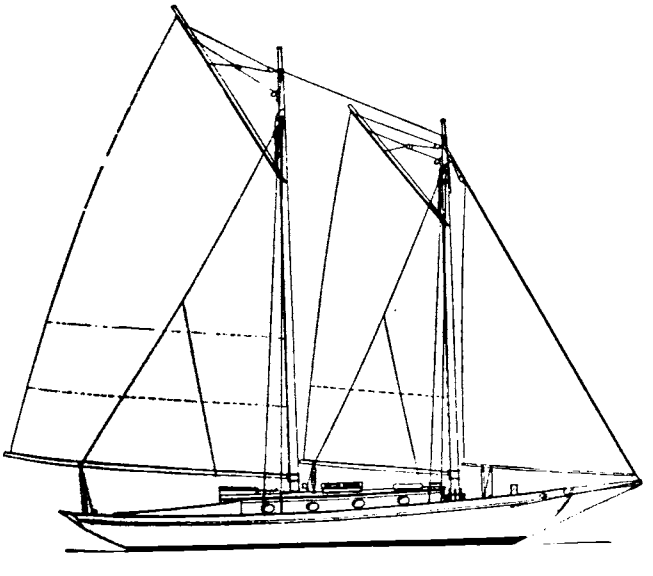


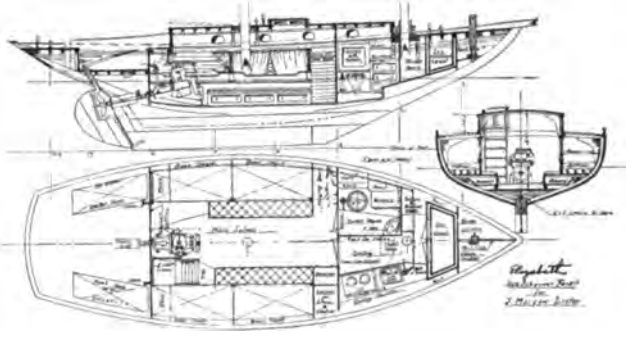


Twin-Screw Express Cruiser

Ralph E. Winslow of Atlantic, Mass. is the designer of the attractive express yacht shown herewith. She is a handsomely proportioned boat with the present style in bows and having an enclosed bridge, so necessary for comfort on speedy boats. The arrangement can be readily judged from the plans. Machinery totaling 400-h.p. will give the boat a speed of about 25 miles although less power can be installed if desired.

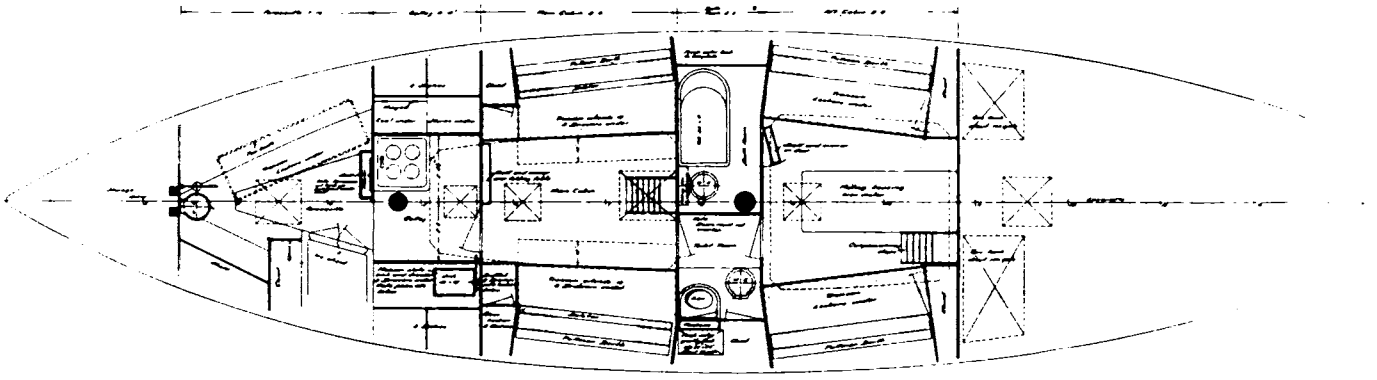
Length o. a. .....60 feet 3 inches
Length w. l. .....58 " 0 "
Breadth .....12 " 2 "
Draught 3 feet 3 inches to 3 feet 6 inches





40-Foot Schooner Elizabeth

Designed by J. Murray Watts and building by the Delanco Shipbuilding Co. for J. Morgan Lister, this little boat is an excellent example of what can be obtained with a small schooner in the way of cruising accommodation. The engine is a 15-h.p. Lathrop with electric starting and lighting plant. Length over all 40 feet 10 inches; breadth 14 feet 0 inches; draught 5 feet 6 inches.

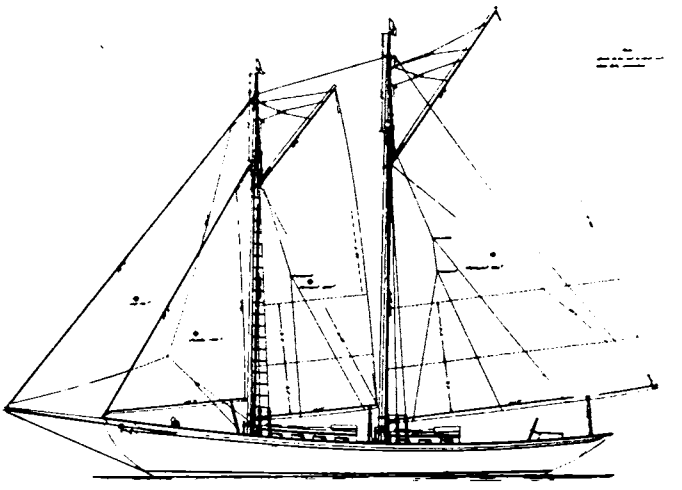


Fisherman-Type Auxiliary Schooner

This sturdy little seagoing auxiliary of the real fisherman type, not a standard yacht design called by a new name, was designed by William H. Hand, Jr., of New Bedford for a member of the local yacht club. The general design was based on Mr. Hand's very successful Whistler, but being somewhat smaller some minor changes had to be made.

Length o. a. .....55 feet 4 inches
Breadth .....14 " 2 "
Draught ..... 7 " 3½ "

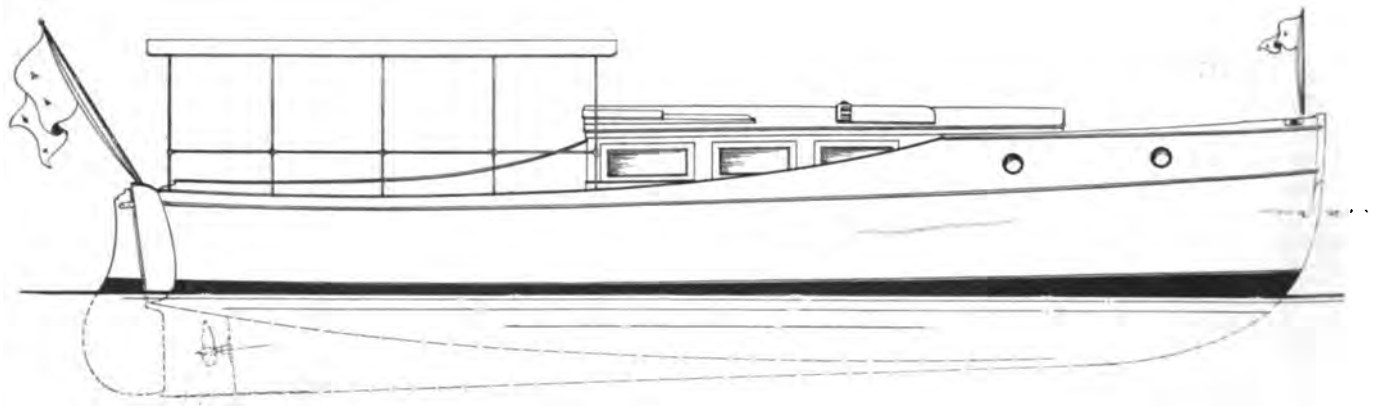
Length o. a. .....35 feet 0 inches
Breadth ..... 9 " 0 "
Draught ..... 3 " 0 "

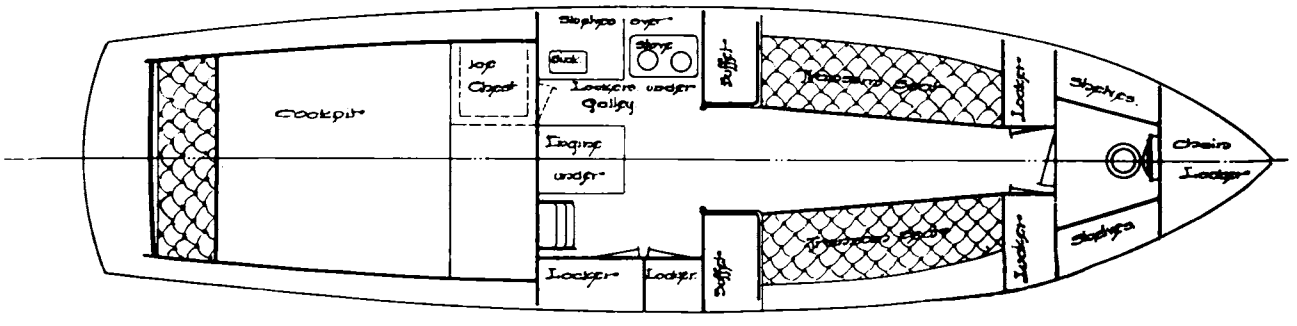


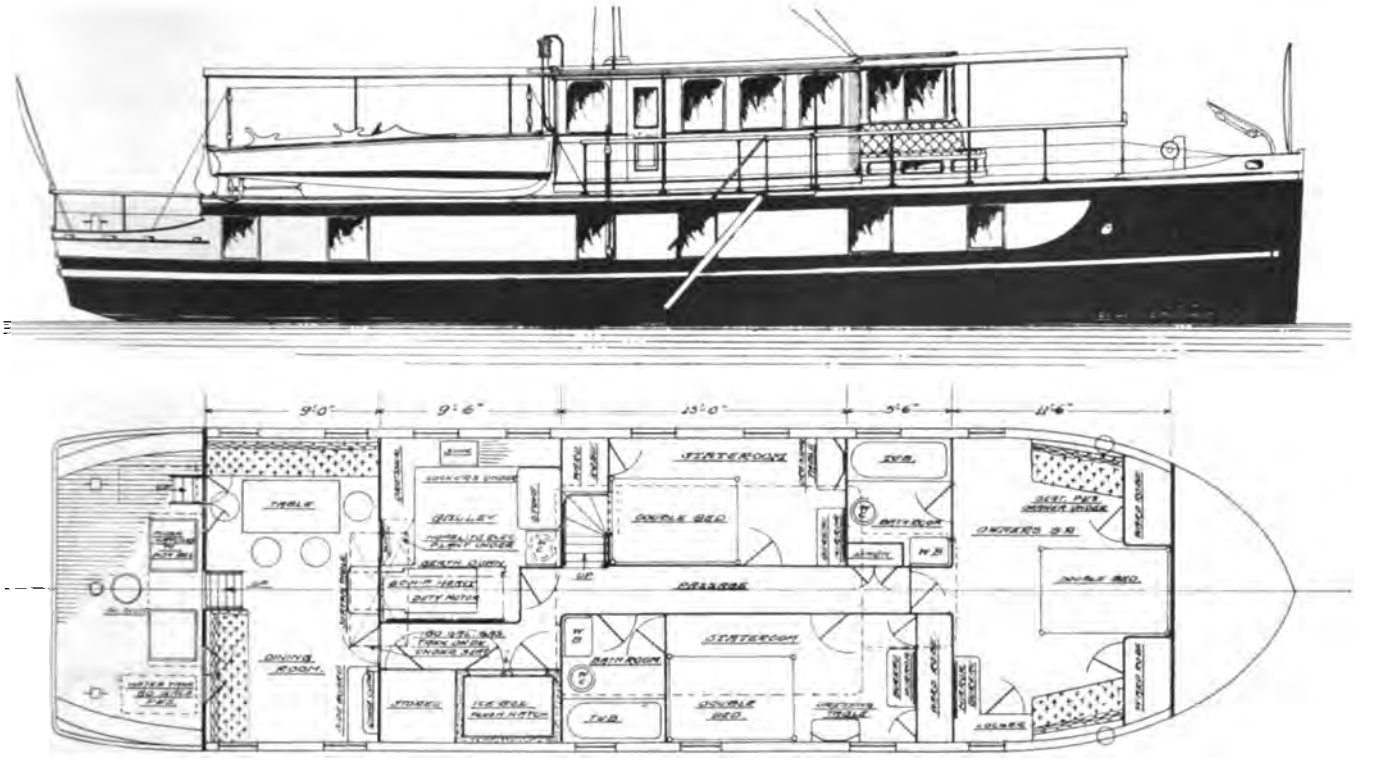
35-Foot Raised Deck Cruiser

The plans below show a combined raised deck and trunk cabin cruiser from the boards of Chester A. Nedwidek of New York. Aside from her good looks, there are many ideas worked into the design which have been found advisable for boats of this class.

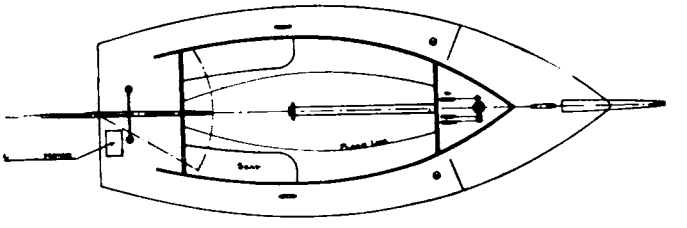
The engine is installed partly under the bridge and is of 25 horse power giving a speed of 9 miles.



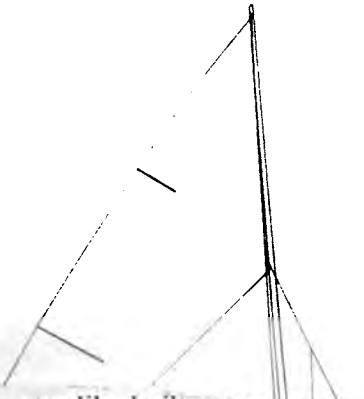




This 65-Foot by 16-Foot Power Houseboat was Designed by W. H. Millett, of Atlantic, Mass. Her Accommodations are Remarkable for a Yacht of Her Length, and In Spite of the Amount of Room, Operating Expenses Will Be Kept Low by Using Only a 60-H.P. Heavy-Duty Engine. It is Contemplated That Only One Paid Hand Will be Carried

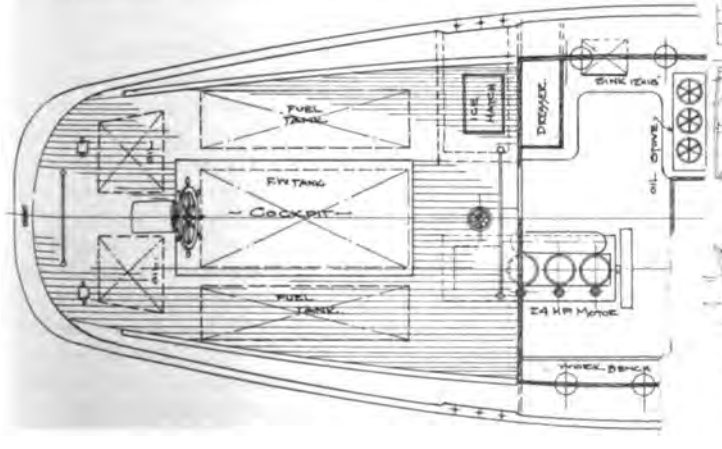


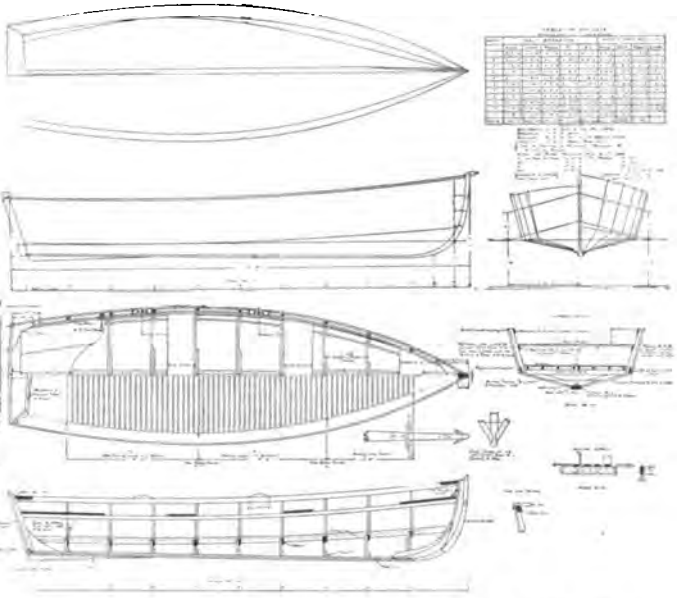
Cockpit View of the Hanley-Designed Knockabout, Which Will Make a Fine One-Design Boat for Racing or Day Sailing



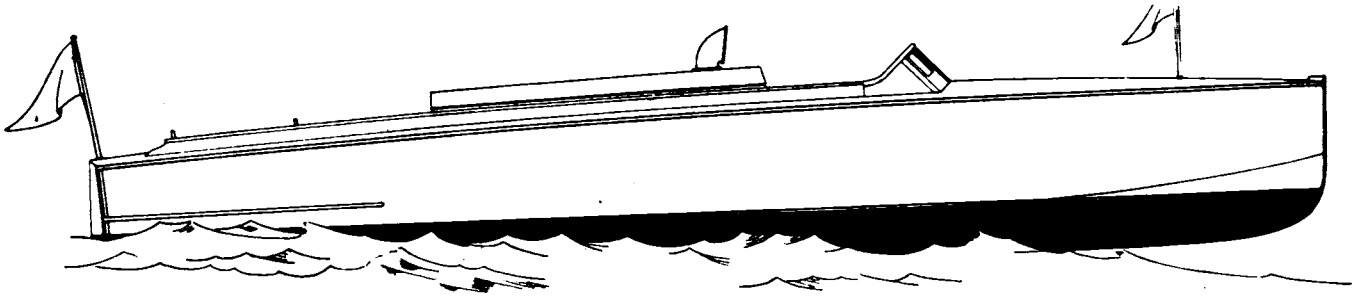
The hull is sturdily built according to ... practice and the accommodations are for four.

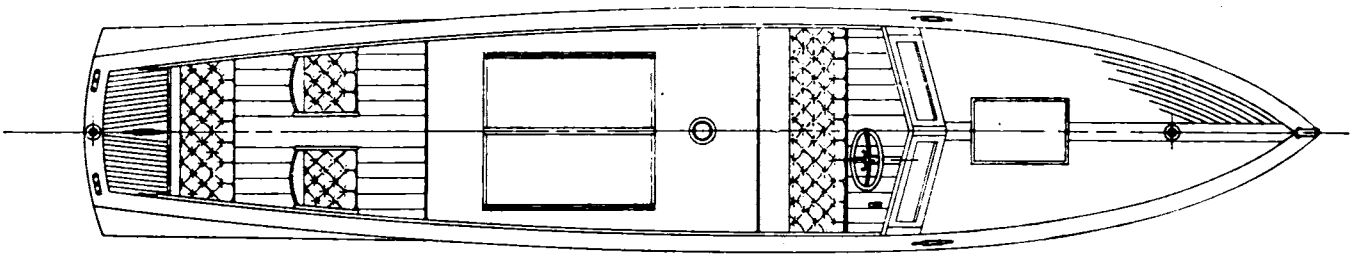
Length o. a. .....40 feet 0 inches
Breadth .....12 " 6 "
Draught ..... 6 " 0 "

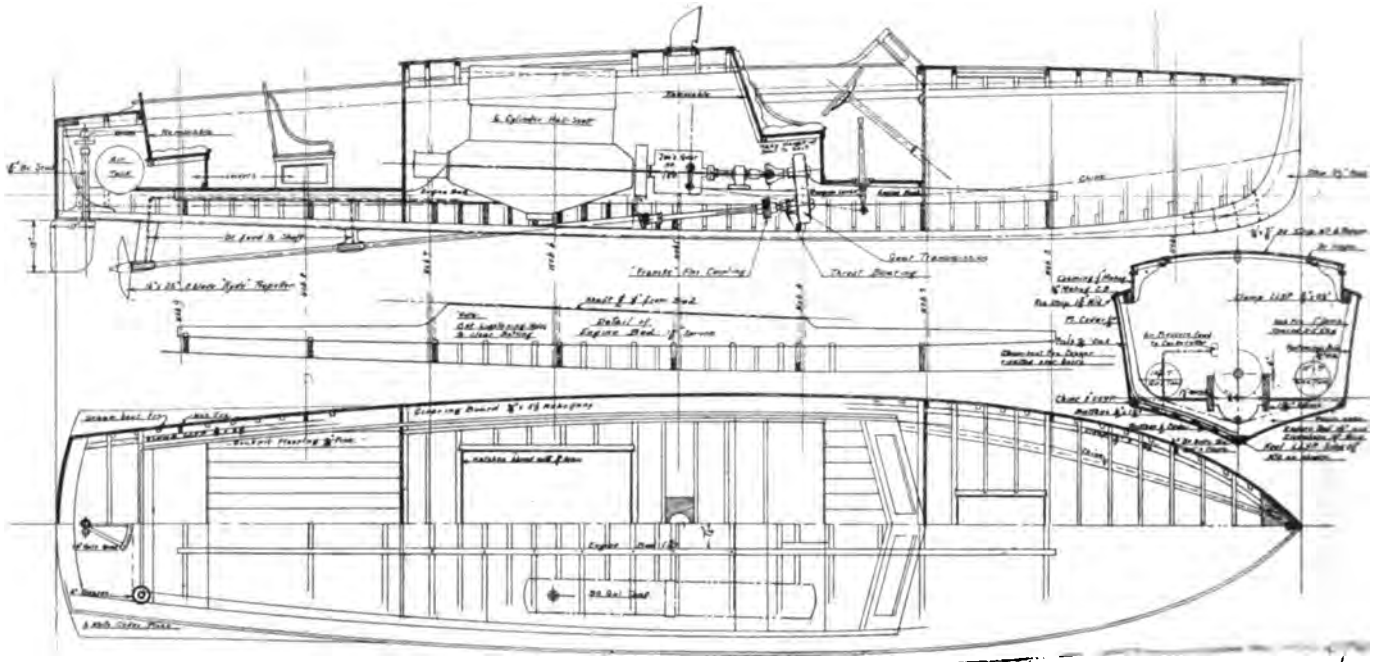




This Little 14-Foot by 4-Foot V-Bottom Boat, Designed by A. E. Redifer, of Cape May Point, N. J., is a Fine Boat for Fishing or General Outboard Engine Service





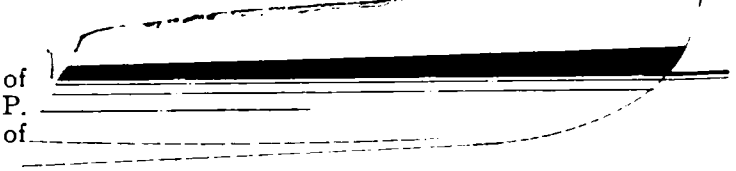


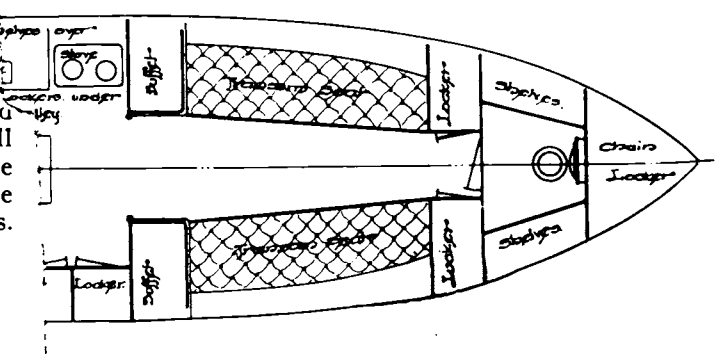
30-Foot Fast Runabout

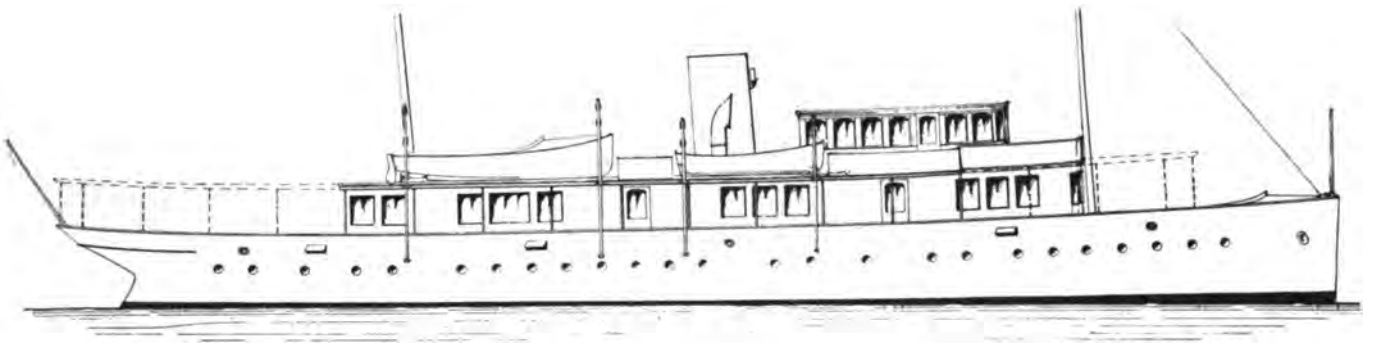
The above plans show a fast mahogany runabout of the most modern type now building by Charles P. Leek and Co. of Atlantic City for George Hirsh of Philadelphia from designs by J. Murray Watts.

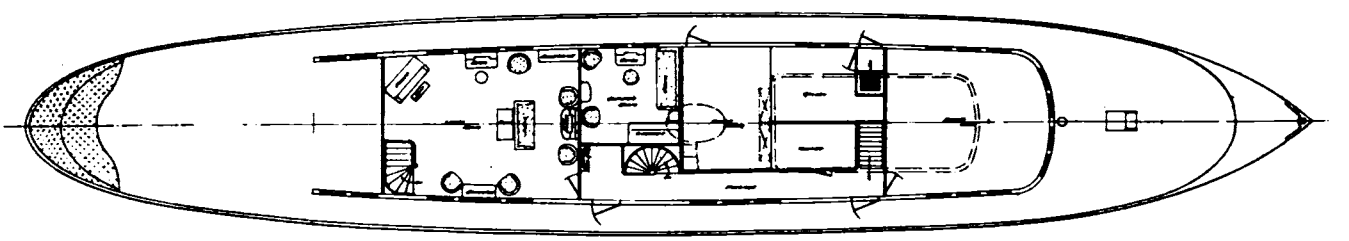
The engine, a Hall-Scott 200-h.p. of the marin type is installed just abaft amidships driving the pro peller shaft through back-gearing. This arran[illegible] permits the engine to set level when the boat plane at high speed and also has the advantage that some the passenger space is well forward away from a spray. As it is impossible to design a high speed boa so that it will throw no spray in choppy water, and under all conditions spray is always thrown aft well clear of the forward cockpit it can be seen that the driver and his companions are entirely free from the discomforts of a wetting. The speed will be 35 miles.

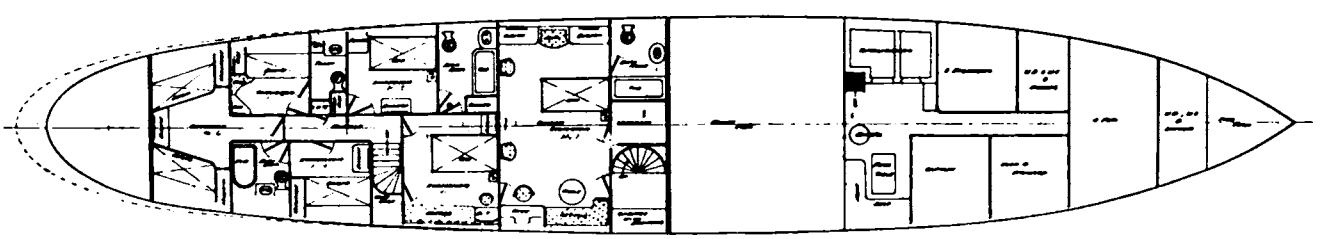
Length o. a. .....30 feet 0 inches
Breadth ..... 6 " 6 "
Draught ..... 2 " 0 "











An Auxiliary Bugeye

Designed by the Southern Yacht Agency of Baltimore for Peter Arioli of Hilo, Hawaii the auxiliary bugeye shown on this and the preceding page shows what can be done with this wonderful cruising rig when adopted to a pleasure boat. The craft will be used between Hawaii and the mainland and for offshore fishing trips. She is of the conventional Chesapeake bugeye rig which stands any sort of weather and is at the same time one of the easiest rigs in the world to handle.

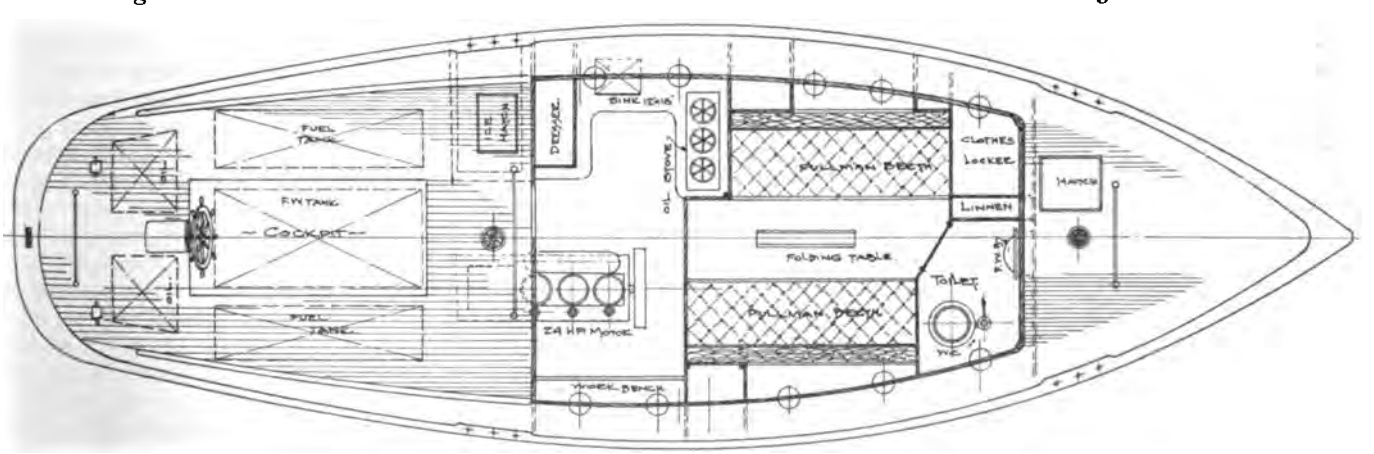
The hull is sturdily built according to fisherman practice and the accommodations are for four.

Length o. a. .....40 feet 0 inches
Breadth .....12 " 6 "
Draught ..... 6 " 0 "

Diesel Powered Yacht Cynthia IV

That the steam yacht of both offshore and cruising type requiring a large crew to man them as well as the larger gasoline driven craft, expensive to operate owing to high fuel cost, are being rapidly replaced by modern vessels powered with full Diesel engines is demonstrated by the fact that another yachtsman, one of the oldest members of the New York Yacht Club, has recently placed an order for the construction of a Diesel yacht of large size. The plans shown above show this yacht and were drawn by Cox and Stevens. The yacht is well under way at the yards of the Tebo Yacht Basin Co. The machinery will be two 250-h.p. Wintons driving her 12-13 knots.

Length o. a. .....129 feet 0 inches
Breadth ..... 23 " 0 "



Beachcombings

We hate to be mean, but usually we try and have the best joke of the month at the top of this "colyum." We know of nothing funnier this month than the Miami Races. Nuff sed.

* * *

We have it on good authority that Commodore Schantz of Detroit had several things to say about the lack of interest in racing at Miami. In Detroit all hands get out and race. At Miami bridge whist, polo, afternoon tea, dawncing, pogo-riding and Afromobiling all seem to come ahead of power boat racing. We suggest that the races be shifted to St. Petersburg. The only competing sport there would be horseshoe pitching.

* * *

Charlie Chapman and Charlie Chaplin got mixed up at the hotel in Miami. A wire intended for the acrobatic movie king got into Chap's mail box. Chap was shocked, and probably a little tickled deep in his heart when he opened the dope and read,—

"Will you come over and help us put on a Show Monday night for a great charity? William Fox, Ethel Levey, Arthur Hammerstein and the rest of the gang want you, although I told them you'r the bunk at keeping promises anyhow. Wire me to Poinciana hotel and I'll set you right with the world."

Signed—Edgar Selwyn.

* * *

Schantz claims that the first ones to flirt with the mermaids were the swells of the ocean. By the way, can you get fresh with a salt-sea-maid? Probably you have to have a good sized roll before you can talk to them at any rate. Even then it is a sort of scaly business.

* * *

Old Art Utz thought he got away with murder at the Show. He kidded us that he was very sore about a crack we gave him. We are used to this sort of bull, knowing that Art would do anything on earth to get his name in the paper. After he got home he felt sorry for us, thinking that we were real scared and wrote a letter saying that everything was all right. Holy Smokes, Art! Did you really think we were that easy?

* * *

When the ocean racing boats got off Havana Harbor some kind soul threw bottles of good stuff aboard the boats. Four men were trampled in the rush.

* * *

The proof of the fact that it takes all kinds of people to make the world is the fact that the model yacht birds spend as much for some of their miniature boats as a real one would cost.

Biographies of Boatdom

Before we step into the next tent folks let me warn you that the exhibit will be somewhat different from the usual one. As a rule our displays are of humorous character but we don't know anything specially funny about F. G. Ericson. He is such a darned good skate, so wrapped up in all that is best for the power boat racing game that we feel you should approach the stand with bared head and offerings.

Eric has accomplished so many things of note that we cannot begin to enumerate them. As a hydroplane driver he is one of the best in the country. He has done wonderful things with airplanes and holds some of the iceboat records. He built iceboats from THE RUDDER designs before lots of you were born Eric is one of the few men that vow allegiance to both the A.P.B.A. and the I.P.B.U. A race meeting, no matter whether it is held in Peoria or Toronto, is incomplete without Eric. At some he appears in racing togs, bearing a great resemblance to Santa Claus, and at others he will stroll up in cool ducks while the rest of us are sweating on the stand. Eric is always cool, always collected and always a good pal.

Needed Information

In this department all questions are answered relative to the care, operation and equipment of boats. When answers are required by return mail, postage must be enclosed.

Speed and Propeller

Q—What speed will I obtain from a 5½-inch by 6½-inch four-cycle Bridgeport two-cylinder engine, turning a 23-inch by 26-inch wheel at 500 r.p.m.? The boat is on the model of the Mystic fishermen, and is 25 feet over all, 8 feet 6 inches beam, and 3 feet 6 inchesdraught. The rated horsepower of the engine is 14.—S. G. C., New Haven, Connecticut.

A—With the amount of data at hand it is impossible for us to give an exact figure, but would estimate that a maximum speed of 9 miles an hour would be satisfactory for the power and type of boat. If there is a thick deadwood just forward of the wheel, or the bottom of the boat is not smooth, the speed may drop below that figure.

Building Sea Duck

Q—Am building a catboat, Sea Duck, from plans published in THE RUDDER, and am having some trouble bending the frames and getting out the planking. The boat has a hackmatack stem, which has become checked on the inside. Was I wrong in using this wood for a stem? I can cut it out and substitute oak if it will do any good.—G. C. F., Plattsburg, New York.

A—Would suggest that you try bending the frames on the floor, nailing wedges down, around which the frames can be sprung. These wedges can be shifted for different parts of the boat, although a frame can be bent to a greater curature than is needed and afterward straightened out. The clamping of a piece of strap iron to the outside of the bend will often prevent splinters from breaking up from the wood and starting a break. In planking, the best method is to divide the space between sheer ribbands and keel into a number of spaces, all of them about the same width, and then run ribbands so that the top of one ribband is even with the marks. That will enable you to make a paper pattern of the shape and then saw the plank to the shape. A good plan is to start a couple of planks down and then work up from the keel. The last plank is called the shutter, and should be made as tight a fit as possible, so that it will wedge the others together.

Multiple Propellers

Editor of THE RUDDER:

I have an idea that a boat would go a great deal faster if two propellers could be installed on the same shaft. It seems to me that each would catch hold of different water and thus have twice the push. The idea is so simple however that I suppose someone has attempted it and found it useless. Will you please advise me whether in your opinion such a device would increase the speed of a boat?—G.H.K., Iowa.

Your idea has been attempted many times and has never been a success as far as speed was concerned. At one time the power houseboat The Everglades had two wheels on each of the propeller shafts. The plan in her case was required by the extreme shoal draught of the boat. As far as efficiency was concerned the two wheels fell far below the usual, but the decreased diameter allowed less draught. We understand however that these wheels were changed later to the usual installation. The fast steam yacht Tarantula was originally fitted with several wheels on each shaft but the speed went up when the proper single wheel was fitted and the others thrown out.

A boat is propelled by the stream of water thrown aft by the wheel. The reaction is the same as the kick of a powerful hose. If you place anything in the way of this powerful stream you lose some of its power. In the multiple propeller system the forward wheel starts off all right but as soon as the steam thrown back from the first wheel strikes the second, it is more or less broken up and its efficiency lost.

Center of Effort Location

Editor of THE RUDDER:

A short while ago I read in one of your issues that the center of effort of sails should be located forward of the center of lateral resistance. At first thought this seems just the reverse of what it should be in order to have the boat come up in the wind properly. I have looked up several books on yacht design and find that you have probably made a mistake as they all bear out my contention that C. E. should be aft of the C. L. R. Would it not be a good idea to correct this statement which was evidently a printer's error?—F. N., New York.

We acknowledge that our statement seems to be in error, but the fact remains that we were correct. As far as looking the matter up in books on yacht design, is is possible that you consult some of the old works which only consider the obsolete type of deep, plumb-stemmed cutters. These books are not of much use when modern yachts are considered. The C. E. must be located ahead of the C. L. R. for the reason that the latter point shifts forward very rapidly as the boat heels over. The wave piled up on the lee bow is chiefly responsible for this as it forms a shoulder against which the boat pushes. In figuring the C. L. R. only the center on an even keel when at rest is shown. The C. E. is placed far enough ahead of that point so that as the C. L. R. moves forward, it will pass the C. E. and finally come to rest at a point some inches forward of the C. E.

Commercial Boats

Sturdy Service Boats

Large shipyards always find a great amount of work for power boats. Above we show Jeannette, owned by the Cramps Shipyard in Philadelphia and used for general service between the yard and Petty's Island. She is of the heavy type that can stand pounding through ice and frequent docking without damage. Yachtsmen of a certain type may look askance at her appearance but the proof of the pudding is service.

Gasoline Powered Passenger Boat

Messenger is typical of hundreds of power work boats that are paying dividends to their wise owners. She is 65 by 11 feet and powered with a 100-h.p. Regal engine. Her owner, Capt. John P. Neuman of Sandusky uses her for passengers and freight between Sandusky, Cleveland, Toledo and Detroit. She is constantly on the go from the time the ice breaks up until it freezes so solid that she cannot pound through it.

The Young Skipper

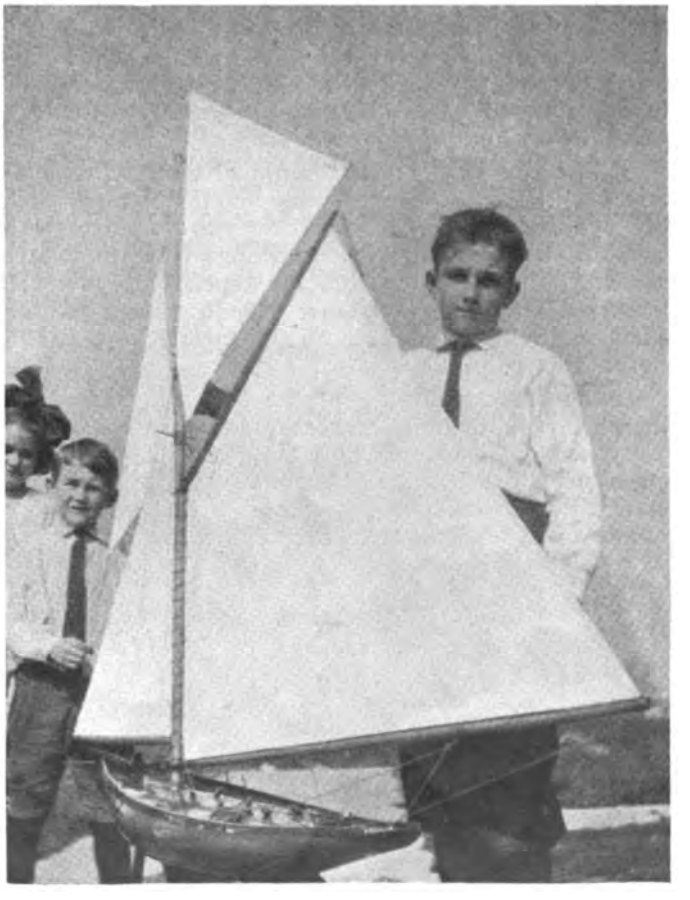
Boating Is Safest Sport

Many of the young readers of this column may have asked their elders for a boat and been refused for the reason that boats are often considered unsafe by folks who have never studied the problem. It is quite true that lives have been lost, but boating is a much safe recreation than baseball, football or any other out of doors game. In nine cases out of ten boating accidents happen from carelessness. One of the reasons why so many drownings are reported from canoes overturning is because it is the practice in many communities to rent canoes for so much an hour. A crowd of young fellows who have never handled a boat in their lives will come down to the river on a hot day and rent a canoe. Piling helter-skelter they will set off. Some idiot begins to rock the boat and another gives him a playful push. Some one stands up and the next thing is a capsize. Even then they would all be perfectly safe if they stuck quietly to the boat. Instead of that they swim around and paw frantically at the canoe, turning it over and over. Unless help comes quickly there is a tragedy.

All of this is absolutely useless. An overturned boat if built of wood and not heavily ballasted will float forever. If one has any skill at all they can shake the water out of an overturned canoe and climb back in again, wet but safe. If you are out in a boat of any size or type remember that the usual rules of safety must be considered. You don't cross a busy street without looking both ways to see if anything is approaching. If you are of a type that never looks out for automobiles, you are probably slated for an early death anyway. Nothing will save you from walking in front of a train or pointing a loaded gun at head. The problem of your folks is to keep you under lock and key or else awaken the spirit of self preservation which is called the first law of nature.

On the other hand, if you can swim and have shown any ability to look out for yourself there is no excuse for people being afraid to let you have a boat. Remember that a boat which you own should be under your command. When you take out friends have it expressly understood that you are in command and that they must sit quietly where you say and obey to the best of their ability the orders which you give. Don't overdo this arrangement by ordering them around as if they were paid hands, but quietly give what orders are required to navigate the boat. Above all do not overcrowd the boat. Just because there is seating space for a certain number does not mean that these seats should all be filled. If the boat is the ordinary 16 or 18 foot power boat it is well to never carry over four. A sail boat of the same length is better off with three owing to the fact that you must do more moving around and more than that will be in the way. In a power boat arranged so that the engine can be operated from the steersman's position, allow your friends to have no hand in the steering or running of the machine. In making landings appoint one or two to fend off and step ashore with the line.

On making a landing with a power boat insist upon all hands remaining seated and keeping quiet. Look over the landing before you make it and decide just where you will moor. Keep everybody well down in the boat so they will not obstruct your view. One man can keep a watch ahead if you can't see plainly and he should be the only one allowed to shout back to you in case something turns up ahead that you have not seen. Caution him to speak plainly and to turn and face you when making suggestions. Many mistakes have been caused by all hands shouting at once that another boat is approaching. The man at the wheel cannot make anything out of the resulting jumble of words.



Model Yacht Built by a Young Skipper from The Rudder Plans

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, 9 Murray Street, New York City, U. S. A.

Air-Driven Boat Successful

The pictures above show an air-driven craft recently completed and patented by Frederick L. Fox of Washington, D. C. While at first thought it might seem that Mr. Fox has done nothing but adapt the airplane propeller to a scow type boat, there really is a great difference between his boat and the usual flat-bottom craft. By means of certain cavities and air ducts leading to them he claims to greatly lessen the resistance at high speed.

The engine is of 80-h.p. equipped with a propeller 8 feet 3 inches in diameter and having a pitch of 5 feet 2 inches. Propeller speed is 1,250 r.p.m. At a speed of about 30 miles the outriggers leave the water enabling the boat to quickly speed up due to decreased frictional resistance. At a mile a minute speed the hull is skimming on the surface, only drawing an inch of water.

In the latest trials of this boat an air rudder was installed which again decreased some of the water resistance. It is claimed that this boat makes greater speed per horse power than any other boat in existence. The total weight of hull and engine is 650 pounds, which is a great deal lighter than boats of the racing type powered with engines and water propellers.

The Sallan Trophy

Although Detroit is known chiefly for devotees of fast boats, there is a great amount of interest in the racing of cruisers. Our illustration shows the beautiful Sallan Silver Trophy for the annual race which is held in connection with the big race meet on the Detroit River.

This trophy is given outright every year and is chiefly responsible for the great entry list which always marks this race.

Model of Rainbow

When Harry Greening's Rainbow II raced at Buffalo for the Fisher-Allison trophy great interest was taken in her novel underbody. Although in the story of that race we described the boat as well as we could, we feel that this picture of her model shows to better advantage the recessed stern, surface propellers and air duct above the wheels. Notice also the veed bottom and the runner-like indentations on the sides forward of the wheels.

The Engine Room

The New Gray Marine Engine

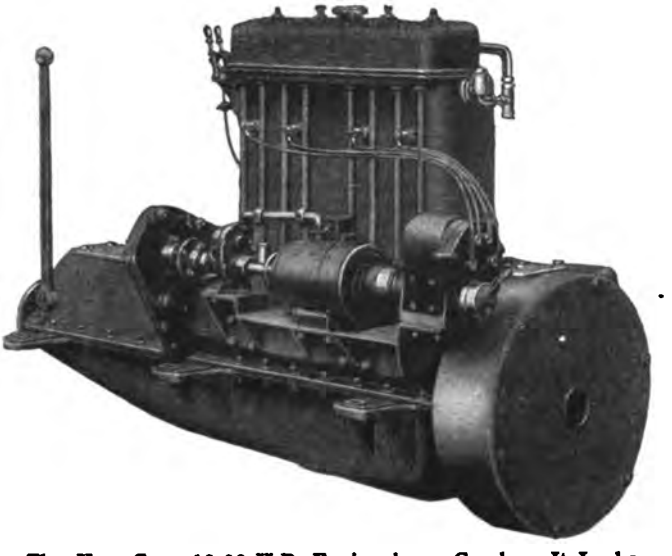
When a firm that has been in the business as long as the Gray Motor Co. announces a new model it is always interesting to look over the machine when it does come on the market and study the new features. The new Gray has many points of exceptional merit, a few of which we will mention.

In appearance the machine is neat, and the design is such that it can be installed in runabouts or cruisers where there is but little room above and at the sides. This is in spite of the fact that the engine is of the overhead valve type. The bore and stroke are 3½ and 5 inches respectively; the long stroke feature having been found by the company engineers to be more economical than the older-fashioned short stroke machines.

The reverse gear is enclosed within the base casting and is directly lubricated by the main oil system. A trap is formed in the system just forward of the gear to prevent any chips which might come off the plates of the clutch from getting into the main crank-pit and thence to the cylinder walls where scoring would take place.

The rocker arms of the overhead valves are also lubricated from the main pressure system, but by means of a rocker arm casing there is no oil thrown around the boat. Particular attention has been paid to the balancing of all moving parts, and the crank shaft is put into both static and rotative balance on an Akimoff Dynamic Balance Machine.

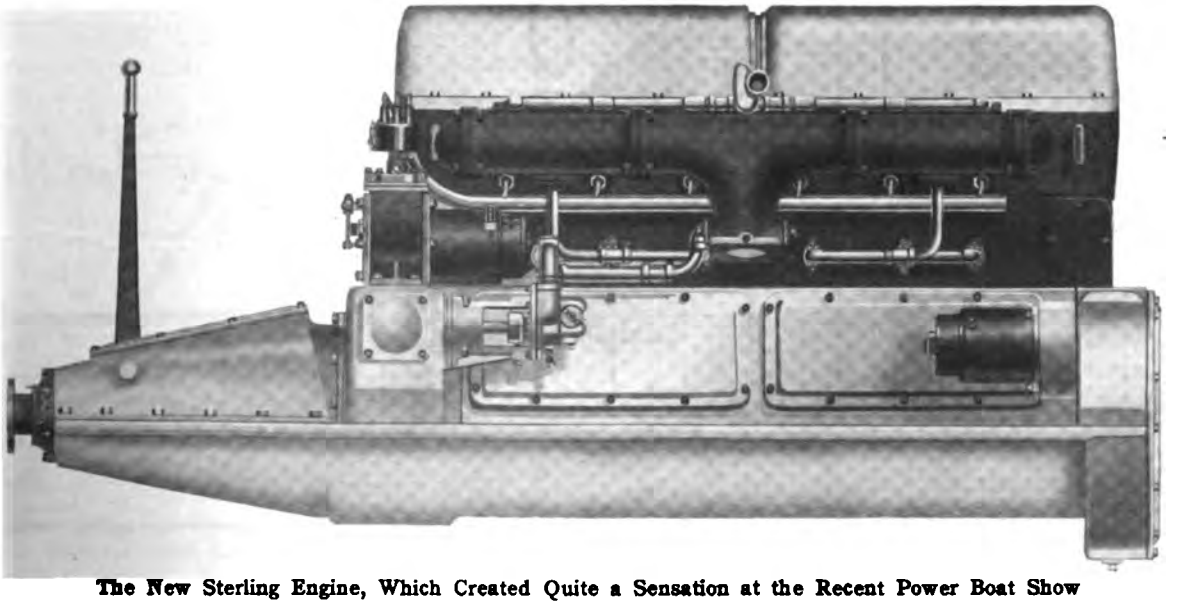
The horse power range of this new engine is remarkable. At slow speed, i. e., 500 to 600 r.p.m., the power developed is 10-12-h.p. Open the throttle to a 700 to 900 speed and the power jumps to from 15 to 20 horse. At top speed, 1,000 to 1,800 r.p.m., the power curve goes from 22-30-h.p. In this way the machine is adaptable to almost every type of runabout or small cruiser.



The New Gray 10-30-H.P. Engine is as Good as It Looks

To take care of the poor grade of gasoline there is a hot-spot type manifold of the latest designs giving a better distribution of gas, more power and preventing the formation of carbon deposits on plugs and valves.

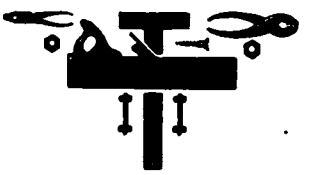
The equipment is of high grade, Bosch magneto with impulse coupling being used for ignition. Starting is assured by means of a Bosch two-unit starter and generator.



The New Sterling Engine, Which Created Quite a Sensation at the Recent Power Boat Show

The Work Bench

This is a monthly department for yachtsmen who build their own equipment. In each issue there is a question pertaining to the design and construction of some item of equipment for power or sailing yachts. For the best answer each month THE RUDDER *gives a credit order for $25.00, which will be accepted in payment for goods handled by any advertiser in the current issue. Contestants whose answers are published, but who are not first prize winners, receive a credit order for $5.00. Readers are invited to suggest questions. Prize orders will be mailed directly after publication.*



Drawings must be made with black ink on white paper or tracing cloth; lettering as large and clear as possible, and all dimensions plainly marked, as the reproductions will not be to scale. Descriptions limited to about five hundred words. Answers must be received on or before the first day of the month preceding publication. Address Contest Editor, THE RUDDER, *9 Murray Street, New York City.*

QUESTION FOR THE JUNE ISSUE

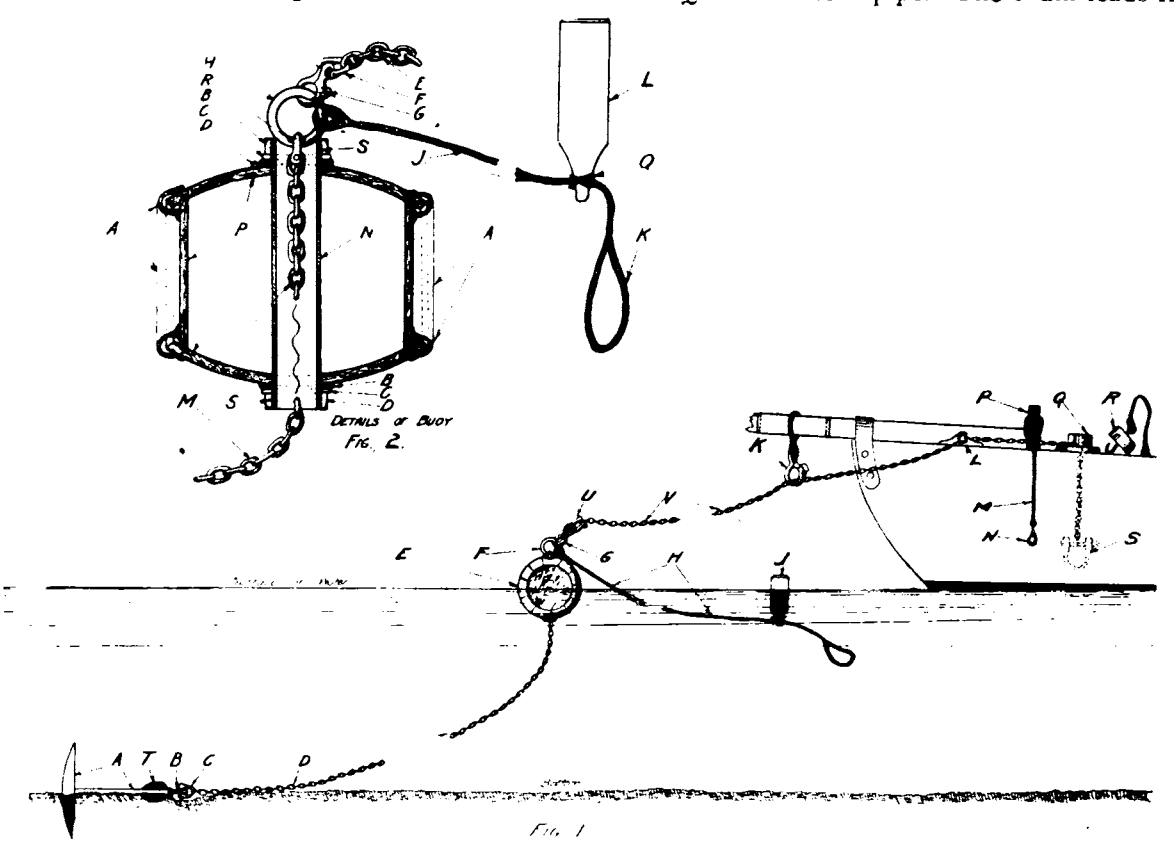
Describe and Illustrate a method of carrying the reverse and engine controls to the steering position of a small cruiser where the engine is located at a distance from the wheel

A Complete Mooring

$25.00 Prize Winning Answer to Question in February Issue

FIGURE 1

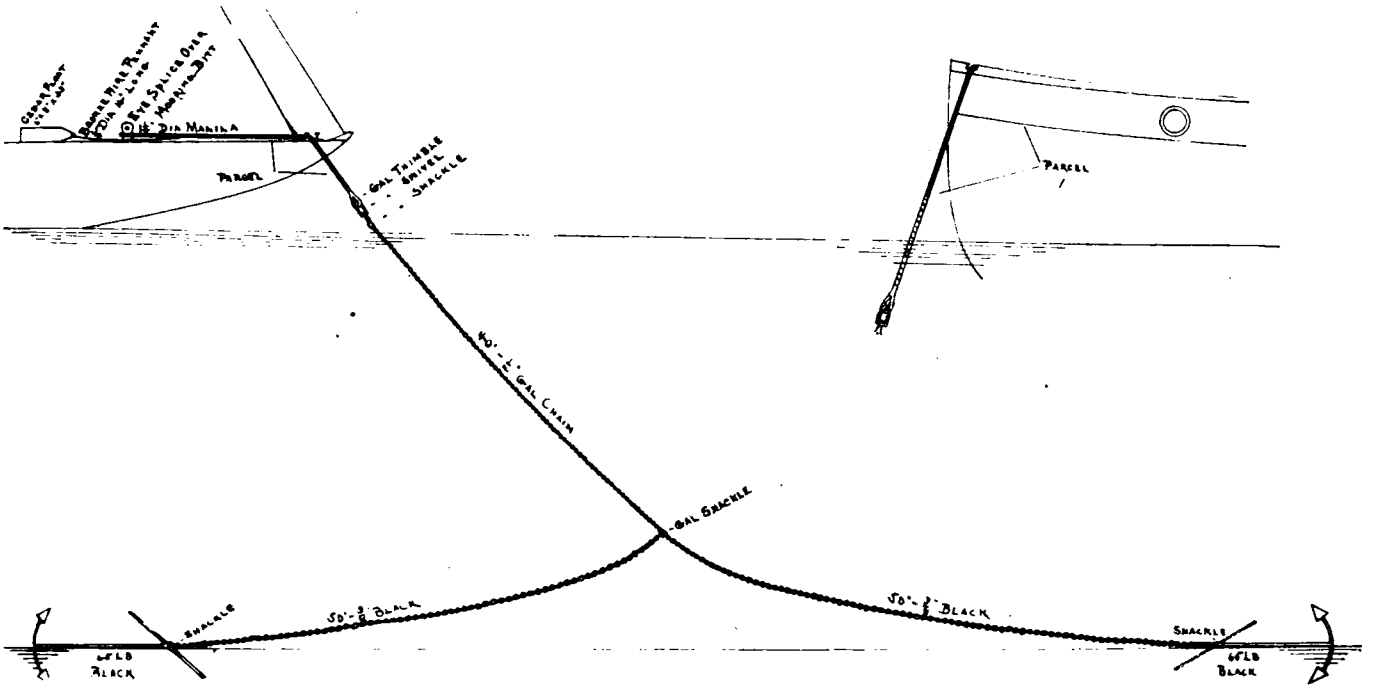
A—The mushroom anchor and shank. No weights are given, as they depend upon the size of boat, its kind, the holding ground, and the exposure of the anchorage. B—Ring passing through hole in end of shank. C—Shackle connecting chain D to anchor A. All shackles having a screw bolt should be wired with galvanized iron wire through the hole in the end to prevent the bolt from turning out. D—Chain leading to buoy. For this purpose, plain chain is as good as galv., as the latter soon wears through in spots, and starts corrosion. E—Buoy (See Fig. 2). F—Ring holding up chain D. G—Gaff topsail sheet hook. U—Shackle connecting G with chain B. V—Galv. iron chain cable. This is the permanent mooring. A chain is shown but a rope may be used. The chain is preferable, when the boat is left alone for any length of time, as there is no danger of chafing in the chocks. But for small open boats, a rope is always used. In this case the gaff topsail hook G and the shackle U are not used, the rope being made fast to the ring F by means of a bowline, or a fisherman's bend knot. Never use a rope for a permanent mooring made fast to a buoy and floating. It deteriorates very fast even in the most pure water. K—Gaff topsail sheet hook used on a boat with a bowsprit to prevent the cable from chafing the boat's side. L—Skene bowchock. This chock should be placed nearer the bow in a power boat, or one not having a bowsprit, and of course in that case the gaff topsail sheet hook K is not used. Q—Chain deck pipe. The chain leads from the



DETAILS OF BUOY FIG. 2.

FIG. 1

J. H. S. Won the First Prize with This Complete Outfit

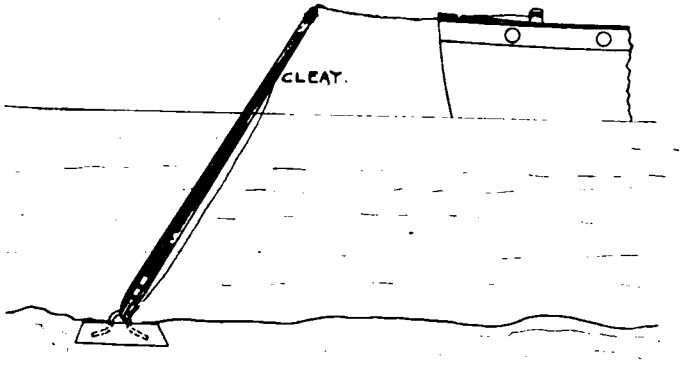


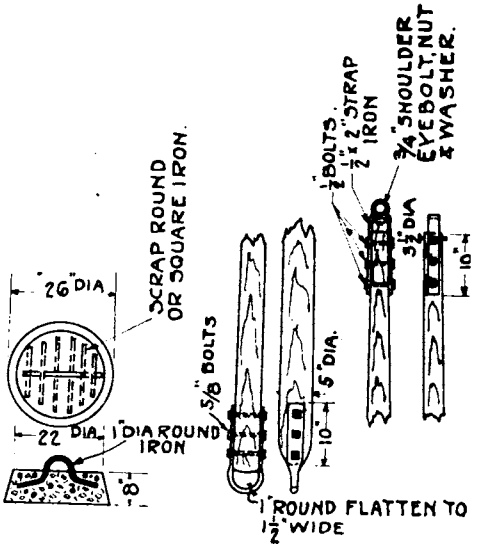
E. L. A.'s Suggestion is Particularly Valuable for Narrow Tidal Streams, Where the Yacht Always Lies Parallel to the Two Anchors. The Float Pulled Up on Deck is a Good Feature

chock L through the deck pipe into the chain locker of the boat. The scope of the chain V may be changed by slipping a link into the slot shown. For a rope connection, other methods of making fast must be used. R—Cover to pipe. Make fast to deck by a light line and eyebolt. The hook holds up the end of the chain when all is inboard. S—Large shackle on end of chain V to prevent it from passing through chain pipe Q. If a rope is used it shou'd be spliced around a bitt or mast. It cannot be stowed away as easy as a chain, and remains on deck most of the time. T—Weight sometimes placed on end of shanks. P—Bitts. H—Temporary mooring line, terminating in loop to be thrown over bitts. J—Spruce wood float. M—Short line to snap on H so as not to bring slime, mud, etc., on deck. N—Snap hook to take loop of H.

FIGURE 2

Details of Buoy: A—Pieces of old rubber tires tacked on and used as fenders. BB—Thin nuts, pipe thread. CC—Galv. iron washers. DD—Leather washers. E—Chain as shown on Fig. 1, D. F—Shackle. G—Gaff topsail sheet hook. H—Ring. J—Rope, same as shown on Fig. 1, H. K—Loop, same as shown on Fig. 1. L—Float, same as shown on Fig. 1, J. M—Chain to mooring, same as shown on Fig. 1, D. N—Galv. iron pipe of sufficient diameter to allow chain M to pass through freely, but not large enough for ring H to pass through. It should be long enough to be flush with BB after screwing down tight. P—Keg for buoy, size determined by weight of chain and depth of water. Q—Marlin tied around rope after passing through hole in L. R—Shackle. SS—Pipe thread on nuts and pipe. Paint buoy and float white, so that they may be easily seen on a dark night. After the boat has been moored by means of the ropes, the buoy can be hauled in, and the permanent mooring made fast. Have the ropes large enough to hold the boat in a stiff blow. A windless will take the place of the bitts.—J. A. S., Connecticut.





L. A. P. Shows a Most Excellent Mooring for Shallow Waters. The Line Up the Side of the Buoy is Used to Draw a Chain Through the Mooring Eye When It is Hoisted

RUDDER

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An Analysis of the Show

The annual Boat Show is like the three ring circus in one respect. There is so much to see, and so much going on at one time that one should be hydra-headed to take it all in. No matter how many times you visit the exhibit, you will afterwards talk with those who saw some feature which entirely escaped your scrutiny. It is therefore apropos for us to try and bring out the really salient portions of the display so that one can eliminate the chaff and retain the kernals of new and interesting features brought out for boatmen generally.

The display of small sailing boats was one of the real features of the Show and it is hoped that in the future it will be possible for the management to arrange the little windjammers so that their sails will not blanket one or more other exhibits. The sail boats were without an exception of the afternoon type and suitable for one-design classes. What is perhaps more to the point, is the fact that in every case they were priced very much lower than one would expect. The public appreciated this and in every case the exhibitors made one or more sales. One firm sold enough boats from the floor to keep their shop running full time until May.

The power cruisers were remarkable in that they were priced at figures that allowed the average boat owner to look them over with the air of proprietorship instead of the feeling that he was in a craft so costly that it aroused nothing more than a feeling of personal financial depression. The Boat Show cannot be a museum of art without the general public gaining the impression that boating is not adaptable to the usual pocketbook.

We that are in the game as veterans know that a hundred dollar bill can be exchanged for a craft that will give a greater amount of pleasure and healthful recreation than is possible for the same amount in any other field.

When one can buy a family cruiser such as was shown for prices ranging from $1,500 upwards it is possible to interest thousands of new men. In every case the cruisers were laid out in a manner that gained the greatest amount of room for the given length combined with simplicity. The days of the excessive gingerbread cabins is past. White enamel, relieved with mahogany seems to be the accepted finish for almost all cruisers. Upholstery is departing from the Pullman car style, so we see gay cretonnes in pronounced stripes in many cruisers. These colorful materials lighten the cabin as well as increasing the apparent size. There is far less polished brass than in the past for it is understood that owners take care of their boats in the greater number of cases and there is little time available for brass polishing.

In the more expensive boats there is a return towards the glass-cabin type. At one time it was thought that the "trolley-car on the raft" cruiser was as extinct as the dodo, but several boats at the Show were modified examples of these old craft. Of course the hulls were of more seaworthy shape and the entire craft better balanced and faster, but the idea of large, light and airy cabins has been retained. Even in these higher priced boats there was none of the glaring varnished work of other years. Mahogany was rubbed down with pumice and water until it had the beautiful velvet tone of a bit of old furniture.

It was a fashion for a time to show boats with an extreme amount of flam at the bow. Not only was this a difficult bit of planking and frame bending, but it was found that the extreme flam was unnecessary. The boats at the Palace almost all had a certain amount of flam; often erroneously called flare; but the amount was less pronounced.

The engines, with few exceptions were designed with greater accessibility and a noticeable trend towards heavier crank-shafts and other parts that transmit a torsional stress and a lightening of pistons. Better balancing of all moving parts was also featured. To handle the heavier gasoline practically all machines were fitted with some sort of a manifold which thoroughly preheats the fuel on its way to the combustion chamber. A return to magneto ignition was seen on almost all makes. Oil and fuel strainers are now provided with many engines and so arranged that they can be inspected and cleaned with ease and the minimum of muss.

The Small Schooner Widow

In our May Issue we plan to feature plans and pictures of the famous small schooner Widow, a well-known craft on Long Island Sound. Her owner Robert H. Moore of New York has kindly turned over to us, for the good of the sport, a great deal of data regarding the 23 foot boat. Unfortunately he has no good photographs of the boat under full sale in a good breeze, but says that he has seen several yachtsmen taking pictures under those conditions. If you have any pictures of this boat which you would be willing to loan us for a few days we will appreciate it and it will do much to further our plan of boosting small boat sailing.

Odd Hours on a Four and a Half Tonner

(Continued from Page 19)

know that we have no "Hurrah's Nest" down below when we heave anchor, and that when we hit the big waves outside the bay, the eggs won't be mixed up with the clean sheets. Another thing, as a result of this, we most always come home with a smile.

When we bought Shamrock, she had for illumination, two candle lamps which were of little use and no ornament. There wasn't room for a Delco outfit, so, after perusing catalogs galore, we finally decided on a gasoline lamp with double mantles an this was swung from the cabin roof in short gimbals, a T shaped chimney being carried through the roof with metal plugs at each side of the T. We never sail at night in bad weather and so far, the arrangement has been very satisfactory. The lamp has a big white porcelain shade which reflects the light very well.

With regard to the dinghy, at first the wretched thing would drift alongside on the painter about two in the morning and—bump—*bump*—BUMP the new paint, to say nothing, of keeping us awake, so in desperation, we made up our minds that something had to be done. Now we carry a fourteen foot bamboo pole in snap catches on the mast and when we anchor at night this is lowered and snapped into a position which puts it athwartships and the dinghy is tied to the outer end, navy fashion, and we sleep in peace.

The Doman had a nice little compression release cock and gasoline injection cup in the cylinder head and the "Chief Engineer" had recently sold his motorcycle, but had kept the acetylene headlight, so a dollar eighty-five was expended in obtaining a specially turned cock to fit the cylinder head, and now when there is an unusually cold snap early spring or late summer mornings, (we sail eight months in the year) a little acetylene gas is turned on and the engine starts coughing right away in place of a lot of weary grinding, and when the morning mist is still hanging over the water and the ropes are stiff and cold, it is a whole lot better to use the engine than to hoist canvas, even though there may be the promise of a breeze.

Too many owners think June to October constitutes the only sailing time, and their boats rot and run up bills the rest of the year. If Shamrock could be kept in commission the year round she would be, for with the Weather Man playing such tricks as he does, there are sailing days in January or March that can't be beaten if one's boat and clothes are really comfortable.

At first we'd get cold at nights before turning in, but now we carry a big gasoline torch, and it takes only a short time to heat our little floating home in fine shape. When I see a big express yacht with twin Sterlings or Murray-Tregurthas pushing her along at something over twenty knots I murmur to myself—"He's getting no more enjoyment from the salt water than you are, Son!"

An Afternoon Shower on Smithtown Bay

(Continued from Page 18)

straightened her out once more for Lloyd's and told me to hold the course. Now, this was beginning to get on my nerves, for I had an awful creepy feeling in my stomach. I asked Bill how it was he could grin when the devil, or whatever it was, was pulling us along in that fashion and he said it wasn't no devil but science.

"I couldn't see where the science came in, but as Bill was a great one on astrology, and all them things what has to do with stars, why I just felt kind of better after that. Bill said it was science acting on the shape of the stern. The stern was square and very wide and raked from the deck down to the water. She was longer on the waterline than on deck and when the rain-drops hit that slanting transom they bounced way aft, and Bill said it was the back-kick of those drops what drove her ahead. He got off some more science stuff about action and back action, or something like that. 'Same principle' he says, 'what keeps a kite up in the air.'

"As I came aft to have a look at the stern, Bill relieving me at the wheel for a moment, I began to see the letters of the name start dancing up and down. For a second or two I got scared again, but as I saw one after another of them drop overboard, the screws that was holding them sheared clean off at the wood, I realized there sure must be some push to that downpour; and I began to think it was quite natural that we should be hitting it up at that five knot clip.

"Then I took the wheel again and I noticed Bill first alooking at the transom, then at the after end of the awning. He seemed to be figuring on something, and presently, as he passed me to go below, he said he was going to speed her up—put her on high, as he called it. Pretty soon he reappeared with a section of the floor boards all nailed together in a piece about 3 x 7 feet. I couldn't figure what he was up to but all of a sudden it came to me. Bill was after getting the floor boards up so as to give the rain more surface to work on. He laid the upper part against the after end of the awning and the other end on deck right up close to the edge of the transom so as to make one big slant the same as the transom itself.

"But we came near having a serious accident right about then, for no sooner did Bill have the flooring nicely adjusted than the old boat gave such a sudden jump ahead that it knocked us both endwise. Talk about moving! Why say boys, she just stuck up her nose and lit out same as though she had a thistle under her tail. But that wasn't all; for presently, as she kept increasing her speed, the stern came up too, and as I'm sitting here, gentlemen, we weren't no longer sailing in the waters of Long Island Sound at all but right on top of the back-splash of the rain itself. You see it was coming down in such a deluge that it raised a bur about two feet thick right on the surface of the water, and it was on this we was a-travelin."

"But say, Joe," interrupted the owner, "I should have thought, going at that speed the rain must have stung your face and hands when it hit."

"No" replied Joe, "there was no sting to it at all; but before we started to lift, a couple of drops of salt

spray came flying aft and caught Bill right smack on the ear. But it never stopped. It kept right on going with a piece of Bill's ear with it. That't how Bill got that cauliflower of his'n."

"Well look here, Joe," someone else spoke up, "why was it that salt water had that bad effect and rain water didn't?"

"Why," explained Joe, "because you see rain water is soft, but as I was saying, we were plowing along over that there cushion when suddenly the rain stopped and the old boat gradually settled down in the water and came to a standstill. We'd been steering by compass, of course, for you couldn't see the bow of the boat half the time; and as we now cast our eyes shoreward, we spied Eaton's Neck, broad abeam. Bill said it couldn't a been more than six minutes from Crane Neck.

"It seemed hard luck that the rain couldn't have lasted just a few seconds longer, but Bill said it didn't matter much for he could pump us in the rest of the way. I didn't know exactly what he was driving at until I saw him leading the hose over the stern so that the water would fall on that slanting transom. Every time he would give a heave on the pump the boat would start ahead until finally we had pretty good steerage way on. There was plenty of rain water in the boat; in fact she was beginning to get a bit logy, for the cockpit was one of them self bailing kind—it just naturally bailed right into the bilge.

"Well, to make a long story short, we pumped our way into Lloyd's all right, and came to anchor opposite the lighthouse just as the pump started to suck. Yes boys, it sure did rain that afternoon; but I guess I'll be turning in now, for I begin to feel a bit sleepy after eating so much of that clam pie that bumboat feller brought out to us."

"Clam pie, eh!" said Jack after a lengthy pause, "well, I never knew of a clam pie before that could make a fellow stretch things as you've been stretchin 'em."

But this was lost on Joe, for already we could hear a lively serenade of snores issuing from his bunk, where, no doubt, he was dreaming some new yarn which would be sprung on us next day.

The 6-Metre Class Prospects

(Continued from Page 20)

younger racing skippers who has already established a reputation as a skillful helmsman.

Burgess and Paine, of Boston, have two boats building at Lawley's—one for C. H. W. Foster and the other for Mr. Paine himself. It is of interest to note that Mr. Burgess is a son of Edward Burgess who designed the old Cup D f nders, Puritan, Mayflower, Volunteer and Mr. Paine is a son of General Paine who was managing owner of the three famous old Burgess boats of American Cup history.

A third Burgess boat has been designed for Mr. Eustis who has a very successful racing record in small boats on Buzzard's Bay.

There will be one Herreshoff boat from Bristol owned by Paul Hammond.

Gielow's office will be represented by at least one boat which will be built by Robert Jacob under the direction of C. Sherman Hoyt who is associated with

Mr. Gielow. This boat will be owned by John F. Bermingham of Oyster Bay, and it is rumored that this boat will be sailed by Mr. Hoyt.

The Stamford Yacht Club has organized a syndicate and placed the order for the design with John G. Alden so that two Boston designers will be represented.

One "dark horse" is being built in a garage in Greenwich from her owner's design and great secrecy is being maintained regarding her. It has been whispered that her owner has an old grudge to settle with Will Fife dating back to early days of racing on the Clyde.

Syndicate boats are being talked of by some of the other Sound Clubs and there is strong likelihood of a boat from Philadelphia.

Grebe and Montauk, the two Gardner boats of last year's team will be in the racing and there is no doubt that Grebe will be a hard boat to beat in strong breezes.

The total sums up at present writing as follows—Mower 5 boats, Burgess and Paine 3 boats, Hanan 2 boats, Gielow 1 boat, Alden 1 boat, Herreshoff 1 boat, Unknown 1 boat. Making a total of fourteen new boats that are certain and sixteen with Grebe and Montauk counted in. There will be no two boats of the same design and it will be the first time in years that all of the leading designers of racing yachts have been in competition in one class and the results are sure to be interesting.

CATBOATS

The Annisquam Y. C. is promoting a one-design class among its members. The plans have been drawn by Harry L. Friend of Boston, and the boats are to be built by N. W. Montgomery at Gloucester. They will be known as the Little Fishes, because the first proposed Fish class fell through and a small boat was selected in its place. It is hoped that at least twenty will be built. They will be inexpensive boats, cat-rigged. The Race Committee, in explaining the class to the members, says:

"These boats will work much quicker than the Cats and Birds, and handle with much greater ease. They will tack quicker than a Bird, and, given the right chance, will sail faster than a Cat, and at the same time have all the comfort of the larger boats, their great beam affording unusual stability and the large cockpit (6½x4½ feet) extraordinary room for boats of this size.

"While these boats will carry four with comfort, they are essentially *single-handers*, and a racing crew of two should be the limit.

"At first glance, one might conclude that they were built for comfort and not for speed, but on close study it appears that a fair measure of both these qualities may be realized, and under sail the high Marconi rig will give a more than usually graceful appearance.

"The overhang bow is modern practice in catboat design, and is valuable for reserve buoyancy, so much needed in the old cats, with their tendency to root before the wind. This good quality has its maximum advantage in a V-bottomed model of this design. At section 3, which is about two-thirds of the distance forward, there is an overhang of nearly twelve inches between the water line and chine, which not only serves as reserve buoyancy but presents a broad, flat surface of considerable lifting power when under way, preventing deep submersion and consequent loss of speed."

They are 15 feet over all, 12 feet load water line, 6 feet 6 inches breadth, and will carry 125 square feet of canvas in one sail on a so-called Marconi mast. They are to cost $275 a boat, complete.

PASSAIC RIVER YACHT CLUB

The new officers of the Passaic River Y. C. are, Commodore, Robert Martin; vice-commodore, James Laughlin; recording secretary, Edward H. Taylor; financial secretary, Watson W. Crane; treasurer, George Wimmer; auditors, John Kelly, Fred Baum and John Teske; trustees, Chas. E. Krauth, W. R. Stecker, Chas. McLeod, Harry Freeman, E. Harmer and C. Schwaeger. After the election F. A. Nott presented the retiring Commodore, George C. Bartow with a beautiful gold club fob on behalf of the members.

* * *

ROBBIN'S REEF OFFICERS

Commodore L. L. Alberts was elected to succeed himself as commodore of the Robin's Reef Y. C. Hy Specht, vice-commodore; J. G. Ward, rear-commodore; Val Steinmetz, treasurer; W. H. Twaits, financial secretary; F. Golding, recording secretary; Sam Fowler, measurer; F. H. Radamacher, M. D., fleet surgeon.

The club plans a very interesting season that will keep lively a sixteen room clubhouse. This is the 16th season for the organization.

* * *

C. J. McDOWELL IS COMMODORE

Plans for 1922, as outlined at the annual meeting of the Oswego Yacht Club, call for one of the most active seasons in several years.

Officers for the ensuing year were elected as follows: Commodore, C. J. McDowell; vice-commodore, Joseph L. Dietz; secretary and treasurer, F. Neary Schilling; fleet captain, Fred Harmon; motor boat captain, Peter Walsh; Measurer, Michael Cummings; directors, James R. Botting, Edward C. Schilling, John T. Mott, Dr. Sheridan S. Slocum and James Parker.

* * *

NEW HAVEN POWER SQUADRON

By John H. Scott

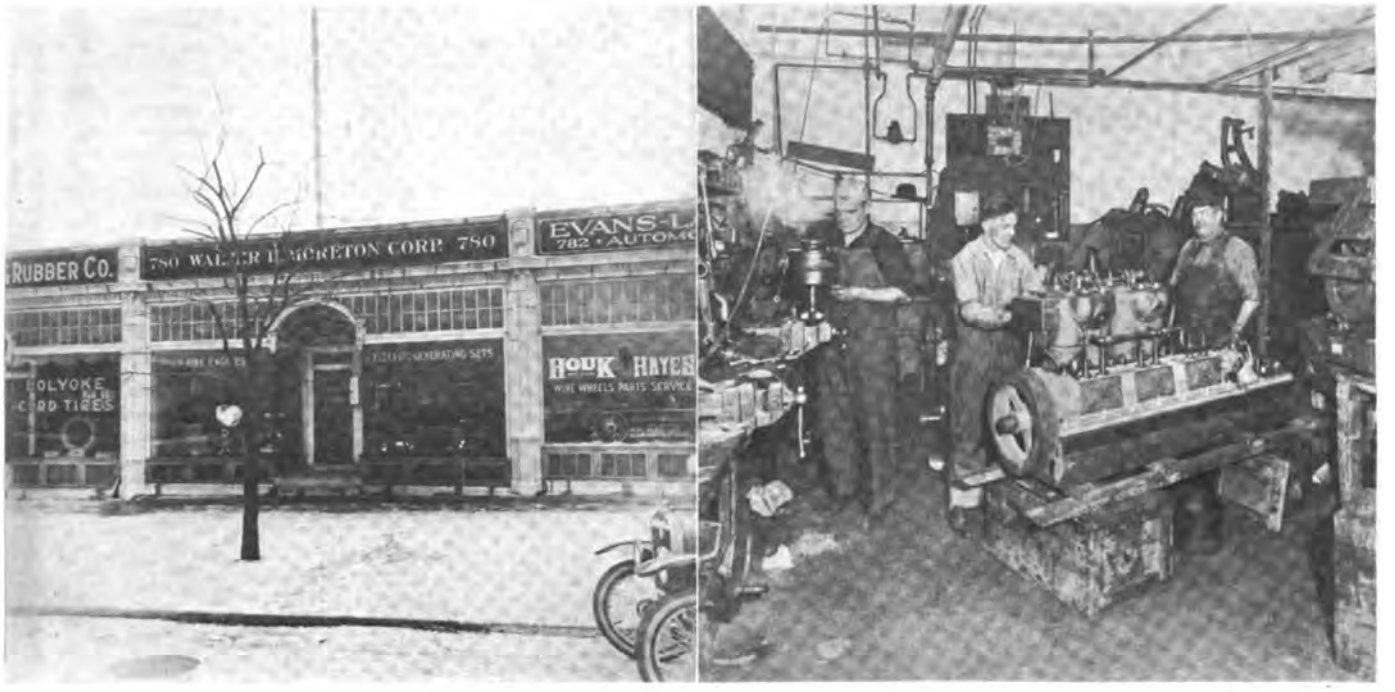
One of the most active and enthusiastic boating organizations in this district, is the New Haven Branch of the U. S. Power Squadron. It almost disappeared during the war, the members being found on every conceivable type of craft fighting with the Navy. This taste of real sea life seems to have made the members all the more desirous to continue their squadron work, and under the able guidance of Commander Bradley new life has been implanted into the organization. The Commander's greatest difficulty seems to be in adjourning the meetings at a reasonable time so that the members can get home to their families before the wee small hours.

In many cases the Commander is not always blameless, and he is often drawn into a talk or discussion and forgets that he has a watch. The meetings are well attended by both men and women, many of the latter have taken and passed the examination, and are able to plot a course, take a boat into any harbor, know the rules of pilotage, aids to navigation, etc. Commander Bradley, Captain Murphy, and Professor Seward held the last examination, and nine new members were admitted. Among those taking the examination were two fathers and their sons, and in each case the sons received higher credits than their dads. There was great rejoicing among the boys, at the same time, the fathers were radiating pride in all directions. Would that we had more yacht clubs and similar organizations in which the members take their pleasure so seriously, and by diligent study and work become proficient in both the practice and theory of their chosen hobbies. The first cruise will take place during the Decoration Day holidays, and even at this early date, the Squadron can always count on from 15 to 20 boats.

* * *

NO B. I. T. CHALLANGE

The time for the challenge for the British International Trophy, by the terms of the Deed of Gift, expired March first. As no challenge has been received there cannot be, in the absence of a further agreement, a race for the Trophy this year. It is possible that such a race may be held by common consent and there may be such a race for the possession of the Trophy between American boats.



The Moreton Store from the Outside and a Corner of the Service Department

Down East Sales and Service Station

The Walter H. Moreton Corp., 780 Commonwealth Ave., Boston, Mass. is one of the liveliest dealers in marine engines of the better grade in the country. The office and service departments of this organization are laid out so that their customers can view the engines upon display in an efficient manner. The most important part of the organization however is the service department. Here engines belonging to clients are overhauled and the thousand and one things needed from time to time to keep the engines up to the highest stage of efficiency attended to by experts.

In bygone days all the sales agent was supposed to do was to get your money and ship you an engine. The rest was shoved onto the factory service department located possibly hundreds of miles away. The Moreton Corp. however realizes that a successful business cannot be built up by these methods. They have gained a reputation in the Boston and vicinity district for taking care of everyone who purchases an engine through them.

To build a business up to a point where a plant of the sort shown here can be maintained means that the annual turn-over must be large. The engines handled must be of high grade so that service is not constantly required, and priced so that sales are quickly closed. In the case of the Moreton Corp. they have arranged their line along these standards. Every engine handled is a well advertised, high grade machine recognized as a leader in the various power classes. These machines are Sterling, Frisbie, Scripps, Red Wing, Gray and Evinrude. They also handle the Universal, Homelight and Winton electric generating sets and the Toledo Coldmaker refrigerating plants, as well as some special lines of marine equipment.

Two Views of the Salesrooms of the Moreton Corp. Engine Dealers of Boston, Mass.

ORIENTA YACHT CLUB

At the annual election of the Orienta Yacht Club the follwing officers were chosen for the year 1922: Commodore E. Lascaris; vice-commodore, A. L. Snow; rear-commodore, W. R. Halsey; treasurer, M. J. Hall; secretary, J. A. Haggerty; trustees, W. S. Yale, R. C. Simpson.

* * *

OSHKOSH ICE YACHT CLUB, WINS

The Oshkosh Ice Yacht Club, represented by Debutante III defeated the Kalamazoo Ice Yacht Club represented by the Wolverine and Hylo for the Stuart International Ice Yacht Cup in three straight firsts.

Debutante III was built for Douglas Van Dyke, by Geo. E. Buckhout, formerly of Poughkeepsie, New York, and carries 650 sq. ft. of sail, has hollow back-bone spars, aluminum runners, etc.

Wolverine carries approximately 800 sq. ft. of sail and has never previously been defeated and holds what is supposed to be the world's record for the 20-mile course. Hylo has approximately 450 sq. ft. of sail. The races were held at Gull Lake, Michigan.

Debutante III was skipped by John D. Buckstaff, and Wolverine by Commodore Olin.

Debutante III also holds the Class A Championship Cup of the Northwestern Ice Yacht Association and the Peterson Challenge Cup.

* * *

PORT WASHINGTON YACHT CLUB ELECTS OFFICERS

The Port Washington Yacht Club, of Port Washington, Long Island, held its annual meeting on January 15, 1922, the principal feature of the meeting being the election of officers for the coming year, resulting as follows:—Commodore, George W. Elder, Jr.; vice-commodore, Adrian Iselin, 2nd; rear-commodore, G. L. Gilmore; treasurer, Frederick H. Walsh; secretary, Leo H. Duer.

Vice-commodore Adrian Iselin, 2nd who is building a 6 meter boat will sail this boat as a Port Washington Yacht Club entry in the Long Island Sound Regatta.

* * *

WALTER J. LOGAN NEW COMMODORE

Walter J. Logan was elected Commodore for 1922 of the Royal Kennebeccasis Yacht Club. The new Commodore is very popular with the rank and file of the club, and has served for several years as vice-commodore. The other officers elected were:—Honorary Commodore, F. P. Starr; vice-commodore, George W. Mullin; rear-commodore, A. M. Rowan; secretary, Robert L. Logan; treasurer, Harry W. Heans.

Considerable discussion occurred in regard to the dinghies of the fleet. It was brought out that the Halifax men had purchased ten new dinghies in Toronto recently and that the sister city will make a strong bid for the maritime dinghy championship, which is now held by the R. K. Y. C. These races will be sailed off Halifax the coming summer.

* * *

NEW HAVEN YACHT CLUB

By John H. Scott

At the annual dinner of the New Haven Yacht Club, the following officers were elected for the coming year:—Commodore, John N. Champion; vice-commodore, William Scranton; rear-commodore, John K. Murphy; trustees, William Price and James M. Wilson; fleet captain, Edward G. Osborn.

The club will build 8 of the new Bermudian rigged, Manchester, one design class yachts for its fleet this summer. Two of these boats will belong to the club and members will be urged to sail them in the Saturday afternoon races.

These boats are 15 feet by 18 feet by 6 feet and 10 inch draught, and are especially adapted to the conditions in New Haven Harbor.

To encourage sailboating by the younger generation, the Club will establish a junior membership, ranging in age from 12 to 20; also a flag membership, permitting a member the use of the float, and to carry the Club's flag. Neither of these classes of membership will be allowed to vote or have any say in the managment of the Club.

Efforts are being made to have the New York Yacht Club on its annual cruise remain over at New Haven one day and race off the Harbor. The Club will offer worth while prizes for the various classes. The course off New Haven is one of the finest on the Sound, being 20 miles to Long Island, 12 miles to Stratford Shoals and 15 miles to Faulkner's Island. The members are hoping to see before the season is far advanced a Breakwater 1,000 feet long, constructed from a point just west of the clubhouse. This is to prevent an unpleasant ground swell which comes into the Cove, especially when the wind is from the southwest thus making it more comfortable for the small boats when at anchor.

Fleet captain Osborn is devoting all his energy and enthusiasm to the Club's interests, and intends to make the New Haven Yacht Club one of the most active on the Sound this summer. He is taking a special interest in reviving sail boat racing and developing the younger element into real sailors. The able sloop Acushla is Commodore Champion's flagship. The Club has enrolled over 60 Yachts of various types from 30 to 100 feet long.

* * *

WAUCOMA YACHT CLUB

The Waucoma Yacht Club is situated on the Quinnipiac River a short ride from the center of the city. It has a most active bunch of officers and they are doing something all the time. They are about ready to start building a new clubhouse. On two nights a week a most instructive course of navigation and gas engineering is given by men who are fully qualified to teach both the practice and theory of these subjects. As a result of these courses, the first cruise of the Club will be secret. The Captains starting out under sealed orders not to be opened until the firing of a gun.

The following are the officers of the Club: Commodore, Mr. Bogart, Yacht Mohawk: vice-commodore, Mr. Tuthill, Yacht Chuckkie; rear-commodore, Mr. Morgan; fleet captain, Mr. Curtis. Some of the other boats belonging to the Club are Whistler, Mr. Anderson; Vanitie, Mr. Lewis; Cavalier, Mr. Lane; Grace-B, Mr. Brakell; Dolphin, Mr. Miner. The Club has over 70 motor boats enrolled.

CITY POINT YACHT CLUB

At the regular meeting of the City Point Yacht Club held at the clubhouse, January 8, 1922, the following officers were elected: Commodore, George Wermsman; vice-commodore, Harvey Treat; rear-commodore, C. Miller; secretary, E. F. Donovan; Treasurer, G. A. Adams; Trustees, Milton Guest; James Parker and Frank Miller; measurer, Thomas Hammond, Jr.

This club is well equipped and has an excellent Clubhouse and anchorage on the west side of the Harbor.

* * *

SAN FRANCISCO S BOAT BUILDING

That there is no limit to the possibilities offered by San Francisco Bay as a yachting playground was emphasized at the keel-laying of the Class S boats at the yards of J. H. and D. F. Madden, Sausalito. Every yachting club in the bay region was represented and Northern California's most prominent yachtsmen were present.

F. C. Brewer of the San Francisco Yacht Club was master of ceremonies, and was largely responsible for the success of the affair. The speakers included: Commodore Hines of the Corinthian Club, vice-commodore, Charles Langely, the Commodore of the Aeolians; Larry Knight of the Aeolians, Clifford Smith of the San Francisco Club and John C. Piver, president of the "Shipping Register."

It is expected that upon the completion of the Inter-Club craft she will be followed by the construction of many more S boats as their success in other parts of the country has already been demonstrated.

* * *

MARINE GAS ENGINE DESIGNING PART IX

By Chas. Desmond

As in an article of this kind it is impracticable to reproduce all of the parts and assembly drawings as illustrations I will briefly describe the parts drawings, explain the governing idea in my mind when I designed the engine and then show as illustrations a few additional parts drawings and some views of the assembled engine. This

procedure should enable every reader to clearly understand the design, the underlying principles of designing an engine of this type and the universally used method of setting down complete designing ideas on paper.

One very important detail to which I desire to call the reader's attention is the necessity for and importance of marking every needed dimension on each parts drawing. A designer's ideas cover both shape and size, and the drawings he makes must record both of these things with sufficient details to enable the pattern makers and the mechanics who will work on the parts and assemble the engines to do their work accurately and without waste of time.

The dimensions marked on machinery drawings are usually finished measures, meaning by this measurements of the parts when they are completely machined, or finished, and ready for assembling in place. And, of course, the portions of a part that has to be finished are indicated and the nature of the finish stated. Finished surfaces are indicated by the letters f.f. marked across the surfaces that have to be finished. Dimensions of parts and surfaces must be given in a proper and orderly manner, the usual method being to give overall measures along certain lines and also intermediate ones along the same lines; and to indicate thickness of metal and measurements between points where thickness of metal, or shape, changes. I will now describe the parts drawings and explain why the parts are shaped in the manner described.

Crank-shaft drawing

On this drawing is shown the details of the finished crank shaft, counterweights and their fastenings, and also method of fitting and fastening the counterweights to the shaft. The details are very similar to those shown on fig. 12 illustration and the dimensions closely approximate to those ascertained as being necessary. As a crank shaft must be finished and its pin and bearing parts ground, the drawing has marked on its "finished all over and grind." The dimension lines placed on fig. 12 drawing indicate the measurements that must be marked on a crank shaft drawing and served to give a clear idea of the principles which govern marking dimensions on machinery drawings.

Now a few words about counterweights. Counterweights serve to reduce vibration and stress providing they are properly proportioned and located in positions where they will correct, or counterbalance, unbalanced moving parts.

Undoubtedly the most efficient method of attaching counterweights to a crank shaft is to have them drop-forged as a part of the shaft but this requires the making of a special die which, unless a large number of engines are to be built, will greatly add to construction cost.

Fly-wheel drawing

On this drawing is shown details of fly-wheel, fly-wheel nut, key and starting lever. Two views are needed to properly illustrate shape and dimensions of a gas engine fly-wheel and on both views the shape of parts back of the surface view is indicated by means of dotted lines. Thus on side view the width of rim and hub ends that project beyond the rim is shown by full lines, and thickness of the thin portion of metal connecting hub to rim is indicated by dotted lines.

On machine drawings that illustrate parts having regular circular outlines it is usual to give radius dimensions. On fig. 15 is shown a fly-wheel of the shape and size required for this engine and on it I have indicated the various needed measurement lines.

As the fly-wheel of a gas engine must be accurately balanced it is necessary to finish the rim and face and balance the wheel after it has been bored and finished. Slight inaccuracies of balance are corrected by drilling out metal at the points where there is an excess of weight.

The taper bore and key-way corresponds to taper and key-way of shaft. This method of attaching a fly-wheel to the shaft is used because it insures a more perfect fit than the straight bore and key without retaining nut.

Cylinder drawing

On the cylinder drawing is shown as many views of the complete cylinder and many cross sections as are needed to fully illustrate the shape for both pattern maker and machinist. The cylinder drawing of this engine shows right, left, back, front, top and bottom views, and cross sections taken

at inlet and exhaust ports, at base, at water jacket and at a point below the water jacket. On view drawings the outline shape and surface is indicated by means of full lines and water jacket, thickness of walls, water space, ports and their bridges, inside bosses and cylinder bore by broken lines.

Of course, all needed measurements are given and finished surfaces indicated. fig. 16 is a reproduction of a portion of a cylinder drawing.

You will note by referring to it and to the assembled engine drawing illustration, that the cylinder casting extends down to a line corresponding with centre of crank shaft and that the exhaust manifold and bypasses, bosses and brackets are cast as a part of the cylinder. This materially reduces the number of separate pieces that have to be machined and greatly lessens cost of production. Note the bridges that divide the ports. These are to prevent the piston rings catching when they pass across the ports.

Piston drawing

On this drawing is shown the piston, the piston pin, the piston pin fastenings and the piston rings.

The parts are shown somewhat in the manner that the piston and pin is shown on fig.14 illustration.

On the assembly drawing illustration you can observe details of piston and deflector and its position relative to the ports when piston is at lowest position and ports fully uncovered.

Connecting rod drawing

The fig. 13 illustration shows a connecting rod of the type selected for this engine and indicates the manner of illustrating the details.

Base drawing

On the base drawing is shown top and side views of base and also cross sections taken at centre and at an end bearing box. The fig. 17 illustration is a reproduction of a portion of the base drawing. Note how the measurements of width are taken from a centre line and how the measurements between a series of tapped, or cored holes, are made from centre of each hole.

* * *

HUGUENOT YACHT CLUB OFFICERS

The annual meeting of the Huguenot Yacht Club, for the purpose of electing officers for the ensuing year resulted in the following:—Commodore A. B. Duryee; vice-commodore, Butler Whiting; rear-commodore, A. L. Anderson; secretary, Malcolm W. Bodine; treasurer, Robert I. Kapp.

* * *

SIDWAY APPOINTS COMMITTEES

Commodore Ralph H. Sidway of Buffalo, newly elected chairman of the International Power Boat union, has announced the following committees for the year 1922:

Race committee: F. G. Ericson, Toronto, chairman; J. C. Thorner, Buffalo, secretary; G. W. Schaffer, Chicago; R. H. Daniels, Peoria; W. F. Meier, Cleveland, official measurer.

Rules committee: H. A. Parsons, Lakewood; H. D. Elliott, Buffalo; secretary, J. P. Beatty, Toronto; A. C. Strong, Evanston, Ill.; J. W. Dixon, Burlington, Iowa.

Membership committee: Humphrey Birge, Buffalo, chairman J. G. Robinson, Cleveland; secretary, A. T. Griffith Peoria; J. V. Elliott, Hamilton, Ont.; A. R. Hackett, Detroit.

Finance committee: Sheldon Clark, Chicago, chairman; Clarence S. Sidway, Buffalo and Walter B. Wilde, Peoria.

The annual meeting of the International Power Boat union held at the Old Colony club, Biltmore hotel, New York, February 21, resulted in the election of the following officers for 1922: Chairman, Ralph H. Sidway of Buffalo; vice-chairman, J. W. Sackrider of Racine, Wis.; secretary, Robert E. Power of Cleveland; treasurer, E. B. Blakely of Milwaukee.

Application for membership in the International Power Boat union has been received from the Portland Motor Boat Club in behalf of a group of power boat clubs in the Northwest. It is also expected to admit a unit from southern California headed by the Los Angeles Motor Boat club.

* * *

TATE ELECTROLYTIC PROCESS

A new process known as the Tate Electrolytic process makes possible waterproof and mildewproof canvas.

Tatelec is a process and not a fabric, but it is applicable to any fabric. It is a new treatment by means of which the

cells of the fibres, through an electro-chemical reaction, are impregnated with a water-repellent substance. It renders any fabric to which it is applied permanently non-absorbent and hence permanently waterproof.

Sails made of Tatelec treated cloth shed the water, remain light in wet weather and will not mildew or discolor.

A yacht with a new suit of sails always attracts attention. No matter how great the care, the elements soon take charge and the spic appearance disappears.

However it is interesting to note that yacht sails treated by this new process have been in use three seasons and retain their original white and spic appearance.

Unfortunately old sails cannot be given the treatment it being necessary to treat the cloth before the sails are cut and made up.

The same result is possible in all canvas work and many of the larger yards have all fabric used in yacht work treated by the new process it being particularly desirable for weather cloths, awnings, tops, etc., in fact it may be used to advantage wherever canvas is used.

S. S. Crocker the Boston architect had the sails of his yawl treated in 1921 and never used a sail cover during the whole season. During the year there was a 3 weeks period of fog and rain and at the end of the season the sails were perfectly white and free from mildew.

The treatment was discovered during the war period and developed to its present state. Every user of canvas will find the booklet explaining the process of unusual interest as it contains some interesting letters from the foremost users of canvas in this country and all recommend its use.

The Tate Electrolytic Textile Processes 45 East 17th Street, N. Y. City will send the booklet to any one interested.

* * *

NEW GRAY AGENT

Gray Motor Corporation has appointed Kargard Boat Company, 3242 N. California Ave., Chicago, exclusive dealer for their two and four cycle marine engines in that territory.

Peter Kargard, proprietor is an experienced boat and engine man, and his associates have had like training.

The Kargard Boat Company's equipment consists of three marine railways; three derricks with factory and boat yard located one block north of Belmont Bridge.

* * *

BLAME YOUR TAXES ON THESE SENATORS

It is suggested that every boat owner as well as everyone who has the interests of the sport at heart, cut out this paragraph and preserve it, paying particular attention to it at election time. Herewith are the names of the senators who voted for and against you and your sport.

Senators who voted for the yachtsmen on the subject of extending the tax exemption from $15 to $100. They deserve your support.

Brandegee, Calder, Cameron, Curtis, Edge, Ernst, Fernald, France, Frelinghuysen, Gooding, Hale, Jones of Wash., Keyes, Lenroot, McCumber, McLean, McNary, Moses, Nelson, New, Newberry, Nicholson, Oddie, Penrose, Phipps, Poindexter, Smoot, Spencer, Stanfield, Sterling, Sutherland, Townsend, Wadsworth, Watson of Ind., Willis.

These Senators voted against the sport and are not worthy of yachtsmen's support.

Ashurst, Borah, Broussard, Capper, Caraway, Dial, Harris, Heflin, Jones of New Mex., Kendrick, Kenyon, King, Ladd, La Follette, McKellar, Myers, Overman, Owen, Pittman, Pomerene, Reed, Sheppard, Simmons, Stanley, Swanson, Trammell, Walsh of Mass., Watson of Ga.

On the proposal to reduce the new boat tax from 10% to 5% the following worked for your interests.

Brandegee, Edge, Fernald, French, Frelinghuysen, Hale, Johnson, Keyes, Lodge, Moses, Nelson, New, Poindexter, Spencer, Townsend, Wadsworth, Walsh of Mass., Warren, Watson of Ind.

These men voted against your interest and as a result the 10% tax is still in force.

Ashurst, Borah, Broussard, Bursum, Cameron, Capper, Caraway, Culbertson, Curtis, Dial, Gooding, Harreld, Harris, Heflin, Hitchcock, Jones of New Mex., Jones of Wash., Kendrick, King, Ladd, La Follette, McCormick, McCumber, McKellar, McKinley, McNary, Myers, Newberry, Nicholson, Oddie, Overman, Phipps, Pomerene, Reed, Sheppard, Simmons, Smoot, Stanfield, Stanley, Sutherland, Swanson, Trammell, Watson of Ga., Willis.

NEW STANDARD CATALOG

We are in receipt of the latest catalog of Standard marine engines and find that it is not only excellent in the quality of the printing which was done by Thomson and Co., but the book is arranked so that prospective buyers can find all details of the engines as well as properly dimensioned installation drawings of the different models. It is seldom that we have seen a catalog so complete and well illustrated.

* * *

NEW MODEL PARAGON REVERSE GEAR

The Paragon Works have just brought out a new model intended specially for the 100-h.p. Hall-Scott engines. This gear is of the racing type designed to hold and reverse perfectly at high speed. On speed boats the service required from a reverse gear is exceptionally severe and in this new model, the makers believe they have an outfit that will solve the transmission problems of all who own and race these engines. The weight is only 119 pounds complete ready for shipment.

* * *

SERVICE FOR YACHTSMEN

H. W. Sweet & Company of Greenport, Long Island, bought out the interests of the Eastern Shipyards and have reorganized the plant to take care of yachting interests.

The yard covers 8 acres with 6 docks and 4 basins. There are numerous buildings to store boats under cover and while the reorganization was late in getting under way, some 150 boats were stored this winter:—Wilson Marshall's power houseboat, the Shelter Island One Design Class, Victory sloops and many other sail and power yachts owned by prominent yachtsmen are in the wet basin or stored under cover.

The storage charge of $1.25 a foot has brought boats from all over Long Island Sound and the conditions for laying up are ideal. The large railway is 175 ft. and with 16 ft. of water the largest yachts can be taken care of. The firm is making a specialty of hauling out yachts of 50 to 175 feet and the machine shops which were installed for government vessels during the War period are equipped with the latest equipment.

Few yards have the furnaces for steel work found in this plant, which insures prompt and satisfactory work at reasonable prices. In addition to their yacht work one section of the yard is devoted to commercial vessels. At the present time there are a dozen trawlers, fishing schooner's and oysterman fitting out.

Peconic a typical oysterman is having a new Mianus heavy oil engine installed and Mr. Sweet says the machine is proving to be one of the most successful types they have placed, due to its low operating cost.

* * *

SACKRIDER APPOINTED MANAGER

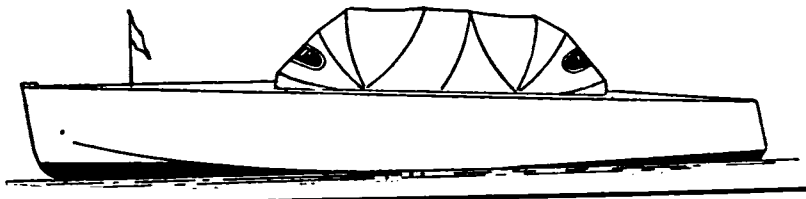
Dating from March 1st, Mr. J. W. Sackrider has been placed in charge of the Marine department of George B. Carpenter & Co. as manager. Mr. Sackrider has been with the organization for about twenty years, and during the last ten years has been closely identified with the marine department as its chief outside representative.

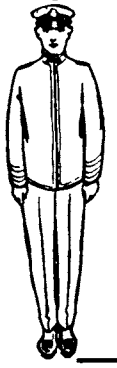
We feel sure that his broad acquaintance with the trade and his intimate knowledge of the line will enable him to extend and improve the service in every possible way.

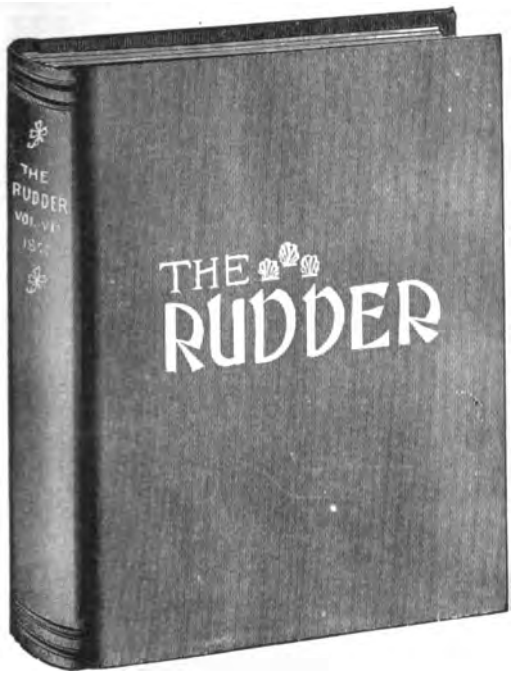
* * *

CONNECTICUT YARDS BUSY

At the Connecticut Ship Corporation's Yard there are three very fine boats making ready to go overboard. Capt. Mars has made several changes in his boat. Capt. A. H. Powell's beautiful houseboat Wacouta which remained North all winter owing to the many business engagements of the owner, is ready to slide off the ways. Professor Morris will soon send into the water his seaworthy ketch built last spring at Digby, Nova Scotia. He spent the whole summer until October 1st cruising off the Nova Scotian and Maine Coasts. This boat, Tercia was designed by Prof. Morris himself along fishing boat lines, and carries jib, foresail, mainsail and mizzen. She is about 35 feet w. l., medium overhangs fore and aft, and 6½ ft. draught. She proved to be a wonderful seaboat and handles beautifully with the assistance of one man.







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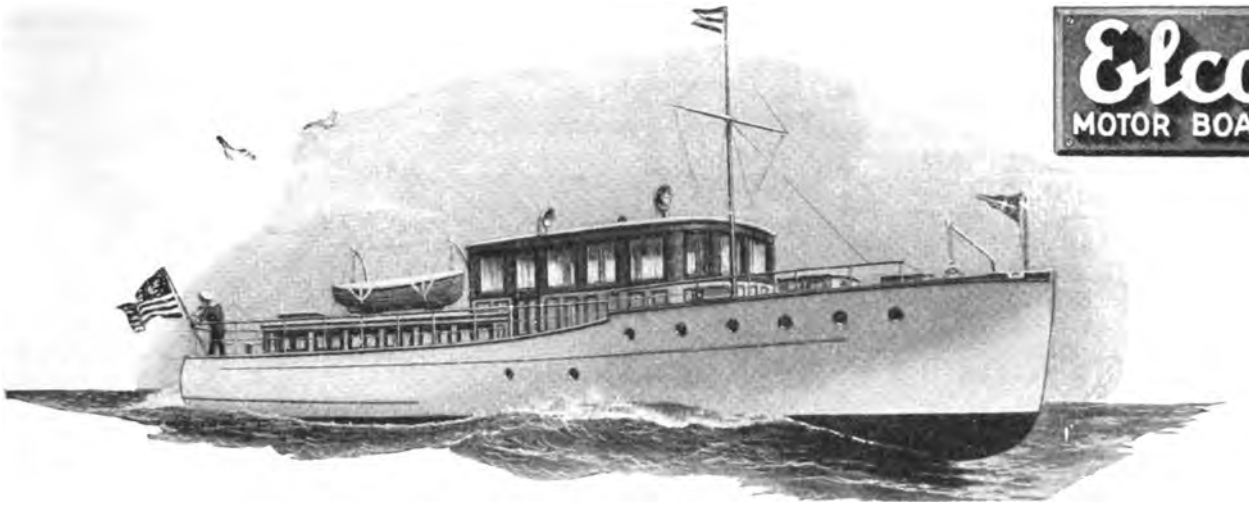

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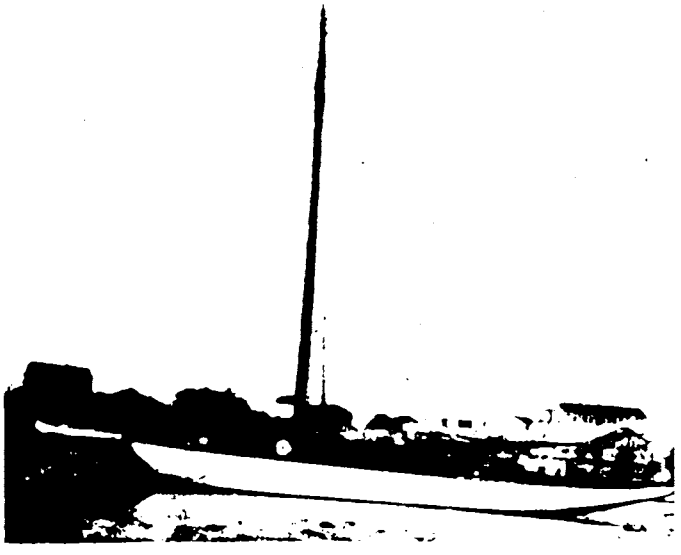

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FOR SALE—Speed boat 28 x 4 feet powered with new 100-h.p. Hall-Scott aviation motor, asking $800. Will sell boat or engine separate. White steam automobile 40 h.p. compound engine and semiflash boiler asking $200. 20-h.p. Stanley automobile boiler and burner asking $40. One new Hyde 20 x 38 inch pitch right hand propeller $25. 5 used 1¼" aluminum Kingston carburetors and checks $10 apiece with checks. 1 used 2" Rayfield carburetor $20. J. Ruppert Schalk 28 East 92nd St., New York City.

FOR SALE—Standard motor, 2 cylinder 6 x 8" No. 340. New bronze shaft, stuffing box, stern bearing, air tank, muffler, whistle, batteries, piping, fittings, etc., also second hand propeller. Engine has been thoroughly overhauled. Price $450. Also a new Koban motor with magneto. Price $85. F. S. Nock, East Greenwich, R. I.

FOR SALE—27 ft. x 7 ft. x 3 ft.—Ketch. Very little used, with very best of care. Heckman Craft built of very best material, and careful workmanship. 4¼ in. x 7½ in. Murray & Tregurtha, turning same wheel as Mianus 5-h.p. Jump spark and Paragon gear. Adapted to raised deck

trunk, making her good for cruising. Building larger party boat that's why we are asking only $375.00 for her. Also 2 launches in good condition, both mahogany finished, both with engines; one a Fay & Bowen 20 ft. long, price $300. One a 25 footer price $250, particulars on request. Heckman Craft Shops—quality craft for all uses. Kennebunkport, Maine.

FOR SALE—Express Cruiser, 57 ft. 9 in. long, 12-ft. beam. Has one large double and two single staterooms, and bath. Also large deck house. Beautifully equipped. Electric lighted. Built especially

for Florida waters and long cruises. Speed 15 miles. Address Post Office Box 1081, Detroit, Michigan.

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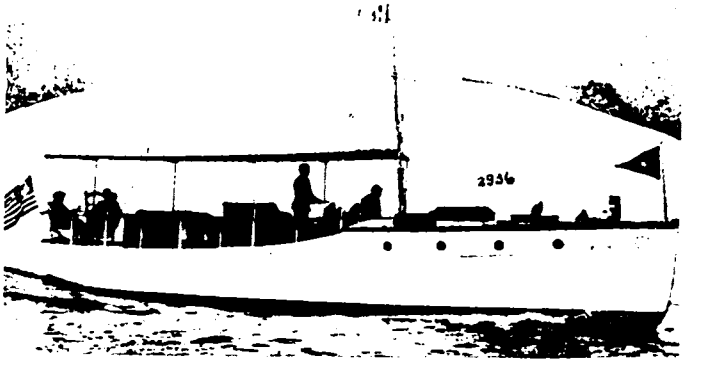
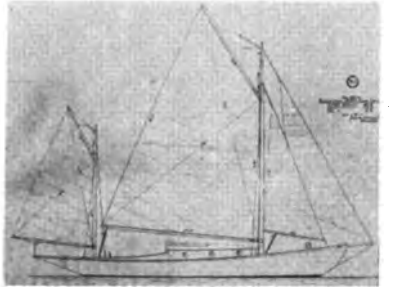
Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER.
A few are shown on this page. Plans, photographs and full particulars furnished on request.

No. 3911—FOR SALE—Practically new Power Houseboat 45 ft. by 14 ft. 6 in. by 3 ft. Built 1920. Exceptional accommodation, one single, one double stateroom and saloon, also deckhouse with two berths. Speed 9 miles, one 80-h.p. 4-cyl. Buffalo Motor. Price attractive. Cox & Stevens, 25 Broadway, New York.



No. 2936—FOR SALE—Elco bridge deck cruiser; 45x10.7x3.6 ft. Speed 11 miles; 32-37-h.p. Standard motor. Double stateroom, saloon toilet room, galley, etc. Good deck space. Price very reasonable. Cox & Stevens, 25 Broadway, New York.

No. 2131—FOR SALE—Very desirable cruising yacht, 60x12x4 ft. draught. One double stateroom; total sleeping accommodations 4 to 6 persons. Toilet and bath. Six-cylinder 20th Century motor. Cruising speed 12½ miles per hour. Motor compartment and crew's quarters forward. Equipment most complete. Located near New York. Price attractive. Apply to Cox & Stevens, 25 Broadway, New York.



No. 3211—FOR SALE—Moderate draught centerboard auxiliary yawl 40 ft. 6 in. by 32 ft. 3 in. by 10 ft. by 3 ft. 8 in. Very able and comfortable. In excellent condition. 35-h.p. 4-cyl. 4 cyc. Sterling Engine. Speed under power 9 miles. For further particulars apply Cox & Stevens, 25 Broadway, New York.

KNOTS will tell you how to tie a knot and how to use it. It also tells about Rope and its care. It is the most complete and most thoroughly illustrated book on Marlinespike Seamanship published. THE PRICE $1.00.
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FOR SALE—Tenders, rowing sailing, motor. Eight foot, $65. Ten foot, $75. Twelve foot, $85. Complete with oars, painter, hardware. Round bottom, canvas covered, light weight. Designed by Atkin; built by Dodd. For full particulars write William Atkin, Naval Architect, Montclair, N. J.

FOR SALE—18 ft. sailing dory 2 years old fast and able, been kept in good shape. Apply to Charles Lord, Berwick, Me.

FOR SALE—One 4 Cyl. 4 Cycle 25- h.p. engine, new in crate, has Nickel steel crank shaft, aluminum crank case, aluminum water jacketed exhaust manifold, force feed oiling gear circulating pump, a fine built engine, get information. Allentown Experimental Works, Allentown, Pa.

FOR SALE—300 h.p., F.M., 8-cylinder Sterling, good condition. Seen to be appreciated. Reason for selling. Worth $3,500. Make offer. O. F. Oakes, Malcolm Street, Roslindale, Mass.

FOR SALE—3 220-h.p. Standard Heavy Duty Marine Engines Complete with shafts. Edward A. Whaley & Co., Norfolk, Va.

FOR SALE—One cyl. two cycle—2 h.p. Perfection, $30; 3½ inch Gray, $45; 6 inch Caille, $65; 8 inch Fairbanks, $85. Two cyl. two cycle—6 h.p. Gray, $55; 6-8 inch Gray U, $95; 8 h.p. Racine, $65; 10 inch Northwestern, $85; 12 inch LaCrosse 3 cyl., $45; 12 inch Strauhel & gear, heavy duty, $145. Four cycle—2 h.p. Dunn 1-cyl., $35; 4 inch Dunn 2-cyl. $55; 8 inch Dunn 2-cyl. $85; 12 inch Lamb 2-cyl., $135; 12 inch Doman 3-cyl., $145; 16 inch Dunn 4-cyl., $165; 20 inch new Erd 4-cyl., $225; 24 inch Dunn 6-cyl., $185; 30 inch new Doman 4-cyl., 5x6, $265; 30 inch Automatic 4-cyl. 5 x 7, $285; 30-40 h.p. Red Wing unit plant, $565; Badger Motor Co., Milwaukee, Wis.

THE AUTO-MARINE MOTOR

No. Cyls.	Nom. H.P.	Dia.	Stroke	Price
6	36	4 in.	6½ in.	$280.
6	48	4½ in.	6½ in.	$275.
6	60	5 in.	7 in.	$375.

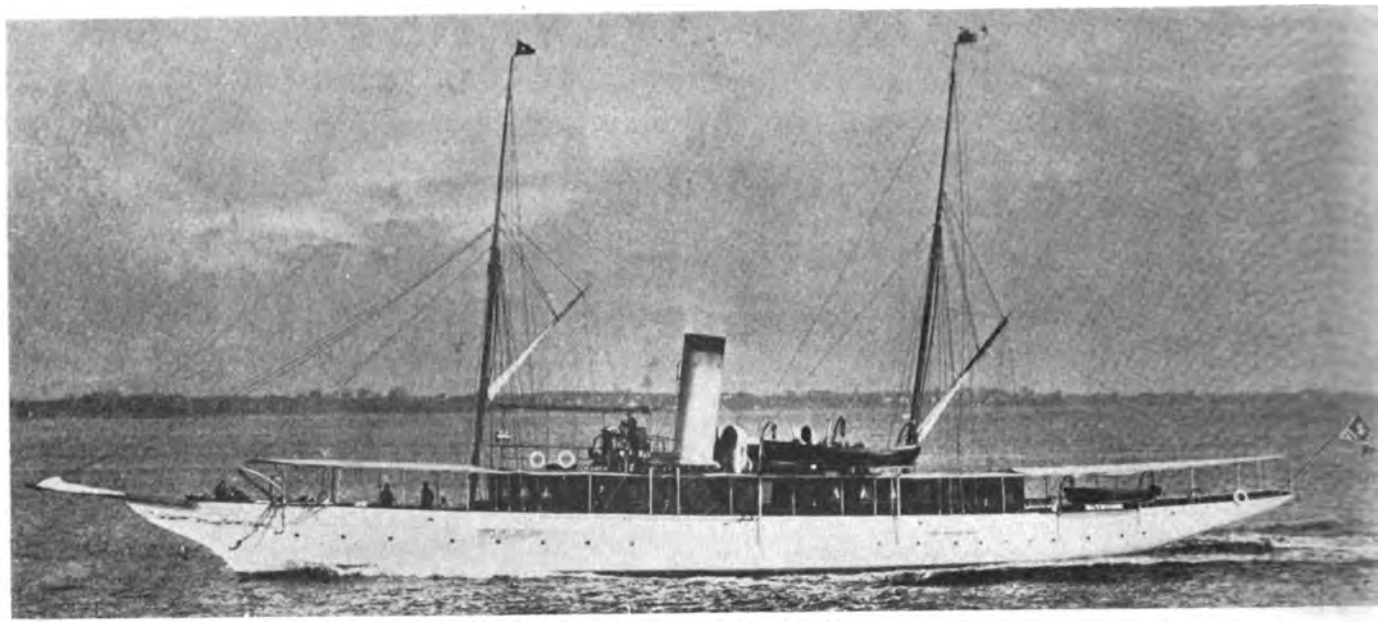
This is the famous Pierce-Arrow motor rebuilt and ready to install. Get my absolute guarantee providing for return of motor if dissatisfied

GORDON BAXTER, 307 Morgan Avenue PALMYRA, N. J.

FOR SALE—Ratsey racing sails, full set. Main sail 18x29x19 feet. Also light weight spinnaker 53x59x35 feet. Write or phone Alfred P. Roth, 176 Alexander Ave. N. Y., East 135th Street.

FOR SALE

A large steel ocean going auxiliary schooner yacht in perfect condition and ready to go in commission on short notice. Large accommodations and handsomely equipped. Refrigerating plant, electric lighted and hot water heat. Apply Henry J. Gielow, Inc., 25 W. 43d St., N. Y. City.



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Built by the Consolidated Shipbuilding Co. from Gardner's design, with steel hull, mahogany deckhouse, launches and fittings all that you expect from these builders.

Seven staterooms including deck stateroom—two have brass beds—two are double rooms. Two owner's baths and deck toilet. Oak dining room, mahogany music room, all furniture and decorations in exquisite taste. Boiler practically new. Needs no repairs or replacements to put into commission.

Was not in Government service, and has always been kept up regardless of expense. Was recently surveyed by Lloyd's and certificate of condition will be furnished.

With but one boiler, she is far more economical to maintain than a 100 foot gasoline cruiser, with more speed, comfort and reliability. On long voyages, the sails can be used. She has cruised extensively and proved her sea going qualities.

I have just delivered a shoal draft fishing and hunting yacht to her owner and he wants his Captain and Engineer, whom he kept the year around, for the new boat. Hence I have persuaded him to place a figure on this steam yacht so low that the "Buy" will be apparent and unquestioned.

Price is $85,000 cash. I will personally superintend fitting out, engage crew and deliver anywhere at cost. Inspectable at New York.

The price asked has no relation to the value offered in this yacht, as actual survey estimates that she is 93% as good as new. She cost around $150,000 and replacement cost would be far more at present time.

Plans, photos and inspection appointments from Edward R. Carroll, Naval Engineer, 2830 Kansas Road, "Fairview" Camden, N. J. Long Distance phone Camden 1585.

FOR SALE—13 ft. Yacht Tender bright finish like new, 3 horse engine housed, cotton rope buffer and fender, in perfect order. Used on the flagship last summer, price $200. Address, Commodore, c/o The Rudder, 9 Murray St., N. Y. C.

BOATS TAKEN ANYWHERE—Small craft fetched or delivered. Sail or power. Examinations made for buyers. Honest reports given. Capt. Pearson, Great Kills, Staten Island, N. Y.

FOR SALE—1 pair Bausch & Lomb 6 x 30 power prism binoculars, with leather case. Same as new. Percy M. Child, 1110 14th St., N. W., Washington, D. C.

FOR SALE—2-40 lb. Babbitt anchors, 100 ft. ⅜ inch. galv. chain, 125 ft. 1 inch 4 strand rope (new), 1-2 burner Kotell stove and iron frame, 1 canvas fly awning 18 ft. x 9 ft. (new), 1 khaki fly awning 10 ft. x 8 ft. (new), 12 hardwood yacht blocks—Address Rudder, Box 200, 9 Murray St., N. Y. C.

WANTED

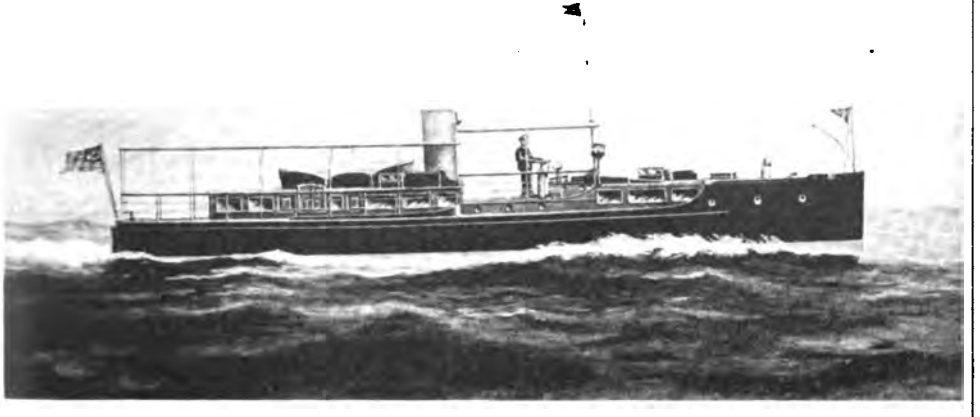
WANTED—To buy class Q, R or S sailing yacht, for use on the great lakes. State full specifications, equipment, amount of service and price. E. A. Lindemann, 515 Wahl Ave., Milwaukee, Wis.

WANTED—College student desires position on small sail or power yacht from June 15 to Sept. 15. Understands engines and is experienced sailor. Box 203, Rudder Publishing Co., 9 Murray St., N. Y. C.

WANTED—Auxiliary yawl about thirty-two feet overall. State builder and year built. Box 201, Rudder, 9 Murray St., N. Y. C.

WANT THE BEST 40 TO 55 FT. YAWL THAT $1,000 TO $1,500 WILL BUY. MUST BE A BARGAIN AND IN GOOD CONDITION. B. Green, New York City, N. Y.

No. 491—FOR SALE—Friendship sloop. Here's a corking good seaboat. oak frame and plank. 12-h.p. Lathrop that's human. What more do you want? 35x11½x6. E. A. DeWolf, 10 So. Sixth St., New Bedford, Mass.



No. 2248—FOR SALE—Attractive Twin screw cruiser. 66 ft. by 11 ft. 6 in. by 4 ft. draught. Built 1917. Two owner's staterooms, and large saloon. Spacious Bridge Deck. Flush Deck aft. Speed up to 17 miles. Reasonable price. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

Send 10c. in stamps or coin for our handsome Illustrated Yacht List.

No. 656—FOR SALE—One of the sweetest day sailers Gardner ever designed. 33 ft. 7 in. by 21 ft. 4 in. by 7 ft. 10 in. by 5 ft. Lead ballast. Large comfortable cockpit. Perfectly balanced and fast. Price very low. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

No. 1107—FOR SALE—Attractive schooner yacht, built on fisherman lines. 52 ft. 8 in. by 43 ft. 6 in. by 13 ft. by 7 ft. 9 in. Double stateroom, large cabin. Frisbie engine installed 1919. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

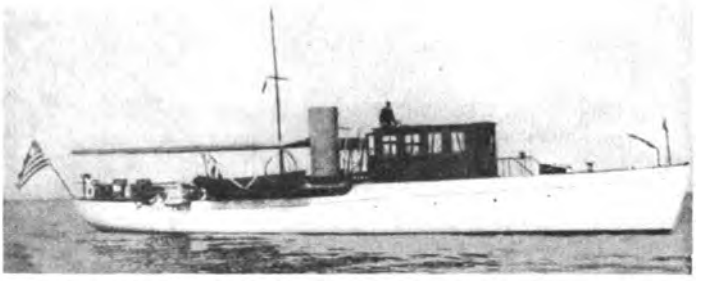
No. 1144—FOR SALE—Aux. yawl. Lawley built; Sterling motor. 53 ft. 9 in. by 35 ft. by 12 ft. 7 in. by 5 ft. 8 in. Liberal accommodations. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

No. 2413—FOR SALE OR CHARTER—Houseboat cruiser. 99 ft. by 95 ft. by 19 ft. 6 in. by 3 ft. 6 in. Built late 1919. Large dining saloon. Six staterooms and four baths. Price low for prompt sale. G. W. Ford Yacht Agency, 41 East 42d St., New York City.

(3008)

No. 3008—FOR SALE—Very attractive off shore cruiser. 75 ft. by 15 ft. by 5 ft. draught. Two double staterooms, extension transoms in main saloon and deckhouse. Total accommodations 12 persons. 6 cylinder heavy duty Sterling motor with speed up to 13 miles. Electric lights and hot water heat. Fully equipped. For further particulars, photograph, blue print, etc., apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42d St., New York City.

No. 834—FOR SALE—Very desirable off shore cruising ketch. 44 ft. x 37 ft. x 12 ft. x 5 ft. 6 in. draught. Heavily constructed and an excellent seaboat. Sterling 25-h.p. motor. For further particulars apply R. M. Haddock, Naval Architect and Yacht Broker, 50 East 42d Street, New York City.



No. 315—FOR SALE—An attractive 80-foot motor yacht. 125-h.p. Standard Engine. Has two double staterooms, two toilets and deck dining saloon. Was completely overhauled and refurnished this season and is in the best of condition throughout. Price reasonable. R. M. Haddock, 50 East 42d Street, New York City.

No. 3066—FOR SALE—Fast twin-screw motor yacht. 76 ft. x 14 ft. x 3 ft 9 in. draught. One double stateroom, bath and toilet, two transom berths in main saloon. Sterling motors. Speed up to 20 miles per hour. Very attractive yacht and adaptable for fast ferry service. For further particulars, photograph, price etc., apply R. M. Haddock, 50 East 42d Street, New York City.

INDEX TO ADVERTISERS

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Yacht ALPHA. G. Marshall Allen, owner, equipped with STANDARD engines in 1903 giving perfect service today after 19 years.

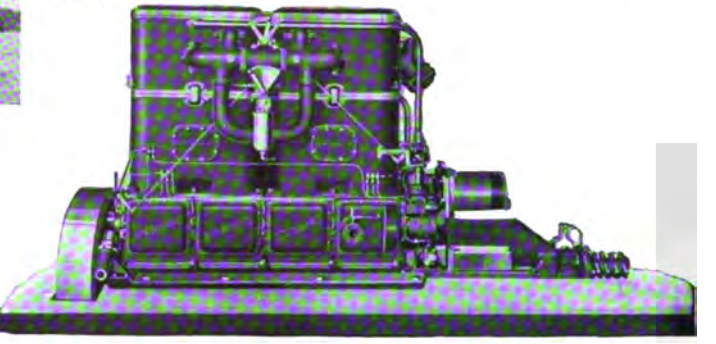
The Alpha's owner avoided all untried features of passing value when he bought the STANDARD engine.

You buy in the latest model STANDARD engine the crystallization of all that is proven right in marine engine design.

When you buy STANDARD reputation you will find it something tangible built into your engine.

You will find in the STANDARD engine all modern improvements of permanent value.

The Alpha's engine is only one of the thousands of STANDARD engines which are a continual source of pride and pleasure to the owner.



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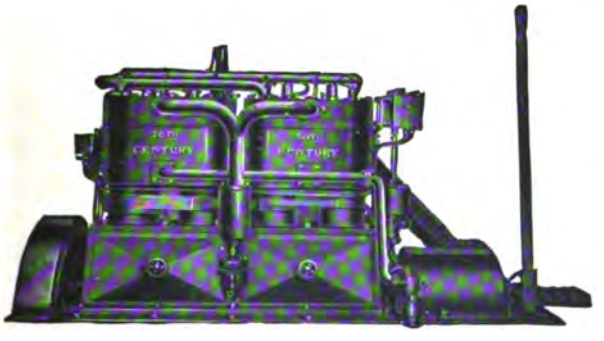

2, 3, 4 and 6 Cylinders **10 H.P. to 300 H.P.**

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.

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Builders of Yachts, Launches and Business Boats of all descriptions.
High-class Workmanship a Specialty
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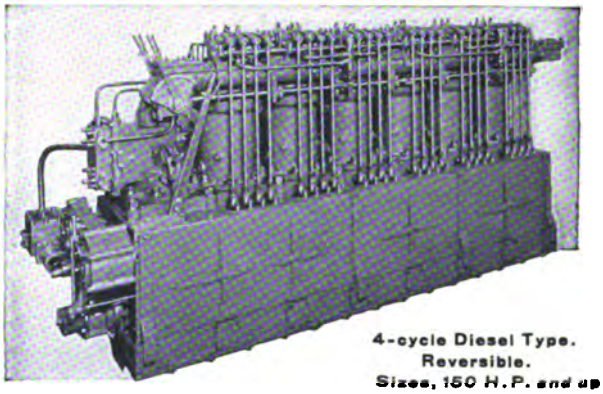
Prices Phenomenally Low
Call or write and give us a chance to prove it

12 minutes from Grand Central Depot PHONE 846 TREMONT

CRAIG OIL ENGINES



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Reversible.
Sizes, 150 H.P. and up

Desirable for all Types of Vessels

Service and Economies so pronounced that present unsatisfactory practices are made practical successes.

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tells you what you need for your boat.

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New York City

THE RUDDER

33d Year MAY, 1922 No. 5

Launching the 98-foot Power Yacht Caritas. Built from Cox & Stevens Designs by George Lawley & Son Corp.

Vol. XXXVIII

THE RUDDER

No. 5

Registered United States Pat. Office

Published on the 24th of the month by THE RUDDER PUBLISHING COMPANY. Entered as Second Class Matter Febru ry 4, 1895 at the Post Office at New York, N. Y., under the Act of March 3, 1879

9 Murray Street, New York, U. S. A.

Opposite City Hall Park

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Or at any Bookstall.

Contents for May, 1922

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Plotting the Course

THE June issue of THE RUDDER will be the Equipment Number. In our leading article we will show you many of the little-known items of equipment that have been designed to increase your comfort and decrease the operating expenses of your boat. The proper selection and installation of accessories is one of the serious problems that must be solved every year. In practically every case these items are easily installed after the boat is in the water, so even if you will have your boat overboard before we issue the June number you will find things of interest that can be installed on hull, rig or engine to increase your pleasure.

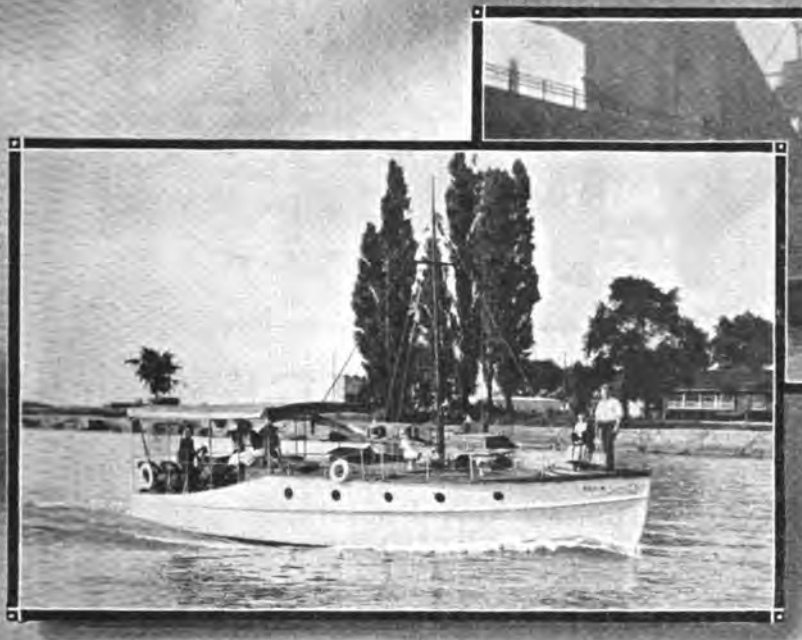
So many new boats are sliding into the water these days that we will have to give considerable space to photographs of these up-to-the-minute craft. Our picture display in June will be exceptional. Articles on cruises made to strange ports always has an appeal and we are planning to give you a story of the American island of St. Thomas, a wonderful port that can be reached easily with a seagoing cruiser.

Probably the strangest power craft in the world are the sampans used by the Japanese fishermen of the Pacific. You may consider yourself lucky that we obtained a man to write us an article and photograph these queer craft, who knows these boats as well as Frank S. Pugh.

The final, detailed construction plans as well as specifications and building directions for the wonderful hydroplane Margaret III will be given in June. In the present issue we show her preliminary plans and give a resume of her wonderful racing record. If you don't save your magazines, cut out all the matter about Margaret III and put it away for safe-keeping. We will probably run out of these issues within a few months and your copy will be invaluable for it is the only time that a boat of Margaret's ability has ever been described with detailed plans.

In our Designs section for June we expect to show the plans of some yachts of exceptional value. There will be cruisers and open boats, craft propelled by both power or sail, or both. We have received so many letters congratulating us on our method of showing many designs that we are getting very proud. In The Engine Room we will give a description and show a picture of one of the greatest of oil engines, a machine suitable for yachts as well as working boats. The rest of the departments will all be there as well.

The Editor



BABO—Winner of the Scripps Reliability Contest.
She is powered with 60-65 H. P. Buffalo.

CS 2—Owned by The Carnegie Co., is doing work of the most exacting kind. She is powered with a 125-150 H. P. Buffalo Heavy Duty Engine.

TWO BOATS WHICH TELL THE SAME OLD STORY IN DIFFERENT WORDS

Here are two boats as unlike as any two boats could be in most things, but alike in one respect: they have a record of reliable service and both are powered with "BUFFALO" engines.

BABO, owned by Kent North, of Cleveland, won the 1921 Scripps Reliability Cruise, a contest planned to test seaworthy qualities and engine reliability. Twenty-one other boats participated.

CS 2 is owned by the Carnegie Steel Company; her job is towing heavy scows loaded with coal. It is the kind of a job that only a husky engine could stand, but her "BUFFALO" power plant has made good.

Thousands of other boats all over the world are offering their own particular proof of "BUFFALO" reliability.

"Buffalo"
The Engine of Constant Service.

"BUFFALO" engines are built for boats of all kinds and all sizes.

Let us send you the new Buffalo Book and the new Buffalo price list.

BUFFALO GASOLENE MOTOR CO.
1311-23 Niagara Street
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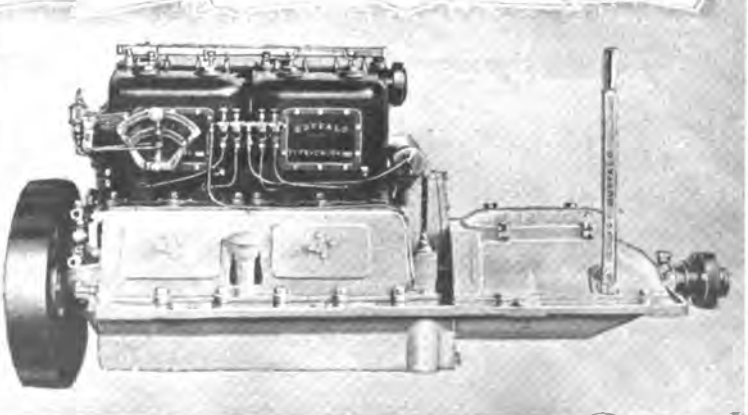
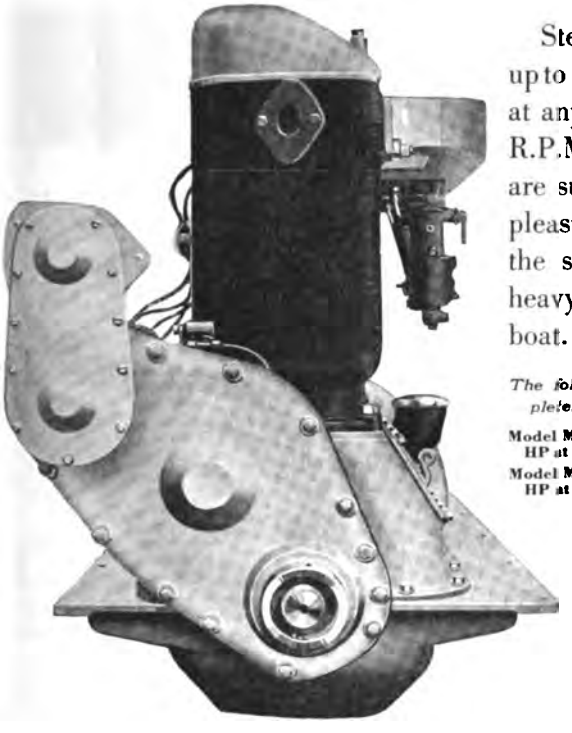


Stearns EXTRA RESERVE MARINE MOTORS

YOU'LL like the Stearns Engine, its handsome clean cut appearance, its quality of design and construction, its admirable service qualities and its low cost—first cost, fuel cost and maintenance cost.



Stearns Engines will stand up to the hardest kind of work at any point in the range of R.P.M. stated below. They are suitable for any type of pleasure or work boats, from the speedy runabout to the heavy cruiser or commercial boat.

The following Stearns Motors are completely enclosed Unit Power Plants

Model MGU 4¼ x 6" 20 HP at 500 to 45 HP at 1,200, $950.00.

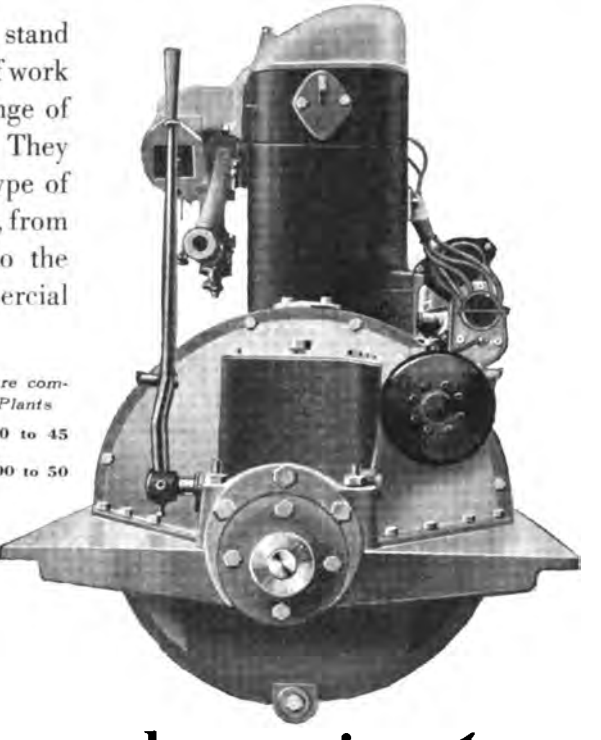
Model MHU 4½ x 6" 25 HP at 500 to 50 HP at 1,200, $1,000.00.

Model MAU 4¼ x 6½" 28 HP at 500 to 50 HP at 950, $1,075.00

Model MDU 5½ x 6½" 35 HP at 550 to 60 HP at 950, $1,200.00

Model MHR spec. high speed 65 HP at 1,600 $1,100.00.

Model MDR spec. high speed 100 HP at 1,600 $1,300.00.



Quality never lowered to make a price

The **Stearns Crankshaft** is chrome nickel high carbon steel. It is accurately balanced and also drilled for pressure oiling system. In the large series it weighs 160 lbs. and is 2⅞" in diameter. In the small series it weighs 115 lbs. and is 2½" in diameter. The **Crankshaft** of an engine is like a foundation for a skyscraper—it must be more than able to withstand the most severe duty and abuse to which it is subjected year after year. There has never been a **Stearns Crankshaft** or bearing or any other primary part replaced, since the first engine was built years ago. The fashioning of the smallest part is held as important as the functioning of the whole.

Stearns Extra Reserve Marine Engines give you a sense of added security in knowing that your power plant is forever dependable, and never failing in response for the extra power you occasionally want. **They are built oversize.** To uphold the fame of the name they bear **Stearns Extra Reserve Marine Engines** have one quality only—the best that **Stearns** can put into them.

Overhead Valves, Pressure Oiling System, Light in Weight, Water Cooled Manifold, Stromberg Carburetor, Special Joe's Gear, Bosch Starting and Lighting. Write for More Facts.

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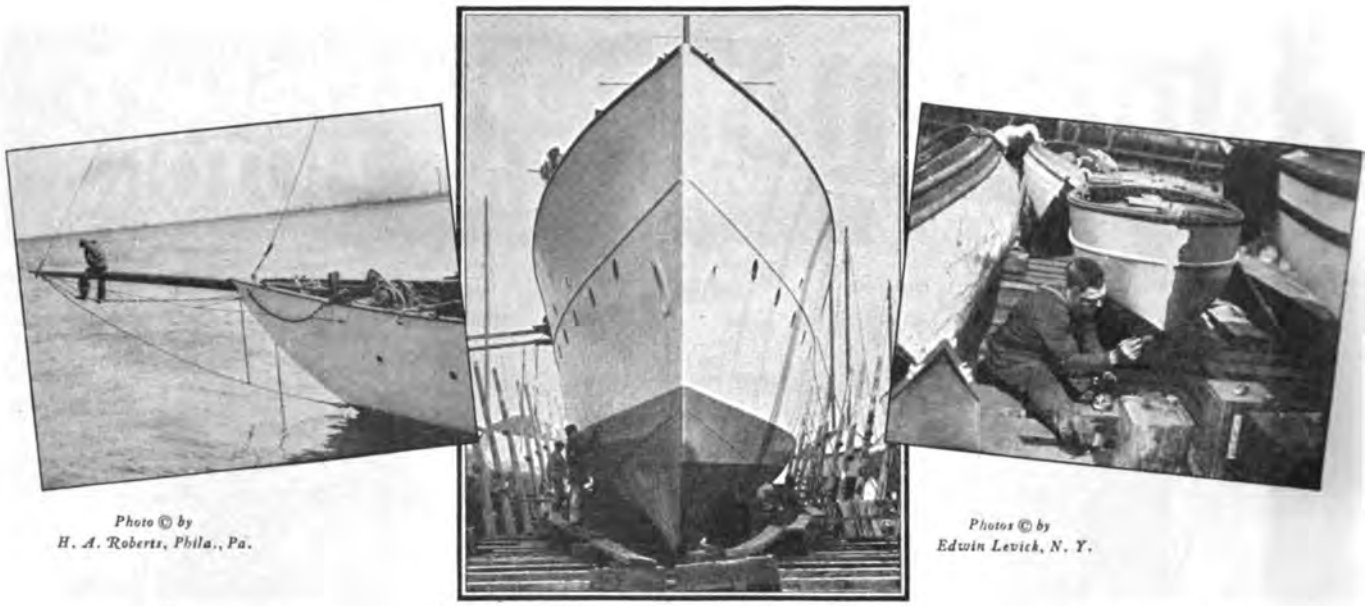

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No need of a mid-season "Haul out"—if you use Valspar Marine Products this Spring

EVERY yachtsman has experienced the annoying necessity of having to "haul out" in mid season.

But today he avoids such interruptions. In the Spring he slaps two coats of Valentine's Yacht White on his boat—either gloss or dull finish. This high grade paint *stays* white throughout the season, and stands up through any weather.

Next he gives the bottom of his boat a thorough coat of Valspar Bronze Bottom Paint—a combination of the waterproof and durable Valspar with pure bronze powder. This absolutely anti-fouling and waterproof paint *will keep the bottom of your boat clean as a whistle all season.*

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THE RUDDER

Commercial Boats and Equipment · Yachts and Yachting · Engines and Accessories

Volume XXXVIII · May, 1922 · No. 5

Export of Power Boats to Central and South America

By J. Murray Watts, N. A.

THIS export trade is built up by taking care of details. An interesting point to note in the working up of an increasing business with Spanish America is the personal element.

Letters should always be in Spanish, with care to use all the courteous expressions so dear to the heart of the spanish speaking races. If plans are sent, the dimensions should be in the metric system, and the specifications in Spanish; except for Brazil where Portuguese is used.

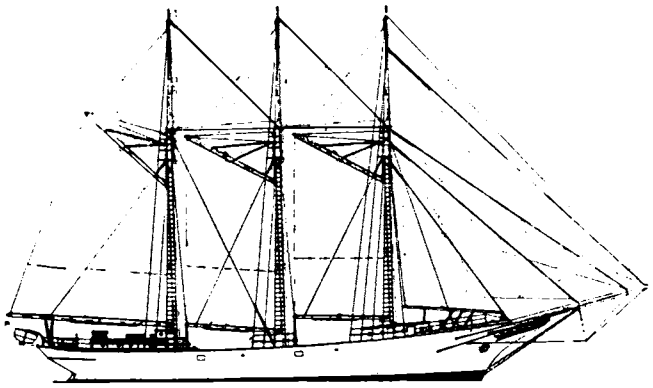
In shipping engines and equipment, special care must be taken in boxing for shipment. Many towns have poor facilities in the way of unloading piers, dock-cranes etc. If possible, shipments should be in small enough packages, as to be handled by the ship's own derricks.

In shipping power boats this point must be most carefully looked into.

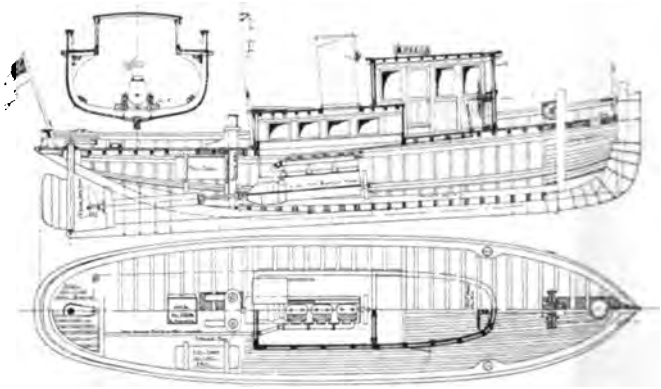
Another most important point is to make connections with the local banks in these countries, as the South American business man prefers to inspect the arriving boat, or engine, before paying, and often prefers to pay only a part on receipt; credit arrangements made with banks for final payment in instalments.

In our 20 year's business with customers in Latin

American-Designed Power Boats Racing in Holland. Almost all the Fast Boats in that Country are of Our Design and Powered with American Engines



Watts-Designed Auxiliary Schooner Jose Juan Domine, Owned by Romani y Miguel and Built by Valencia S. B. Co.



Barbados Inspection Tugboat, Built by Delanco S. B. Co., and Used by the British Government. She is Named O'Brien

America not one has defaulted on payment, though in some cases payment was slow—but sure.

Other countries notably Germany have built up their big export trade by financing credit payments; and taking especial care that shipments arrived in good condition. This together with careful observance of local customs and courtesies is the basis of successful trade.

Of course goods must be exactly as represented. A pleased customer soon swings his friends to deal with the American firm that he has had dealings with.

In the actual design of power boats and engines, the local conditions should be carefully studied.

In most cases in the tropics the following points should be noted.

Ventilation of crew's quarters and engine rooms, given great care—hulls should be of steel, or if of wood, copper-sheathed.

Most of the rivers and harbors have sandbars, and shoal-draught is important, also protection to propellers, rudder and bottom against grounding. Engines should use oil, as gasoline is too expensive. All large boats should have ice-making plants, and plenty of electric fans. All quarters should be screened from insects.

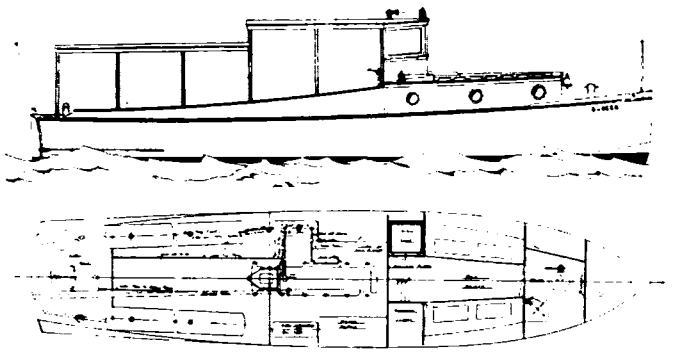
The export business of American boats has advanced with great strides in the last decade, chiefly to countries in Central and South America and the West Indies.

The writer has designed and built boats for almost all these countries, and a description of some of these vessels may show the trend of this business.

For Columbia Sinu a 103 by 20 by 5 feet twin-screw freight and passenger packet, powered with a 100-h.p. Bolinder's oil engine. This boat has a run of about 160 miles on the Sinu and Atrato Rivers, carrying coffee, rubber, sugar, and platinum; besides passengers to and from Cartagena.

For Maracaibo Perija a tunnel-stern craft used for inspection, of the houseboat type, powered with two

American Designed-Built and Powered Passenger Boat Ready for Shipment to Foreign Port



Djoeka, a Dutch Guiana Fast Cruiser, Used by the U. S. Aluminum Co. She Makes 25 Miles with a 200-H.P. Sterling

37-h.p. Standards, driving twin propellers in tunnels giving a draught of only 2 feet. This craft ran to Columbia under her own power. Lake Maracaibo, where she is used is an immense salt-water lake and often gets very rough, but owing to numerous shoals and bars the boats must all be of light draught.

Some of the richest oil lands are located on the shores of this lake and boats are the only means of transportation.

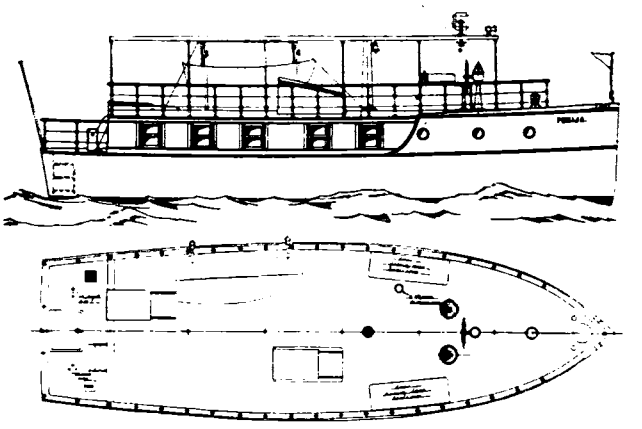
For Paramaribo, the traffic with the interior is all by river-boats.

The Bauxite mines are located over a hundred miles inland, and barges of the ore are brought down by a fleet of 50 foot power tugs, Jimmie, Roberta, and Mary Louise. These have heavy duty Standard and 100-h.p. Kahlenberg engines. For inspection work the fast 40-foot cabin launch Djoeka is used, with a speed of 25½ miles with a 200-h.p. Sterling engine. The fastest boat in all Dutch Guiana.

At Manaos, Brazil 1,000 miles from the mouth of the Amazon, Baroccas and Cie use a shoal draught passenger boat with a Meitz and Weiss oil engine that we designed for them 14 years ago and still running strong.

At the Barbadoes we have a 50 ft. inspection tug used by Gov. Edward O'Brien and called O'Brien, powered with a 70-h.p. heavy duty Buffalo using kerosene fuel. This boat in her trips about the islands has done much to advertise American builders, as she is in commission the year round and has never failed in hull or engine to withstand the storms of these tropic waters. Large auxiliary schooners are used in the trade between Spanish America and Spain, one of our design being, José Juan Domine.

Power Boat Race for the Championship of Australia. This is the Most Important Power Boat Contest in Australia and is Usually Won by an American Engine



Perija was Designed by Watts for the Maracaibo Oil Exploration Co. She is 45 Feet Long and Powered with Two Standard Engines. Speed 12½ Miles

For the Carribean trade between the islands small cargo power ships are used. A good example of these is Atrato, a hundred foot vessel, with two 90-h.p. Bolinder's oil engines now trading between the islands.

An interesting example of the small fishing trawler is the 50 ft. José Antonio, powered with Lamb engine which we took down under her own power to San Juan, Porto Rico, where she has been most successful in the fishing business.

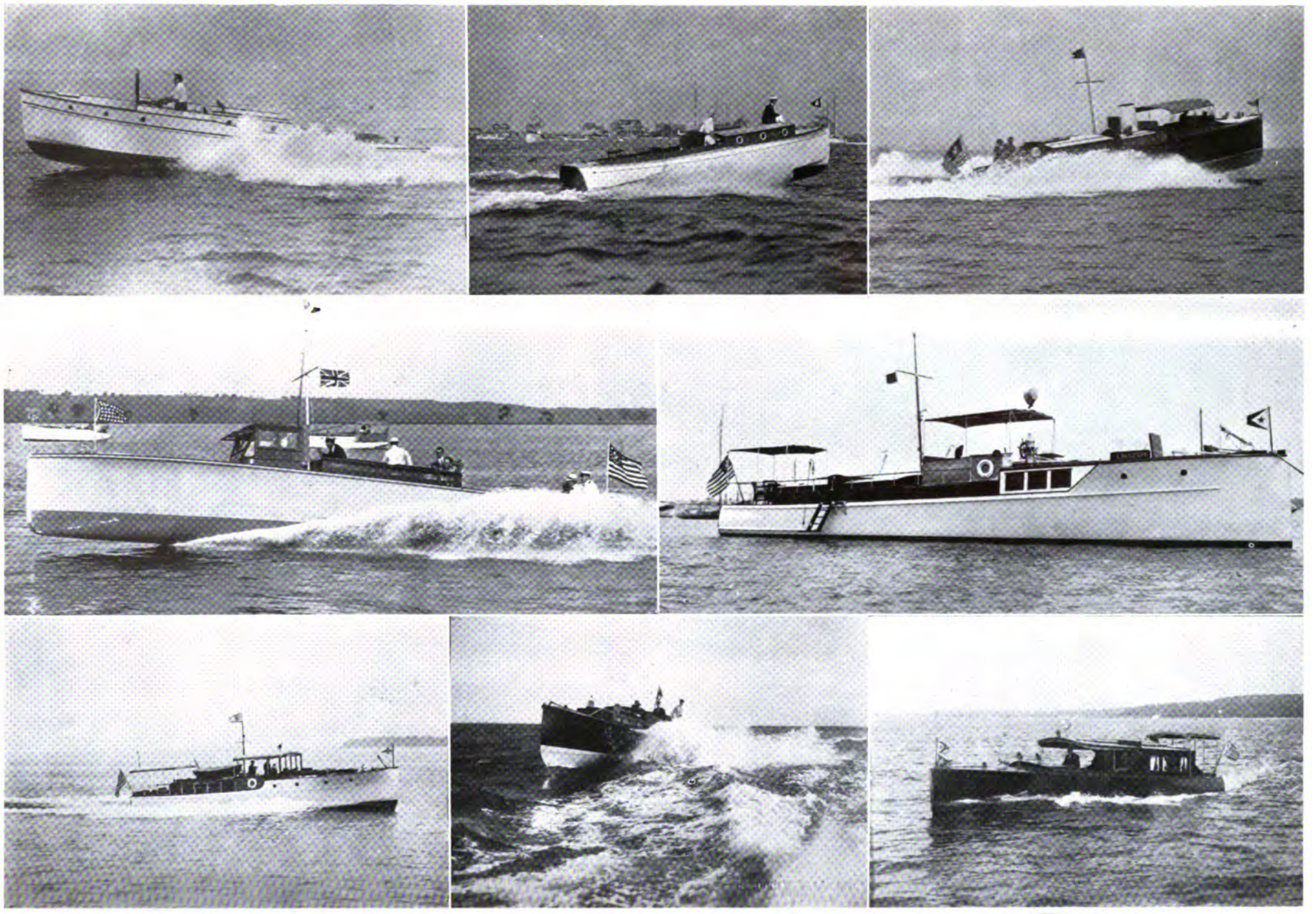
In conclusion we would state that the possibilities of the expansion of this trade with Spanish America are enormous.

There are few railroads, or highways and there is an ever increasing demand for reliable power boats.

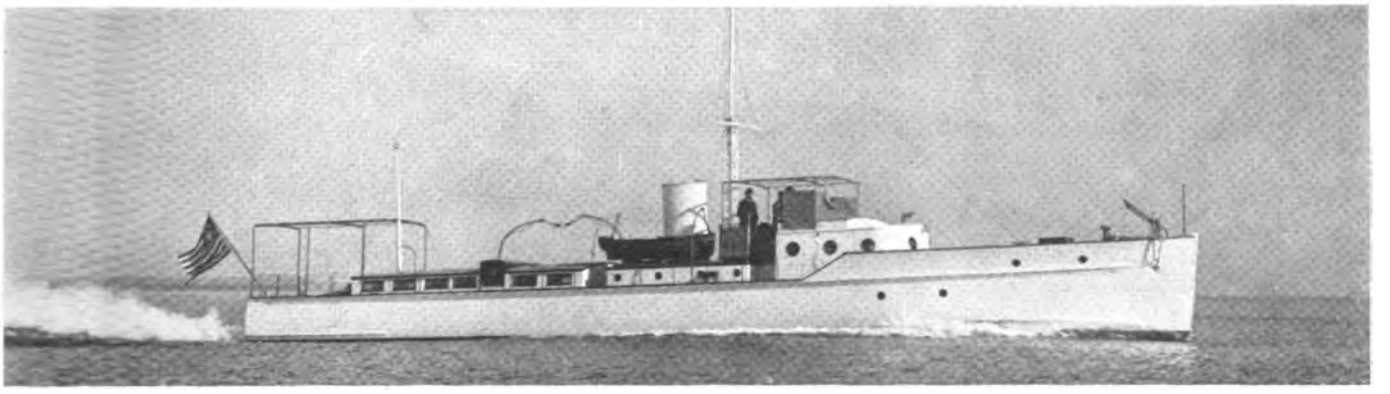
Few of these are the fancy mahogany and plate-glass cruiser we are accustomed to, but heavy, substantial craft, plain and strong, economical in fuel, easily handled and safe. Even pleasure and passenger boats are of this type.

The cost of shipment from this country and the difficulty of properly caring for a boat of the polished-brass and varnished-hull type in the salt water and humidity of the tropics makes it necessary that the boats be as simple, rugged and economical as possible. Light, thin planking will not stand the hard service in shoal water that most of these South American boats must perform. Often it is necessary to run a boat several hundred miles to find a place where she can be hauled and any appreciable work done on the bottom. The South Americans appreciate a fine boat but they demand service first.

A British Government Yacht Used for Inspection Service in Australia. Her name is Pioneer



Top Row:—Manatee, a Small Down East Express Boat. Echo III, a South Jersey Flyer, Powered with Two Sterlings. This Luders Boat Does Better than 30 Miles. Center Row:—Dauntless is Remarkably Fast, Although a Round Bottomed Boat. L'Allegro, an Exceptionally Handsome Express Cruiser, Built by Lawley. Bottom Row:—Dee Dee, a Great Lakes Boat Corp. Yacht, is 50 Feet Long and Makes 32 Miles with Two Sterlings. Her Accommodations are Exceptionally Complete. Raven III is Powered with Speedways and is a Famous Florida Flyer. Peter Pan, Sr., a 20-Mile Twin-Screw Reliance Boat, Made 20 Miles When that Speed was Marvelous



Two Sterlings Drive Ensign II, a Beautiful Hand-Designed and Lawley-Built Yacht at High Speed

High-Speed Gasoline Yachts

IF there is any particular type of power boat that is distinctively American it is the gasoline-powered express boat. This type of boat is due to two things which are purely American. In the first place "speed" is a watchword in this country. Fast boats, fast airplanes and fast cars are all built and used in many of the European countries, but nowhere else is speed worshiped to the extent it is here. Our daily life, especially in the cities goes on at a rate that shocks visitors from other lands. Subways, taxicabs, elevated trains, all rush about at speeds which would spell disaster if motormen, drivers and engineers were not imbued with the spirit of speed. The youth of today will not endure a slow boat or a slow automobile any more than he will be satisfied to own a horse and carriage.

The second reason for the popularity of express cruisers is due to the almost ideal situations of our principle cities in respect to beautiful waterways. The business man who sits in his office all day, locates his home on the water at a distance of 15 or more miles from his office. Automobile travel is too slow, for the traffic of town causes innumerable delays. He naturally turns to the express cruiser as the quickest and best means of travel between boat and office. Boats intended for this fast ferry service must have speeds of from 20 to 35 miles an hour. The time limit between house and office is usually placed at one hour. As many of the fine country estates of New York business men are located on the banks of the majestic Hudson or the bays of Long Island Sound at approximate distances of 30 miles from the heart of the business district, there has been a great call for express ferryboats with speeds of about 30 miles an hour.

Years ago, when steam was the accepted power for all fast boats, J. R. Delamar commissioned Roger M. Haddock of New York to design a gasoline powered boat which would travel at about a 28 mile clip. There was no data from which to work, so Mr. Haddock conceived a craft of a radical nature. After much labor he found a pair of 200-h.p. engines which he accepted for the power plant. The hull, about 80 feet long was built by the New York Yacht Launch and Engine Co. and the name Sagitta given to the boat. As Mr. Delamar did not intend to race the boat,

Conejo, Powered with two Sterlings, Has a Speed of Better than 30 Miles. She is Used for Fast Ferry Service

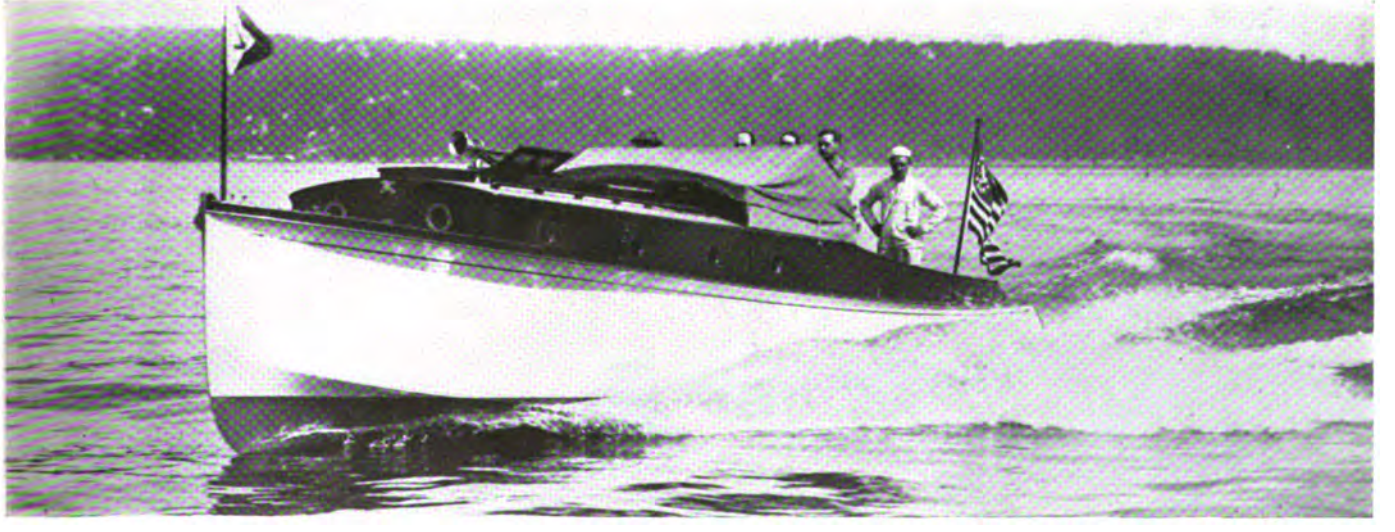
Flyaway III, the Most Famous of Racing Cruisers. Designed by Hand She Won So Many Races that the Sport Was Temporarily Killed

Gar Jr. II, Fastest Cabin Boat in the World. With 900-H.P. She Has an Official Speed of 41.8 Miles per Hour

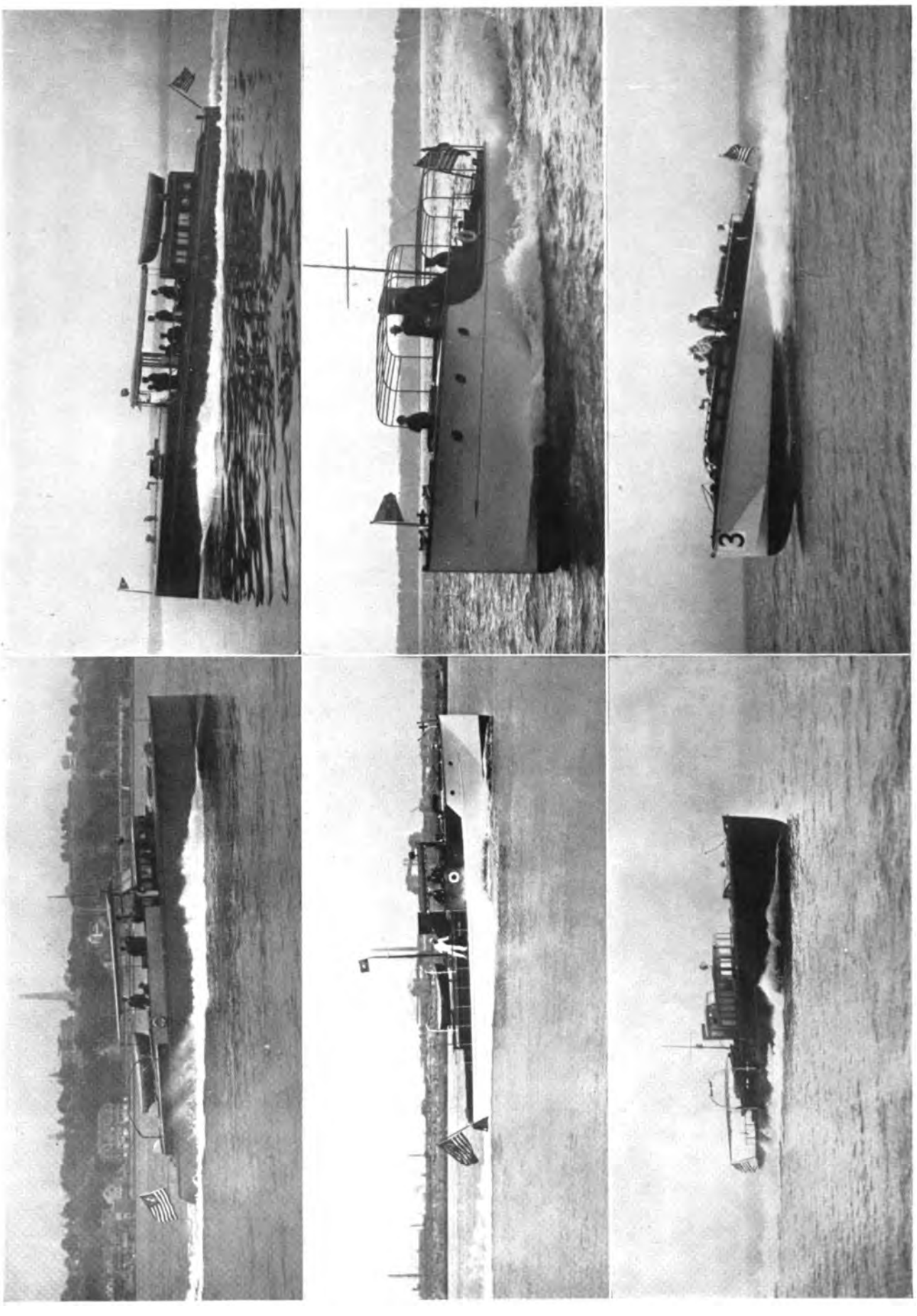
Little Viking Was Built by Consolidated for Com. George F. Baker. Her Speedway Engines Keep Her in the Forefront of the Fleet

Zenith Was Designed by Bowes & Mower. Her Speed was Increased Several Miles by the Installation of a Pair of Standard Engines

Cigarette, Powered with Two Murray & Tregurtha Engines, is a Hand Design. She is Credited with a 35-Mile Speed



Countess, Designed by W. H. Hand, for His Own Use to Beat Flyaway III. Countess Beat a New Haven R. R. Express Train from New York to New Bedford, Mass.



Top Row:—Whippet, a Sterling Powered 30-Miler and Greyhound, a Fast Hall-Scott Engined Cruiser. Center Row:—Miss Liberty, Designed and Built by Great Lakes and Powered by Sterling. Speed 28 Miles. Romany, a Hand V-Bottomed Express Boat. Bottom Row:—Frances, a Great Lakes Product Powered with Four Murray & Tregurtha Engines, is Probably the Fastest Boat of her Type in the World. Hoosier V, a Lawley-Built Express Cruiser for Florida Service

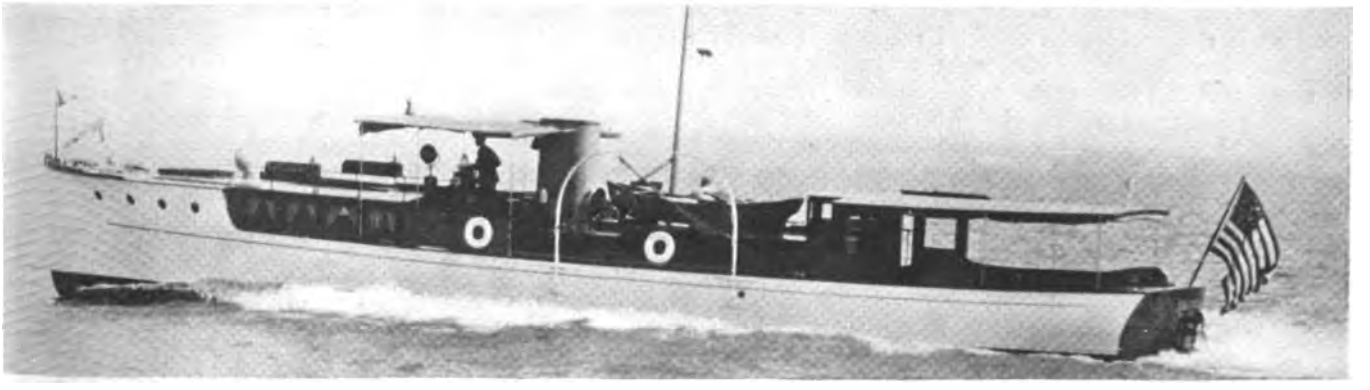
Sagitta, One of the Most Remarkable Express Yachts Ever Built. Designed Many Years Ago by Roger M. Haddock She Made 27 Miles an Hour Before that Speed had been Obtained by Anything, but an Extreme Racing Machine

and was not on the look-out for publicity the craft was little known. Her speed however was close to 28 miles and she beat, in impromptu brushes every cruising yacht she ever met. Considering her power it is doubtful whether a faster hull has ever been designed.

When W. H. Hand, the V-Bottom hull expert designed Flyaway III he disrupted the entire cruiser racing game. This raised deck 40-footer simply made laughing stocks of the rest of the fleets until it was finally necessary to make rules which barred her type out of cruiser racing. Later he built Countess, an improved Flyaway which started from New York City at the same time an express train left, and beat the train handily into New Bedford, Mass. a distance of nearly 200 miles. In one long distance race, Flyaway turned the half-way mark and some time later passed the stake boat which had been sent out earlier in the day from the starting line to act as official boat at the turn. One remarkable feature of these two boats was their ability to run exactly on schedule. In the 300 mile Albany Long Distance Race of the New York Motor Boat Club, despite fog and shoal water in the upper part of the river, she finished within 15 minutes of the time stated by her crew before the start.

The fastest cruising boat in the world is Gar Jr. II powered with 900-h.p. which drives this monoplane hull at a speed of about 42 miles. Gar Jr. II has done a great deal of cruising, much of it in the open ocean and is remarkably seaworthy considering her speed. She raced about 1,200 miles from Miami to New York against a railroad train. While the boat took a greater elapsed time, owing to stops for fuel etc. the actual running time was less.

Many of the finest and fastest of the express boats have been designed by Walter Beauvais, naval architect for the Great Lakes Boat Building Corp. A feature of most of these boats is the exceptional amount of accommodations which are provided. Many of the express cruisers have subordinated the owners space until they are of no use except for day sailing. In the case of the Great Lake's boats there are accommodations that compare favorably with any boat of the size. One of their finest yachts is Frances, a 104 foot boat powered with four Murray and Tregurtha engines with a total of 1,600-h.p. There are fine accommodations for the crew, while the owner has a large dining saloon and three double staterooms, each with private bath. The installation of the machinery is novel, for the boat is triple screwed with two engines on the center shaft and one on each of the wing shafts. Frances is not a light boat, her displacement being 90,000 pounds, but the speed is 32 miles an hour, making her the fastest gasoline yacht of anywhere near her size in the world.



Suzanne, Built by Great Lakes. 76 Feet 6 Inches Long, 13 Feet 9 Inches Beam. Speed with Two Sterling 300-H.P. Motors, 25 M.P.H.

How to Build the 16-Foot Champion Hydroplane Margaret III

By Gerald T. White

No. XV in The Rudder's Series of Working Plans

Note—We cannot guarantee safety, speed nor seaworthiness of this boat if built at variance with the drawings and specifications. If changes are contemplated we should be consulted

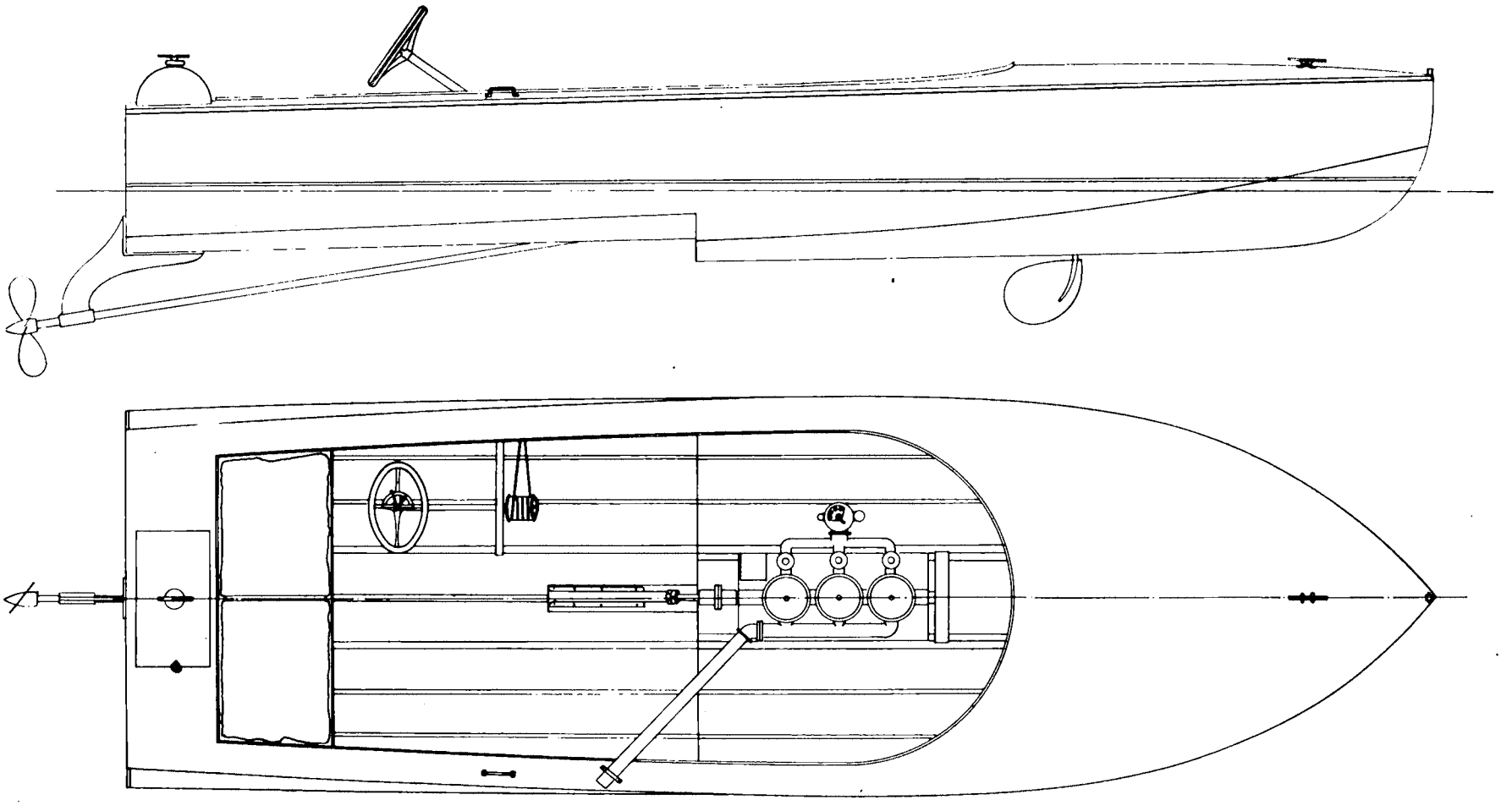
FOR many years THE RUDDER has made an effort to publish from time to time complete detailed plans and building specifications of boats of the best type for their particular services. Thousands of these boats have been built all over the world and many of them have been exceptional in point of speed or seaworthiness. In recent cases we have arranged the plans so that they were reproduced to scale so that from the builder's standpoint they were just as good as if the architect's original tracings were lying on your shop bench. Plans that are not reproduced to scale are of little value to the practical man, for, unless he has enough knowledge of naval architecture to make his own scale for the reproductions, the published plans do not help him out on measurements.

We believe the greatest How to Build triumph of THE RUDDER is the publication of these plans of Margaret III. Never before in the history of the sport has it been possible for a magazine to show complete plans of a world's champion racing boat during the period that the boat held her title. Plans of champions are usually locked up in safety deposit vaults and as jealously guarded as would be the plans of a perpetual motion machine. Racing boats often travel with members of a crew on guard in the freight car for fear some rival boat owner will steal one or more points of superiority from the hull during shipment. When hauled out at the course the hulls are draped with canvas, and woe betide the man who tries to crawl under the covering to take a look at the bottom.

There have been hydroplane plans published before this, but in every case they were boats that were either the dreams of their designers, or else craft that have not covered themselves with glory in actual operation. Here our readers have a chance to duplicate, line for line the greatest hydroplane of her class that has ever been designed.

For the benefit of those who do not follow the racing game closely we will give a short history of Margaret III, the fastest 151 cubic inch hydroplane in the world.

One of the most enthusiastic racing men in the country is L. E. Selby of Pekin, Ill. Mr. Selby races at all of the Mid-West regattas and is the sort of man that is not suited with anything but the best. Two years ago he decided to have a hydroplane built that would be a winner. He had the several classes of



Margaret III, Champion Hydroplane

Length 16 Feet 1 Inch. Breadth, 4 Feet 10½ Inches. Power, 18-25-H. P. Pierce-Budd. Speed 32½ Miles per Hour. Designed by C. C. Smith, Algonac, Mich. Owned by L. E. Selby, Pekin, Ill. These Plans are Reproduced to a Scale of ½ Inch Equals 1 Foot. In the June Issue We Will Publish the Remaining Detailed Construction Plans to Scale, Tables of Offsets, Specifications and Building Directions

the Mississippi Valley Power Boat Association and the International Power Boat Union to draw on, and he decided that the 151 cubic inch class was one that allowed the greatest speed on a minimum outlay and provided the greatest amount of competition and real sport. He then made up his mind that as the fastest hydroplanes in the world were designed by C. C. Smith of Algonac, Mich., designer and builder of the many Miss Detroits, Miss America's etc. that Smith would be the logical man to design his new boat. After some coaxing Mr. Smith agreed to turn out a boat that would beat anything in the class. In the usual thorough Smith manner he constructed a model which Selby turned over to Simmons of Chicago who had the contract to build Margaret III.

The new boat was to be 16 feet long and to be powered with a 3 cylinder, 18-25-h.p. Pierce-Budd racing engine. With such a small engine it seemed as if high speed could not be obtained but when the boat made her debut at Burlington, Iowa during the 1920 Fourth of July regatta of the Mississippi Valley Power Boat Association, the racing experts of the country who had assembled there were thrown into consternation with her speed. Over a course with several fairly sharp turns she averaged over 31 miles an hour. For the power this constituted an official world's record. Another remarkable feature of the boat was the fact that she could be turned completely around at full speed in literally less than her own length. Racing men who had driven boats for years agreed that she was the most remarkable craft ever built.

It is needless to say that she cleaned up everything at Burlington. Last summer she raced in the annual regatta at Peoria and again won, although Cliff. Padgett driving Miss Quincy IV gave her a good deal of competition. This competition forced Margaret's speed up to the wonderful rate of 32.4 miles an hour over a triangular course. As far as anyone can find out, Margaret's extreme speed is unknown to any but her owner. Many boatmen believe she is good for close on to 35 miles an hour.

The next race for the wonder-boat was at Chicago, during the big Pageant of Progress Races. Although she did not exceed her former speed it was because the competition was not so keen. Another feature of the boat's performances is that she always enters an additional class above her regular rating and usually wins there as well. At Burlington she won the 224 cubic inch class, at Peoria she won the 215 cubic inch race and at Chicago won the 478 cubic inch and ran second to the 80-h.p. Ethel IX in the 320 class.

For those who do not understand the cubic inch class method of rating, we will explain that in the Middle West the racing associations have adopted a system that rates boats on the amount of power installed. There are no limitations placed on the hull, this allows designers to work out the fastest possible hull without trying to beat some rule. The engine power is rated by means of the number of cubic inches of cylinder space. This is found by multiplying the area of each piston by the length of the stroke. Boat owners are allowed to turn the engines up as fast as possible. This system is absolutely simple and, coupled with the cash prize awards to winners, has produced the finest high speed racing this country has ever seen. Classes are arranged so that practically all of the available racing engines fit into some class in a satisfactory manner.

When the writer of this article saw Mr. Selby at Peoria, we suggested; not without misgivings; that we would like to look at the lines of the boat. Although we had seen many examples of fine sportsmanship from Selby and the other racing men in the Valley association we were somewhat taken back when he handed up a blue print of the boat. The lines had been taken off the model by Elliott Gardner, the naval architect. At that time we had no idea of publishing these lines as we felt that such a thing would be entirely unfair to Selby. Later on Selby, and his dare-devil driver "Baldy" Steinmetz, mentioned that fact that the publication of complete plans of the boat would do a great deal to increase the popularity of hydroplane racing all over the country. He said if we would get Chris. Smith's consent, he would be glad to give us full details of the boat. The assembling of this data took some time, but as Smith said he was willing to do anything that would help the game, we have finally arranged the mass of material furnished and pass it on to you.

It should be distinctly understood that neither Selby, Smith, Steinmetz or anyone else receives one penny in return for the years of experimentation that has made a boat like Margaret III possible. All agreed that the good of the sport was their only thought. In selecting THE RUDDER as the medium through which these plans are being placed in your hands, we feel that we have been complimented far above anything else that has ever been said. With true Valley spirit, Selby says all the credit for boat's performance belongs to Smith, Steinmetz and the engine. Steinmetz gives the credit to the others. Smith says the driver, engine and owner deserve everything and we suppose if the engine could speak it would disclaim any honor.

In connection with Margaret III, Cesare Guasti, the great Italian hydroplane expert who has collected theoretical data on almost every hydroplane of prominence in the world, writes us, "Indeed, I believe that Margaret III is the best hydroplane in all America, in fact, I venture to say that if Mr. Smith will build Miss America III with the hull and balance of weight similiar to Margaret, and with the 1,800-h.p. which powered Miss America II, he will obtain a boat perhaps 15 knots faster than Miss America II." These remarks were made after Mr. Guasti had plotted curves on the performance of most of the hydros in America.

There is so much detail to arrange in connection with these plans that it is impossible for us to give the complete drawings and specifications in a single issue. Herewith we give the preliminary plans and in June we will finish the set and give complete building directions for this champion boat.

A boat of this kind is a comparatively simple one to construct, although it is absolutely impossible for you to vary from the lines a particle without its seriously effecting the speed of the boat. Whatever else you do, don't make a single change without writing us for advice. If you have some other engine in mind and want to know whether it will be suitable, let us know the exact bore and stroke, the number of cylinders, the extreme revolutions per minute and the exact weight. Exact! Don't guess!

Launching Puritan, Latest Fishing Schooner

THE pictures on this page were taken March 16th at Essex, Mass. and show the fishing schooner Puritan sliding down the ways of the James Shipyard. Puritan will probably be a competitor in the International Fishermen's Race next summer. She will be entered from Gloucester, Mass. that famous fishing port whose sons have been famed in song and story as the most daring and skilful of all those who wrest their living from the storm-tossed waters of Georges Bank.

Puritan is the latest development in the type, designed by Burgess and Paine of Boston, and all who have seen her are sure that she will carry the hopes of every Gloucesterman to a gallant victory. She is built in an exceptionally substantial manner, for no lightly built boat can hope to survive in her trade, and is 140 feet long over all, 105 feet on the water line and 16 feet breadth.

The Fishermen's Race next year will likely create more interest than ever before. It will be recalled that the first race for this trophy was won by the American schooner Esperanto which defeated the Canadian Delawana. The second race, held last Fall, reversed the honors, for the little American entry Elsie of Gloucester was decisively beaten by the new Canadian schooner Bluenose. Elsie was a small boat, 12 years old, while Bluenose was a big vessel built especially for the race. The American schooner Mayflower, designed by Burgess and Paine was disqualified before the race on charges that she was not a bona fide fishing boat. It is to be hoped that Puritan will retrieve the honors.

Farnum Wins Fellows' Day Handicap

By James Edward Hungerford

MISS Los Angeles II, with Dustin Farnum, the cinema actor and power boat enthusiast, at the wheel, crossed the finish line first, in the speed boat race over the sixty-six mile course at the Los Angeles Outer Harbor, in the March 26th handicap. Joe Fellows, in whose honor the event was staged by the Los Angeles Athletic Club Motorboat Racing Association, piloted his Fellows IV between the buoys, at the finish, just twenty-four seconds behind the winner.

"Dusty" Farnum negotiated the distance in the speedy time of 1:40;39.6, an average of thirty-nine and thirty-four hundredth miles per hour. Fellows covered the course in 1:41;3.6, an average of thirty-nine and eighteen hundredth miles per hour. Mystery and Hurricane II, the other entrants in the race, failed to complete the course.

Quite a flock of speed boat fans were present to witness the classic, despite the fact that a rough sea was forecasted. This prediction like many others went "gaflooey." Frank A. Garbutt in Mystery, engaged Farnum in a spectacular duel for two laps, but the Mercury Club pooh-bah was forced out in the third lap.

Miss Los Angeles II, and Mystery were almost "neck and neck," as the pseudo-sailors aboard the spectators' craft remarked, when they crossed the line after completing the first sixteen and a half mile lap. Foxy Mr. Garbutt outgeneraled his rival in turning the first stake, and gained about fifty yards.

Why Garbutt retired from the race was shrouded in much mystery, but it was whispered aboard the official boat that "Beanie" Walker, who was a passenger aboard the Garbutt craft, produced a pair of diamond-studded dice, and induced one of the crew to join him in a game of African golf, so the sailor deserted his post for the galloping dominoes. It was learned later, however, that Mystery did a nose dive in the third heat, and that one of the crew was severely injured about the face.

In the third lap, Miss Los Angeles II unshipped its rudder, and was forced to suspend the wild dash temporarily, while said rudder was reshipped.

"Wild Bill" Paden made a creditable showing in the first lap, but he had to give up the ghost, when one of the cylinders on Hurricane I, cracked.

A small tug laden with "vampires," drew up alongside the committee boat and its fair cargo gave the officials the "alcohol salute." The sweet creatures cast over a bottle labeled "Gordon Gin," but upon testing the contents, it was found to be naught but good old Owens River Water!

Final arrangements for the consolidation of the Los Angeles Motorboat Club and the Los Angeles Yacht Club were completed recently, at a meeting of the officers of the two organizations, with the result that the two oldest nautical bodies in southern California are now one. The name and burgee of the L. A. Y. C. was retained, but the clubhouse and anchorage of the power boat club will be the home of the revamped organization.

With the addition of the Los Angeles Motorboat Club, the yacht club is the largest on the Pacific Coast, boasting a fleet of one hundred and forty craft, and over three hundred members.

Otto G. Wildey, former Commodore of the Los Angeles Motorboat Club, was elected Commodore of the Los Angeles Yacht Club, while Eugene Overton, who was formerly flag officer of the Los Angeles Yacht Club, was intrusted with the duties of vice-commodore of the new fleet. Morgan Adams was made rear-commodore.

JOE FELLOWS DAY FREE-FOR-ALL RACE AT LOS ANGELES

Four Times Around 16½ Mile Course—Distance 66 Miles

For the Tufts-Lyon Trophy

	Elapsed Time
Miss Los Angeles II	1:40:39.6
Fellows IV	1:41:03.6
Mystery	Withdrew
Hurricane I	Withdrew

Average speed of Miss Los Angeles II, 39.34 miles per hour; Fellows IV, 39.18 miles.

Mystery, Crack Speed Boat, Owned by Frank A. Garbutt, of the California Y. C., of Los Angeles. Powered with Two 450-H.P. Engines She is One of the Fastest Boats in the West. A Novelty in Her Construction is the Fact that She is Non-Sinkable, 100 Balloon Fabric Air Cells Providing Buoyancy Enough to Support the Hull and Engine

Remarkable Racing Season Planned

THE coming season will without a doubt be the most interesting from the standpoint of either the power or sail boat enthusiast that we have had for many years. In fact, some of the events which are scheduled will be held for the first time and will be of moment to all yachtsmen.

The first races for the hydros will be at Peoria, under the auspices of the Mississippi Valley Power Boat Association. This will be the regular Fourth of July program. For the cruisers, the most important events will be the Block Island Race and the A. P. B. A. Cruiser Championship, both held under the A. P. B. A. auspices, and the Scripps Trophy race on Lake Erie for I. P. B. U. boats. At Detroit, Buffalo, Put-In-Bay, Hamilton, Toronto and possibly Milwaukee power boats will perform. There will of course be hundreds of more or less local events as well.

One item of news will please the power boat racing men. The valuable trophies which have been raced for in the past during the carnivals of the National Association of Engine and Boat Manufacturers have been turned over to the Racing Commission of the A. P. B. A. who will offer them as perpetual trophies. The old International Trophy will be raced for at Buffalo by hydroplanes of 20 feet or over, having cylinder displacements of 2,250 cubic inches or less. The National Trophy will be for displacement runabouts, 28 feet or longer and having a minimum breadth of 5 feet and not over 1,100 cubic inches of engine displacement. This race will be held at Lake George in August. The Interstate Trophy will be for runabouts which are eligible for the Gold Cup. The race will be run during the regatta at Put-In-Bay. The Motor Yacht Trophy will be offered for power yachts of the express type 50 feet or more in length. Detroit will see this event.

James Craig has offered the James Gordon Bennett Trophy which used to be raced for in the Bermuda Race, for an ocean race from New York to Atlantic City and return. The old Cabin Launch Trophy will be given for an express cruiser class in the Block Island Race. The boats will have to be 50 feet or less to compete. In all of these events it is specified that only American made marine engines may be used. This will cover Canadian marine engines as well. In no case will rebuilt automobile or airplane engines be allowed.

The National Association trophies have been in storage for some years and it illustrates the renewed interest in racing when they are to be again put into competition. While the trophies themselves; massive affairs; will be perpetual, the winners each year will be awarded a die-cast medal as a permanent prize All of these events will be under A. P. B. A. rules.

Last summer THE RUDDER offered a cup to the Seattle Y. C. The rules called for an unique system of allotting the allowances. The race was so successful; 22 boats ranging from 6 to 400-h.p. competing; that the Maryland Y. C. of Baltimore intend to adopt the same system this summer. They hope to have at least 25 boats face the starter. We would be very glad to send information on this improved handicapping system to interested parties.

The power boat racing schedule as outlined at present follows:

June 17th—Chicago to Michigan City. June 24th—Columbia Y. C., New York. July 1st-4th—Peoria, Ill. July 8th—Block Island Race. July 19th-21st—Put-in-Bay, Ohio. July 29th—Scripps Trophy Race, Cleveland.

August 3rd-6th—Pageant of Progress Races, Chicago. August 5th—A. P. B. A. Cruiser Championship, New York. August 10th-12th—Buffalo, N. Y. August 13th—New York Motor Boat Club, Newburgh Race. August 17-19th—Fisher-Allison Race, Hamilton, Ont. August 26th to September 5th—Gold Cup and Wood-Fisher Races, Detroit. September 3rd-7th—Toronto. September 9th—Tamaqua Y. C. Ocean Race, New York City.

The sailing enthusiasts are chiefly interested in the International 6-Metre races which will be held off Oyster Bay in September. Before the races, in which there will be three boats each from England and this country, there will be elimination trials to determine which of the 16 yachts built or building as possible entrants will be selected to represent this country. A feature which will create much sport will be a cruise of the yachts hailing from most of the Sound clubs. It is planned to rendezvous in Manhasset Bay several days before the International races and hold port to port runs, visiting the chief clubs of the Sound. The cruise will wind-up at Oyster Bay the evening before the start of the International races which will be held by the Seawanhaka-Corinthian Y. C. of Oyster Bay. A cruise of this sort is not only a source of great pleasure to all participants, but it gets the crowd together as nothing else can.

The following officers were elected to handle the affairs of the Long Island Sound Yacht Racing Association at a recent election. President George Nichols; vice-president, Charles A. Marsland; secretary, James D. Sparkman; treasurer, Donald Cowl. The following regattas were slated. May 30th—Harlem Y. C. June 3rd—Knickerbocker Y. C. June 10th—Manhasset Bay Y. C. June 17th—Larchmont Y. C. June 24th—Seawanhaka Y. C. July 1st—Indian Harbor Y. C. July 3rd—American Y. C. July 4th—Larchmont Y. C. July 8th—Knickerbocker Y. C. July 15th—Larchmont Y. C. start of Race Week. July 18th—Port Washington Y. C. July 22nd—Larchmont Y. C. July 29th—Stamford Y. C. August 5th—Orienta Y. C. August 12th—Huguenot Y. C. August 19th—New York Athletic Club. August 26th—New Rochelle Y. C. September 2nd—Seawanhaka Y. C. Sept. 4th—Larchmont Y. C. Sept 9th—Indian Harbor Y. C. Sept. 16th—Manhasset Bay Y. C. Sept. 23rd—Hempstead Harbor Y. C.

The Uses of Universal Joints

THE installation of universal joints on the tail shafts of power boats is becoming more and more common. Perhaps the increasing cost of fuel and the drop in gasoline quality is bringing economical operation more into importance than in the days when gasoline was 10 cents a gallon.

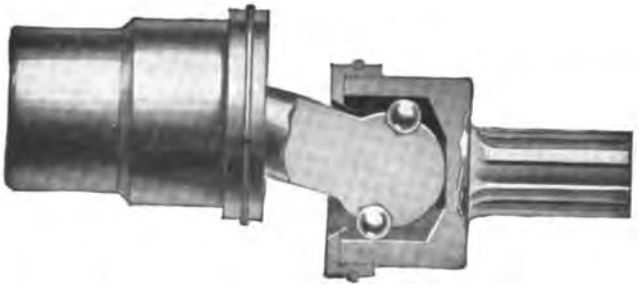
Universal joints have one great feature. Their installation can do no harm, and in 99 per cent of the cases the joints will more than pay for themselves in the course of a year's operation by eliminating much of the misalignment that occurs in every power boat to a great extent. The fact that your engine lines up perfectly when the boat is hauled out is no reason for presuming that the alignment will be retained under service conditions. In the first place, a boat is seldom blocked up on shore so that she rests her weight evenly on keel and bilges. The support given a water-bound boat is evenly distributed all over her immersed surface. Any structure tends to change shape when the points of suspension or support are shifted. It is impossible to create a structure of absolute rigidity. In fact, in the case of a boat, a rigid structure, providing one could be built, would be disastrous. The uneven support given to a boat in rough weather is responsible for a considerable change in the shape from one moment to the next. Naval architects have long realized that the successful boat should have more or less elasticity.

A simple proof of this fact would be to take a piece of hardwood, say ¼ inch thick and 1 inch wide. Fasten one end of this in a vise so that the 1 inch side is horizontal. Strike this piece of wood with a hammer a foot or so out from the vise and nothing will happen aside from the wood bending at the blow. Clamp the piece so that the flat side is up and down, thus loosing some of the flexibility, and the piece will break if hit with a hammer. The cross-sectional area is the same in both cases, but the absence of flexibility causes the blow to break the wood. The same rule holds good for a boat. The hull must be flexible. This flexibility puts a great strain on the propeller shaft, and, if the distance between stuffing box and engine is great enough there will be a bending strain set up every time the boat passes over a wave. This strain causes a great loss in horse power, endangers the shaft and causes the main bearings of the engine to carry a load for which they are not designed.

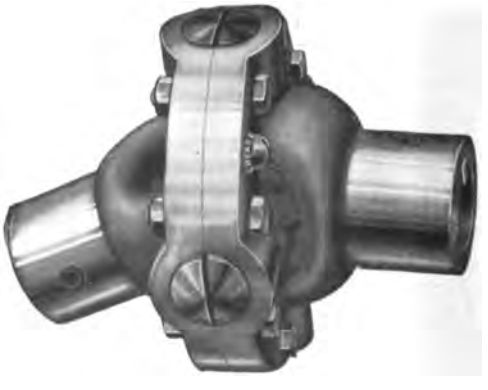
The installation of a universal point between engine and tail shaft eliminates all of these strains. The engine is enabled to turn every bit of its power towards efficient propulsion. Bearing troubles are lessened and shaft brakage is cut down to a minimum. It is often advisable to install engines so that the base of the machine sets on a level with the water line. The propeller shaft will naturally be somewhat inclined. The angle formed between the engine crank and the tail shaft can be taken up with a universal joint unless the angle is 10 degrees or more. In some cases angle of over this amount have been taken care of by means of universals but the loss of power is somewhat of an item. When the angle between the two shafts is small there is such a small percentage of power loss that it can be disregarded entirely in practice. In fact, tests have proven that the loss of power occasioned by placing a universal in an angular shaft installation is always less than the loss occasioned by the misalignment due to variations in the hull.

Universal joints for boat use are of three general types. The first is the ring type, in which the two hubs attached to each shaft have arms which attach to a ring somewhat larger in circumference than any other portion of the joint. The second type is fitted with a cube of steel in the center to which the arms are attached. This latter type has a smaller turning circle for installations where space in a vertical direction is at a premium. The third type consists of two small sleeves and a double ball and socket connecting the two. This type of joint is very small and has given satisfaction in many high speed installations. In all cases lubrication is provided for by grease chambers.

When installing any type of universal joint it is necessary to place a thrust bearing aft of the joint, as these devices are designed to carry a radial load but not a thrust. Although a universal can be used when there is a decided change in the angularity of the shafts, with the usual marine engine it is preferable to install the machine on the normal slant and use the joint simply to relieve the strain caused by flexibility of the hull.



Efficient and Simple Ball and Socket Universal



The Ring Type of Universal Having Wide Bearing Surfaces

Stability and Trim

By K. M. Walker

NAVAL architecture is a science and an art whose requirements for the evolution of anything that floats are exact and exacting, based on formulae resulting from deep study and endless experiment but the ultimate result, with the guidance of that infinite thing called art, is a creation that, like a great painting or a soul stirring piece of music, calls forth an expression of appreciation from the most unimaginative.

There are, however, certain simple laws, mechanical in effect, upon which are based the foundations of all boat designs and which it seems are too frequently ignored by the amateur boatbuilder and indeed at times by some known as professionals. The first of these is stability and the second trim. Both ignorance and wilful disregard of these laws have often resulted in serious evidences of instability that are happily enough, generally apparent upon first launching but

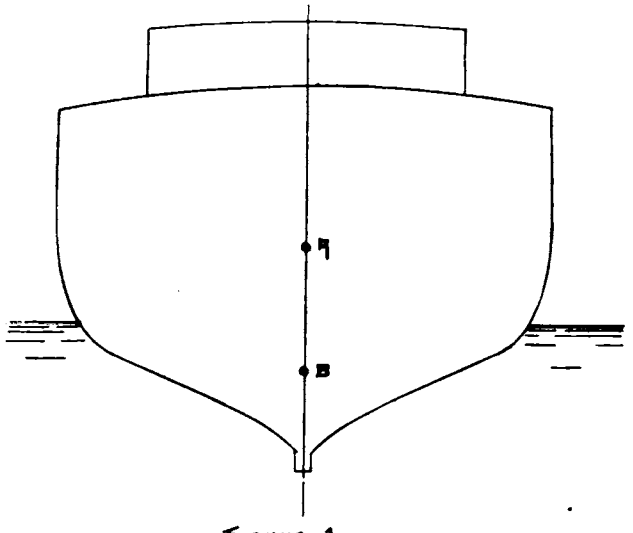


Figure 1

have been known to be the cause of a number of casualties.

Taking up first, stability in connection with pleasure craft design, as soon as the dimensions, type of machinery, general arrangement and other requirements of the owner have been decided upon, the naval architect, proceeding in an orderly manner evolved from practice and keeping careful record of every calculation, then determines the weight of the completed boat, the consequent equivalent buoyancy required to float it and the necessary distribution of this buoyancy. Having made these calculations, he next proceeds to locate the height of the center of gravity of the mass as regards the midship section, this being the first step towards determining the transverse stability.

This is done sometimes by calculating the weight of each item, measuring its distance above a predetermined base line and multiplying the weight by this distance in units of feet or inches to determine its vertical moment. After the vertical moment of each item is determined the total of all moments is then divided by the total of all weight and the result is equal to the distance, in feet or inches, of the center of gravity of the mass above the base line.

It can readily be seen that to calculate the weight of each item would be a tedious and time consuming process and in order to avoid this the designer will avail himself of numerous short methods and formula evolved from comparison of a number of similar craft but to describe and propound them here would require a large amount of space.

In locating this center of gravity it is presumed that same will fall on the vertical center line, all transverse weights having been proportioned on each side to balance the hull on an even keel.

An outline of the midship section, or typical section as it is sometimes called, is then drawn and point

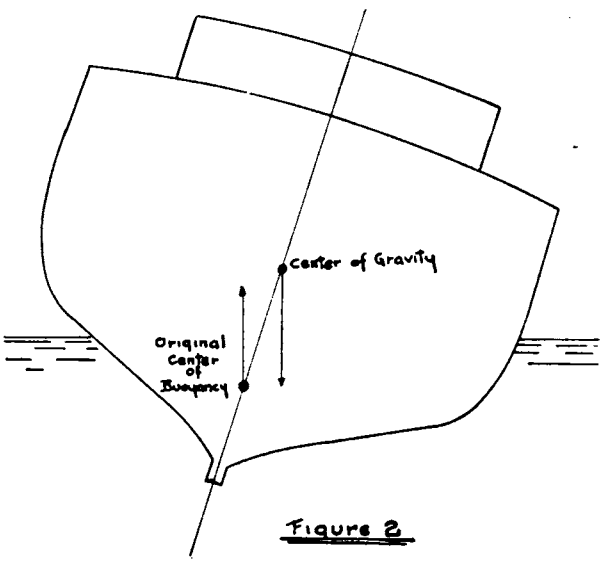


Figure 2

upon which the center of gravity falls is marked as shown at "A" in figure 1.

The next step is to locate and plot the center of buoyancy of the vessel. This is the geometrical center of the volume of water displaced when the boat is floating at her designed water line. As a boat is symmetrical on each side of the vertical centerline the center of buoyancy will of course also fall at some point along this line when the hull is on an even keel and having been located it is also marked on the diagram as shown at "B" Figure 1.

Now the question arises "How can any vessel remain in a stable condition when there are two separate forces acting against each other, the higher one acting downward and the lower one acting upward?" This is best answered by drawing another diagram Figure 2. It is evident that if these two centers of forces, center of gravity and center of buoyancy were to remain fixed as shown in Figure 2 the result would be

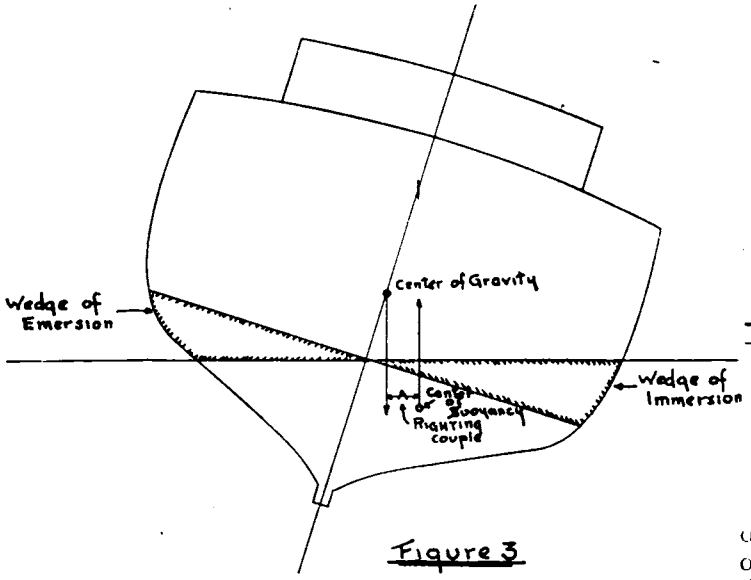


Figure 3

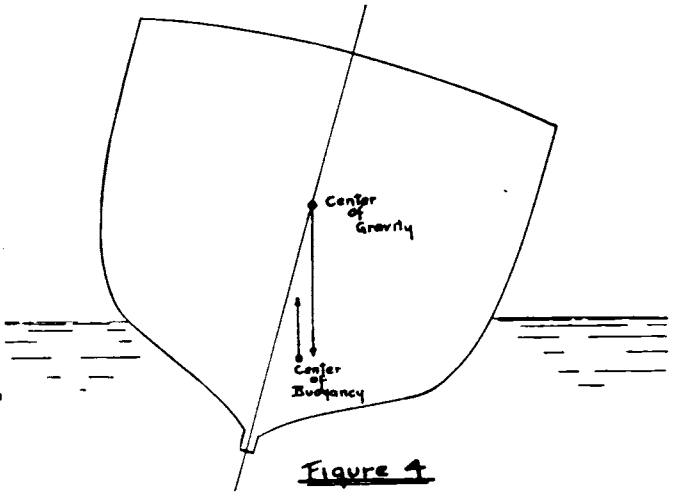


Figure 4

a catastrophe to the boat and a quenching of the fires of enthusiasm towards yachting in the hearts of those on board.

What actually occurs is described by reference to Figure 3. Here we have listed our ship over 15 degrees and it will be seen that there are two wedge shaped areas now resulting from this change.

One called the wedge of emersion that must be deducted from the buoyancy on that side of the center line and the other is the wedge of immersion that is, of course, increasing the amount of buoyancy on its side of the center line. The result in thus changing the quantity of buoyancy on each side of the center line will naturally be to shift the center of buoyancy to one side and logically to the side that has become more deeply immersed.

Attention is now called to the fact that no matter what the position of the boat the center of gravity always remains at the same fixed point but the center of buoyancy moves about to correspond with varying angles of inclination.

It will now be observed that the center of buoyancy is outside of the center of gravity and as can be seen on Figure 3 is tending to right the boat. The distance of the center of buoyancy from a line drawn vertically down from the center of gravity is called the righting couple and shown at "A" Figure 3. The force that this righting couple is exerting is found by multiplying the displacement in pounds by the length of the couple in inches (or other units to suit conditions) and the result is called the "righting moment" for that angle of heel. The designer makes all these calculations for varying angles of heel and from the resulting righting moments plots a curve known as the stability curve.

In the event that we have too much superstructure, have located the weights too high in a new design, or have rebuilt an existing boat in such a way that the center of gravity is too high, the stability diagram will then appear as at Figure 4 when it can be seen that we have an upsetting couple instead of the required righting couple and she will then, of course, continue to heel over to the point at which the center of buoyancy will have moved outwards until it is immediately below the center of gravity when she will come to rest in a decidedly uncomfortable position as shown in Figure 5.

Small discrepancies in stability can always be adjusted by means of ballast and ballast at times and under certain conditions is a desirable thing but it always means additional weight and every pound of added weight sinks the boat deeper in the water increasing the skin friction and consequently reducing the speed. Therefore, an economical power boat is one so designed that little if any ballast is necessary, all useful weights in the hull being judiciously arranged to care for all anticipated conditions of stability. The more weight being carried, the more fuel being consumed.

Stability of the boat having been determined it is necessary to make sure that she is going to float at the

(Continued on Page 44)

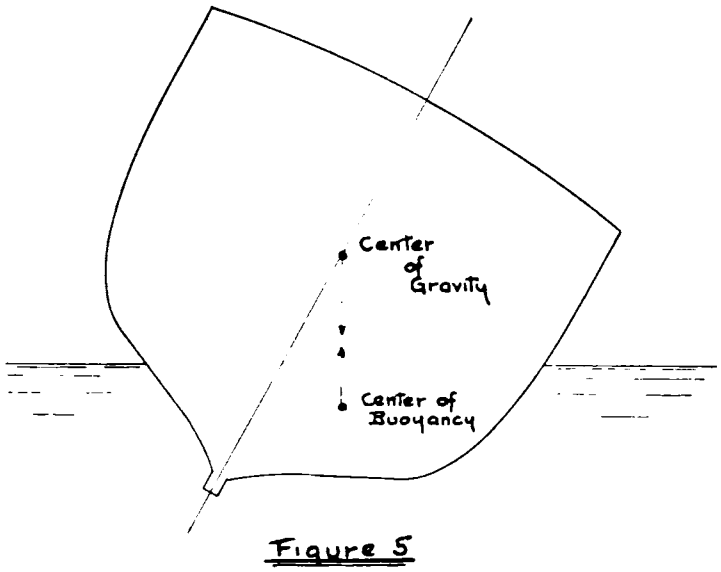


Figure 5

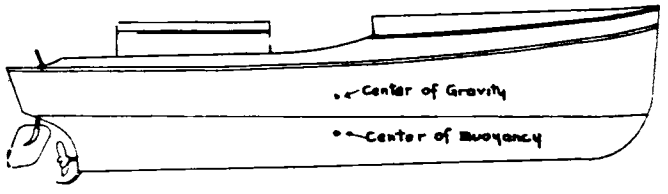


Figure 6

The 23-Foot Auxiliary Schooner Widow

SO many of our readers have written for more information in regards to the tiny auxiliary schooner Widow a picture of which we published some months ago that we got in touch with her present owner, Robert H. Moore of New York in an effort to get further details. Mr. Moore kindly turned over all of his data and had Richard Chute of Huntington take off a rough set of lines of the hull. These lines have worked up into the sketch plans we show here.

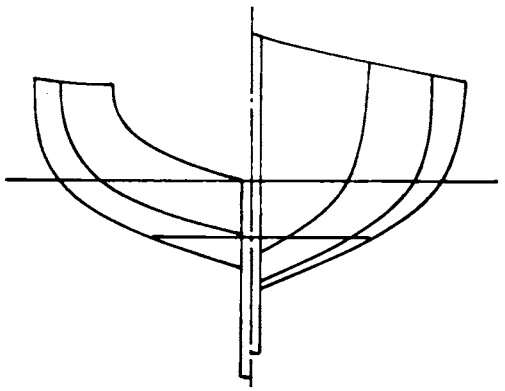
Widow's history is rather vague although W. Prescott Gannett of Scituate, Mass. owned her in 1907. When he got her she was a centerboard sloop but was not a success with that rig. Mr. Gannett changed the rig to that of a schooner and took out the board, building on a keel. At that time she was only 20 feet long and when a crowd got in her cockpit she squatted so that Mr. Gannett added 3 feet to her stern. The photograph we show on this page was taken in 1915 when Mr. Gannett sold her. Mr. Moore discovered her in 1919 at Wollaston, Mass. In fact, Mr. Moore's 9 year old son was the one who really discovered her. He had been promised a boat if he got promoted and a whipping if he didn't. Let Mr. Moore tell the story at this point.

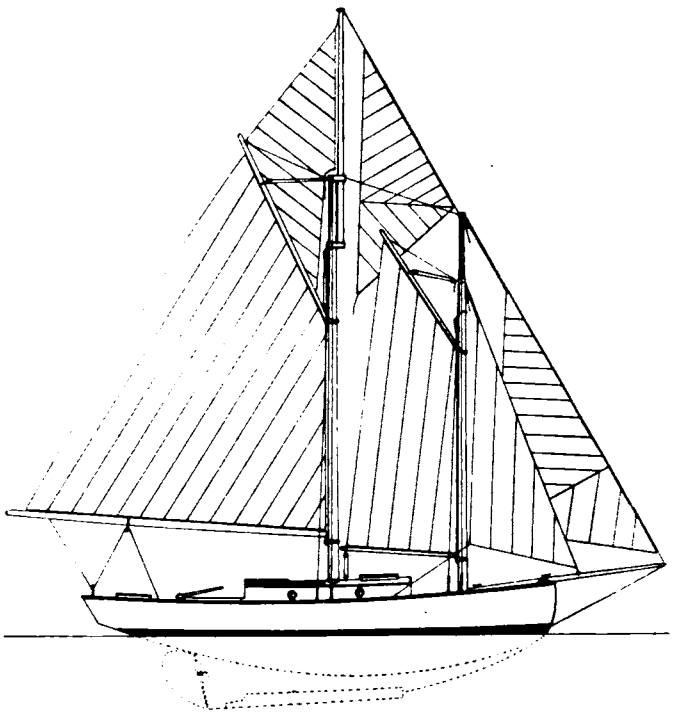
"I was settled comfortably in a porch chair dreaming of the fifty foot schooner for that South Sea cruise which will never be built, when an excited and somewhat breathless small boy interrupted my dream by insisting that I come with him pronto. Finally I gathered from his disjointed speech that what he wanted me to see was a small schooner with 'shrouds, topmast n'everything, so, catching some of the youngsters enthusiasm I went down to the yacht club and sure enough, out on the flats was a little, black fisherman that looked to be about 45-feet over all.

"Taking a canoe from the float, big son, (who was nine), little son (just turned three) and I paddled out to her, and as we got nearer she seemed to diminish in size until on boarding her we found she was but 23 feet over all with a self-bailing cockpit, auxiliary Palmer engine, main topmast and double shrouds, in fact a regular little ship.

"Urged by the frantic demand of the boy who said he had changed his mind about the catboat and must have that particular schooner, I shoved off to look up her owner. As we passed under stern we got her name. Small son who was sitting in the bottom with his head just showing above the gunwhale, looked up at her rigging and said, in an awestruck sort of tone, 'a tops'l schooner; well I'll be damned!' I nearly fell out of the boat. We found the owner agreeable and son became the proudest sailor in North America."

After a few repairs had been made the new owners set out for Huntington, via the canal. The run was made in all sorts of weather and they found the little

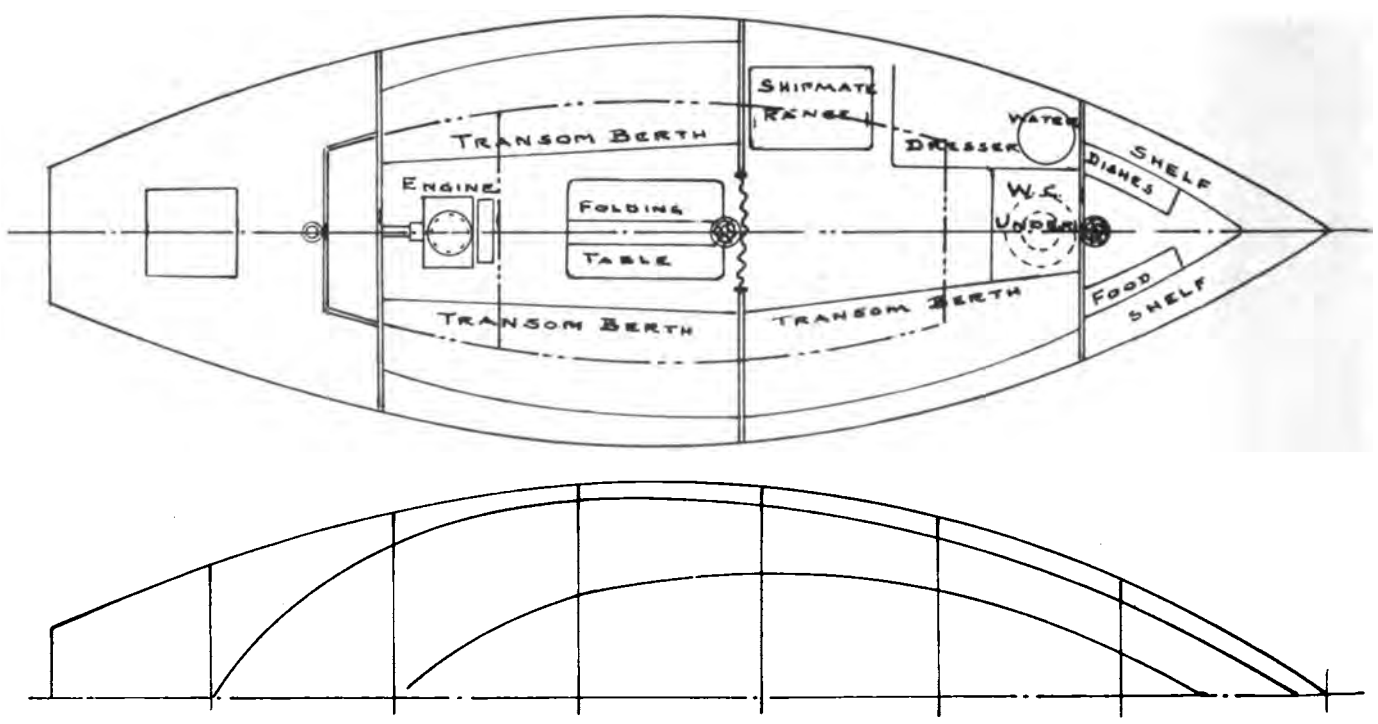




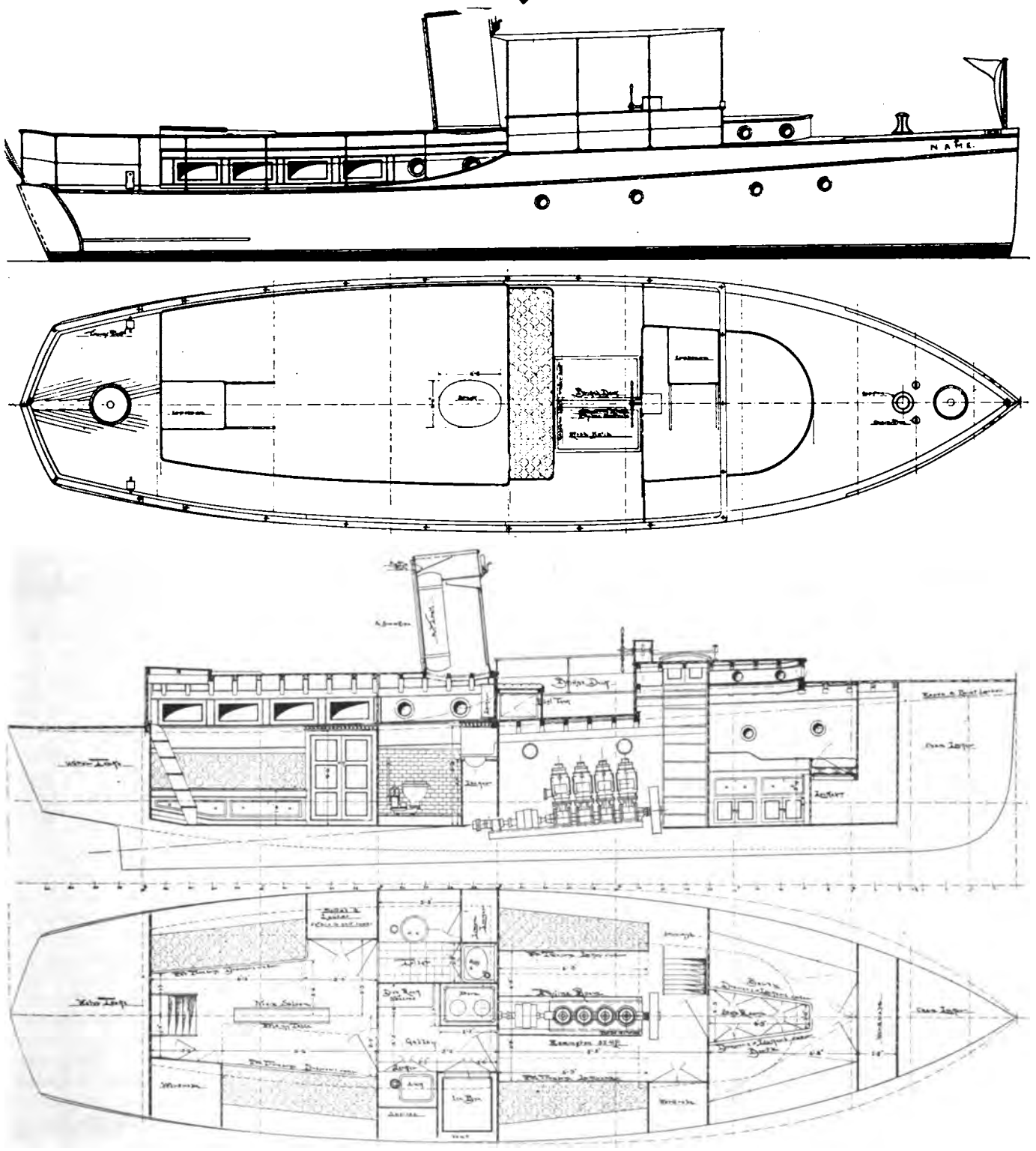
ship a wonderful seaboat. From Boston Lightship to Huntington Harbor they made a single run in 44½ hours. Again let Mr. Moore take up the narrative.

"Widow is 23 feet over all, 20 feet on the line, 7 feet 9 inches wide and has a draught of 3 feet 6 inches. She has nearly a ton of outside ballast and none inside. She sleeps three grown persons, has a Curtiss bow toilet, built-in ice-chest, two fresh water tanks, one 10 and one 15 gallon fuel tank, three fixed electric lights, a spot light and a trouble light hooked up to a 400 ampere-hour Edison storage battery. On the port side forward is a Shipmate range and tucked away under the companion steps is a 4-h.p. Palmer engine. Her four lowers are six ounce double bighted ducks, but the uppers are airplane cloth. She carries a club tops'l, fisherman stays'l No. 2 main-top-stays'l and a balloon stays'l. This year we are adding a fore topmast, two jib tops'l and a balloon jib.

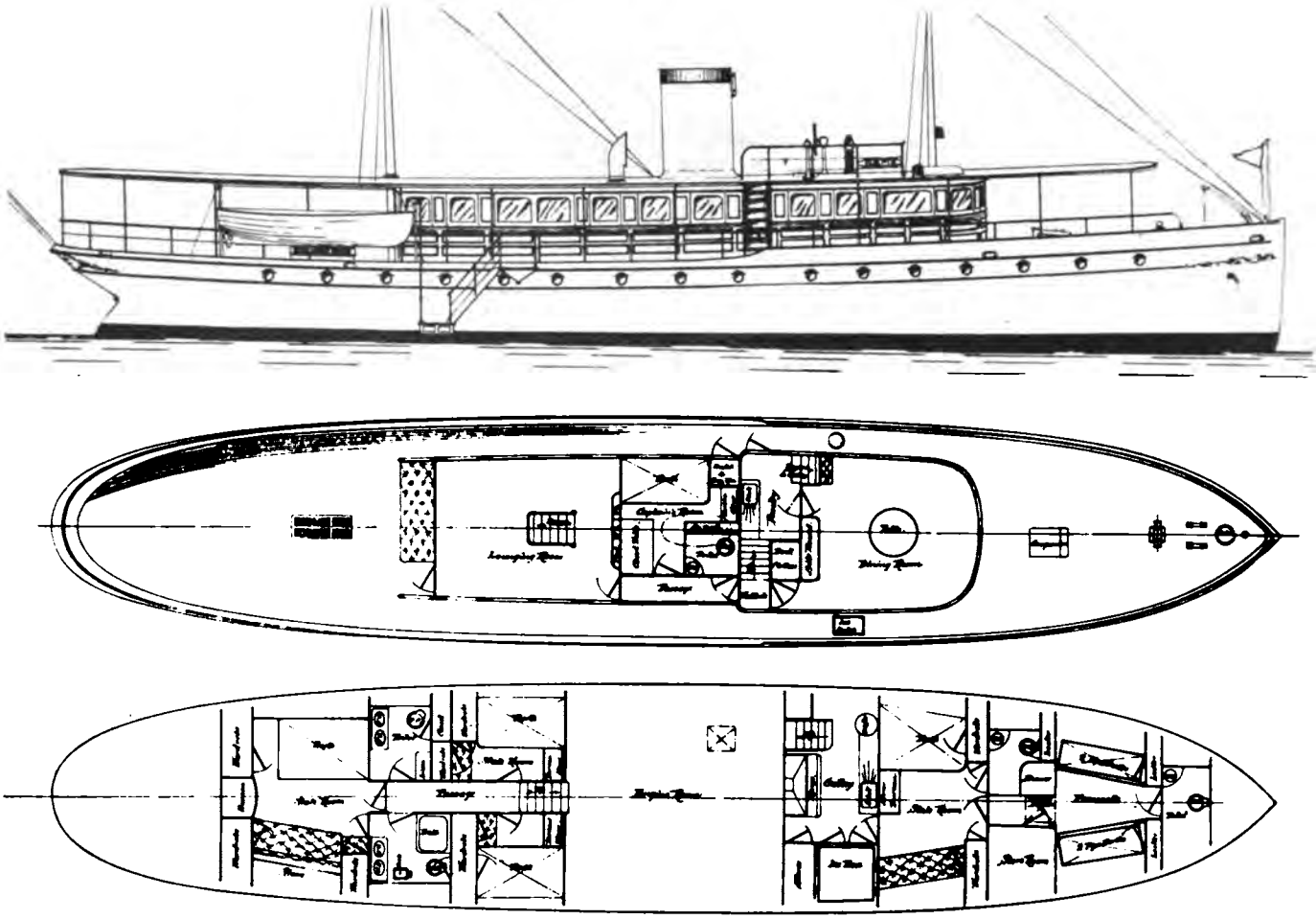
"I have sailed many boats, from fishermen down to Tangier skipjacks, but I have taken more unalloyed pleasure out of this miniature fisherman than any of the others. If she goes aground we start the engine in reverse, all hands get out on the bowsprit and she usually claws her way off. If not, you get overboard, swing her bow towards deep water, take a deep breadth, get your back under the counter and push her off. She is not fast, but she surely is able and can go to windward in the worst weather in comfort. We beat her up the Sound from Bridgeport to Huntington in the Election Day gale of 1920, under jib and mains'l after the forestays'l and the fores'l had blown out. What 11 year old boy could handle a sloop or cat 23 feet long? Yet my boy sails his schooner about the Sound alone, and has weathered some nasty thunderstorms without difficulty. She balances perfectly with the heads'ls and the main sheet can be trimmed with one hand.



Designs



43-Foot Bridge Deck Cruiser, Designed by J. Murray Watts for Service on the Lakes. Description on Following Page



90-Foot Power Yacht, Designed by Henry J. Gielow, Inc. for Great Lakes Cruising. The Accommodations are Rather Exceptional, Owing to Owner's Requirements

43-Foot Cruiser for Cleveland

J. Murray Watts has recently completed the design shown on the preceding page for E. J. W. McMahon of Cleveland and the yacht is now under construction in her owner's city. This boat is of rugged construction especially designed to stand the heavy blows which come up in the Great Lakes, as the owner intends to cruise extensively in her. For this reason also, an oil engine was installed with tankage for a large amount of oil, giving great economy and a large cruising radius.

The engine is a 32-h.p. heavy duty 4 cylinder Remington. There is a main saloon aft, a stateroom forward, an engine room partially under the bridge deck, and a large toilet room and galley. The boat will be steered from the bridge, where protection is provided by a heavy awning with a glass windshield at the fore end for use in bad weather. All the engine controls are also led to the bridge so the boat can be handled by one man. The equipment is exceptionally fine and substantial, service as well as good looks being required. The exterior joiner work is mahogany and the owner's quarters below decks are finished in cream enamel paneling with mahogany trim.

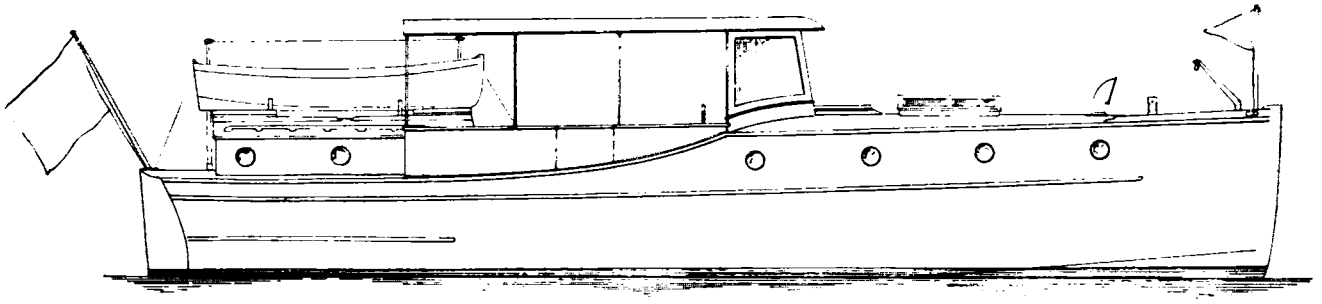
Length over all	43	feet	0	inches
Length water line	41	"	0	"
Breadth	11	"	0	"
Draught	3	"	6	"

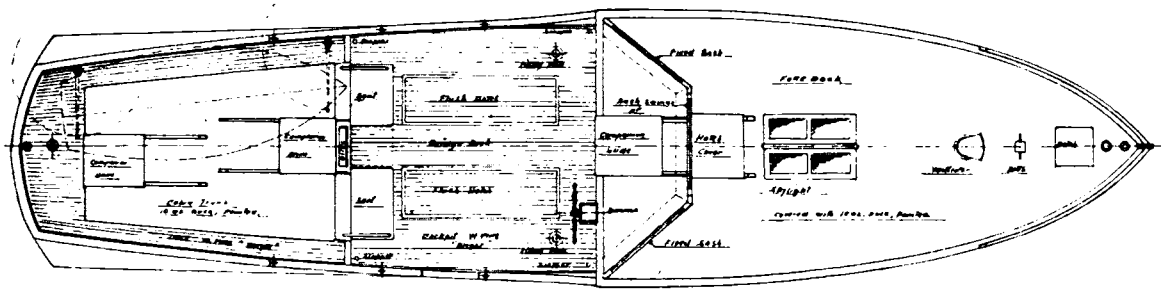
90-Foot Cruising Yacht for Great Lakes

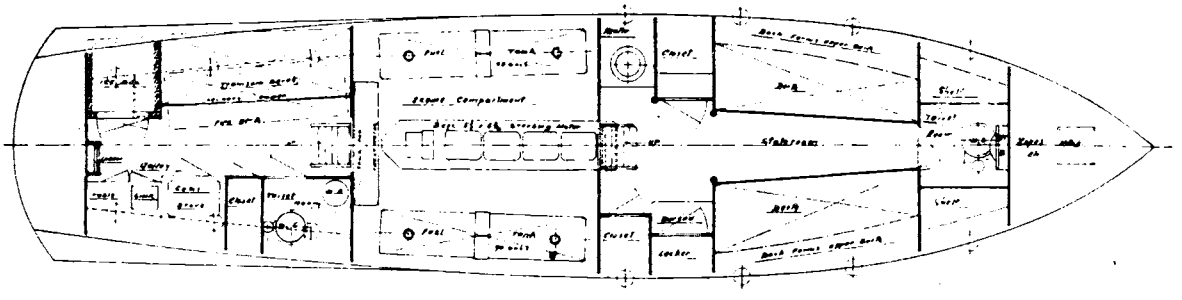
The above design shows a yacht of the type developed by Henry J. Gielow, Inc. in which the advantages of both the seagoing cruiser and the houseboat are combined. She would be paticularly suitable for use on the Great Lakes, having a full height deck house and a deep, able hull. This will be appreciated by anyone who knows the weather conditions of the Lakes, for seaworthiness is the first of all requirements. The points that can be reached there by such a yacht, through the islands in Georgian Bay, Lake Erie and the St. Lawrence are as beautiful as any cruising grounds in the East or South.

In laying out the boat some features have been adapted to the needs of the particular yachtsman for whom the boat was designed. In the first place, he has not required a great deal of room in the owner's quarters in the way of staterooms. The captain's room shown in the deck house could be arranged for either the captain or owner as preferred. The stateroom adjoining the galley was so arranged for the use of a man and wife, now in the employ of the owner, who are to act as steward and cook and thus have their quarters separate from the general crew. The power plant will be ample to give a cruising speed of about 14 miles an hour.

Length over all	90	feet	0	inches
Breadth	17	"	0	"
Draught	5	"	6	"







39-Foot Express Cruiser

The plans shown here are of a 39 foot express cruiser that is now under construction at the plant of the Portland Yacht Yard, Portland, Conn. Messrs. Holter and Gustafson, the proprietors are turning out a most creditable piece of work and one that is sure to attract attention among the finest boats of the year.

The hull and foredeck together with all outside trim are of mahogany finished a rich brownish shade, the modern practice. The hull is a modification of a Hand V-Bottom design used as a stock type by this firm. The power plant is an 8 cylinder model FS. Sterling engine developing 200-h.p. at 1,400 r.p.m. and having a cruising speed of 24 miles with maximum speed of 27 miles.

The cabin plans and modifications were worked out by R. M. Haddock from suggestions by her owner, Carlton H. Palmer, and the former is supervising the construction. She will be an entrant in the Express Cruiser Class in all of the local races and will probably compete for the Express Cruiser Championship on Long Island Sound.

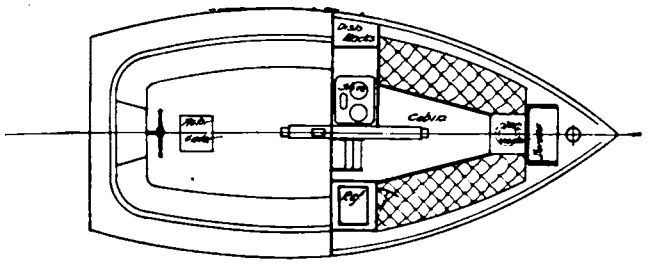
The forward cabin is for the owner and will have two transom spring berths, the backs of which swing up to form extra berths so that four people can be accommodated. There is a provision for a heating stove in the forward cabin as the boat will be used for duck hunting late in the season. Crew's quarters for two are aft, as well as the galley and a separate toilet. The engine and fuel tanks are under the bridge, reached through hatches or from the after cabin.

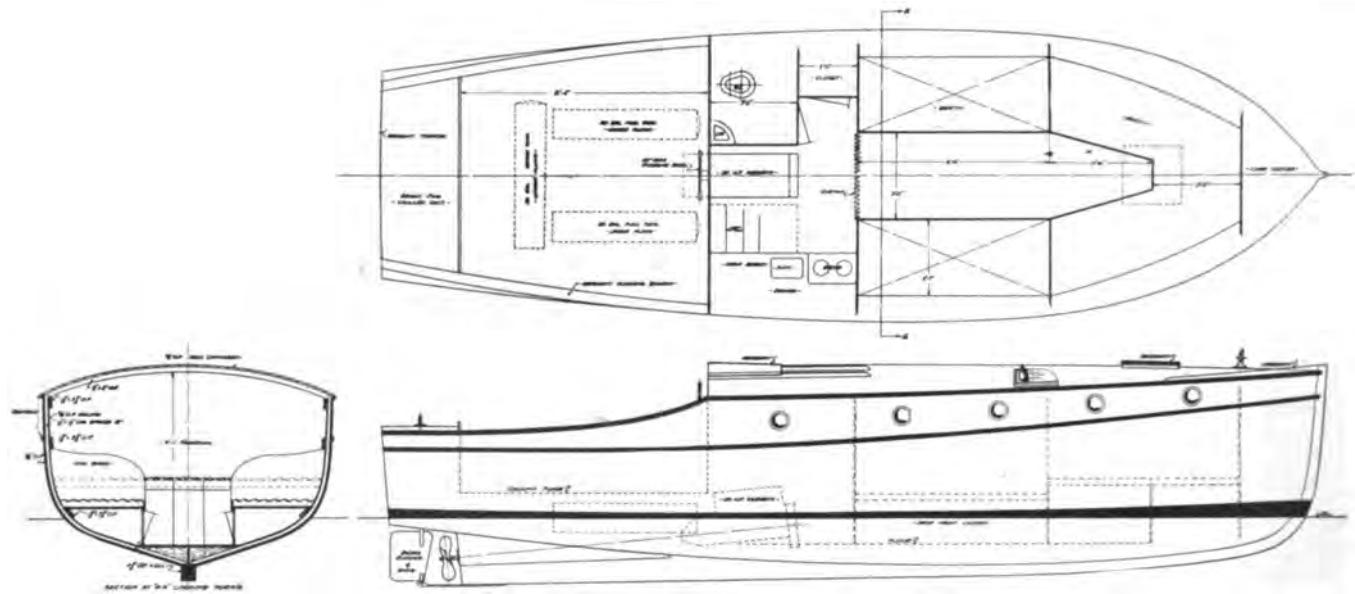
Length over all	39	feet	0 inches
Breadth	9	"	0 "
Draught	3	"	0 "

boat that can ever take the place of an auxiliary catboat. The one shown here is from the board of Chester A. Nedwidek who has turned out a boat that follows the general lines of the famous Cape Cod boats. In this case he has given a little less sheer, providing better cabin room amidships. The engine is aft under a box and is a single cylinder machine of about 6-h.p. although even 4-h.p. will drive such a boat at a fair rate in calm weather.

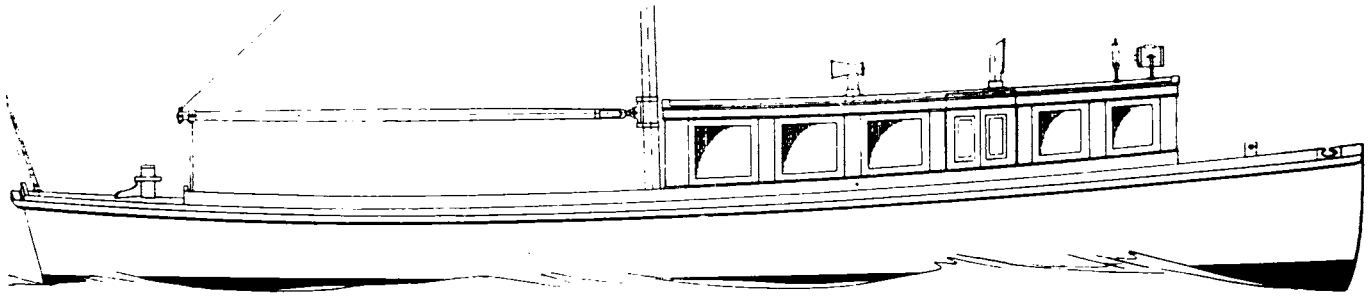
The arrangement consists of two good transom berths with toilet between the forward ends. A bureau is located under the deck above and forward of the berths. On the starboard side aft is an icebox and on the port side a Shipmate stove and dish racks.

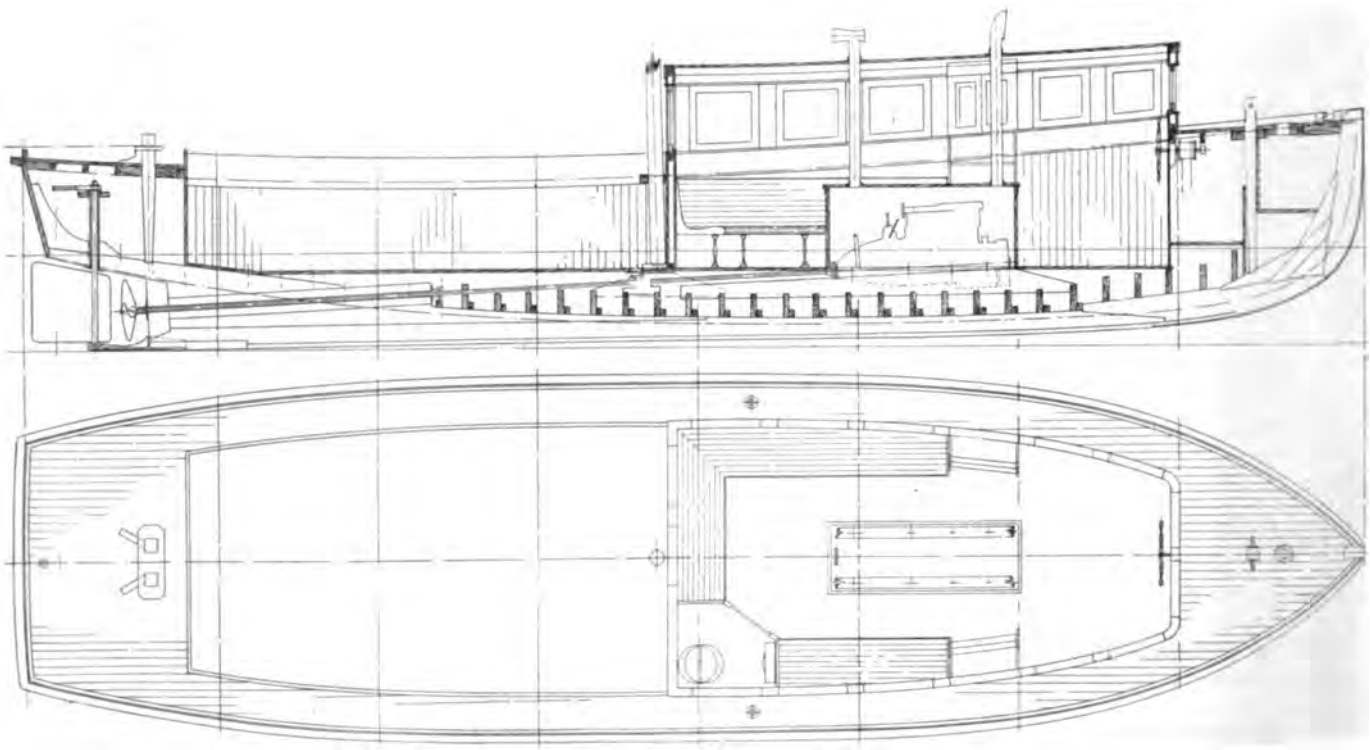
Length over all	24	feet	0 inches
Breadth	11	"	6 "
Draught	2	"	6 "





32-Foot Raised Deck Cruiser, Built as a Stock Model, by Fellows & Stewart, of Wilmington, Cal. With a Breadth of 10 Feet the Boat is Very Roomy. Her Power Plant is a Kermath 20. The Builders Also Have Larger Stock Boats Powered with Kermaths





Power Work Boat Designed by P. L. Rhodes, for Service in Central America. She Will Carry 10 Passengers and 5 Tons of Freight. The Engine is a 36-H.P. Scripps. Hull Dimensions are 42 by 11 Feet 6 Inches by 3 Feet Draught

Beachcombings

We thought we had met some fussy guys but there is a bird up at the Reliance yard who takes the cake. He carries a strip of sand-paper around in his pockets when he is fitting out his cruiser Virginia so he can strike matches on it. He says when the sand-paper wears out he will use Joe O'Neil's whale boat Caroline A. for a match striker. At least Joe's language is rough enough even if the boat is fairly smooth.

* * *

In the last issue of what someone called one of our "steamed contemporaries." Al Loomis makes a statement about yawls which he credits to the writer of these frolicsome facts. Those who know us well, of course realize that we never directed any such scathing denunciation towards a yawl. For the benefit of the others, who may love the yawl rig and who will feel hurt about the remarks, we hasten to state that we never made the remarks quoted. As Mr. Loomis made the trip to the Gulf of Mexico in a yawl built from RUDDER plans, he should at least have given us credit for not knocking designs from our office. Our love of free publicity is strong, but when we are quoted we wish our press agents would be accurate.

* * *

Its funny how different power boat racing is from most other sports. Usually a champion has the privilege of saying where he will defend his title. The A. P. B. A. have taken one of the National Association trophies, renamed it Single Engine Hydroplane Championship, and have alloted it to Buffalo. As Miss Chicago is the single engine champion, and as the Chicago races will be big ones it is natural that Sheldon Clark should want to race for the title in home waters. Perhaps this is not a humorous paragraph, but there is something funny about the matter at that. In fact the more you think it over the funnier it gets. Those on the inside consider it side-splitting. Ask Sheldon's opinion and duck.

* * *

According to agriculturists, autumn is the time for nuts. According to boatmen, spring is the season when the nuts fall in the greatest profusion. There was one in to see us who wanted to build a scow sailboat and use a 100-h.p. engine for an auxiliary. The engine would be ballast when under sail and under power she would be a hydroplane. Can you imagine a 60 mile an hour auxiliary? He wanted to know what the boat would be good for. We told him.

* * *

The Mississippi Valley boys have flattered us again. They have invited the Beachcomber to bring his runabout Gunfire out to Peoria for the races. One minute after the start I would be arrested for cluttering up the course providing the boats didn't run me down every time they lapped me.

Biographies of Boatdom

Now ladies and gentlemen you are to be taken before an exhibit of great educational value. Bring the young children and the rest of the family. We now show you a man who is so much of a gentleman that we tremble when in his presence. Hats off! All of you! Here is Harry Greening, Prince of Good Fellows, King of Racing Men, one of the best sportsmen the world has ever seen.

Harry races boats because he loves them. He builds the fastest boats he can with the hopes that they will win. When they do win he gives all the credit to the designer, builder and engine maker. When they lose he takes the blame himself. Harry is a citizen of Our Lady of Snows, but his smile, as you can plainly see is of the sunniest. He doesn't believe in the Golden Rule. His rule is "Do unto others a lot better than you can ever expect them to do unto you." When his boats win he is actually sorry for the others. No matter what hard luck he has, he is always rooting for the other fellows. If there were five more like Harry we could kill off all the cops. The world would be entirely square geographically and morally. Honest folks, Harry is so darned white that you have to look at him through snow glasses.

Needed Information

In this department all questions are answered relative to the care, operation and equipment of boats. When answers are required by return mail, postage must be enclosed.

At-A-Boy Again

Editor of THE RUDDER:

In regard to At-A-Boy, plans of which were shown in the issue of November 1920. Will a 25-h.p. 3 cylinder two cycle engine weighing 500 pounds be too heavy for the boat? If not what size wheel should I use? Can I plank her with ¾ inch cypress and what speed can I expect? How will she behave in rough water? If I increase all the dimensions 25% what speed could I expect from the 25-h.p. engine?—C. A. R. Jr., La.

Regret that in our estimate the 25-h.p. engine weighing 500 pounds is too heavy for At-A-Boy. For that weight the engine should develop at least 40-h.p. to be suitable for a hull of this type. If you use cypress for planking, cut it down to not over ½ inch in thickness.

On boats of this type weight is of the greatest importance. If you increase the dimensions 25% you should get a boat that would perform fairly well with your engine. The speed would be about 15 miles. We do not like to recommend propellers unless we know the exact revolutions of the engine at full power as well as the bore and stroke. In rough water At-A-Boy will pound heavily. She is not suitable for such service, although when we speak of rough water we mean the high waves of open sounds or the ocean. For most rivers or sheltered waters the waves will not seriously effect her.

Plans for a Cruising Yawl

Editor of THE RUDDER:

I would like to get plans for a yawl on the lines of Seagoer or Sea Bird. Where can I get these?—M. G., Va.

When writing for information, we will be glad to answer by mail if you will sign your name and address. It will save much time. Blue prints of THE RUDDER auxiliary yawl Seagoer can be obtained from this office for $15.00 per set. Plans and building directions for Sea Bird are in our book How to Build and Rig a Cruising Yawl, price $1.00.

Weight of Flywheel

Editor of THE RUDDER:

A few months ago you were kind enough to give me some advice concerning a propeller problem. Now I come to you with an engine question upon which I hope you can advise me also.

I have a three cylinder, two cycle speed machine which I want to install in a small hydroplane but which presents difficulties because the flywheel is so large that I cannot install the engine where I want it, not having depth enough to the hull. Another drawback is the weight of the flywheel which is about 90 or 100 pounds. The engine is a 5 inch bore and stroke, of the combination two and three port type, rated at 35-h.p. at 1,000 r.p.m. which is the speed I want it to operate. The machine now weighs 450 pounds and I want to cut this to 400 if possible. Please advise if it would be possible to cut down the flywheel in both weight and size? Would like to use a 15 inch diameter wheel.—C. L. H., Neb.

If the engine is well balanced you will be able to use a flywheel with a 15 inch diameter, 2½ inch face and 2 inch depth of rim.

Outboard Engine is Skimming Dish

Editor of THE RUDDER:

I have a skimming dish type of sailboat which is fine when the wind blows but I need power to get me home when it is calm. Can an outboard engine be fitted in this sort of hull?—C. B. W., Wash.

It is quite possible to fit an outboard in a skimming dish. Put a hatch in the stern, or better, build a well at the after end of the cockpit and place the engine through that. When the machine is not in use fill the well up with a box-like plug.

Dye for Sails

Editor of THE RUDDER:

I have an old sailboat, Swallow type which I am putting into commission. The sails are very dirty. Is there any method of cleaning them or could they be dyed a khaki color?—P. F., Minn.

We would suggest the following sail bleach for your stained sail. Take 1½ pounds of washing soda, 2 pounds of chlorinated lime and dissolve in 2½ gallons of water. Mix several days before using and stir frequently. Spread the sail out on a clean place and wet with either fresh or salt water and then scrub with the solution. After an hour or so wash the sail thoroughly in clean water and dry in the sun. Thorough washing is of absolute necessity to avoid injury to the canvas.

In Europe many of the yachtsmen dye their sails. Following is a formula for sail dye. Break up 5 pounds of gum catechu into small pieces and dissolve in 8 gallons of hot water. Strain well to get rid of all foreign matter that was contained in the gum. Try on a piece of canvas to see if the shade is right. If darker shade is wanted, use more gum, if lighter, more water. Keep sails submerged over night and dry in the shade.

Commercial Boats

Commercial Boats Help Biloxi Industry

By Anthony V. Ragussin

The seafood canning industry of Biloxi, Miss. employs several thousand people and comprises 17 canning plants which pack oysters and shrimp to be shipped to all parts of the world. Several hundred vessels including schooners, trawlers and freighters go into the waters of the Gulf of Mexico along the Mississippi and Louisiana coast to bring back the seafood. The oyster season, under the jurisdiction of the Mississippi Oyster Commission, which body regulates the seafood industry of that state, opens on September 1st and lasts until May 1st. The shrimp season is the same.

The shrimp vessels are divided into three classes; the schooners, the freighters and the trawls. The schooners carry up to 300 barrels of shrimp. Most of these vessels make trips which average a week. Some of them however take supplies enough for a month and remain outside for that period, giving the shrimp they catch to the power freight boats. The freighters are larger than the schooners and carry much more shrimp. They cruise around where the schooners are located and take whatever amount they can get from each fishing vessel. By collecting the cargo here and there the freighter soon gets a full cargo and then rushes back to its respective canning factory. The trawlers are a comparatively new class of boats. The length ranges from 20 to 50 feet and all are propelled by gasoline engines. A fleet of about 200 of these boats operates out of Biloxi.

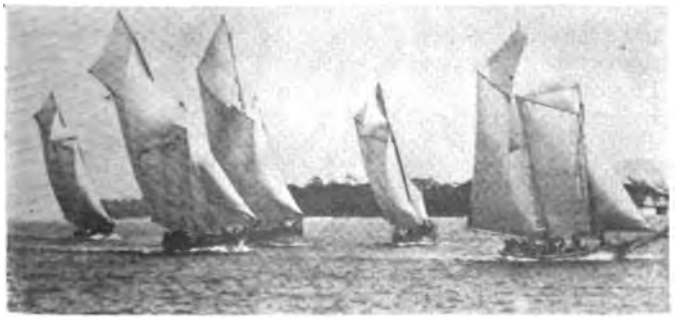
The smaller trawlers make daily trips on an average of about 30 miles from the home base at Biloxi, while the larger ones stay outside for two or three days. Two men comprise the crew of these boats as a rule, although some of the smallest are one-man boats. These vessels catch their cargo in a net shaped like the letter U, which is let down from the stern. While the boat moves along the shrimp become caught in the bag. A small derrick with tackle is used to haul the partially filled net out of the water.

All of the seafood canning plants pack both oysters and shrimp. These firms however have nothing to do with the shipment of raw oysters, which section of the industry is handled by more than 20 fish and raw oyster dealers of Biloxi. The normal pack of shrimp in the canneries average 130,000 cases annually, but statistics furnished by the freight office of the Louisville and Nashville R. R. at Biloxi show that for the fiscal year ending last December 1st a total of 168,537 cases of shrimp were shipped from Biloxi, which signifies that the pack for that year was above normal. The largest shipments were made in September and the lowest in July. The shipments indicate that over 50,000 barrels of shrimp were caught by the gasoline powered fishing boats. The total value of the catch was over a million dollars.

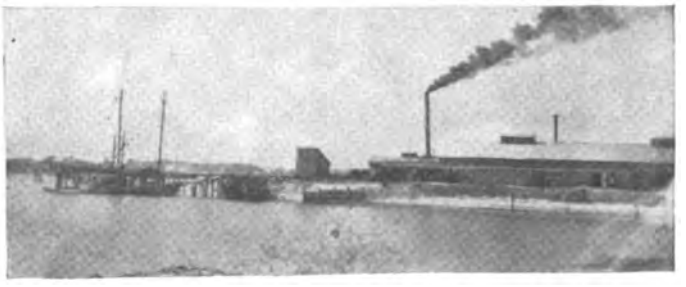
In reference to the oyster packing industry, the number of cases shipped during the above time was practically 156,000. Over eight and a half million raw oysters were shipped during the month of November alone. The value of the total oyster and shrimp catch for the year was three million dollars.

Just a few years ago the problem of what to do with the oyster shells worried the cannery men, but a new industry has sprung up and the shells are now being ground up for chicken feed and fertilizer. The magnitude of the fishing can be realized from the fact that about 170 freight car loads of shell were shipped away. Neither the fishing, canning nor the shell industry could have been brought up to any where near its present proportions if it had not been for the gasoline powered work boats.

A noteworthy fact is that the Biloxi Y. C. annual regatta is always featured by a race of the commercial fishing schooners. This two-day regatta is held in July and the work schooners are put into the pink of perfection for this race. Picked crews from the hundreds of fishermen are drilled in their duties.



Start of the Commercial Schooners in Biloxi Y. C. Annual Regatta



Biloxi Fish Canning Plant and Wharf. Note the Shell Piles

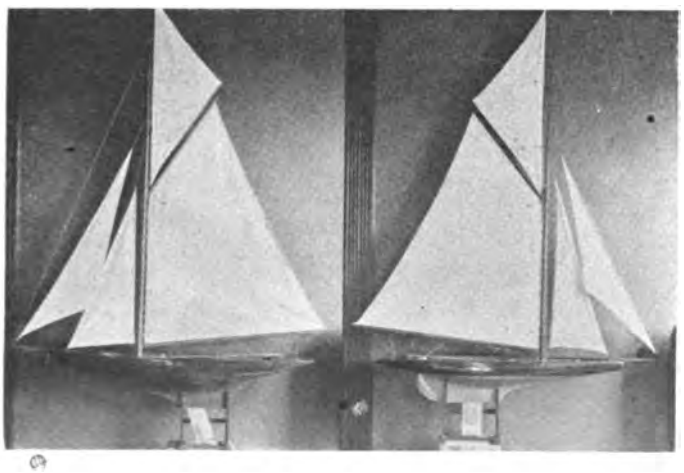
The Young Skipper

Many Young Skippers Building

If the future of yachting is ever doubted, one should spend some time in this office and read the mail, answer the telephone and interview the young fellows, who write, call up or come in to ask advice on the building of boats. They are building or buying boats of all sorts, sizes and descriptions. Most of them seem to desire a boat that can be equipped with an engine of comparatively low horse power and at the same time a craft that will reel off 14 or 15 miles an hour. In At-A-Boy which we published well over a year ago they seem to have found a craft that fills their needs to the greatest extent. As far as we can judge there are several hundred of these boats built from THE RUDDER plans in all sections of the world. Irrespective of where they are built, whether South Africa or British Columbia, they are powered with American made engines. We have had reports from out of the way corners of this earth that At-A-Boy hulls are cleaning up everything in the way of a local champion. Of course the majority of these boats are being built by older men who have not lost the natural love of a brisk ride in a fast boat, but many of the hulls were built entirely by young fellows who had no previous experience with boat building.

When At-A-Boy success is realized, we wonder just what the younger boatmen are going to do when they see the complete plans of Margaret III which we start in this issue! Of course At-A-Boy was a world's champion in her class when her plans were published, but Margaret III is almost as simple to built, her engine is not so much more expensive to buy or operate and her speed is so much greater than that made by any boat in her class, that we fear the office will be swamped with those who are building the little hydroplane. At the same time we want every man or boy who is interested in building a boat to call upon us for advice as often as he desires. Nothing would suit us better than to have to hire an extra boating expert to take care of correspondence in regard to Margaret. She is the finest and fastest boat of her type that has ever been published with complete plans, and, aside from At-A-Boy, it is the only time when the complete plans in detailed form of a world's champion has been published while the boat was still champion.

You young men can feel perfectly safe in building Margaret as long as you do not vary from the published plans and specifications. In writing us about engines, you must state the bore and stroke, the maximum revolutions per minute and the weight of the engine you wish to install. Also any other data you can gather. Remember that Margaret is a high speed boat, she must be properly taken care of and you should not attempt to drive her at top speed in rough water or across the wake of another boat.



Models of Resolute and Shamrock IV, Built from Rudder Plans

Models of Cup Yachts

Just previous to the races for the America's Cup THE RUDDER published the lines of both Resolute, the American defender and the challenger Shamrock IV. One of our readers, John B. McKean built the two fine sailing models shown below from those plans. That he did a fine job is evident from the photographs, but a short description of the method of building these miniature boats may be of interest to those who like to pass the winter evenings in a workshop.

Resolute is 3 feet 7½ inches long and has a breadth of 8¾ inches. The depth to the bottom of the center board is 14 inches. From the deck the mast is 4 feet 6 inches high with a 2 feet 7 inch boom and a 1 foot 8 inch gaff. The bowsprit is outboard 6 inches. The helm is controlled by a Richards control on a Braine gear. The hull is built up and planked like a real yacht, the frame being of white pine with sides and decking of ⅛ inch cedar. The only change made from the original plans was to make the centerboard deeper and heavier in proportion. The hull is bright finished with a green underbody.

The model of Shamrock IV is similar in construction and control, but in her case the length is 3 feet 9 inches, the breadth, 9 inches and the total depth to bottom of board, 14 inches. Her mast is 4 feet 10½ inches above the deck and the boom and gaff are respectively, 2 feet 10½ inches and 1 foot 10 inches. The bowsprit is 6½ inches outboard.

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, 9 Murray Street, New York City, U. S. A.

Sea Breeze Built from Sea Bird Plans

Editor of THE RUDDER:

Enclosed you will find photo of the yawl Sea Breeze which we built from your Sea Bird plans. The only change made was the sheer which we raised 6 inches. The cabin house was modified a little as you will see by the rectangular ports; with these exceptions the boat is identical with the original famous Sea Bird. The photograph of Sea Breeze is not just what we would like but they are the best we were able to get.

This is the third boat built by us from THE RUDDER designs; the first being Swallow, then Australia and last Sea Bird. All of these boats were designed by Charles D. Mower. We launched Sea Breeze late in the summer but were able to take five week's cruise on Long Island Sound and found her to be very satisfactory. —James H. Jones and Son, Mass.

Building Flapper

This letter was received by Winfield M. Thompson who wrote the article published some months ago in THE RUDDER about the sailing-outboard engine-rowing boat Flapper.

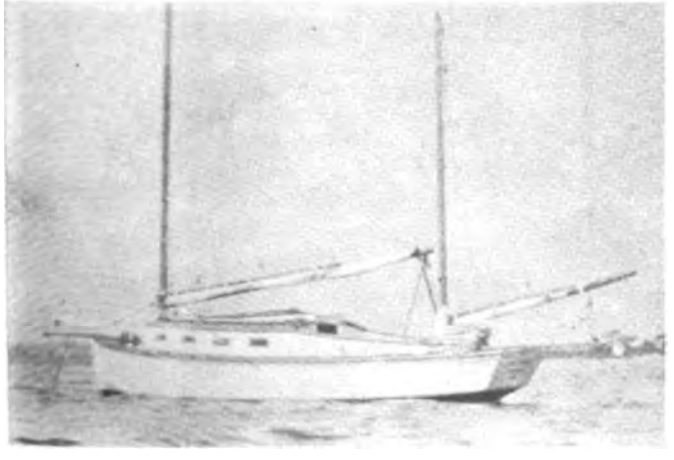
Mr. Winfield M. Thompson:

I wish to tell you that I appreciate your kindness in sending me the drawings of Flapper. I have already ordered the sails from Briggs and Beckman which they are making up from an old plan from which they made your original sail. It is hard to believe that this will not be big enough for the conditions here; at least in the winter.

You may be interested in hearing that it was partly because I once used a Wee Pup built from THE RUDDER designs, in the surf on a cruise to San Clemente, that I was encouraged to believe that Flapper would successfully overcome local conditions. Pup by the way, did about as well in surf as a boat of her inches could be asked to do.

The new Flapper's home waters will be along a coast of rocky cliffs with the nearest harbor ten miles north. There is a cove here open to the SE and SSW but with kelp and sunken ledges breaking down the swells so that a boat can get off the beach successfully 7 days out of 10 in the winter. Fifty fathoms out from the beach, and a boat is in the open channel. From the cove, Santa Catalina bears WSW, 30 miles and San Clemente, SW, 50 miles. I haven't seen a sail on the sea in the two months we've been here and the only other boats in the cove are skiffs used for fishing—flat bottomed boats with high flaring sides somewhat after this fashion,—their mother was an ordinary skiff that married a dory— the offspring are 15 feet long and oars are used to pull out along the kelp. They go no further.

In closing I wish you to know that I have read your writings in THE RUDDER, many of them and have enjoyed their intimate charm and true boaty flavor. When Flapper has wet her belly I will let you know what she says.—B. C. Huber, Calif.



Yawl Sea Breeze, Built from Sea Bird Plans

Remarkable Metal Model of Santa Maria, Built by F. H. Daughty, an English Reader

The Engine Room

The Latest Scripps Models

At the bottom of the page we show pictures of the two and six cylinder engines of the famous Scripps line. The two cylinder machine follows the same lines as the four and six cylinder models being a 4¼ inch bore and 6 inch stroke machine, weighing with all fittings 525 pounds net. The engine is rated at 10-12-h.p. in medium duty work and for semi-speed work at 15-18-h.p. There is a well developed field for an engine of this type for installation in almost all the power boats and auxiliaries that require power of about this variety.

Like the larger models this little Scripps has a crankshaft 2⅜ inches in diameter, with bearings proportionately large. Lubrication is by pressure through drilled shaft which also takes care of the reverse gear. No grease is needed for any part. The model is equipped with two-unit starting and lighting system, high-tension magneto and special hot-spot manifold that was developed particularly for the proper handling of kerosene, distillate and other similar low-grade fuel. This makes the engine particularly desirable in the commercial field and also overseas where it finds it biggest sale.

A feature of the machine can be seen from an inspection of the photograph. This is that the generator, while mounted over the reverse gear does not in any way interfere with the removable adjustment plates on the gear, being placed to one side. The design is such that accessibility is highly developed, with large hand-hole plates, removable cylinder heads and similar features.

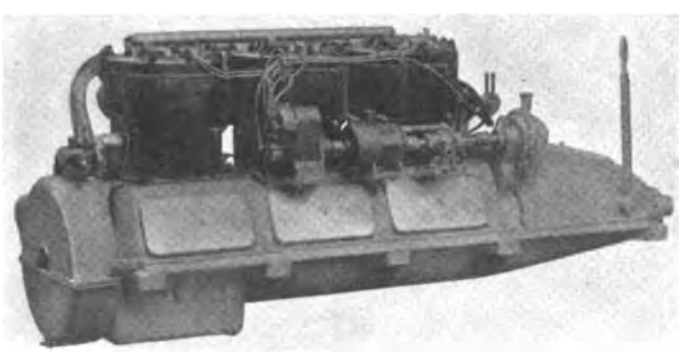
The six cylinder Model E-6 was shown for the first time at the recent Show in New York and attracted a great deal of attention from practical power boat operators. The engine was designed to fulfill the growing demand for a high grade outfit for runabouts and cruisers.

While there are many sixes in the larger sizes, the new Scripps is almost alone in the field, having a bore and stroke of 4¼ by 6 inches and being built in two types. One type is for medium duty cruiser work, the engine rating at 40 to 60-h.p. The second type is for runabout work, allowing a higher rotative speed and obtaining 60 to 100-h.p. The new engine is the result of a gradual development of the Scripps marine engines for the past years and, like the others there are many points which ordinarily are little noticed but which make a great difference in the practical operation.

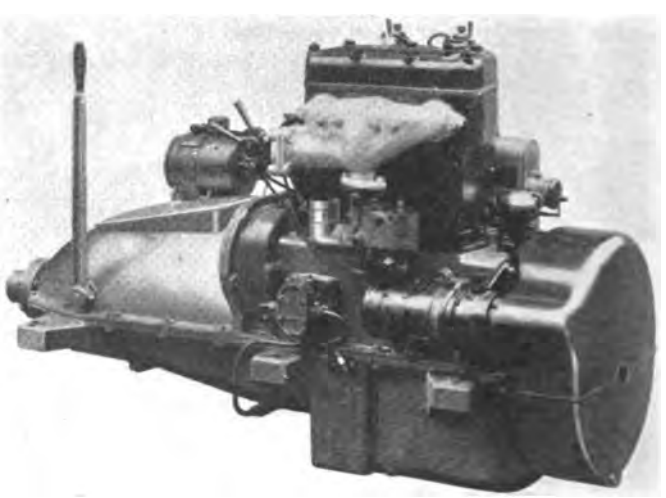
One of the features of the six is the remarkable method of manifolding to get the best results from low grade fuel. The new Scripps manifold has a hot-spot portion that takes care of low test gas, this coupled with the fact that the overlapping power impulses give a continuous torque, recommends the engine for the highest class of service. These features make for unusual economy in fuel consumption. In fact the makers state that they have tested the engine at 6/10ths of a pound per horse power hour, or in other words, about half a pint per h.p.h.

Another refinement is the ignition system. Standard ignition is by means of high tension magneto, but two spark plugs are supplied to each cylinder so that personal preferences of the owner can be taken care of. This may consist of a two-spark magneto, two-spark distributor, or, for ocean work in cruisers of two separate and distinct systems, one with the magneto and the other with a distributor.

The weight of this new six is 1,290 pounds net, with an overall length of 80 inches and a height of 23⅝ inches. The starter is a two unit Bosch with 12 volt Willard battery. The reverse gear the well-known Paragon has been selected as being eminently suitable for a high grade product.



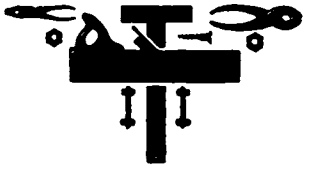
Model E-6 Scripps, 40-100-H.P. Engine



The Popular Two-Cylinder Scripps, 10-18-H.P. Machine

The Work Bench

This is a monthly department for yachtsmen who build their own equipment. In each issue there is a question pertaining to the design and construction of some item of equipment for power or sailing yachts. For the best answer each month THE RUDDER *gives a credit order for $25.00, which will be accepted in payment for goods handled by any advertiser in the current issue. Contestants whose answers are published, but who are not first prize winners, receive a credit order for $5.00. Readers are invited to suggest questions. Prize orders will be mailed directly after publication.*



Drawings must be made with black ink on white paper or tracing cloth; lettering as large and clear as possible, and all dimensions plainly marked, as the reproductions will not be to scale. Descriptions limited to about five hundred words. Answers must be received on or before the first day of the month preceding publication. Address Contest Editor, THE RUDDER, *9 Murray Street, New York City.*

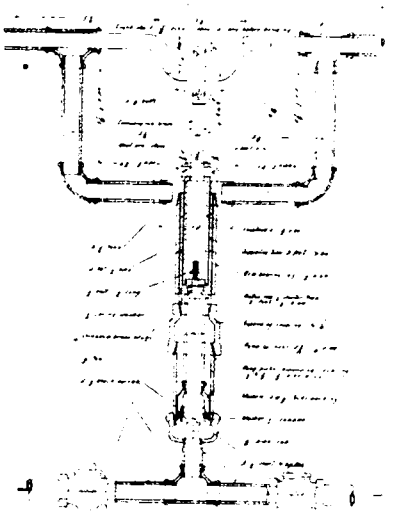
QUESTION FOR THE JULY ISSUE

Describe and Illustrate a Method of Lighting the Ordinary Box Binnacle with a Dry Battery System.
Answers must be received on or before June 1st

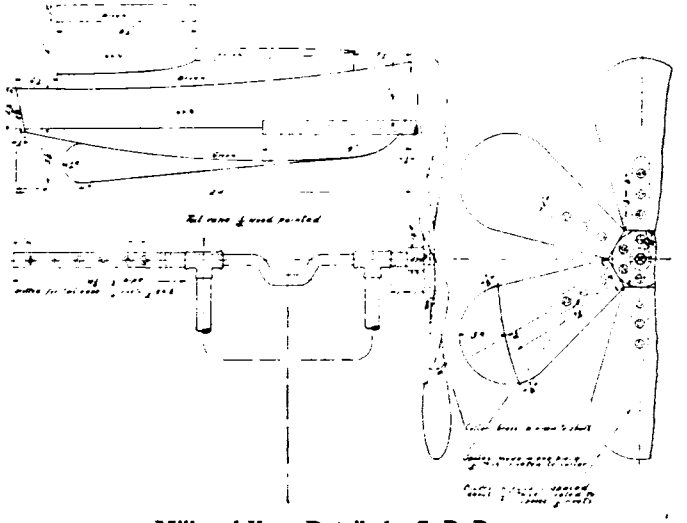
Wind-Mill Bilge Pump

$25.00 Prize Winning Answer to Question in March

The main idea in designing this wind-mill bilge pump has been to make it simple and to use pipe fittings as far as possible. The mill is made as shown in the drawings, the spokes being cut from a sheet and bent slightly to give the required angle. The blades are then riveted to the spokes. The crank-shaft is a piece of ⅝ inch rod bent to desired shape. The bearings are ½ inch pipe slightly reamed to fit shaft. The connecting rod of brass is ¾ inch wide at the bottom swelling to 1¼ inch at the crank where it is split and held together with two ¼ inch bolts. The tail-vane can be made any desired shape of the same area as shown The frame is made of ½ inch pipe with all joints pinned. Arm bearing is made of 1¼ inch brass pipe threaded into a brass disc at the top. The supporting tube is the back-bone of the machine, made of 1 inch pipe as long as desired to clear awnings etc. The cross-head is ¾ inch pipe fitted with a wrist pin at the top and plugged at the bottom. This plug is drilled and fitted with a ¼ inch bolt to permit the cross-head to revolve. The pump can be made as shown or another pump installed.—S. B. B., Calif.



$25.00 Prize, Wind-Mill Bilge Pump

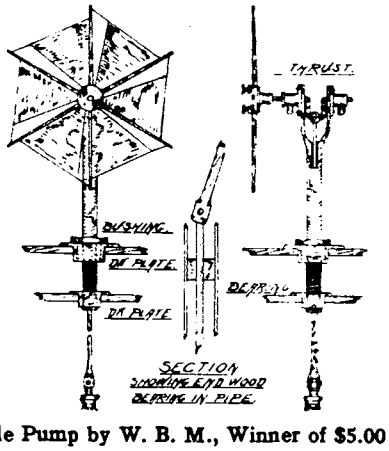


Mill and Vane Details by S. B. B.

A Simple Wind-Driven Pump Outfit

$5.00 Prize Answer to Question in March

This simple wind-mill pump is intended more as a temporary device although it can be used regularly if appearance wasn't a desiratum. It is an adaptation of the ice-barge pumps familiar to every Hudson River boatman. As the boat will normally head into the wind, no revolving head is shown.—W. B. M., N. Y.



A Simple Pump by W. B. M., Winner of $5.00 Prize

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THE INTERNATIONAL NEWS CO., 5 Breams Building, Chancery Lane, London, E. C.
BRENTANO'S, 36 Ave de l'Opera, Paris, France.
GORDON & GOTCH, Sydney, Australia.
Or at any Bookstall.

American Marine Products Cover the World

To one who reads all of the yachting publications from all over the world, the most salient fact must be the great popularity of American marine engines in every country. In many cases we see cuts of engines which we recognize as American made, but having different foreign names, bravely holding their heads up as a purely local product. Possibly foreign dealers are so silly as to think that an engine with an American name will not sell as well as the same machine with another name added to it, but we doubt that there is any truth in the idea. Products of American designers and builders should always be sold under their correct names.

The mechanical skill which has made our machines the most popular in foreign countries is, or should be recognized by everyone no matter what flag may wave over his head. In many cases the American public has set the stamp of approval upon the products of various foreign concerns in the automobile and other lines. We do not see European cars brought to this country and marketed under the shallow pretext of a change of name as an American machine. Why then should our marine engines be marketed under different names in other countries?

Not only are American marine engines popular all over the world, but American designers are constantly drawing plans for yachts and small commercial power boats which are to be built in far corners of the world. This is very noticable in the case of power work boats and fast runabouts. In South America, American designed commercial power boats are pushing their stout noses up rivers where white men have never been before. Every sort of tropical product is being brought from the interiors to the seaboard in tight little vessels whose plans were drawn in Philadelphia, or Boston, or New York. In the majority of these cases the boats are equipped with our engines and our hardware and equipment makers have supplied the accessories, and fastenings and the paints.

This same thing holds good for Asiatic water. In China there are any number of American designed and equipped boats used for both pleasure and business. It is true that the engines usually are arranged to burn kerosene or other low grade fuel, for gasoline is unobtainable in some places, but often it will be found that the machines are exact duplicates of those we used here. A heating device on the exhaust is led to the carbureter. We could do the same thing here

Day after day we receive letters from foreign readers who wish to purchase anything from a complete yacht down to a deck cleat. Often it takes months before delivery can be made on such things, but in every case the purchaser is willing to wait in order to get the best there is. It should be a source of great satisfaction to every boat owner in this country to know that he stands at the fountain-head of the best marine products on earth.

One proof of the interest taken by foreign yachtsmen in our products is the fact that almost every European yachting magazine makes a point of covering the New York Show to some extent. With all due deference to them, we cannot think that this is entirely courtesy on their part. It must be that their readers insist upon knowing what is going on over here and acting upon it.

Real Sportmanship

On other pages of this issue you will find some plans and data in connection with the champion 151 cubic-inch class hydroplane Margaret III. In the June issue we will complete these plans so that readers will have the opportunity of building an exact duplicate of Margaret, in fact it is quite possible that the only way Margaret will ever be beaten is for someone to build from her plans and defeat her with slightly more modern equipment.

At this time we want to say a few words about the sportmanship of L. E. Selby, owner of Margaret and Chris. C. Smith the hydroplane genius who designed her. Both Mr. Selby and Mr. Smith have contributed her plans to readers of THE RUDDER for the good of the sport. In neither case do they receive a penny of recompense for their sportsmanlike action. Mr. Selby's boat is still champion of her class, naturally he wishes to hold his honor, but that didn't prevent him from turning over every bit of data in reference to the boat so that other men could build a boat that would have a fair chance of beating her.

A few racing men, jealous of the great success the Mid-West is having with this sort of racing, have made the assertion that racing for cash prizes kills gentlemanly sport. Not one of these howlers who decry the western boys because they don't do things exactly our way, is willing to have complete plans of any champion racing boat he may own given to the public free from any strings. Not one of the designers who think that a good boat must be designed east of the Hudson River are willing to come forward with complete plans of a class champion and give them outright to the public. Sportsmen may not have to give away their pet plans,—super-sportsmen are willing to.

Stability and Trim

(Continued from Page 26)

designed trim fore and aft. This is done in a manner similar to the calculation for transverse stability but in this case we are not concerned with stability in a fore and aft direction.

One of the inviolable laws of nature is that, a floating body, no matter what its size or shape whether it be a boat or any of the *hoi-polloi* of flotsam from an iceberg to an egg crate, will always come to rest in the position where the centers of gravity and buoyancy fall directly over one another and if any force is exerted to incline the floating object in any direction it will invariably return to its original position. This is true of a boat not only transversely but fore and aft as well and it is therefore imperative that if the completed boat is to float at her designed water line the designer must take care that these two centers will be in their correct relative positions when the boat is floating at the desired trim.

If a designer were to guess at the fore and aft centers of buoyancy and gravity he might strike it correctly or so nearly so that a slight amount of ballast would correct any error. On the other hand the result might be such that the self styled designer would be the object of unbearable derision and he might be even compelled to seek remunerative occupation at some point far removed from the water. At any rate it would have a devastating effect on repeat orders.

The fore and aft center of buoyancy is calculated and plotted as appearing on Figure 6 and the fore and aft center of gravity is located by calculating all the weights and their moments forward and aft of amidships separately. The moments forward and aft are then totalled separately and the lesser is subtracted from the greater of the two. The result is then divided by the total weight of the entire boat thus giving the distance of the center of gravity forward or aft of amidship which point appears as shown on Figure 6. If this point should not fall directly above the center of buoyancy the moment necessary to accomplish this end is calculated and some weight such as gas tanks, water tanks, or even the main power plant is then shifted forward or aft as may be necessary. If such compensation is not made the boat will settle either by the bow or stern until the center of buoyancy moves under the center of gravity as previously explained.

There are a great many more calculations necessary to the successful evolution of a new design such as skin friction, wave making resistance, displacement and area curves, etc., but such are of a very technical nature and are best learned by those who desire to gain further knowledge on the subject by reference to any one of a number of books on naval architecture.

CHARLES LINCOLN SEABURY

It is with the greatest regret that we record the death of Charles L. Seabury on April 7th at the New York Hospital. Mr. Seabury was senior member of the designing firm of Seabury and deZafra and one of the best known naval architects in the world. He was born at Tiverton, N. Y., in 1860 and had always been connected with yachts and their design and construction.

For many years he was the head of the Gas Engine and Power Co., and Chas. L. Seabury and Co., Cons., where he helped to perfect the gasoline marine engine and designed many of the finest yachts afloat. Among these may be mentioned, Kanawha, Sovereign, Little Sovereign, Vitesse, Lyndonia and many others of equal fame.

* * *

WALTER H. JUDD

Walter H. Judd, president of the Fairhaven Iron Foundry of Fairhaven, Mass., passed away on Friday, March 24th. His loss will be felt not only by his business and personal friends, but by yachtsmen generally.

* * *

THE RUDDER BOOKSHELF

Among the recent books which have appeared on THE RUDDER shelves may be mentioned Small Boat Building by H. W. Patterson, an exceptionally complete handbook on small boat building which should be kept on the workshop shelf of every amateur boat builder. The price is $1.25. It is published by The Macmillan Co.

For those who like a story of the sea, and the hardships and victories of whaling, The Deep Sea Hunters by A. Hyatt Verrill, published by D. Appleton and Co. at $1.75 will have an appeal. It is a fine book to give to your son or other young friends for it abounds with the best traditions of the American marine in an interesting way.

The student of modern oil engine design and operating practice will find Oil Engines, A. H. Goldingham, published by Spon and Chamberlain at $4.00, a mine of information on the developments in Diesel practice. It is exceptionally well illustrated with details of engines, curve sheets and half tones.

YACHTING ITEMS FROM NEAR AND FAR

The New Haven Y. C. has finished its drive for 500 new members. The new one-design boats are coming along in good shape and will be ready for Decoration Day regatta. The club will join the Long Island Sound Y. R. Association.

At the Wyman and Co. yard the one-design boats for the Pequot Y. C. from Alden designs are building. Eleven have been ordered. They are also building a 24-foot auxiliary sloop from Rhodes' designs and a 23-foot center board knockabout by Alden.

At Henry Adams yard there are a number of boats ready to go overboard. Many of the boats in this district are being equipped with new engines, for the owners wish to be up-to-date in every way.—John H. Scott

* * *

W. J. Erich is the proud owner of a new runabout built by Consolidated from Tams and King designs. The boat is 35 feet long and is driven with a 6 cylinder, 150-h.p. Speedway engine at better than 25 miles.

* * *

We are in receipt of the Bulletin of the Marine and Field Club which states that there is a great deal of yachting interest in the club and that the coming season will be a most successful one.

* * *

In the Detroit district there is a great amount of hustling to get the boats ready for the season. Two sloops are being built from Mower designs and John Hacker is busy on a one-design runabout class. About 15 of these runabouts are being built. It is expected that there will be a new Class R boat for the Detroit Y. C. A dinner was recently given Frank Frey, manager of the D. Y. C., who is leaving to take up similar duties at the Cleveland Y. C. About 60 yachtsmen attended.—J. F. Miller

* * *

Charles L. Parmele who formerly owned the Burgess designed and Lawley built Elf has purchased the yawl Saracen II, also a Lawley-Burgess boat.

Announcement is made by the College of Mechanics of the University of California of the appointment of Chas. F. Gross as Assistant Professor of Marine Engineering and Naval Architecture. The course was started in 1918 under the direction of Prof. D. W. Dickie.

* * *

The Manchester Y. C., present holder of the Seawanhaka International Challenge Cup, announces that it is prepared to receive from organized yacht clubs foreign to the United States challenges for this cup to be raced for preferably during the last week in September with boats of the 6-Metre Class.

* * *

W. K. Vanderbilt has purchased the Diesel powered yacht Ara through the firm of Tams and King. Ara is an English vessel which saw war service and she will be the largest Diesel yacht in the country, being slightly over 1,400 tons displacement. She will arrive here early in the summer.

* * *

Charles P. Hanley of Muscatine has a new hydroplane, Ethel X, which is expected to whoop things up in the 320 class. Padgett built the boat from his own designs which were collaborated in by Hanley himself. The combination of racing brains should turn out something fast.

* * *

The large power yacht Agawam has just been sold by Richard T. Crane, Jr., to Ren W. Bartram of the N. Y. Y. C. through the agency of Cox and Stevens.

* * *

The following officers will serve the City Island Y. C. for the coming season: Commodore, Chas. F. Cafferty; vice-commodore, D. H. Frapwell; rear-commodore, Karl Seifert; fleet-captain, R. H. Amberg; treasurer, T. Kaufer; secretary, R. G. Strever; financial secretary, W. F. Smith; fleet surgeon, Dr. H. O. Clauss; measurer, P. C. Pfeiffer.

* * *

The New Bedford Y. C. will hold a Race Week beginning August 14th and ending August 19th at the Pandanaram station of the club. It is planned to make it one of the liveliest events of the season and the entertainment and race committees are already hustling with the arrangements. Some of the chief events will be a race for auxiliary schooners as well as those without power, a race for auxiliary yawls, series for the 30, 40 and 50 foot classes, one-designs series, catboat races, Elimination Trials for the Marblehead Amateur Junior Sailing Championships as well as match races for power boats. Suitable prizes will be given in all races.

* * *

Henry A. Morss of the Eastern and Corinthian Y. C. of Boston is having a new Class R boat built from Owen designs which is a radical departure from the usual boat of the type. Lascar, as the new yacht is named, will be fitted with bilge boards, double rudders and other features of more than passing interest. She is of the raised sheer type somewhat similar to the Victory boats, but there is no overhang aft.

* * *

So much dissatisfaction was expressed last summer by members of the Yacht Racing Association of Jamaica Bay about the inequalities of the A.P.B.A. racing rules that the committee led by John F. Young has worked out a new plan which will be tried out this year. The allowances as given in the rules will be used for the first two races of the season and thereafter the boats will receive allowances based on the results of the previous races in the same manner as sailing yachts in the Long Island Sound Handicap Class are rated. The results of these trials will be watched with interest by all power boat racing men.

* * *

Chris Smith, famous designer and builder of hydroplanes and record breaking runabouts has severed his connection with the C. C. Smith Boat and Engine Co., and with his famous sons has started in his own business at Algonac, Mich. Smith is without a doubt the greatest high speed expert in the world and his sons are all leaders in the same line. The new firm is located in a new shop and will build runabouts in several sizes for stock. Of course, they will still build hydroplanes to order. Their hundreds of friends wish them the best of success.

End Fire, a new extinguisher placed on the market by D. and O. G. Heyen, Inc., 41 Park Row, N. Y. C., is the latest thing in the way of a fire-fighting apparatus for power boat use. The device is designed by experienced men and will make a great bid for the power boat business.

* * *

Disappearing Propeller Jolly Boat is the latest thing in the line of these famous craft. It is made in the popular 12-foot length and combines the advantages of the regular rowing dinghy with those of a power boat. Owing to the patented disappearing propeller it can be driven up on the beach without fear of injuring the wheel.

* * *

Ditchburn Boats, Ltd., have recently issued a new and attractive circular describing their wonderful line of high grade runabouts of the round and V-bottom types. It will be remembered that Ditchburn built Rainbow, which has often been called the most beautiful runabout ever constructed.

* * *

Topping Bros. are now located in their new building at Varick and Vandam Streets, N. Y. C., where they have a stock of marine hardware which is a joy to the eyes of a yachtsman, irrespective of whether he has a sail, power or rowboat. The rapid handling of orders is a feature of the firm in its new location. Rapidity of filling and shipping orders is of the utmost benefit to professional boat builders and owners.

* * *

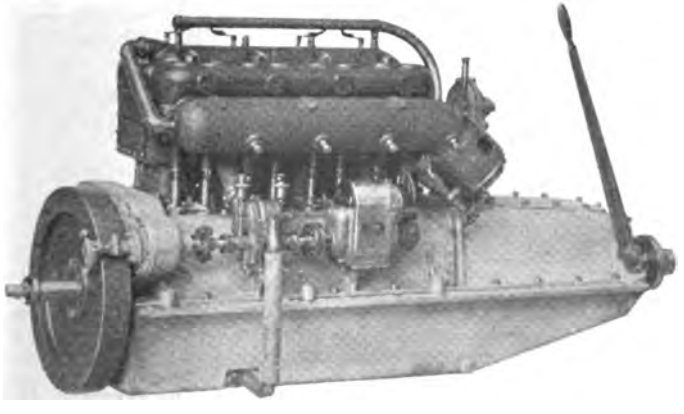
Fay and Bowen, the Geneva, N. Y. boat and engine builders are exceptionally busy. Mr. Fay, a veteran of the trade remarked that the indications are for the greatest trade revival ever known. Coming from such a conservative source his remarks are worthy of the most serious consideration by all. They are developing several new models for boats of the cruising type which require engines of absolute reliability.

* * *

G. R. Burrows, Inc., of 2 South St., N. Y. C., is one of the busiest firms in the sailmaking line. Last year they cleaned up all the ice boat records and also had scores of victories on Long Island Sound, making many friends for their American-made sails. This year they will furnish the following one-design classes: Shelter Island, Yonkers, Fishers Island Sound, Genesee Dinghy and Plandome classes as well as many new sails for the Stars and 5 suits for the 6-metre boats. They have received orders from Bermuda, South America and almost every yachting center in the United States. To anyone interested in a new suit of sails they are prepared to furnish some very valuable information. Behind their good workmanship they put their service which yachtsmen find very helpful. Low prices are one of their features.

* * *

The B. F. Sturtevant Co. announces the appointment of the Sexton Motor Co. as distributors for the Atlantic Coast from the Connecticut River to Norfolk. The Sturtevant is a high grade, 4 cylinder, dual valve, light weight engine for the finest runabouts and small fast cruisers. For the past few years the engine has only been made to order but with the Sexton selling organization handling the selling the engines will be put in production.



Sturtevant Engine

Equipment Dealers and Manufacturers

IN this list we have included the principle makers and dealers of equipment that is often needed in a hurry. By preserving this page, boat owners will find it of value throughout the season. Please mention THE RUDDER when writing listed firms.

BRONZE PROPELLERS

Columbian Bronze Corp., 522 Fifth Ave. N. Y. City.
Hyde Windlass Co., Bath, Me.
McFarland Found. and Mach Co., Trenton, N. Y.
Michigan Wheel Co., Grand Rapids, Mich.

FEATHERING PROPELLERS

Gordon Propeller Co., Desmond Ave., Cleveland, O.
Noyes Machine Co., South Portland, Me.

CANVAS GOODS AND SAILS

Wilson and Silsby, Rowe's Wharf, Boston, Mass.
Burrows and Co., 2 South St., New York City.
Cousins and Pratt, 274 Summer St., Boston, Mass.
McClellan, Chas. P., Fall River, Mass.
C. R. Daniels, Inc., 115 South St., New York City.
Larsen, Louis J., 45 Fulton St., New York City.
Carpenter, Geo. B., Co., 438 No. Wells St., Chicago, Ill.
Griffin, Wm. H., City Island, New York City.
Marine Canvas and Supply Co., Pier 7, N. R., N. Y. C.
Briggs and Beckman, New Bedford, Mass.
Nickerson, L., 173 State St., Boston, Mass.
Ratsey and Lapthorn, City Island, New York City.

MILDEW PROOFING FOR SAILS

Tate Electrolytic Textile Processes, Inc.
45 E. 17th St., New York City.
Ketcham Co., J. W., Greenport, N. Y.

MARINE HARDWARE DEALERS

Durkee and Co., 2 South St., New York City.
Topping Bros., Varick and Vandam Sts., N. Y. C.
Morss Co., A. S., Boston, Mass.
Tiebout, W. and J., 118 Chambers St., New York City.
Carpenter and Co., 438 No. Wells St., Chicago, Ill.
Wilcox-Crittenden and Co.,
120 So. Main St., Middletown, Conn.
Laughlin Co., Thos., Portland, Me.
Willis, E. J., 85 Chambers St., New York City.
Boston Marine Hdw. Co. Atlantic Ave., Boston, Mass.
Zundel, R. W. 47 Whitehall St., New York City.

IGNITION DEVICES

American Bosch Mag. Co., Springfield, Mass.
Bosch Mag. Corp., Robt., 123 W 64th St., N. Y. C.
Samson Elect. Co., Canton, Mass.
Atwater-Kent Mfg. Works, Philadelphia, Pa.
Scintilla Magneto Co., 225 W. 57th St., New York City.

DRY BATTERIES

National Carbon Co., Cleveland, O.
Manhattan Electric Supply Co., N. Y. City

SPARK PLUGS

Rajah Auto Supply Co., Bloomfield, N. J.
Champion Ignition Co., Flint, Mich.
Bosch Mag. Co., Robt. 123 West 64th St., N. Y. C.
American Bosch Mag. Co., Springfield, Mass.

UNIVERSAL JOINTS

Hartmann Mfg. Co., Hartford, Conn.
Blood Bros. Mach. Co., Allegan, Mich.
Cross Gear and Eng. Co.,
3259 Bellevue Ave., Detroit, Mich.

REVERSE GEARS

Paragon Gear Works, Taunton, Mass.
Petrelli Mfg. Co., Port Chester, N. Y.
Snow and Petrelli Mfg. Co., New Haven, Conn.
Syracuse Gear Co., Syracuse, N. Y.
Standard Gear Co., Commonwealth Ave., Detroit, Mich.
Gies Gear Co., E. Fort St., Detroit, Mich.
Carlyle Johnson Mach. Co., Manchester, Conn.
Master Motor Co., Lockport, N. Y.
McKinnon Iron Works Co., Ashtabula, O.

TANKS

Koven, L. O. and Bros. Ogden Ave., Jersey City, N. J.
Janney, Steinmetz and Co., 30 Church St., N. Y. C.

FIRE EXTINGUISHERS

Pyrene Mfg. Co., 520 Belmont Ave., Newark, N. J.
D. & O. G. Heyen, Inc., 41 Park Row, New York City.
Fire Gun Mfg. Co., 115—4th Ave., New York City.

UNIFORMS

Schellenburg and Sons, B., 98 Myrtle Ave., B'lyn, N. Y.
Apple and Co., S., 16 Fulton St., New York City.
Place Co., Howard, 162 South St., New York City.

NAUTICAL INSTRUMENTS AND CHARTS

Negus, T. S. and J. D., 140 Water St., New York City.
Richie & Sons, Brookline, Mass.
Marine Compass Co., Bryantville, Mass.

REDUCTION AND STEP-UP GEARS

Cross Gear and Engine Co., Bellevue Ave., Detroit, Mich.

PLUMBING

Sands and Son Co., A. B., 22 Vesey St., New York City.
Curtiss, J. H. and Co., 2South St. New York City.
Goblet, Wm. H., 1144 Bay St.,
Rosebank, Staten Island, New York City.
Laughlin Co., Thos., Portland, Me.

PISTONS

Clark-Turner Piston Co., Los Angeles, Cal.
Dow Chemical Co., Midland, Mich.

PISTON RINGS

McQuay-Norris Mfg. Co., St. Louis, Mo.
Piston Ring Co., Muskegon, Mich.
Gill Mfg. Co., Chicago, Ill.
Zelnicker Supply Co., Wellston, Mo.
Miles Piston Ring Co., 5345 S. State St., Chicago, Ill.
No-Leak-O Piston Ring Co., Baltimore, Md.

CRANK SHAFTS AND SIMILAR FORGINGS

Wyman-Gordon, Worcester, Mass.
Gill and Sons Forge and Mach. Works, Brooklyn, N. Y.
John Brennen and Co., 25th St., Detroit, Mich.

YACHT CLOCKS

Chelsea Clock Co., 10 State St., Boston, Mass.
Sessions Clock Co., Forestville, Conn.

ELECTRIC LIGHTING OUTFITS

MacRae, Hector, 314 St. Paul St., Baltimore, Md.
Comet Electric Co., St. Paul St., Indianapolis, Ind.
Columbian Bronze Corp., 522 Fifth Ave., N. Y. C.
A-C Electric Mfg. Co., Dayton, Ohio.
Simms Magneto Co., East Orange, N. J.
Smith-Meeker Engineering Co., 123 Liberty St., N. Y. C.
Van Benthuysen Co., Robert., 178 Center St., N. Y. C.

OIL BURNERS FOR RANGES

Manning Gas Maker, 407 Market St., San Francisco, Cal.
Oliver Oil-Gas Burner Co., St. Louis, Mo.

Bruns, Kimball and Co., announce that T. H. Travis has been appointed chief salesman of their Philadelphia office. Mr. Travis is one of the best known gasoline engine men.

* * *

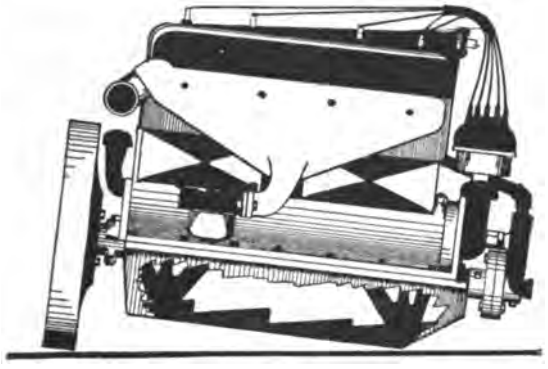
The Cape Cod Shipbuilding Corp., of Wareham, Mass., have built one of the largest small boat building yards in America. The ground plan covers 10 acres on the water front, upon which they have erected 4 buildings. The boat shop is 150 feet deep by 50 feet wide. A machine shop is 60 by 90 feet, a foundry 40 by 50 feet and the office building provides space for the clerical force. All the latest tools for building have been installed and each stage of production carefully laid out, for at the prices they sell their output there can be no lost motion or waste of material. While the plant is laid out to manufacture small boats throughout the year, a department takes care of commercial work up to 150 feet in length. At present the knockabout exhibited at the New York Show is in production and they are being shipped in lots of 3 to 20 to fill orders received for one-design classes. The regular line is also being turned out in quantities.

* * *

W. and J. Tiebout have just sent us the most attractive catalog of marine hardware we have seen in a long time. It is a thick book, but shaped so that it can be carried in the pocket and referred to during the boating season. A copy should be slipped in a locker on every boat.

* * *

Gaskill Snappy marine engines are the latest thing in the way of a small cylinder marine engine using Ford parts for most of the assembly. A great feature of the Gaskill engine is the fact that it is arranged to burn kerosene without the



necessity of the buyer purchasing any expensive extra attachments. The power is 16 horse at 1,000 r.p.m., and the price ranges from $250 upwards depending upon equipment.

* * *

Harrison Stock Boats are made in three models. The first is the Harrison 20, a runabout fitted with a Kermath engine and making 20 miles with 20 h.p. The second is the well-known Harrison 32 raised deck Hand-designed cruiser which has attracted many buyers by its speed, comfort and low price. The third model is the same cruiser hull arranged as a double cabin bridge-deck boat. All of the cruisers are equipped with the remarkable Kermath 40.

* * *

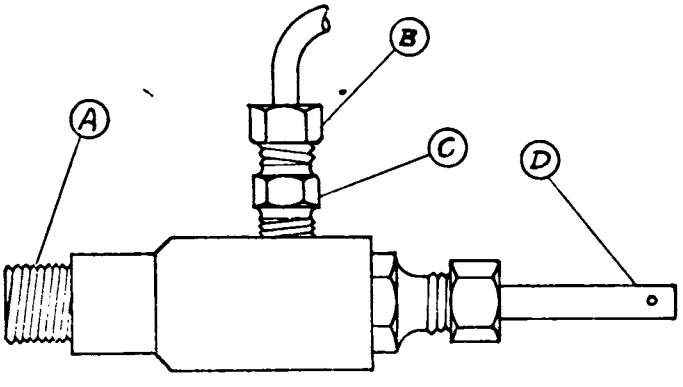
Reliance Controls made by the W. S. Hall Co. for many years are now being made by the Morley Mach. Corp. of Rochester, N. Y., They include the steering wheels and engine controls. The W. S. Hall Co. will still handle the sales of these products.

* * *

C. G. Amory of the Consolidated Shipbuilding Corp. has just returned from the Miami office of the company and reports that yachting enthusiasm in the South is greater than ever. At any rate he brought back some very fine orders.

* * *

Ever-Warm Safety Suits are being sold to many yachtsmen who appreciate the fact that not only does the suit provide a perfect life preserver, but that the wearer can remain in the water an indefinite length of time without becoming chilled. It has been determined that the majority of drownings are caused by exhaustion. With the Ever-Warm suit these accidents are prevented.



Pedersen Starting Nozzle

Ease of Starting is the object of the Pedersen Acetylene Nozzle made by the Pedersen Acetylene Nozzle Corp. of Brooklyn. The device is a little valve-like arrangement which is tapped into the intake manifold. A small tank of acetylene gas such as is used for lighting many boats and cars is attached to the nozzle. When starting, a few injections of acetylene through the nozzle will cause the engine to go off at the first turn. In fact it is always possible to start on the spark. The price is only $5.00.

* * *

Mildew Proof Sails are now a surety if the canvas from which they have been made up is treated by the Tate process. This process which is controlled by the Tate Electrolytic Textile Processes, Inc., of New York is a boon to the yachtsman, for sails so treated are not only waterproof but free from the stain of mildew. They can even be furled wet without danger. The treatment has to be given the canvas before it is made up. Awnings, etc., can also be handled.

* * *

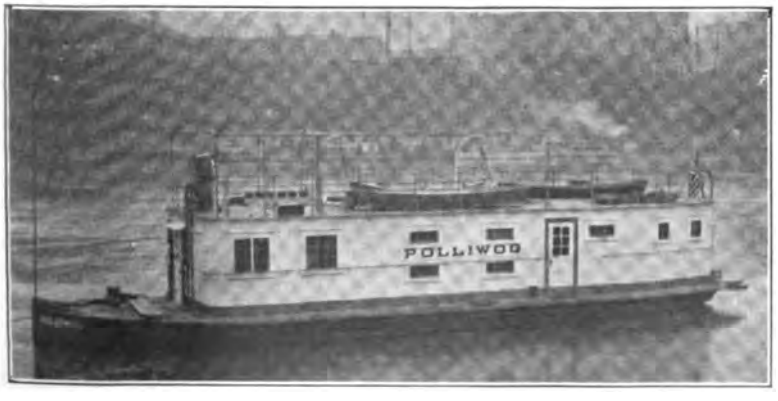
Missouri Oil Engines are now equipped with a device of simple design so that the operator can control the temperature of the engine. This device is a great assistance in economical operation and hardly seems necessary on the engines made by the Missouri Engine Co., as they already have a remarkable economy record.

* * *

Haskelite Canoes were advertised in THE RUDDER for two issues previous to the war and the response was immediate, 600 canoes being sold in one season. The war stopped the production as the Government took over the entire output of Haskelite for building airplanes. The famous flight made by the navy plane across the Atlantic was made possible to a great extent by the use of Haskelite. The canoes are built of 3-ply mahogany veneer, boiled in a patented waterproof glue for 3 hours and then transferred to a mold and pressed into shape. When finished it is one solid piece without frames, floors or canvas and as smooth and bright when finished with Valspar as any one could wish. As far as strength is concerned, the government as well as the builders have subjected the canoes to the most unheard of indignities without hurting them. Throwing a canoe from the second-story window is one test. The 17-foot canoe only weighs 57 pounds while a new yacht tender the firm is working on will only weigh 60 pounds for a 10-foot boat.

M. L. Oberdorfer Brass Co. of Syracuse, N. Y., are enabled to take care of the pump business of so many marine engine builders as well as owners because of their wonderful plant. This manufactory covers 3 acres and represents an investment of over a million dollars. About 20 acres of land have been purchased to take care of future development. The buildings are fireproof and are equipped with the latest devices in the way of labor saving machinery. The line includes all sorts of castings of aluminum, brass and bronze in addition to the famous line of pumps. For 50 years they have been in this business. The present officers are: president, Jonas L. Oberdorfer; vice-president, J. L. Goodman; secretary-treasurer, Jesse L. Oberdorfer.

The Immense Plant of the M. L. Oberdorfer Brass Co., at Syracuse, N. Y.



32-40-H.P. Red Wing Powered Work Boat Running 10-14 Hours Daily

Wireless Enthusiasts are becoming so common that we will soon expect to find a set on every cruiser. E. F. McDonald, one of our readers suggests that all owners install a ground connection on the outside of their hulls so that they can install a set during the summer without hauling the boat out. Mr. McDonald owns the 55-foot cruiser Wa-Wa- Tay- See and the ground installed on his boat was a strip of very thin copper 6-inches wide, located half way between the waterline and the keel and running from the stern on the port side, forward to the stem and around to the stern on the starboard side. Wireless men say this ground will be enough for any boat over 40 feet long. On smaller boats the strip should be somewhat wider. The strip is connected through the hull with two wires not smaller than No. 6 gauge, soldered to strip. It is well to bring these wires in at separate places. In any case the strip should not be painted.

American-Built Engines for 1922

In this list we have carefully compiled, for the benefit of our readers, a complete list of engines of various types.

The list includes the smallest light weight engines for pleasure boats, the highest powered machines for racing, small powered commercial boat engines and the largest size built for motorships.

Gasoline, kerosene, and heavy-oil engines, with dimensions, weights and H.P. are given.

DIESEL

ATLANTIC

4-cyl., 3-in. bore, 3½-in. stroke, 10-20-h.p., 500-800 rev., 625 lbs., $1,428.
4-cyl., 4-in. bore, 4¼-in. stroke, 20-40-h.p., 500-800 rev., 1,050 lbs., $2,335.
4-cyl., 5-in. bore, 6-in. stroke, 40-80 h.p., 400-700 rev., 1,950 lbs., $3,964.
6-cyl., 5-in. bore, 6-in. stroke, 60-120-h.p., 400-700 rev., 2,400 lbs., $5,642.
4-cyl., 6-in. bore, 7½-in. stroke, 80-160-h.p., 400-700 rev., 3,350 lbs., $6,948.
6-cyl., 6-in. bore, 7½-in. stroke, 120-240 h.p., 400-700 rev., 4,200 lbs., $9,520.

Valves with deck control.
Lubrication—Forced lubrication.
Reversing Mechanism—Direct with deck control.
Remarks—Steam boiler with automatic control.

Atlantic Marine & Construction Co., Inc.,
342 Madison Ave., N. Y.

* * *

CRAIG

James Craig Engine & Machine Works,
807 Garfield Ave., Jersey City, N. J.

* * *

FULTON

3-cyl., type 4-stroke, 8-in. bore, 9-in. stroke, 50-h.p., 400 rev., 9,000 lbs.
4-cyl., type 4-stroke, 8-in. bore, 9-in. stroke, 70-h.p., 400 rev., 11,000 lbs.
6-cyl., type 4-stroke, 8-in. bore, 9-in. stroke, 100-h.p., 400 rev., 13,000 lbs.

Ignition—Straight Diesel.
Lubrication—Force feed.
Reversing Mechanism—Reverse gear.

Fulton Mfg. Co.,
Erie, Pa.

* * *

NELSECO

4-cyl., type 4-stroke, 9-in. bore, 12½-in. stroke, 120-h.p., 350 rev., 16,500 lbs.
6-cyl., type 4-stroke, 9-in. bore, 12½-in. stroke, 180-h.p., 350 rev., 21,800 lbs.
8-cyl., type 4-stroke, 9-in. bore, 12½-in. stroke, 240-h.p., 350 rev., 28,200 lbs.
4-cyl., type 4-stroke, 18-in. bore, 18-in. stroke, 240-h.p., 240 rev., 43,000 lbs.
6-cyl., type 4-stroke, 13-in. bore, 18-in. stroke, 360-h.p., 240 rev., 48,700 lbs.
8-cyl., type 4-stroke, 13-in. bore, 18-in. stroke, 480-h.p., 240 rev., 60,000 lbs.

Lubrication—Forced feed.
Reversing Mechanism—Reverse gear.

New London Ship & Engine Co.,
Groton, Conn.

* * *

WESTERN

3-cyl., type 4-stroke, 9¼-in. bore, 14-in. stroke, 75-h.p., 325 rev., 21,000 lbs.
4-cyl., type 4-stroke, 9¼-in. bore, 14-in. stroke, 100-h.p., 325 lbs., 26,000 lbs.
6-cyl., type 4-stroke, 9¼-in. bore, 14-in. stroke, 150-h.p., 325 rev., 35,000 lbs.

Ignition—Compression. (Diesel solid injection).
Lubrication—Force feed.
Carburetion—None.
Reversing Mechanism—Our own reverse gear.
Remarks—Operate on 14 to 24 degree crude oil.

Western Machinery Co.,
900 No. Main St., Los Angeles, Cal.

* * *

WOLVERINE

2-cyl., type 4-stroke, 8¼-in. bore, 11-in. stroke, 46-h.p., 350 rev., 4,800 lbs.
3-cyl., type 4-stroke, 8¼-in. bore, 11-in. stroke, 70-h.p., 350 rev., 8,500 lbs.
4-cyl., type 4-stroke, 8¼-in. bore, 11-in. stroke, 95-h.p., 350 rev., 12,000 lbs.

Ignition—Heat of compression in patented combustion chamber in connection with solid injection fuel pumps.
Lubrication—Pressure.

Wolverine Motor Works,
35 Union Ave., Bridgeport, Conn.

WINTON

6-cyl., type 4-stroke, 11-in. bore, 14-in. stroke, 36,000 lbs.
6-cyl., type 4-stroke, 13-in. bore, 18-in. stroke, 56,000 lbs.
8-cyl., type 4-stroke, 13-in. bore, 18-in. stroke, 72,000 lbs.
12-cyl., type 4-stroke, 13-in. bore, 18-in. stroke, 88,000 lbs.

Winton Engine Works,
Cleveland, Ohio

* * *

Busch Sulzer Bros. Diesel Engine Co. ..... St. Louis, Mo.
Schneider & Co. ..... 21 E. 40th St., New York City
McIntosh Seymour Corp. ..... Auburn, N. Y.

SURFACE IGNITION

ACME

1-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 8-h.p., 360 rev., 1,470 lbs., $960.
1-cyl., type 4-stroke,, 7¼-in. bore, 9-in. stroke, 10 h.p., 340 rev., 1,850 lbs., $1,200.
2-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 16-h.p., 360 rev 2,250 lbs., $1,760.
2-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 20-h.p., 340 rev., 2,925 lbs., $2,200.
2-cyl., type 4-stroke, 8¼-in. bore, 10-in. stroke, 27-h.p., 320 rev., 3,975 lbs., $2,970.
3-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 25-h.p., 375 rev., 2,550 lbs., $2,250.
3-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 35-h.p., 350 rev., 4,075 lbs., $3,150.
3-cyl., type 4-stroke, 8¼-in. bore, 10-in. stroke, 45-h.p., 325 rev., 5,050 lbs., $4,050.
3-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 55-h.p., 300 rev., 6,680 lbs., $4,950.
4-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 40-h.p., 450 rev., 3,475 lbs., $3,200.
4-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 50-h.p., 375 rev., 5,160 lbs., $4,000.
4-cyl., type 4-stroke, 8¼-in. bore, 10-in. stroke, 65-h.p., 350 rev., 6,675 lbs., $5,200.
4-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 85-h.p., 325 rev., 8,200 lbs., $6,800.
6-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 65-h.p., 500 rev., 4,825 lbs., $4,875.
6-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 80-h.p., 425 rev., 6,950 lbs., $6,000.
6-cyl., type 4-strike, 8¼-in. bore, 10-in. stroke, 100-h.p., 400 rev., 8,900 lbs., $7,500.
6-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 125-h.p., 375 rev., 10,800 lbs., $9,875.

Semi-High Speed Engines—

2-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 22-25-h.p., 500-600 rev., 2,250 lbs., $1,760.
3-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 35-40-h.p., 500-600 rev., 2,550 lbs., $2,250.
4-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 50-55-h.p., 500-600 rev., 3,475 lbs., $3,200.
6-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 75-80-h.p., 500-600 rev., 4,825 lbs., $4,875.

Ignition—Either make-and-break or jump-spark, as desired.
Lubrication—Both splash and mechanical oiling.
Carburetion—"Schebler," generally, or other if preferred.
Reversing Mechanism—Multiple disc, with spur gears.
Remarks—Engines of heavy duty Pacific Coast type.

Acme Engine Co.,
First and Minna Sts., San Francisco, Cal.

* * *

ADVANCE

G. H. Woodhouse,
Seattle, Wash.

* * *

BOLINDERS

1-2-cyl., type 2-stroke, 5-500-h.p., 120-200 lbs., $60.—$100.

Bolinders Company, Inc.,
30 Church St., N. Y. C.

* * *

DODGE HEAVY OIL

1-cyl., type 4-stroke, 6¾-in. bore, 9-in. stroke, 12½-h.p., 425 rev., 3,000 lbs.
2-cyl., type 4-stroke, 6¾-in. bore, 9-in. stroke, 25-h.p., 425 rev., 4,000 lbs.
3-cyl., type 4-stroke, 6¾-in. bore, 9-in. stroke, 87½-h.p., 425 rev., 5,100 lbs.
4-cyl., type 4-stroke, 6¾-in. bore, 9-in. stroke, 50-h.p., 425 rev., 6,200 lbs.

SURFACE IGNITION—Continued

6-cyl., type 4-stroke, 6¾-in. bore, 9-in. stroke, 75-h.p., 425 rev., 8,400 lbs.
Ignition—Compression (Hvid Type).
Lubrication—Force Feed.
Reversing Mechanism—Reverse gear.

Dodge Manufacturing Co. (Plant 4)
Mishawaka, Ind.

* * *

FAIRBANKS-MORSE CO.

2-cyl., type 2-stroke, 8½-in. bore, 10-in. stroke, 30-h.p., 400 rev., 5,050 lbs.
3-cyl., type 2-stroke, 8½-in. bore, 10-in. stroke, 45-h.p., 400 rev., 6,370 lbs.
4-cyl., type 2-stroke, 8½-in. bore, 10-in. stroke, 60-h.p., 400 rev., 8,000 lbs.
3-cyl., type 2-stroke, 10½-in. bore, 12½-in. stroke, 75-h.p., 340 rev., 14,800 lbs.
4-cyl., type 2-stroke, 10½-in. bore, 12½-in. stroke, 100-h.p., 340 rev., 17,600 lbs.
3-cyl., type 2-stroke, 14-in. bore, 18-in. stroke, 150-h.p., 250 rev., 34,000 lbs.
4-cyl., type 2-stroke, 14-in. bore, 18-in. stroke, 200-h.p., 250 rev., 41,000 lbs.

Fairbanks-Morse Co.,
Chicago, Ill.

* * *

GULOWSEN GREI "GG" ENGINES

Gulowsen Grei Engine Co.,
Seattle, Wash.

* * *

HITCHCOCK

Standard Oil Engine Co., Inc.,
Bridgeport, Conn.

* * *

KAHLENBERG

2-cyl., type 2-stroke, 20-24-h.p., 425 rev., 6,500 lbs.
2-cyl., type 2-stroke, 30-36-h.p., 375 rev., 7,940 lbs.
3-cyl., type 2-stroke, 45-54 h.p., 375 rev., 9,875 lbs.
4-cyl., type 2-stroke, 60-70-h.p., 375 rev., 12,020 lbs.
2-cyl., type 2-stroke, 50-60 h.p., 340 rev. 9,750 lbs.
3-cyl., type 2-stroke, 75-90-h.p., 340 rev., 12,580 lbs.
4-cyl., type 2-stroke, 100-120-h.p., 340 rev., 15,835 lbs.
3-cyl., type 2-stroke, 135-150-h.p., 275 rev., 20,275 lbs.
4-cyl., type 2-stroke, 180-200-h.p., 275 rev., 24,650 lbs.
Ignition—Surface.
Lubrication—Force feed.
Reversing Mechanism—Gear and direct.

Kahlenberg Bros. Co.,
Two Rivers, Wis.

* * *

LAZIER

1-cyl., 13½-in. bore, 15¾-in. stroke, 50-h.p., 300 rev., 8,000 lbs.
2-cyl., 13½-in. bore, 15¾-in. stroke, 100-h.p., 300 rev., 15,000 lbs.
3-cyl., 13½-in. bore, 15¾-in. strbke, 150-h.p., 300 rev., 22,000 lbs.
4-cyl., 13½-in. bore, 15¾-in. stroke, 200-h.p., 300 rev., 28,000 lbs.
6-cyl., 13½-in. bore, 15¾-in. stroke, 300-h.p., 300 rev., 44,000 lbs.
Ignition—Hot bulb.
Lubrication—Force feed and ring oiler on main bearings.
Carburetion—High pressure oil spray.
Reversing Mechanism—Lazier gear.

Lazier Gas Engine Co.,
Buffalo, N. Y.

* * *

MIANUS HEAVY OIL ENGINES

1-cyl., type 2-stroke, 5⅛-in. bore, 6⅝-in. stroke, 7½-h.p., 500 rev., 1,000 lbs., $750.
2-cyl., type 2-stroke, 5⅛-in. bore, 6⅝-in. stroke, 15-h.p., 500 rev., 1,700 lbs., $1,500.
2-cyl., type 2-stroke, 7⅛-in. bore, 9⅞-in. stroke, 30-h.p., 360 rev., 5,100 lbs., $3,750.
3-cyl., type 2-stroke, 7⅛-in. bore, 9⅞-in. stroke, 45-h.p., 360 rev., 6,500 lbs., $5,625.
4-cyl., type 2-stroke, 7⅛-in. bore, 9⅞-in. stroke, 60-h.p., 360 rev., 8,200 lbs., $7,500.
Ignition—Compression.
Lubrication—Force feed.
Carburetion—Solid injection.
Reversing Mechanism—Reverse gear.

Mianus Motor Works,
Stamford, Conn.

* * *

MIETZ

2-cyl., type 2-stroke,	7-h.p.,	700 rev.,	930 lbs.
2-cyl., type 2-stroke,	10-h.p.,	550 rev.,	1,135 lbs.
2-cyl., type 2-stroke,	15-h.p.,	500 rev.,	1,905 lbs.
3-cyl., type 2-stroke,	22-h.p.,	500 rev.,	2,520 lbs.
2-cyl., type 2-stroke,	30-h.p.,	400 rev.,	4,585 lbs.
2-cyl., type 2-stroke,	40-h.p.,	400 rev.,	5,100 lbs.
2-cyl., type 2-stroke,	50-h.p.,	340 rev.,	8,800 lbs.
3-cyl., type 2-stroke,	60-h.p.,	400 rev.,	8,055 lbs.
3-cyl., type 2-stroke,	75-h.p.,	340 rev.,	9,330 lbs.
4-cyl., type 2-stroke,	100-h.p.,	340 rev.,	11,050 lbs.
3-cyl., type 2-stroke,	150-h.p.,	240 rev.,	23,860 lbs.
4-cyl., type 2-stroke,	200-h.p.,	240 rev.,	31,300 lbs.
4-cyl., type 2 stroke,	350-h.p.,	200 rev.	

Ignition—Mietz hot ball.
Lubrication—Force and slght feed.
Carburetion—None.
Reversing Mechanism—Gear type and direct reversible.
Remarks—7 to 60 h.p., gear type; 75 to 350-h.p., reversible type.

August Mietz Corporation,
430 East 19th St., New York, N. Y.

MISSOURI

1 cyl., type 2 stroke, 5-in. bore, 6-in. stroke, 7-h.p., 500 rev., 675 lbs. $575.
2-cyl., type 2-stroke, 5 in. bore, 6-in. stroke, 14-h.p., 500 rev., 1,100 lbs., $1,040.
3 cyl., type 2-stroke, 5 in. bore, 6 in. stroke, 22-h.p., 500 rev., 1,650 lbs., $1,575.
4 cyl., type 2-stroke, 5-in. bore, 6-in. stroke, 30-h.p., 500 rev., 2,200 lbs., $2,100.
Ignition—Hot surface.
Lubrication—Detroit force feed oiler.
Carburetion—Fuel Injection.
Reversing Mechanism—Paragon reverse gear.

Missouri Engine Company,
St. Louis, Mo.

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Remington Oil Engine Co.
Stamford, N. Y.

* * *

FRISCO-STANDARD

1-cyl., 6-in. bore, 8-in. stroke, 7½ h.p., 420 rev., 3,035 lbs., $730.
1-cyl., 8-in. bore, 10-in. stroke, 12½ h.p., 325 rev., 475 lbs., $1,150.
2 cyl., 6-in. bore, 8 in. stroke, 15-h.p., 420 rev., 4,842 lbs., $1,335.
1-cyl., 9½-in. bore, 11-in. stroke, 17½ h.p., 325 rev., 5,110 lbs., $1,325.
1-cyl., 10½-in. bore, 12-in. stroke, 25-h.p., 300 rev., 5,850 lbs., $2,100.
2 cyl., 8-in. bore, 10-in. stroke, 25-h.p., 325 rev., 6,320 lbs., $2,150.
3-cyl., 6-in. bore, 8-in. stroke, 25-h.p., 420 rev., 6,970 lbs., $2,200.
2-cyl., 9½-in. bore, 11-in. stroke, 35-h.p., 325 rev., 7,280 lbs., $2,765.
4 cyl., 6-in. bore, 8-in. stroke, 35-h.p., 420 rev., 9,150 lbs., $2,965.
1-cyl., 12¼-in. bore, 13½-in. stroke, 37½-h.p., 275 rev., 8,470 lbs., $3,075.
3-cyl., 8-in. bore, 10-in. stroke, 40-h.p., 325 rev., 8,939 lbs., $3,280.
1-cyl., 14¼-in. bore, 16½-in. stroke, 50-h.p., 250 rev., 11,570 lbs., $3,800.
2-cyl., 10½-in. bore, 12-in. stroke, 50-h.p., 300 rev., 8,490 lbs., $3,900.
3-cyl., 9½-in. bore, 11-in. stroke, 55-h.p., 325 rev., 10,736 lbs., $4,235.
4-cyl., 8-in. bore, 10-in. stroke, 55-h.p., 325 rev., 10,550 lbs., $4,335.
6-cyl., 6-in. bore, 8-in. stroke, 55 h.p., 420 rev., 13,175 lbs., $4,535.
2-cyl., 12¼-in. bore, 13½-in. stroke, 75-h.p., 275 rev., 12,710 lbs., $5,550.
3-cyl., 10½-in. bore, 12-in. stroke, 75-h.p., 300 rev., 13,650 lbs., $5,650.
4-cyl., 9½-in. bore, 11-in. stroke, 75-h.p., 325 rev., 12,968 lbs., $5,750.
6-cyl., 8-in. bore, 10-in. stroke, 75-h.p., 325 rev., 16,830 lbs., $5,950.
2 cyl., 14¼-bore, 16½-in. stroke, 100-h.p., 250 rev., 18,700 lbs., $7,000.
4-cyl., 10½-in. bore, 12-in. stroke, 100-h.p., 300 rev., 18,110 lbs., $7,200.
3-cyl., 12¼-in. bore, 13½ in. stroke, 110-h.p., 275 rev., 19,120 lbs., $7,920.
6-cyl., 9½-in. bore, 11-in. stroke, 115 h.p., 325 rev., 19,050 lbs., $8,165.
3-cyl., 14¼-in. bore, 16½ in. stroke, 150-h.p., 250 rev., 28,700 lbs., $10,500.
4-cyl., 12¼-in. bore, 13½-in. stroke, 150-h.p., 275 rev., 25,310 lbs., $10,650.
6-cyl., 10½-in. bore, 12-in. stroke, 150-h.p., 300 rev., 26,800 lbs., $10,950.
4 cyl., 14¼-in. bore, 16½-in. stroke, 200-h.p., 250 rev., 37,660 lbs., $13,600.
6-cyl., 12¼-in. bore, 13½-in. stroke, 225-h.p., 275 rev., 37,440 lbs., $14,850.
6-cyl., 14¼-in. bore, 16½-in. stroke, 300 h.p., 250 rev., 56,000 lbs., $19,200.

Standard Gas Eng. Co.,
Oakland, Cal.

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SUMNER

4-cyl., type 2-stroke, 16½-in. bore, 22-in. stroke, 400-h.p., 185 rev., 25 tons.
6 cyl., type 2-stroke, 16½-in. bore, 22-in. stroke, 600-h.p., 175 rev., 38 tons.
Ignition—Electrical starting, compression and retained heat when running.
Lubrication—Drip to all bearings; forced to all cylinders.
Reversing Mechanism—Directly reversible on air.
Remarks—2-cycle, single acting, open crank pits, all bearings accessible and exposed and feelable. Marine heavy oil engine on low compression. All our engines are built to contract and for ocean-going vessels.

H. W. Sumner Co.,
1506 L. C. Smith Bldg., Seattle, Wash.

* * *

WHALEY

Type 2-stroke

American Whaley Engine Co.....280 Broadway, New York

GASOLINE

ALLISON

12-cyl., type 4-stroke, 5½-in. bore, 7½-in. stroke, 400 h.p., 1,400 rev., 4,400 lbs., $25,000.
Ignition—Either battery or magneto.
Lubrication—Full force feed, dry sump.
Carburetion—Allison special.
Reversing Mechanism—Allison special, planetary type.

Allison Engineering Co.,
Indianapolis, Indiana.

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AMPHION

2-cyl., type 4 stroke, 2½ in. bore, 2½-in. stroke, 3-h.p., 900 to 1,200 rev., 60 lbs., $115.
2-cyl., type 4-stroke, 2½-in. bore, 2½-in. stroke, 3-h.p., 900 to 1,200 rev., 80 lbs., $115.
Ignition—Hight tension magneto.
Lubrication—Oil in Gasolene.
Carburetion—Mixing valve.
Reversing Mechanism—None.

Clarence J. Allen,
Amphion Marine Engines,
South Pierce St., Milwaukee, Wis.

GASOLINE—Continued

ANDERSON

1-cyl., type 4-stroke 4½-in. bore, 5-in. stroke, 4½-h.p., 600 rev., 400 lbs., $250.
2-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 8½-h.p. 600 rev., 600 lbs., $450.
2-cyl. type 4-stroke, 5-in. bore, 6-in. stroke, 12½-h.p. 550 rev., 1,000 lbs., $650.
4-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 25-h.p., 550 rev., 1,600 lbs., $1,050.
4-cyl., type 4-stroke, 7-in. bore, 8½-in. stroke, 50-h.p. 450 rev., 3,000 lbs., $2,000.
4-cyl., type 4-stroke, 4-in. bore, 5-in. stroke, 15-30-h.p., 500 to 1,000 rev., 750 lbs., $750.
Ignition—Bosch magneto.
Lubrication—Splash on 4½ and 8½-h.p.; force feed on other sizes.
Carburetion—Schebler.
Reversing Mechanism—Gies R. G. on 4½ and 8½-h.p.; Paragon on balance.
Remarks—The last size listed above is a new 1922 model.

Anderson Engine Company,
4038 North Rockwell St., Chicago, Ill.

* * *

WATERMAN

1-cyl., type 2-stroke, 2¾-in. bore, 3-in. stroke, 2-3-h.p., 1,000 rev., 36 lbs.
2-cyl., type 2-stroke, 2¾-in. bore, 3-in. stroke, 4-6-h.p., 60 lbs.
1-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 4-5-h.p., 111 lbs.
2-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 8-10-h.p., 146 lbs.
Ignition—Battery or magneto.
Lubrication—Oil
Carburetion—Kingston carbureter.
Reversing Mechanism—Joe's gear.

Arrow Motor & Machine Co., Inc.,
Newark, N. J.

AUTOMATIC

1-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, 3-h.p., 500 rev., 300 lbs.
2-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, 6-h.p., 500 rev., 525 lbs.
3-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, 9-h.p., 500 rev., 760 lbs.
1-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 6-h.p., 400 rev., 643 lbs.
2-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 12-h.p., 400 rev., 1,115 lbs.
3-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 18-h.p., 400 rev., 1,425 lbs.
4-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 24-h.p., 400 rev., 1,800 lbs.
2-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 25-h.p., 350 rev., 2,625 lbs.
3-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 37½-h.p., 350 rev., 3,465 lbs.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 50-h.p., 350 rev., 4,480 lbs.
3-cyl., type 4-stroke, 10-in. bore, 14-in. stroke, 75-h.p., 275 rev., 8,000 lbs.
4-cyl., type 4-stroke, 10-in. bore, 14-in. stroke, 100-h.p., 275 rev., 11,780 lbs.
*4-cyl., type 4-stroke, 54-in. bore, 7-in. stroke, 80-h.p., 550 rev., 1,850 lbs.
*4-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 40-h.p., 550 rev., 1,950 lbs.
*4-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 50-h.p., 500 rev., 3,000 lbs.
*4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 70-h.p., 475 rev., 4,000 lbs.
*4-cyl., type 4-stroke, 8½-in. bore, 10-in. stroke, 100 h.p., 460 rev., 6,000 lbs.
*6-cyl., type 4-stroke, 5-in. bore, 7-in. stroke, 45-h.p., 550 rev., 2,700 lbs.
*6-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 60 h.p., 550 rev., 2,900 lbs.
*6-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 75-h.p., 500 rev., 4,500 lbs.
*6-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 105-h.p., 475 rev., 6,000 lbs.
*6-cyl., type 4-stroke, 8½-in. bore, 10-in. stroke, 150-h.p., 460 rev., 9,000 lbs.
Ignition—Make-and-break or jump spark. (*Jump spark only.)
Lubrication—Gravity and force feed.
Carburetion—Schebler or Bennett.
Reversing Mechanism—Own make; also use Joe's Navy and Paragon.

The "Automatic" Machine Co.,
Bridgeport, Conn.

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BARBER

Barber Bros., King Bros., Successors,
Syracuse, N. Y.

* * *

BARKER

1-cyl., type 2-stroke, 3⅛-in. bore, 3½-in. stroke, 1¼-h.p., 475 rev., 110 lbs.
1-cyl., type 2-stroke, 4⅛-in. bore, 4¼-in. stroke, 2½-h.p. 450 rev., 170 lbs.
1-cyl., type 2-stroke, 4⅞-in. bore, 5-in. stroke, 4-h.p., 450 rev., 220 lbs.
1-cyl., type 2-stroke, 5½-in. bore, 6½-in. stroke, 6½-h.p. 400 rev., 350 lbs.
2-cyl. type 2-stroke, 4⅞-in. bore, 5-in. stroke, 8-h.p., 450 rev., 380 lbs.
Ignition—M & B or jump spark with igniter or double ignition on single cylinders.
Lubrication—M & B only on 2-cylinder model mixed with fuel.
Carburetion—Fuel injector valve or vaporizer.
Reversing Mechanism—Optional as extra equipment.

The Barker Factory,
Norwalk, Conn.

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Brennan Motor Mfg. Co.,
Syracuse, N. Y.

* * *

BRIDGEPORT

1-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 4½-h.p., 500 rev., 160 lbs.
1-cyl., type 2-stroke, 4½-in. bore, 5 in. stroke, 8-h.p., 700 rev., 160 lbs.
1-cyl., type 2-stroke, 5¼-in. bore, 5¼-in. stroke, 6-h.p., 500 rev., 200 lbs.
1-cyl., type 2-stroke, 5¼-in. bore, 5¼-in. stroke, 11-h.p., 700 rev., 200 lbs.
2-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 9-h.p., 500 rev., 375 lbs.
2-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 16-h.p., 700 rev., 375 lbs.
2-cyl., type 2-stroke, 5¼-in. bore, 5¼-in. stroke, 12-h.p., 500 rev., 400 lbs.
2-cyl., type 2-stroke, 5¼-in. bore, 5¼-in. stroke, 22-h.p., 700 rev., 400 lbs.
2-cyl., type 4-stroke, 5½-in. bore, 6½-in. stroke, 14-h.p., 500 rev., 800 lbs.
3-cyl., type 4-stroke, 6½-in. bore, 7½-in. stroke, 30-h.p., 400 rev., 2,000 lbs.
3-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 45-h.p., 375 rev., 3,200 lbs.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 60-h.p., 375 rev., 4,000 lbs.
Ignition—Optional.
Lubrication—Optional.
Carburetion—Optional.
Reversing Mechanism—Optional.

Bridgeport Motor Co., Inc.,
Bridgeport, Conn.

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BUFFALO

2-cyl., type 4 stroke, 3-in. bore, 4-in. stroke, 3-4 h.p., 700 rev., 240 lbs., $388.
2-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 5-6-h.p., 600 rev., 400 lbs., $545.
4-cyl., type 4-stroke, 3¾-in. bore, 5 in. stroke, 16-20-h.p., 800 rev., 710 lbs. $850.
4-cyl., type 4-stroke, 4¾-in. bore, 5-in. stroke, 25-30-h.p., 800 rev., 929 lbs. $1,000.
4-cyl. type 4-stroke, 5½-in. bore 7-in. stroke, 40-60-h.p., 600-900 rev., 1,730 lbs., $1,600.
4-cyl., type 4-stroke, 6¼-in. bore, 9-in.stroke, 50-80-h.p., 500-800 rev., 2,600 lbs., $2,450.
2-cyl., type 4-stroke, 5-in. bore, 6½-in. stroke, 10-12-h.p., 400 rev., 1,170 lbs., $925.
2-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 13-15 h.p., 350 rev., 1,400 lbs., $1,150.
2-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 20-22-h.p., 350 rev., 2,100 lbs., $1,450.
4-cyl., type 4-stroke, 5-in. bore, 6½-in. stroke, 20-24 h.p., 400 rev., 1,960 lbs., $1,400.
4-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 26-30 h.p., 350 rev., 2,525 lbs., $1,675.
4-cyl., type 4-stroke, 7-in. bore, 9 in. stroke, 40-45-h.p., 350 rev., 3,655 lbs., $2,500.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 45-50 h.p., 350 rev., 3,800 lbs., $2,750.
6-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 60-70 h.p. 350 rev., 4,850 lbs., $3,350.
6-cyl., type 4-stroke, 7½-in. bore, 9 in. stroke, 70-80-h.p., 350 rev., 5,100 lbs., $3,700.
4-cyl., type 4-stroke, 10-in. bore, 12-in. stroke, 85-100 h.p., 300 rev., 8,200 lbs., $5,900.
6-cyl., type 4-stroke, 10-in. bore, 12-in. stroke, 125-150-h.p. 300 rev., 12,800 lbs., $8,850.
Ignition—Double ignition; coil and distributor battery and high tension magneto on all except two small sizes, which have battery ignition only.
Lubrication—Gravity on small two cylinder. Circulatory splash on two smaller four cylinder cruiser. Circulating pleasure sytem on other cruiser models, and mechanical oiler on all heavy duty.
Carburetion—Float feed carburetor, with hot spot manifold, kerosene device also provided when desired.
Reversing Mechanism—Reverse gear of liberal capacity.
Remarks—Pieces above cover engines with iron base, aluminum can be furnished on many at an additional cost, thereby decreasing the weight. Prices are also based on steel shaft for fresh water equipment. Bronze shaft furnished if desired at additional charges. Prices F.O.B. Buffalo, with an additional cost for export boxing.

Buffalo Gasolene Motor Co.
1280-90 Niagara Street, Buffalo, New York.

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CADY

1-cyl., type 2-stroke, 3-in. bore, 2½-in. stroke, 1½-h.p., 700 rev., 15 lbs.
1-cyl., type 2 stroke, 3⅝-in. bore, 3¾ in. stroke, 3-h.p., 700 rev., 90 lbs.
1-cyl., type 2-stroke, 4⅛-in. bore, 4-in. stroke, 4-h.p., 700 rev., 135 lbs.
2-cyl., type 2-stroke 3⅝-in. bore, 3¾-in. stroke, 6 h.p., 700 rev., 140 lbs.
2-cyl., type 2 stroke, 4⅛-in. bore, 4-in. stroke., 8-h.p., 700 rev., 205 lbs.
2-cyl., type 4-stroke, 3¾-in. bore, 4-in. stroke, 8-h.p., 800 rev., 160 lbs.
4-cyl., type 4-stroke, 3¾-in. bore, 4-in. stroke, 16-h.p., 800 rev., 300 lbs.
Ignition—Battery and magneto.
Lubrication—Oil in gas on 2 cycle. Gravity splash on 4 cycle.
Carburetion—Schebler on 2 cycle, Holly on 4 cycle.
Reversing Mechanism—Standard.

C. N. Cady Co.,
Canastota, N. Y.

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CAILLE PERFECTION

1-cyl., type 2-stroke, 3¼-in. bore, 3½-in. stroke, 2½-h.p., 800 rev., 140 lbs., $108.
1-cyl., type 2-stroke, 3⅞-in. bore, 3½-in. stroke, 4-h.p., 800 rev., 150 lbs., $107.
1-cyl., type 2-stroke, 4¾-in. bore, 4½-in. stroke, 6-h.p., 800 rev., 200 lbs., $145.

GASOLINE—Continued

2-cyl., type 2-stroke, 3⅞-in. bore, 3½-in. stroke, 8-h.p., 800 rev., 280 lbs., $250.
1-cyl., type 2-stroke, 5¼-in. bore, 5-in. stroke, 8-h.p., 500 rev., 335 lbs., $190.
2-cyl., type 2-stroke, 4¾-in. bore, 4½-in. stroke, 14-h.p., 750 rev., 850 lbs., $290.
2-cyl., type 2-stroke, 5¼-in. bore, 5-in. stroke, 20-h.p., 600 rev., 495 lbs., $370.
4-cyl., type 2-stroke, 4¾-in. bore, 4½-in. stroke, 30-h.p., 1,000 rev., 600 lbs., $510.
4-cyl., type 4-stroke, 3½-in. bore, 4-in. stroke, 14-h.p., 950 rev., 664 lbs., $770.

Ontboard—

1-cyl., type 2-stroke, 2⅝-in. bore, 2½-in. stroke, 2-h.p., 700 rev., 85 lbs., $100.
1-cyl., type 2-stroke, 2⅝-in. bore, 2½-in. stroke, 2-h.p., 700 rev., 72 lbs., $65.

Ignition—Battery or magneto; jump spark.
Lubrication—Lubricators and dope cups.
Carburetion—Schebler.
Reversing Mechanism—Caille.

Caille Perfection Motor Co.,
Detroit, Mich.

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KNOX

1-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 3 h.p. 600 rev., 300 lbs., $127.50.
1-cyl., type 2-stroke, 4¼-in. bore, 4½-in. stroke, 4½-h.p., 550 rev., 350 lbs., $152.
1-cyl., type 2-stroke, 5-in. bore, 5¼-in. stroke, 5½-h.p., 550 rev., 525 lbs., $190.50.
1-cyl., type 2-stroke, 5½-in. bore, 6¼-in. stroke, 7½ n.p., 500 rev., 600 lbs., $229.
2-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 6 h.p., 600 rev., 500 lbs. $261.
2-cyl., type 2-stroke, 4¼-in. bore, 4½-in. stroke, 9-h.p., 550 rev., 380 lbs. $295.
2-cyl., type 2-stroke, 5-in. bore, 5¼-in. stroke, 11-h.p., 550 rev., 750 lbs., $340.
2-cyl., type 2-stroke, 5½-in. bore, 6¼-in. stroke, 15-h.p., 550 rev., 920 lbs., $406.
1-cyl., type 4-stroke, 5-in. bore, 5¼-in. stroke, 6-h.p., 200-600 rev., 550 lbs., $248.
1-cyl., type 4-stroke, 5½-in. bore, 6¼-in. stroke, 8-h.p., 150-600 rev., 750 lbs., $288.
2-cyl., type 4-stroke, 5-in. bore, 5¼-in. stroke, 12-h.p., 200-600 rev., 800 lbs., $448.
2-cyl., type 4-stroke, 5½-in. bore, 6¼-in. stroke, 16-h.p., 150-600 rev., 1,075 lbs., $512.
2-cyl., type 4-stroke, 7-in. bore, 8-in. stroke, 25-h.p., 250-550 rev., 2,500 lbs., $1,133.
4-cyl., type 4-stroke, 7-in. bore, 8-in. stroke, 50-h.p., 250-550 rev., 4,000 lbs., $1,983.
6-cyl., type 4-stroke, 7-in. bore, 8-in. stroke, 75-h.p., 250-550 rev., 5,200 lbs., $2,799.

Ignition—On 2-stroke make and break or jump stark. On 4 stroke all jump-spark.
Lubrication—On 2-stroke gravity. On 4-stroke force feed.
Carburetion—Knox Kerosene or Knox Gasolene.
Reversing Mechanism—Joe's.
Remarks—Prices given above are for motor with standard outfit only—Motor complete from fly-wheel to staft coupling—Reverse gear extra.

Camden Anchor Rockland Machine Co.,
Camden, Maine.

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CAPITOL

4-cyl., type 4-stroke, 3¾-in. bore, 5½-in. stroke, 26-h.p., 1,000 rev., 550 lbs.
4-cyl., type 4-stroke, 4¼-in. bore, 5½-in. stroke, 34-h.p., 1,000 rev., 600 lbs.

Ignition—High tension magneto.
Lubrication—Positive circulation splash.
Carburetion—Schebler carbureter.
Reversing Mechanism—Capitol reverse gear.
Remarks—Special high-speed racing equipment giving 50 to 70 h.p., at 2,000 rev. (Furnished on order.)

Auto Engine Works, Inc.,
St. Paul, Minn.

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CARL

1-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 4 h.p., 500 rev., 290 lbs.
2-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 9 h.p., 700 rev., 320 lbs.
4-cyl., type 4 stroke, 4½ in. bore, 5-in. stroke, 20 h.p., 800 rev., 600 lbs.
1-cyl., type 4-stroke, 5 in. bore, 6-in. stroke, 6 h.p., 150 rev., 390 lbs.
2-cyl., type 4 stroke, 5 in. bore, 6-in. stroke, 12 h.p., 600 rev., 625 lbs.
4-cyl., type 4-stroke, 5-in. bore, 6 in. stroke, 24 h.p., 700 rev., 900 lbs.
2-cyl., type 4-stroke, 6 in. bore, 8 in. stroke, 6 8 h.p., 400 rev., 500 lbs.
4-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 24-36 h.p., 500 rev., 1,400 lbs.

Ignition—Atwater Kent.
Lubrication—Gravity and Force.
Carburetion—Schebler.
Reversing Mechanism—Joe's.
Remarks—4 years' guarantee.

The Carl Engine and Machine Works,
103 No. 2nd St., Phila., Pa.

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CARLYLE JOHNSON

2-cyl., type 2 stroke, 3-in. bore, 3-in. stroke, 5-h.p., 1,200 rev., 120 lbs., $350.

Ignition—Dixie Aero type magneto or cuno model B Timer.
Lubrication—Thru the gasoline and sight feed oil cup.
Carburetion—Schebler Model H.
Reversing Mechanism—Special No. O Carlyle Johnson model F ball bearing reverse gear unit power plant design.
Remarks—For power canoes, light launches and tenders.

The Carlyle Johnson Machine Co.,
Manchester, Conn.

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HONEST CLAY

1-cyl., 4½-in. bore, 5-in. stroke, 4-h.p., 500 rev., 385 lbs.
2-cyl., 4½-in. bore, 5-in. stroke, 8-h.p., 500 rev., 585 lbs.
1-cyl., 5½-in. bore, 7-in. stroke, 6-h.p., 400 rev., 675 lbs.
1-cyl., 6½-in. bore, 7-in. stroke, 8-h.p., 400 rev., 825 lbs.
1-cyl., 7½-in. bore, 7-in. stroke, 10-h.p., 400 rev., 950 lbs.
2-cyl., 5½-in. bore, 7-in. stroke, 12-h.p., 400 rev., 1,300 lbs.
2-cyl., 6½-in. bore, 7-in. stroke, 16-h.p., 400 rev., 1,525 lbs.
2-cyl., 7½-in. bore, 7-in. stroke, 20-h.p., 400 rev., 1,750 lbs.
4-cyl., 5½-in. bore, 7-in. stroke, 25-h.p., 450 rev., 2,100 lbs.
4-cyl., 6½-in. bore, 7-in. stroke, 35-h.p., 450 rev., 2,500 lbs.
4-cyl., 7½-in. bore, 7-in. stroke, 50-h.p., 450 rev., 2,800 lbs.
2-cyl., 8½-in. bore, 10-in. stroke, 40-50-h.p., 375 rev., 4,000 lbs.
4-cyl., 8½-in. bore, 10-in. stroke, 80-100-h.p., 375 rev., 7,500 lbs.

Ignition—Battery and K-W magneto.
Lubrication—Grease cups, sight feed oilers. Manzel force feed oiler.
Carburetion—Gasolene-kerosene Schebler.
Reversing Mechanism—Paragon or Joe's gear.

Clay Engine Manufacturing Co.,
Cleveland, Ohio

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Cleveland Marine Motor Co.,
Cleveland, Ohio.

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CONSOLIDATED

4-cyl., type 4-stroke, 4-in. bore, 4½-in. stroke, 22-28-h.p., 560 lbs., $1,200.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 35-44-h.p., 950 lbs., $1,800.
6-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 50-66 h.p. 1,200 lbs., $2,800.
6-cy., type 4-stroke, 5¾-in. bore, 7-in. stroke, 130-150-h.p., 1,900 lbs., $4,250.
8-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 175-200 h.p., 2,350 lbs., $4,650.
6-cyl., type 4 stroke, 6¾-in. bore, 8½-in. stroke, 300-h.p., 4,000 lbs., $10,000.
4-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 48-75 h.p., 1,850 lbs., $3,300.
6-cyl., type 4 stroke, 5¾-in. bore, 7-in. stroke, 75-130 h.p., 2,400 lbs., $4,000.
8-cyl., type 4 stroke, 5¾-in. bore, 7-in. stroke, 100-175-h.p., 2,900 lbs., $4,400.
6-cyl., type 4 stroke, 6¾-in. bore, 8½-in. stroke, 80-115 h.p., 5,000 lbs., $6,000.
6-cyl., type 4-stroke, 8½-in. bore, 10-in. stroke, 120-165-h.p., 5,900 lbs.
6-cyl., type 4-stroke, 11-in. bore, 12-in. stroke, 200-250 h.p., 11,400 lbs.

Ignition—H. T. magneto.
Lubrication—Pressure.

Consolidated Shipbuilding Corp.,
Morris Heights, New York City.

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DUNN

Dunn Motor Works,
Ogdensburg, N. Y.

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ELTO

2-cyl., type 2-stroke, 2½-in. bore, 2-in. stroke, 3 h.p., 1,400 rev., 48 lbs., $135.

Ignition—Atwater Kent Uni Sparker.
Lubrication—Oil mixed with gas.
Carburetion—Mixing valve type.
Reversing Mechanism—Motor reversible.
Remarks—The above information applies to the Elto Light Twin out board Motor. This is the only motor which we manufacture.

Elto Outboard Motor Company,
Milwaukee, Wisconsin, U. S. A.

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ERD

Erd Motor Co.,
Saginaw, Mich.

* * *

ESSEX

Essex Engine Co.,
416 Union St., Lynn, Mass.

* * *

EVANSVILLE

1-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 3¾ h.p., 500 rev., 250 lbs., $215.
2-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 7½ h.p., 500 rev., 350 lbs., $368.
4-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 15-h.p., 500 rev., 575 lbs., $640.
1-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 5-h.p., 500 rev., 350 lbs., $268.
2-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 10-h.p., 500 rev., 475 lbs., $515.
4-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 20-h.p., 500 rev., 825 lbs., $850.

GASOLINE—Continued

1-cyl., type 4-stroke, 6-in. bore, 6¼-in. stroke, 8-h.p., 500 rev., 575 lbs., $395.
2-cyl., type 4-stroke 6-in. bore, 6¼-in. stroke, 16-h.p., 500 rev., 825 lbs., $675.
3-cyl., type 4-stroke, 6-in. bore, 6¼-in. stroke, 24-h.p., 500 rev., 1,175 lbs., $975.
4-cyl., type 4-stroke, 6-in. bore, 6¼-in. stroke, 32-h.p., 500 rev., 1,325 lbs., $1,210.
1-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 11-h.p., 350 rev., 950 lbs., $675.
2-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 22-h.p., 350 rev., 1,700 lbs., $1,200.
4-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 44-h.p., 350 rev., 2,800 lbs., $2,200.
Ignition—All 4 cyl. high tension mag. Balance batteries. Jump-spark.
Lubrication—4-cyl. mechanical force feed. Balance gravity.
Carburetion—Schebler.
Reversing Mechanism—Joe's clutch.

Evansville Gas Engine Works.
Evansville, Ind.

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EVINRUDE

Detachable Rowboat Motors

1-cyl., type 2-stroke, 2⅝-in. bore, 2½ in. stroke, 2-h.p., 300-800 rev., 72 lbs., $100.
1-cyl., type 2-stroke, 2⅝-in. bore, 2½-in. stroke, 2-h.p., 300-800 rev., 50 lbs., $100.
1-cyl., type 2 stroke, 3¼-in. bore, 3-in. stroke, 3½-h.p., 300-700 rev., 116 lbs., $160.

Marine Engines

1-cyl. type 2 stroke, 2⅝-in. bore, 2½-in. stroke, 2-h.p., 300-800 rev., 35 lbs., $65.
2-cyl., type 2-stroke, 2⅝-in. bore, 2½-in. stroke, 4-5-h.p., 300-1,200 rev., 75 lbs., $120.
Ignition—On detachables and marines, Evinrude mag.-built-in flywheel. Stationary: (high compression).
Lubrication—On detachables and marines, oil mixed with gasoline. Stationary, gravity and pump.
Carburetion—On detachables and marines Evinrude & Kingston. Stationary, fuel cup.
Reversing Mechanism—On detachables and marines, Evinrude & Johnson.

Evinrude Motor Co.,
Milwaukee, Wis.,

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FAY & BOWEN

4-cyl., type 4-stroke, 3¼-in. bore, 4½-in. stroke, 17-h.p., 1,400 rev., 450 lbs.
4-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 22-h.p., 1,200 rev., 450 lbs.
4-cyl., type 4-stroke, 4-in. bore, 5¼-in. stroke, 15-28-h.p., 600-1,000 rev., 600 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 20-35-h.p., 600-1,000 rev., 700 lbs.
4-cyl., type 4-stroke, 5-in. bore, 6¼-in. stroke, 30-45-h.p., 600-1,000 rev., 800 lbs.
6-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 30-50-h.p., 600-1,000 rev., 900 lbs.
6-cyl., type 4-stroke, 5-in. bore, 6¼-in. stroke, 45-75-h.p., 600-1,100 rev., 1,200 lbs.
Ignition—Atwater-Kent or H. T. magneto.
Lubrication—Splash, mechanical force feed.
Carburetion—Schebler or Stewart.
Reversing Mechanism—Paragon gear.
Remarks—Weights are with aluminum base.
1-cyl, type 2-stroke, 4½-in. bore, 4½-in. stroke, 5-h.p., 550 rev., 330 lbs.
1-cyl., type 2-stroke, 5½-in. bore, 5½-in. stroke, 7½-h.p., 500 rev., 580 lbs.
2-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 10-h.p., 550 rev., 510 lbs.
2-cyl., type 2-stroke, 5½-in. bore, 5½-in. stroke, 15-h.p., 500 rev., 900 lbs.
Ignition—Make-and-break.
Lubrication—Oil in gasolene.
Carburetion—Schebler.
Reversing Mechanism—Paragon gear.

Fay & Bowen Engine Co.,
Geneva, N. Y.

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Frazer Bros. Co.,
Adams, N. Y.

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FRISBIE

1-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, A5-h.p., 600 rev., Equip. A 320 lbs., $200.—B 400 lbs., $300.
1-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, C7-h.p., 550 rev., Equip. A 420 lbs., $260.—B 560 lbs., $385.
2-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, B10-h.p., 600 rev., Equip. A 440 lbs., $400.—B 525 lbs., $500.
2-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, D16-h.p., 600 rev., Equip. A 665 lbs., $500.—B 825 lbs., $625.
2-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, R18-h.p., 650 rev., Equip. A 580 lbs., $700.—B 725 lbs., $825.
3-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, N25-h.p., 600 rev.., Equip. A 945 lbs., $815.—B 1,175 lbs., $1,000.
4-cyl., type 4 stroke, 4¼-in. bore, 5-in. stroke, E30-h.p., 800 rev., Equip. A 700 lbs., $700.—B 925 lbs., $875.
4-cyl., type 4-stroke, 6 in. bore, 6-in. stroke, F40-h.p., 600 rev., Equip. A 1,060 lbs., $1,050.—B 1,400 lbs., $1,275.
6-cyl., type 4-stroke, 4¼-in. bore, 5-in. stroke, K50-h.p., 900 rev., Equip. A 940 lbs., $1,425.—B 1,100 lbs., $1,600.
6-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, L75-h.p., 750 rev., Equip. A 1,600 lbs., $1,625.—B 2,000 lbs., $1,875.
2-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, "T"20-h.p., 600 rev., Equip. B 1,300 lbs., $900.
4-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, "T"50-h.p., 600 rev., Equip. B 2,150 lbs., $2,300.
4 spec.-cyl., type 4-stroke, 6-in. bore, 6-in. stroke, "T"100 h.p., 1,200 rev., Equip. B. 2,000 lbs., $2,500.
Ignition—Distributor and coil.
Lubrication—Models A-N force feed, model "T" line combination pressure and splash.
Carburetion—Gasoline and kerosene.
Reversing Mechanism—Optional.
Remarks—Equipment "A" consists of engine, high tension ignition, spark plugs, water circulating pump, priming cups, carburetor, switch, ball thrust, coupling, inboard water connection, strainer, valve cage wrench, set screw wrench and control levers mounted. Equipment "B" includes equip. "A" plus reverse gear and fittings attached.

The Frisbie Motor Company.
Middletown, Conn.

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GAETH

2-cyl., type 4-stroke, 5¼-in. bore, 8-in. stroke, 14-18-h.p., 400-600 rev., 1,400 lbs., $1,500.
3-cyl., type 4-stroke, 5¼-in. bore, 8-in. stroke, 21-27-h.p., 400-600 rev., 1,800 lbs., $1,900.
4-cyl., type 4-stroke, 5¼-in. bore, 8-in. stroke, 28-36-h.p., 400-600 rev., 2,200 lbs., $2,200.
6-cyl., type 4-stroke, 5¼-in. bore, 8-in. stroke, 42-54-h.p., 400-600 rev., 3,000 lbs., $3,200.
Ignition—Make and break regular. High ten. mag. optional.
Lubrication—Circulating pump and splash.
Carburetion—Schebler.
Reversing Mechanism—Joe's gear.

The Gaeth Motor Co.,
2101-17 Abbey Ave., Cleveland.

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GASKILL

4-cyl., type 4-stroke, 3¼-in. bore, 4-in. stroke, 10-20-h.p., 300-1,500 rev., 275 lbs., $250.
Lubrication—Full splash circulating without pump or pipes.
Carburetion—Standard float feed with super heated manifold.
Reversing Mechanism—Standard enclosed multi cone.
Remarks—Gets real "snappy" power and satisfaction from gasolene, kerosene, alcohol or similar fuels. Repairs from Ford parts all over world. Simplest 4-cyl. 4-cyc. made.

J. Howard Gaskill,
Barnegat, N. J.

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GRAY

1-cyl.,type 2-stroke, 3¼-in. bore, 3½-stroke, 3-4-h.p., 700-1,000 rev., 90 lbs.
1-cyl., type 2-stroke, 4¼-in. bore, 4¼-in. stroke, 5½-7-h.p., 700-1,000 rev., 170 lbs.
2-cyl., type 2-stroke, 3½-in. bore, 3½-in. stroke, 6-8-h.p., 700-1,000 rev., 138 lbs.
4-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 10-25-h.p., 500-1,200 rev., 650 lbs.
4-cyl., type 4-stroke, 4-in. bore, 6-in. stroke, 25-35-h.p., 700-1,200 rev., 800 lbs.
Ignition—Jump spark and magneto on 2 cycle. 4 cycle Bosch magneto or 2 unit Bosch generator and starter.
Lubrication—Through gasoline in 2 cycle—force and splash on 4 cycle.
Carburetion—Schebler.
Reversing Mechanism—Gies on 2 cycle. Joe's on 4 cycle.

Gray Motor Corp.,
Detroit, Mich.

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HARTFORD and GRAY-PRIOR

1-cyl., type 2-stroke, 4-in. bore, 4½-in. stroke, 5-h.p., 500-700 rev., 285 lbs.
1-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 8-h.p., 500-700 rev., 305 lbs.
1-cyl., type 2-stroke, 5-in. bore, 5¼-in. stroke, 10-h.p., 500-700 rev., 420 lbs.
2-cyl., type 2-stroke, 5-in. bore, 5¼-in. stroke, 20-h.p., 500-700 rev., 655 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 8-in. stroke, 36-h.p., 500-700 rev., 2,054 lbs.
Ignition—Hartford (2-cycle) make-and-break; Gray-Prior (4-cycle) jump spark.
Lubrication—Oil mixed with gasolene (2-cycle); force feed (4-cycle).
Carburetion—Schebler (2-cycle); Kingston (4-cycle).
Reversing Mechanism—None (2-cycle); own make (4-cycle).
Remarks—Hartford (2-cycle) marine engines are built in four sizes only, 5-8-10-20-h.p. Gray-Prior (4-cycle) marine engines built in one size only, 86-h.p.

The Gray & Prior Machine Co.,
66 Suffield St., Hartford, Conn.

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HALL-SCOTT

4-cyl., type 4-stroke, 5-in. bore, 7-in. stroke, 125-h.p., 1,750 rev., 1,070 lbs., $3,100.
6-cyl., type 4-stroke, 5-in. bore, 7-in. stroke, 200-h.p., 1,750 rev., 1,290 lbs., $4,000.
Ignition—Delco.
Lubrication—Pressure feed to all bearings; auxiliary oil cooler and filter.

GASOLINE—Continued

Carburetion—Miller carbureters.
Reversing Mechanism—Paragon reverse gear.

Hall-Scott Motor Car Co., Inc.,
889 Niagara St., Buffalo, N. Y.
Factory Berkeley, Cal.

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HETTINGER

2-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 18-h.p., 400 rev., 1,600 lbs., $954.
4-cyl., type 4-stroke, 5½-in. bore, 6-in. stroke, 24-h.p., 500 rev., 1,400 lbs., $1,060.
2-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 25-h.p., 400 rev., 2,500 lbs., $1,409.
4-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 36-h.p., 400 rev., 3,000 lbs., $1,885.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 50-h.p., 400 rev., 4,500 lbs., $2,529.

Hettinger Engine Co.,
Bridgeton, N. J.

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HUBBARD

1-cyl., type 2-stroke, 3½-in. bore, 3½-in. stroke, 1½-h.p., 650 rev., 180 lbs., $95.
1-cyl., type 2-stroke, 3¾-in. bore, 4-in. stroke, 2½-h.p., 600 rev., 225 lbs., $120.
1-cyl., type 2-stroke, 4-in. bore, 4¼-in. stroke, 3-h.p., 550 rev., 291 lbs., $145.
1-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 4-h.p., 525 rev., 332 lbs., $165.
1-cyl., type 2-stroke, 5-in. bore, 5½-in. stroke, 5-h.p., 475 rev., 417 lbs., $198.
1-cyl., type 2-stroke, 6-in. bore, 6½-in. stroke, 7-h.p., 400 rev., 593 lbs., $245.
1-cyl., type 2-stroke, 7-in. bore, 7½-in. stroke, 10-h.p., 350 rev., 827 lbs., $340.
2-cyl., type 2-stroke, 4-in. bore, 4¼-in. stroke, 7-h.p., 550 rev., 448 lbs., $252.
2-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 9-h.p., 525 rev., 506 lbs., $325.
2-cyl., type 2-stroke, 5-in. bore, 5½-in. stroke, 11-h.p., 450 rev., 655 lbs., $390.
2-cyl., type 2-stroke, 6-in. bore, 6½-in. stroke, 15-h.p., 425 rev., 855 lbs., $490.
2-cyl., type 2-stroke, 7-in. bore, 7½-in. stroke, 25-h.p., 350 rev., 1,360 lbs., $750.
Ignition—Make-and-break; jump spark.
Carburetion—Schebler.
Reversing Mechanism—Joe's reverse gear.
Remarks—Prices on engines, factory equipment only.

Hubbard Motor Co.,
Middletown, Conn.

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SPEEDWAY

High Duty—
4-cyl., type 4-stroke, 4-in. bore, 4½-in. stroke, 22-28-h.p., 1,000-1,200 rev., 560 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 35-44-h.p., 1,000-1,200 rev., 950 lbs.
6-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 50-66 h.p., 1,000-1,200 rev., 1,200 lbs.
6-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 130-150-h.p., 1,000-1,200 rev., 1,900 lbs.
8 cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 175-200-h.p., 1,000-1,200 rev., 2,350 lbs.
Medium Duty—
4-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 48-75-h.p., 600-1,000 rev., 1,850 lbs.
6 cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 75-130-h.p., 600-1,000 rev., 2,400 lbs.
8-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 100-175-h.p., 600-1,000 rev., 2,900 lbs.
Heavy Duty—(Air Starting)—
6-cyl., type 4-stroke, 6¾-in. bore, 8½-in. stroke, 80-115-h.p., 400-600 rev., 5,000 lbs.
6-cyl., type 4-stroke, 8½-in. bore, 10 in. stroke, 120-160-h.p., 400-550 rev., 5,900 lbs. Price on application.
6-cyl., type 4-stroke, 11-in. bore, 12-in. stroke, 200-250-h.p., 350-450 rev., 11,400 lbs. Price on application.
Ignition—Berling and Bosch.
Lubrication—Splash and force feed.
Carburetion—Kingston and Schebler.
Reversing Mechanism—"Speedway."
Remarks—Weight of electric starter included on high duty and medium duty engines.

Consolidated Shipbuilding Corp.,
Morris Heights, New York City

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Isotta Motors Co.,
New York City.

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JOHNSON

2-cyl., type 2-stroke, 2-in. bore, 1½-in. stroke, 2-h.p., 2,100 rev., 35 lbs., $140, fresh.—$150, salt.
Ignition—Quick action flywheel magneto.
Lubrication—Oil with gas.
Carburetion—Johnson float feed carburetor.
Reversing Mechanism—Turn whole engine.
Remarks—The lightest outboard motor in the world.

Johnson Motor Co.,
914 East Sample St., South Bend, Indiana.

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CARLYLE JOHNSON

2-cyl., type 2-stroke, 3-in. bore, 3-in. stroke, 5-h.p., 1,200 rev., 110 lbs., $350.
Ignition—Bosch magneto or Cuno timer.
Lubrication—Sight feed or oil in the gasolene.
Carburetion—Schebler carbureter.
Reversing Mechanism—Carlyle Johnson Machine Co.'s No. 0 enclosed ball bearing reverse gear.
Remarks—For use in small power canoes, tenders, launches, etc.

The Carlyle Johnson Machine Co.,
52 Main St., Manchester, Conn.

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KAHLENBERG

1-cyl., type 2-stroke, 2-3-h.p., 600 rev., 125 lbs.
1-cyl., type 2-stroke, 3-4-h.p., 550 rev., 160 lbs.
1-cyl., type 2-stroke, 4-6-h.p., 400 rev., 400 lbs.
1-cyl., type 2-stroke, 6-8-h.p., 400 rev., 550 lbs.
1-cyl., type 2-stroke, 9-12-h.p., 350 rev., 750 lbs.
1-cyl., type 2-stroke, 12-15-h.p., 325 rev., 900 lbs.
2-cyl., type 2-stroke, 6-8-h.p., 550 rev., 350 lbs.
2-cyl., type 2-stroke, 8-12-h.p., 400 rev., 650 lbs.
2-cyl., type 2-stroke, 12-16-h.p., 380 rev., 950 lbs.
2-cyl., type 2-stroke, 18-24-h.p., 350 rev., 1,300 lbs.
2-cyl., type 2-stroke, 24-30-h.p., 325 rev., 1,800 lbs.
2-cyl., type 2-stroke, 30-36-h.p., 325 rev., 2,000 lbs.
2-cyl., type 2-stroke, 50-55-h.p., 300 rev., 3,400 lbs.
3-cyl., type 2-stroke, 27-36-h.p., 325 rev., 1,700 lbs.
3-cyl., type 2-stroke, 36-45-h.p., 325 rev., 2,600 lbs.
3-cyl., type 2-stroke, 45-54-h.p., 325 rev., 2,800 lbs.
3-cyl., type 2-stroke, 75-85-h.p., 300 rev., 5,000 lbs.
Ignition—Make-and-break.
Lubrication—Force feed.

Kahlenberg Bros. Co.,
1705 12th St., Two Rivers, Wis.

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KERMATH

1-cyl., type 4-stroke, 3¾-in. bore, 4-in. stroke, 3-h.p., 600-800 rev., 175 lbs., $135.
2-cyl., type 4-stroke, 3½-in. bore, 4-in. stroke, 4-5 h.p., 600-800 rev., 300 lbs., $295.
2-cyl., type 4-stroke, 3¾-in. bore, 4-in. stroke, 6-8 h.p., 600-800 rev., 325 lbs., $315.
4-cyl., type 4-stroke, 3½-in. bore, 4-in. stroke, 12-h.p., 600-1,200 rev., 470 lbs., $470.
4-cyl., type 4-stroke, 3¾-in. bore, 4-in. stroke, 16-h.p., 600-1,200 rev., 500 lbs., $500.
4-cyl., type 4-stroke, 4-in. bore, 4-in. stroke, 20-h.p., 600-1,200 rev., 535 lbs., $535.
4-cyl., type 4-stroke, 4½-in. bore, 6¼-in. stroke, 40-h.p., 600-1,200 rev., 1,350 lbs., $1,550.
Ignition—Bosch high tension magneto. Impulse coupling.
Lubrication—40-h.p. force feed, and on all other splash.
Carburetion—Kingston.
Reversing Mechanism—Kermath.

Kermath Manufacturing Company,
5880 Commonwealth Ave., Detroit, Michigan.

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KING

1-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 3 h.p., 600 rev., 125 lbs., $130.
2-cyl., type 4-stroke, 3½-in. bore, 5 in. stroke, 7-h.p., 600 rev., 160 lbs., $230.
Ignition—Bosch magneto and batteries and coil. Dual ignition.
Lubrication—Direct from cups.
Carburetion—Schebler or Holly.

King Bros.,
439 E. Water St., Syracuse, N. Y.

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KNOX

4-cyl., type 4-stroke, 5-in. bore, 5½-in. stroke, 40 h.p., 825 rev., 1,150 lbs., $1,500.
4-cyl., type 4-stroke, 3½-in.bore, 5 in. stroke, 20-h.p., 900 rev., 790 lbs., $840.
Ignition—Magneto.—Battery and magneto.
Lubrication—Full pressure.
Carburetion—Schebler—Stromberg.
Reversing Mechanism—Paragon reverse gear.

Knox Motors Associates,
Springfield, Mass.

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LATHROP

1-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 3-h.p., 500 rev.
1-cyl., type 2-stroke, 4½-in. bore, 5-in. stroke, 4-h.p., 500 rev.
1-cyl., type 2-stroke, 5½-in. bore, 5-in. stroke, 5 h.p., 500 rev.
1-cyl., type 2-stroke, 5½-in. bore, 5-in. stroke, 6 Lt.-h.p., 500 rev.
1-cyl., type 2-stroke, 5½-in. bore, 6½-in. stroke, 6 St.-h.p. 400 rev.
1-cyl., type 2-stroke, 6-in. bore, 6½-in. stroke, 7-h.p., 375 rev.
1-cyl., type 2-stroke, 6½-in. bore, 6½-in. stroke, 8-h.p., 375 rev.
1-cyl., type 2-stroke, 7-in. bore, 7½-in. stroke, 10-h.p., 300 rev.
1-cyl., type 2-stroke, 7½-in. bore, 7½-in. stroke, 12-h.p., 275 rev.
2-cyl., type 2-stroke, 4¼-in. bore, 5-in. stroke, 8-h.p., 550 rev.
2-cyl., type 2-stroke, 5⅜-in. bore, 5-in. stroke, 10-h.p., 500 rev.
2-cyl., type 2-stroke, 5½-in. bore, 5 in. stroke, 12 Lt.-h.p., 500 rev.
2-cyl., type 2-stroke, 5¾-in. bore, 6½-in. stroke, 12 St.-h.p., 400 rev.
2-cyl., type 2-stroke, 6-in. bore, 6½-in. stroke, 14-h.p., 400 rev.
2-cyl., type 2-stroke, 6½-in. bore, 6½-in. stroke, 16-h.p., 400 rev.
2-cyl., type 2-stroke, 7-in. bore, 7½-in. stroke, 20-h.p., 300 rev.
2-cyl., type 2-stroke, 7½-in. bore, 7½-in. stroke, 24-h.p., 275 rev.
3-cyl., type 2-stroke, 7½-in. bore, 7½-in. stroke, 36-h.p., 275 rev.
Ignition—Sizes 3 to 24 h.p. inclusive either make and break or jump spark. 36 h.p. three-cylinder jump spark.
Lubrication—Three systems. 1st. Large multiple gravity oilers. 2nd. Special design oil pumps. 3d. Oil in gasoline.
Carburetion—"Schebler."

GASOLINE—Continued

Reversing Mechanism—Paragon or Joe's. (Latest model yoke operating types).
2-cyl., type 4-stroke, 5⅜-in. bore, 6½-in. stroke, 12-h.p., 500 rev.
2-cyl., type 4-stroke, 5½-in. bore, 6½-in. stroke, 16-h.p., 500 rev.
3-cyl., type 4-stroke, 5⅜-in. bore, 6½-in. stroke, 21-h.p., 500 rev.
3-cyl., type 4-stroke, 5½-in. bore, 6½-in. stroke, 30-h.p., 700 rev.
4-cyl., type 4-stroke, 5⅜-in. bore, 6½-in. stroke, 28-h.p., 500 rev.
4-cyl., type 4-stroke, 5½-in. bore, 6½-in. stroke, 40-h.p., 700 rev.
Ignition—Two complete independent high tension ignition systems. One system consisting of batteries, timer, and coils with separate spark plugs, the other system, high tension magneto and separate set of spark plugs.
Lubrication—Recirculating, pressure type, positive oiling system with special provision for cleaning base and removing old oil.
Carburetion—"Kingston" model E, or "Schebler" model A.
Reversing Mechanism—"Paragon" or "Joe's" latest model yoke operating type.

J. W. Lathrop & Co.,
Mystic, Conn.

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LOANE

1-cyl., type 4-stroke, 3¾-in. bore, 5-in. stroke, 3½-h.p., 75-600 rev., 350 lbs., building.
1-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 6-h.p., 75-600 rev., 650 lbs., $300.
2-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 12-h.p., 75-600 rev., 1,050 lbs., $600.
3-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 18-h.p., 75-600 rev., 1,350 lbs., building.
4-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 24-h.p., 75-600 rev., 1,500 lbs., building.
Ignition—Jump spark battery and coils.
Lubrication—Gravity.
Carburetion—Schebler.
Reversing Mechanism—Own (Fisherman) gear.
Remarks—Prices subject to change.

Loane Engineering Co.,
Baltimore, Md.

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LOCKWOOD ASH

1-cyl., type 2-stroke, 3¼-in. bore, 3½-in. stroke, 2½-h.p., 750 rev., 100 lbs.
1-cyl., type 2-stroke, 4-in. bore, 3-in. stroke, 4-h.p., 750 rev., 138 lbs.
2-cyl., type 2-stroke, 3½-in. bore, 3½-in. stroke, 6-h.p., 750 rev., 160 lbs.
2-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 8-h.p., 750 rev., 225 lbs.
4-cyl., type 4-stroke, 3¾-in. bore, 4½-in. stroke, 14-h.p., 750 rev., 550 lbs.
1-cyl., type 2-stroke, 2⅝-in. bore, 2½-in. stroke, 2-h.p., 800 rev., 62 lbs. Detachable rowboat motor.
Ignition—Jump spark or magneto.
Lubrication—Oil mixture, except 4-cycle, which has force feed.
Carburetion—Schebler.

Lockwood Ash Motor Co.,
Jackson, Mich.

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MIANUS

1-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 3-h.p., 550 rev., 175 lbs.
1-cyl., type 2-stroke, 4⅝-in. bore, 5-in. stroke, 5-h.p., 500 rev., 280 lbs.
2-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 6-h.p., 550 rev., 300 lbs.
1-cyl., type 2-stroke, 5⅜-in. bore, 6-in. stroke, 7½-h.p., 450 rev., 415 lbs.
2-cyl., type 2-stroke, 4⅝-in. bore, 5-in. stroke, 10-h.p., 500 rev., 500 lbs.
2-cyl., type 2-stroke, 5⅜-in. bore, 6-in. stroke, 15-h.p., 450 rev., 750 lbs.
2-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 16-h.p., 400 rev., 1,600 lbs.
3-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 24-h.p., 400 rev., 2,200 lbs.
4-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 32-h.p., 400 rev., 2,750 lbs.
Ignition—Make and break on 2 cycle. Either make and break or jump spark or both on 4 cycle.
Lubrication—Gravity or force feed on 2 cycle. Force feed on 4 cycle.
Carburetion—Schebler carburetors on aero inspirator on 2 cycle.
Reversing Mechanism—Joe's or Paragon reverse gears.

Mianus Motor Works,
Stamford, Connecticut.

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MILLER

1-cyl., type 4-stroke, 4½-in. bore, 5-in. stroke, 4-h.p., 600 rev., 400 lbs.
1-cyl., type 4-stroke, 5¼-in. bore, 6-in. stroke, 6-h.p., 500 rev., 500 lbs.
2-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 10-h.p., 600 rev., 600 lbs.
2-cyl., type 4-stroke, 5¼-in. bore, 6½-in. stroke, 14-h.p., 500 rev., 750 lbs.
4-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 12-20-h.p., 600-900 rev., 700 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 18-22-h.p., 500-800 rev., 1,200 lbs.
4-cyl., type 4-stroke, 5¼-in. bore, 6-in. stroke, 24-30-h.p., 500-700 rev., 1,500 lbs.
4-cyl., type 4-stroke, 5¼-in. bore, 7½-in. stroke, 28-35-h.p., 400-550 rev., 2,000 lbs.
4-cyl., type 4-stroke, 6-in. bore, 9-in. stroke, 40-50-h.p., 350-450 rev., 2,700 lbs.
Ignition—Bosch magneto.
Lubrication—Pump oiling system.
Carburetion—Schebler.
Reversing Mechanism—Onr own and Paragon.
Remarks—All engines are adapted for use of both gasolene and kerosene.

Miller Engine Co.,
2329-31 North Talman Ave., Chicago, Ill.

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MURRAY & TREGURTHA

2-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 18-20-h.p., 425 rev., 1,867 lbs., $1,200.
3-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 25-35-h.p., 450 rev., 2,216 lbs., $1,920.
4-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 40-50-h.p., 450 rev., 2,800 lbs., $3,140.
6-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 60-75-h.p., 500 rev., 3,500 lbs., $4,340.
4-cyl., type 4-stroke 7½-in. bore, 10-in. stroke, 60-70-h.p., 400 rev., 4,600 lbs., $4,300.
6-cyl., type 4-stroke, 6½-in. bore, 9-in. stroke, 100-125-h.p., 800 rev., 3,500 lbs., $4,500.
6-cyl., type 4-stroke, 7½-in. bore, 10-in. stroke, 125-140-h.p., 700 rev., 6,000 lbs., $6,000.
4-cyl., type 4-stroke, 8½-in. bore, 11-in. stroke, 65-85-h.p., 375 rev., $5,000.
5-cyl., type 4-stroke, 8½-in. bore, 11-in. stroke, 90-115-h.p., 375 rev., $6,500.
6-cyl., type 4-stroke, 8½-in. bore, 11-in. stroke, 125-150-h.p., 350 rev., $7,900.
6-cyl., type 4-stroke, 10-in. bore, 13-in. stroke, 175-150-h.p., 325 rev., $10,000.
6-cyl., type 4-stroke, 6¼-in. bore, 7¾-in. stroke, 300-h.p., 1,650 rev., 2,100 lbs., $7,500.
6-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 400-h.p., 1,400 rev., 3,600 lbs., $15,000.
Ignition— Magneto or battery.
Lubrication—Force feed or high pressure.
Carburetion—Miller or Master.
Reversing Mechanism—Paragon or own.

Murray & Tregurtha,
Atlantic, Mass.

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N & S

1-cyl., type 4-stroke, 3¼-in. bore, 5-in. stroke, 4-h.p., 800 rev., 350 lbs., $240.
1-cyl., type 4-stroke, 3¼-in. bore, 5-in. stroke, 4-h.p., 800 rev., 350 lbs., $250.
2-cyl., type 4-stroke, 7-in. bore, 9-in. stroke, 20-h.p., 350 rev., 2,500 lbs., $1,500.
2-cyl., type 4-stroke, 8-in. bore, 10-in. stroke, 30-h.p., 350 rev., 3,000 lbs., $1,950.
3-cyl., type 4-stroke, 8-in. bore, 9-in. stroke, 40-h.p., 350 rev., 4,000 lbs., $2,500.
3-cyl., type 4-stroke, 10½-in. bore, 12-in. stroke, 80-h.p., 300 rev., 6,000 lbs., $5,500.
Ignition—Make and break, (except model C 1-cyl. 4-h.p.)
Lubrication—Force feed, (except in 4-h.p. size).
Carburetion—Schebler.
Reversing Mechanism—N & S reverse propeller, (except model D 4-h.p.)
Remarks—With exception of a few 4-h.p. engines the N & S engines are all equipped with low tension make and break spark, and N & S reversible propellers. On special order or request they are equipped with reverse gears.

N & S Engine Co.,
1144 Elliot Ave., West, Seattle.

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NEW JERSEY

4-cyl., type 4-stroke, 3¼-in. bore, 4-in. stroke, 15-h.p., 1,000 rev., 480 lbs., $375.
4-cyl., type 4-stroke, 3¼-in. bore, 4-in. stroke, 20-h.p., 1,600 rev., 495 lbs., $500.
Ignition—Splitdorf high tension magneto or Atwater Kent ignition.
Lubrication—Gear oil pump constant level oil sumps.
Carburetion—Stokes or Miller quick starting carburetors.
Reversing Mechanism—Joe's or Carlyle Johnson reverse gear.

New Jersey Motors Co.,
Keyport, N. J.

* * *

20TH CENTURY

2-cyl., type 4-stroke, 6½-in. bore, 8½-in. stroke, 15-20-h.p., 400 rev., 2,000 lbs.
4-cyl., type 4-stroke, 6½-in. bore, 8½-in. stroke, 40-50-h.p., 400 rev., 3,400 lbs.
6-cyl., type 4-stroke, 6½-in. bore, 8½-in. stroke, 65-75-h.p., 400 rev., 4,500 lbs.
Ignition—Jump spark magneto.
Lubrication—Force feed.
Carburetion—Kingston.
Reversing Mechanism—Our own make.
Remarks—Made for either gasolene or kerosene.

New York Yacht, Launch & Engine Co.,
Morris Heights, N. Y.

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NIAGARA

2-cyl., type 4-stroke, 4¾-in. bore, 5½-in. stroke, 12-h.p., 900 rev., 625 lbs., $425.
4-cyl., type 4-stroke, 2⅝-in. bore, 4-in. stroke, 9-15-h.p., 1,000 rev., 325 lbs., $236-$297.
4-cyl., type 4-stroke, 4¾-in. bore, 5½-in. stroke, 25-35-h.p., 1,000 rev., 995 lbs., $807.
4-cyl., type 4-stroke, 6¼-in. bore, 7-in. stroke, 40-80-h.p., 1,000 rev., 1,650 lbs., $1,258.
6-cyl., type 4-stroke, 6¼-in. bore, 7-in. stroke, 60-120-h.p., 1,000 rev., 2,350 lbs., $1,867.
8-cyl., type 4-stroke, 6¼-in. bore, 7-in. stroke, 80-160-h.p., 1,000 rev., 3,250 lbs., $3,250.
Ignition—Magneto and coil, distributor and battery, except second item, which has either system, but not both.
Lubrication— Mechanical force feed, except second item which is pump circulating splash system.
Reversing Mechanism—Own. Joe's on second item.

Niagara Motors Corporation,
232 Niagara Blvd., Dunkirk, N. Y.

GASOLINE—Continued

NIELAND

1-cyl., 3-in. bore, 3½-in. stroke, 1½-h.p., 700 rev., 100 lbs.
1-cyl., 3½-in. bore, 4-in. stroke, 2-h.p., 550 rev., 125 lbs.
1-cyl., 4-in. bore, 4½-in. stroke, 2½-h.p., 500 rev., 275 lbs.
1-cyl., 5-in. bore, 6-in. stroke, 4-h.p., 400 rev., 475 lbs.
1-cyl., 6-in. bore, 7½-in. stroke, 6-h.p., 375 rev., 750 lbs.
1-cyl., 6½-in. bore, 8-in. stroke, 8-h.p., 350 rev., 950 lbs.
2-cyl., 4-in. bore, 5-in. stroke, 6-h.p., 450 rev., 550 lbs.
2-cyl., 5-in. bore, 6-in. stroke, 8-h.p., 400 rev., 850 lbs.
2-cyl., 6-in. bore, 7-in. stroke, 12-h.p., 375 rev., 1,100 lbs.
2-cyl., 6½-in. bore, 8-in. stroke, 16-h.p., 350 rev., 1,400 lbs.
3-cyl., 6-in. bore, 7-in. stroke, 18-h.p., 375 rev., 1,600 lbs.
Ignition—Make-and-break or jump spark.
Lubrication—Oilers.
Carburetion—Gasolene or distillate.
Reversing Mechanism—Own make.

J. E. Nieland & Co.,
San Francisco, Cal.

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NORTH AMERICAN

4-cyl., type 4-stroke, 3¾-in. bore, 4½-in. stroke, 25-h.p., 1,600 rev., 700 lbs.
4-cyl., type 4stroke, 4-in. bore, 4½-in. stroke, 30-h.p., 1,600 rev., 750 lbs.
4-cyl., type 4-stroke, 4¾-in. bore, 6-in. stroke, 45-h.p., 1,250 rev., 900 lbs.
4-cyl., type 4-stroke, 3½-in. bore, 5-in. stroke, 25-h.p., 1,700 rev., 800 lbs.
4-cyl., type 4-stroke, 3¾-in. bore, 5¼-in. stroke, 37-h.p., 1,700 rev., 850 lbs.
4-cyl., type 4-stroke, 4-in. bore, 5½-in. stroke, 35-h.p., 1,800 rev., 850 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 50-h.p., 1,600 rev., 1,000 lbs.
Ignition—Any.
Lubrication—Force feed and splash gear driven oil pump.
Carburetion—Any.

North American Motors Co.,
Pottstown, Pa.

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PALMER

1-cyl., type 4-stroke, 4½-in. bore, 4½-in. stroke, 3½-h.p., 400-600 rev., 350 lbs.
1-cyl., type 4-stroke, 5⅜-in. bore, 6-in. stroke, 6-h.p., 400-600 rev., 425 lbs.
1-2-3-4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 4½-10-14-18-h.p., 400-600 rev., 375-650-900-1,150 lbs.
1-2-3-4-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 6-12-18-24-h.p., 400-600 rev., 400-750-1,000-1,250 lbs.
2-3-4-6-cyl., type 4-stroke, 6⅜-in. bore, 8-in. stroke, 16-24-32-50-h.p., 350-400 rev., 1,600-2,000-2,400-3,800 lbs.
2-3-4-6-cyl., type 4-stroke, 7½-in. bore, 10-in. stroke, 25-35-50-80-h.p., 300-400 rev., 3,000-3,500-4,200-5,600 lbs.
1-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 4-h.p., 450 rev., 240 lbs.
1-cyl., type 2-stroke, 5-in. bore, 6-in. stroke, 6-h.p., 400 rev., 350 lbs.
1-cyl., type 2-stroke, 6-in. bore, 6-in. stroke, 7½-h.p., 400 rev., 375 lbs.
1-2-cyl., type 2-stroke, 3¾-in. bore, 3½-in. stroke, 2½-5-h.p., 700 rev., 125-180 lbs.
1-2-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 4-8-h.p., 650 rev., 210-325 lbs.
Ignition—4-cycle, jump spark; 2 to 6-cyl. with Atwater Kent.
Lubrication—Force feed, pump and splash.
Carburetion—Small engines, Schebler or Kingston; large engines, Stromberg.
Reversing Mechanism—Palmer multiple disc.

Palmer Bros. Engines, Inc.,
Cos Cob, Conn.

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PEERLESS

1-cyl., 5-in. bore, 6-in. stroke, 5-6-h.p., 500-600 rev., 350 lbs.
2-cyl., 5-in. bore, 6-in. stroke, 10-12-h.p., 500-600 rev., 600 lbs.
2-cyl., 4-in. bore, 6-in. stroke, 8-10-h.p., 250-800 rev., 450 lbs.
4-cyl., 4-in. bore, 6-in. stroke, 16-20-h.p., 250-1,000 rev., 700 lbs.
4-cyl., 5-in. bore, 6-in. stroke, 25-35-h.p., 250-1,000 rev., 800 lbs.
2-cyl., 5¾-in. bore, 7-in. stroke, 20-24-h.p., 150-700 rev., 1,100 lbs.
4-cyl., 5¾-in. bore, 7-in. stroke, 40-50-h.p., 150-700 rev., 1,500 lbs.
Ignition—Jump spark; Kingston magneto.
Lubrication—Gravity and force feed.
Carburetion—Schebler gasolene or kerosene.
Reversing Mechanism—Peerless and Joes reverse gear.
Remarks—Prices furnished on application. Leece-Neville electric starting and lighting system furnished as regular equipment when desired.

Peerless Marine Motor Co.,
Buffalo, N. Y.

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PIERCE-BUDD

J. H. Pierce,
206 So. Raymond St., Bay City, Mich.

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RED WING

1-cyl., type 4-stroke, 2¾-in. bore, 4-in. stroke, 10-14-h.p., 1,000-1,400 rev., 264-370 lbs.
4-cyl., type 4-stroke, 3½-in. bore, 4½-in. stroke, 14-20-h.p., 800-1,200 rev., 520-670 lbs.
4-cyl., type 4-stroke, 3¾-in. bore, 4¾-in. stroke, 18-24-h.p., 800-1,200 rev., 530-680 lbs.
4-cyl., type 4-stroke, 4⅜-in. bore, 5-in. stroke, 28-36-h.p., 1,000-1,400 rev., 560-780 lbs.
4-cyl., type 4-stroke, 4¾-in. bore, 5-in. stroke, 32-40-h.p., 1,000-1,400 rev., 600-820 lbs.
Ignition—Atwater Kent or Bosch magneto.
Lubrication—Splash and pressure force feed.
Carburetion—Schebler.
Reversing Mechanism—Joe's and Paragon gears.

Red Wing Motor Co.,
Red Wing, Minn.

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REGAL

1-cyl., type 4-stroke, 3¼-in. bore, 3½-in. stroke, 2-h.p., 150-800 rev., 130 lbs.
1-cyl, type 4-stroke, 4-in. bore, 4½-in. stroke, 4-h.p., 150-800 rev., 290 lbs.
1-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 5-h.p., 150-600 rev., 385 lbs.
1-cyl., type 4-stroke 5¼-in. bore, 6½-in. stroke, 7-h.p., 150-550 rev., 745 lbs.
1-cyl., type 4-stroke, 6½-in. bore, 7-in. stroke, 9-h.p., 150-500 rev., 1,315 lbs.
2-cyl., type 4-stroke, 4-in. bore, 4½-in. stroke, 8-h.p., 150-800 rev., 540 lbs.
2-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 10-h.p., 150-600 rev., 730 lbs.
2-cyl., type 4-stroke, 5¼-in. bore, 6½-in. stroke, 14-h.p., 150-550 rev., 1,040.
2-cyl., type 4-stroke, 6½-in. bore, 7-in. stroke, 18-h.p., 150-500 rev., 1,750 lbs.
4-cyl., type 4-stroke, 4-in. bore, 4½-in. stroke, 16-h.p., 150-800 rev., 730 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 20-h.p., 150-600 rev., 1,035 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 5½-in. stroke, 32-h.p., 150-1,000 rev., 910 lbs.
4-cyl., type 4-stroke, 5¼-in. bore, 6½-in. stroke, 30-h.p. 150-600 rev., 1,600 lbs.
4-cyl., type 4-stroke, 6½-in. bore, 7-in. stroke, 36-h.p., 150-500 rev., 2,800 lbs.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 50-h.p., 150-450 rev., 4,600 lbs.
8-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 100-h.p., 150-400 rev., 8,600 lbs.
Ignition—Jump spark dual ignition by Bosch magneto and Atwater Kent or timer box.
Lubrication—Force feed, McCord lubrication on multiple cylinder engines.
Carburetion—Schebler.
Reversing Mechanism—Paragon.

Regal Gasolene Engine Co.,
Coldwater, Michigan.

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SAGAMORE

Sagamore Motor Works,
West Lynn, Mass.

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SCRIPPS

2-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 10-12-h.p., 500-700 rev., 525 lbs.
2-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 15-18-h.p., 800-1,000 rev., 525 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 30-45-h.p., 700-1,000 rev., 975 lbs.
4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 45-70-h.p., 1,000-1,600 rev., 975 lbs.
6-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 40-60-h.p., 600-1,000 rev., 1,290 lbs.
6-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 65-100-h.p., 1,000-1,600 rev., 1,290 lbs.
Ignition—High tension magneto.
Lubrication—Pressure through drilled crank shaft.
Carburetion—Gasoline or kerosene.
Reversing Mechanism—Paragon.

Scripps Motor Co.,
5817 Lincoln Ave., Detroit, Mich.

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C. C. Smith Boat & Eng. Co.,
Algonac, Mich.

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St. Lawrence River Motor & Mach. Co.,
Clayton, N. Y.

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STANDARD

2-cyl., type 4-stroke, 5-in. bore, 6½-in. stroke, 10-12-h.p., 400-450 rev., 850 lbs.
2-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 16-18-h.p., 350-400 rev., 1,200 lbs.
3-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 24-27-h.p., 350-400 rev., 1,800 lbs.
4-cyl., type 4-stroke, 5-in. bore, 6½-in. stroke, 20-24-h.p., 400-450 rev., 1,600 lbs.
4-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 32-37-h.p., 350-400 rev., 2,800 lbs.
6-cyl., type 4-stroke, 6-in. bore, 8-in. stroke, 50-54-h.p., 350-400 rev., 3,200 lbs.
4-cyl., type 4-stroke, 8-in. bore, 10-in. stroke, 65-75-h.p., 350-400 rev., 5,300 lbs.
6-cyl., type 4-stroke, 8-in. bore, 10-in. stroke, 90-100-h.p., 350-400 rev., 8,000 lbs.
6-cyl., type 4-stroke, 8½-in. bore, 11-in. stroke, 125-150-h.p., 350-400 rev., 5,800 lbs.
6-cyl., type 4-stroke, 10-in. bore, 11-in. stroke, 220-h.p., 460 rev., 6,000 lbs.

GASOLINE—Continued

4-cyl., type 4-stroke, 4-in. bore, 5½-in. stroke, 25-h.p., 900 rev., 500 lbs.
6-cyl., type 4-stroke, 6-in. bore, 6½-in. stroke, 60-h.p., 750 rev., 1,500 lbs.
Ignition—Standard; make-and-break.
Lubrication—Standard mechanical feed.
Carburetion—Standard multiple tip.
Reversing Mechanism—Standard balanced bevel type.

Standard Motor Construction Co.,
Jersey City, N. J.

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FRISCO-STANDARD

1-cyl., type 4-stroke, 5¼-in. bore, 6½-in. stroke, 5-h.p., 400 rev., 1,640 lbs., $565.
2-cyl., type 4-stroke, 4¾-in. bore, 6-in. stroke, 8-h.p., 440 rev., 2,040 lbs., $1,070.
2-cyl., type 4-stroke, 5½-in. bore, 6-in. stroke, 10-h.p., 400 rev., 2,295 lbs., $1,230.
2-cyl., type 4-stroke, 6-in. bore 7-in. stroke, 12-h.p., 380 rev., 2,725 lbs., $1,455.
2-cyl., type 4-stroke, 6¼-in. bore, 7½-in. stroke, 16-h.p., 360 rev., 3,110 lbs., $1,625.
2-cyl., type 4-stroke, 7¼-in. bore, 9-in. stroke, 20-h.p., 320 rev., 4,585 lbs., $2,177.
3-cyl., type 4-stroke, 6¼-in. bore, 7-in. stroke, 25-h.p., 450 rev., 3,922 lbs., $2,432.
3-cyl., type 4-stroke, 6½-in. bore, 8-in. stroke, 30-h.p., 360 rev., 5,210 lbs., $2,752.
3-cyl., type 4-stroke, 8-in. bore, 10-in. stroke, 40-h.p., 320 rev., 7,460 lbs., $3,495.
3-cyl., type 4-stroke, 8¼-in. bore, 10½-in. stroke, 50-h.p., 300 rev., 10,140 lbs., $4,335.
4-cyl., type 4-stroke, 8-in. bore, 10-in. stroke, 65-h.p., 360 rev., 10,672 lbs., $5,165.
3-cyl., type 4-stroke, 9¾-in. bore, 12-in. stroke, 80-h.p., 280 rev., 14,435 lbs., $6,065.
4-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 85-h.p., 350 rev., 14,836 lbs., $6,230.
3-cyl., type 4-stroke, 11¼-in. bore, 15-in. stroke, 110-h.p., 250 rev., 21,288 lbs., $9,165.
4-cyl., type 4-stroke, 9¾-in. bore, 12-in. stroke, 120-h.p., 320 rev., 19,655 lbs., $9,165.
4-cyl., type 4-stroke, 11¼-in. bore, 15-in. stroke, 175-h.p., 275 rev., 28,355 lbs., $12,220.
6-cyl., type 4-stroke, 11¼-in. bore, 15-in. stroke, 275-h.p., 300 rev., 33,075 lbs., $21,165.
Ignition—Make and break; jump spark optional.
Lubrication—Force feed.
Carburetion—Schebler.
Reversing Mechanism—Frisco standard make.
Remarks—Also builders of Frisco standard heavy oil engines.

The Standard Gas Engine Company,
Dennison & King Streets, Oakland, California.

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STEARNS

4-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 20-40-h.p., 500-1,100 rev., 950 lbs., $950.
4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 25-50-h.p., 500-1,100 rev., 1,000 lbs., $1,000.
4-cyl., type 4-stroke, 4½-in. bore, 6-in. stroke, 60-h.p., 1,600 rev., 925 lbs., $1,100.
4-cyl., type 4-stroke, 4¾-in. bore, 6½-in. stroke, 28-50-h.p., 500-1,000 rev., 1,750 lbs., $1,075.
4-cyl., type 4-stroke, 5⅛-in. bore, 6½-in. stroke, 35-70-h.p., 500-1,050 rev., 1,850 lbs., $1,200.
4-cyl., type 4-stroke, 5⅛-in. bore, 6½-in. stroke, 100-h.p., 1,600 rev., 1,150 lbs., $1,300.
Ignition—Bosch starting and lighting.
Lubrication—High pressure.
Carburetion—Stromberg.
Reversing Mechanism—Snow & Petrelli.
Remarks—special Equipment—At an additional charge of $100, we will supply a duel ignition system with double spark plugs with the option of several combinations. (1) Bosch ZR-4 2-spark high tension magneto. (2) Bosch or option single spark high tension magneto with Philbrin battery system on separate drive. (3) Philbrin dual distributor, 2-spark battery system.

Stearns Motor Mfg. Company,
Ludington, Michigan.

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STERLING

2-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 12-15-h.p., 400-500 rev., 1,150 lbs., $875.
4-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 120-160-h.p. 1,250-1,650 rev., 1,600 lbs., $3,150.
6-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 180-234-h.p., 1,250-1,650 rev., 2,000 lbs., $4,000.
8-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 242-316-h.p., 1,250-1,650 rev., 2,750 lbs., $5,000.
4-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 65-98-h.p., 800-1,200 rev., 1,700 lbs., $3,150.
6-cyl., type 4-stroke, 5¾-in. bore, 6¾ in. stroke, 97-145-h.p., 800-1,200 rev., 2,300 lbs., $4,000.
8-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 130-195-h.p., 800-1,200 rev., 3,150 lbs., $5,000.
4-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 30-63-h.p., 400-800 rev., 1,875 lbs., $3,150.
6-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 45-94-h.p., 400-800 rev., 2,550 lbs., $4,000.
8-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 60-126-h.p., 400-800 rev., 3,150 lbs., $5,000.
4-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 185-h.p., 1,950 rev., 1,550 lbs., $3,350.
6-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 275-h.p., 1,950 rev., 1,965 lbs., $4,500.
8-cyl., type 4-stroke, 5¾-in. bore, 6¾-in. stroke, 365-h.p., 1,950 rev. 2,750 lbs., $6,000.
6-cyl., type 4-stroke, 4¹⁵⁄₁₆-in. bore, 6-in. stroke, 150-h.p., 1,200-1,800 rev., 1,375 lbs., $3,450.
6-cyl., type 4-stroke, 7-in. bore, 8½-in. stroke, 300-h.p., 1,200 rev., 4,800 lbs., $12,000.
Ignition—Neptune, impulse magneto. Trident single spark magneto and distributor, all others double or triple ignition batteries system.
Lubrication—Neptune, force feed. All others drilled crankshaft pressure oiling.
Carburetion—Stromberg.
Reversing Mechanism—Sterling.

Sterling Engine Co.,
Buffalo, N. Y.

* * *

STORK

1-cyl., type 2-stroke, 3½-in. bore, 3½-in. stroke, 3-h.p., 700 rev.
1-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 4-h.p., 700 rev.
1-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 6-h.p., 700 rev.
1-cyl., type 2-stroke, 5-in. bore, 5-in. stroke, 8-h.p., 700 rev.
2-cyl., type 2-stroke, 3½-in. bore, 3½-in. stroke, 6-h.p., 700 rev.
2-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 8-h.p., 700 rev.
2-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 12-h.p., 700 rev.
2-cyl., type 2-stroke, 5-in. bore, 5-in. stroke, 16-h.p., 700 rev.
3-cyl., type 2-stroke, 4-in. bore, 4-in. stroke, 12-h.p., 700 rev.
3-cyl., type 2-stroke, 4½-in. bore, 4½-in. stroke, 18-h.p., 700 rev.
Ignition—Jump spark.
Carburetion—Float feed.

Stork Motor Co.,
Saginaw, Mich.

* * *

B. F. Sturtevant Co.,
Hyde Park, Mass.

* * *

UNION

1-cyl., type 4-stroke, 5⅞-in. bore, 6¾-in. stroke, 7-h.p., 450 rev., 757 lbs., $560.
2-cyl., type 4-stroke, 5⅞-in. bore, 6¾-in. stroke, 14-h.p., 500 rev., 1,175 lbs., $1,120.
3-cyl., type 4-stroke, 5⅞-in. bore, 6¾-in. stroke, 21-h.p., 500 rev., 1,650 lbs., $1,680.
4-cyl., type 4-stroke, 5⅞-in. bore, 6¾-in. stroke, 28-h.p., 500 rev., 2,120 lbs., $2,240.
3-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 35-h.p., 360 rev., 4,825 lbs., $2,800.
3-cyl., type 4-stroke, 8¼-in. bore, 10½-in. stroke, 45-h.p., 330 rev., 6,450 lbs., $3,600.
3-cyl., type 4-stroke, 9-in. bore, 11-in. stroke, 60-h.p., 320 rev., 7,400 lbs., $4,800.
3-cyl., type 4-stroke, 10-in. bore, 12-in. stroke, 80-h.p., 310 rev., 10,700 lbs., $6,400.
3-cyl., type 4-stroke, 12-in. bore, 15-in. stroke, 110-h.p., 280 rev., 17,600 lbs., $8,800.
4-cyl., type 4-stroke, 9-in. bore, 11-in. stroke, 85-h.p., 330 rev., 10,140 lbs., $6,800.
4-cyl., type 4-stroke, 10-in. bore, 12-in. stroke, 110-h.p., 330 rev., 12,350 lbs., $8,800.
4-cyl., type 4-stroke, 12-in. bore, 15-in. stroke, 150 h.p., 290 rev., 22,750 lbs., $12,000.
4-cyl., type 4-stroke, 14½-in. bore, 18-in. stroke, 225-h.p., 225 rev., 36,400 lbs., $18,000.
4-cyl., type 4-stroke, 15¼-in. bore. 20-in. stroke, 250-h.p., 200 rev., 49,785 lbs., $20,000.
4-cyl., type 4-stroke, 16-in. bore. 21-in. stroke, 300-h.p., 210 rev., 55,700 lbs., $24,000.
6-cyl., type 4-stroke, 9-in. bore 11-in. stroke, 125-h.p. 320 rev., 14,400 lbs., $10,000.
6-cyl., type 4-stroke, 12-in. bore, 15-in. stroke, 225-h.p., 800 rev., 30,600 lbs., $18,000.
6-cyl., type 4-stroke, 14½-in. bore 18-in. stroke, 325-h.p. 225 rev., 50,400 lbs., $26,000.
6-cyl., type 4-stroke, 15¼-in. bore, 20-in. stroke, 375-h.p., 200 rev., 69,100 lbs., $30,000.
Ignition—Make and break.
Lubrication—Gravity and force feed.
Carburetion—Union.
Reversing Mechanism—Union.

Union Gas Engine Company,
Oakland, California.

* * *

UNIVERSAL

4-cyl., type 4-stroke, 2¾-in. bore, 4-in. stroke, 9-12-h.p., 1,000 to 1,400 rev., 325 lbs., $315.
Ignition—Atwater Kent, Standard. Bosch Dn 4 magneto furnished at $26.00 extra.
Lubrication—Combination splash and gravity.
Carburetion—Mayer Carburetor.
Reversing Mechanism—Universal reverse gear of our own manufacture.

Universal Motor Co.,
Oshkosh, Wisconsin.

* * *

VAN BLERCK

Van Blerck Motor Co.,
Monroe, Mich.

GASOLINE—Continued

DOMAN

1-cyl., type 4-stroke, 5-in. bore, 6-in. stroke, 5-7-h.p., 400-600 rev., 550 lbs., $460.
2-cyl., type 4-stroke, 4¾-in. bore, 6-in. stroke, 12-15-h.p., 800-900 rev., 650 lbs., $875.
4-cyl., type 4-stroke, 4¾-in. bore, 6-in. stroke, 25-40-h.p., 800-900 rev., 1,125 lbs., $1,300.
2-cyl., type 4-stroke, 6-in. bore, 7in. stroke, 20-25-h.p., 700-800 rev., 1,200 lbs., $1,250.
4-cyl., type 4-stroke, 6-in. bore, 7-in. stroke, 40-50-h.p., 700-800 rev., 1,850 lbs., $2,400.
Ignition—High tension magneto with impulse starter.
Lubrication—Force feed through drilled crankshaft.
Carburetion—Schebler.
Reversing Mechanism—Paragon reverse gear.

Universal Products Co.,
Oshkosh, Wis.

* * *

VULCAN

1-cyl., type 4-stroke, 4⅝-in. bore, 6-in. stroke, 4-h.p., 500 rev., 360 lbs.
1-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 5-h.p., 500 rev., 480 lbs.
1-cyl., type 4-stroke, 6½-in. bore, 7¼-in. stroke, 7½-h.p., 450 rev., 750 lbs.
1-cyl., type 4-stroke, 7½-in. bore, 8½-in. stroke, 11-h.p., 400 rev., 1,000 lbs.
2-cyl., type 4-stroke, 4⅝-in. bore, 6-in. stroke, 8-h.p., 550 rev., 650 lbs.
2-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 10-h.p., 500 rev., 900 lbs.
2-cyl., type 4-stroke, 6½-in. bore, 7¼-in. stroke, 15-h.p., 475 rev., 1,800 lbs.
2-cyl., type 4-stroke, 7½-in. bore, 8½-in. stroke, 22-h.p., 425 rev., 2,200 lbs.
3-cyl., type 4-stroke, 6½-in. bore, 7¼-in. stroke, 25-h.p., 475 rev., 1,700 lbs.
3-cyl., type 4-stroke, 7½-in. bore, 8½-in. stroke, 35-h.p., 425 rev., 2,800 lbs.
3-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 56-h.p., 400 rev., 4,200 lbs.
4-cyl., type 4-stroke, 4⅝-in. bore, 6-in. stroke, 16-h.p., 550 rev., 900 lbs.
4-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 20-h.p., 500 rev., 1,200 lbs.
4-cyl., type 4-stroke, 6½-in. bore, 7¼-in. stroke, 30-h.p., 475 rev., 2,050 lbs.
4-cyl., type 4-stroke, 7½-in. bore, 8½-in. stroke, 45-h.p., 425 rev., 3,400 lbs.
4-cyl., type 4-stroke, 8¾-in. bore, 10½-in. stroke, 75-h.p., 375 rev., 5,500 lbs.
6-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 40-h.p., 550 rev., 1,750 lbs.
6-cyl., type 4-stroke, 7½-in. bore, 8½-in. stroke, 70-h.p., 425 rev., 4,500 lbs.
Ignition—Make-and-break and jump spark.

Vulcan Engine Works,
Philadelphia, Pa.

* * *

J. V. B.

4-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 28-h.p., 600 rev., 1,450 rev., $1,250.
4-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 40-h.p., 900 rev., 1,450 lbs., $1,250.
4-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 45-h.p., 1,000 rev., 1,350 lbs., $1,250.
4-cyl., type 4-stroke, 4¼-in. bore, 6-in. stroke, 60-h.p., 1,450 rev., 1,350 lbs., $1,250.
Ignition—High tension magneto with impulse starter.
Lubrication—Pressure pump gear driven.
Carburetion— Stromberg 1½ inch.
Reversing Mechanism—Own make sliding transmission type.

Wellman Seaver Morgan Co.,
195 Kenmore Boulevard, Akron, Ohio.

* * *

GOSHEN

1-cyl., type 2-troke, 4-in. bore, 5-in. stroke, 4-h.p., 550 rev., 135 lbs., $98.
1-cyl., type 2-stroke, 5-in. bore, 6-in. stroke, 8-h.p., 550 rev., 190 lbs., $132.
2-cyl., type 2-stroke, 4-in. bore, 5-in. stroke, 9-h.p., 550 rev., 280 lbs., $195.
2-cyl., type 2-stroke, 5-in. bore, 6-in. stroke, 15-h.p., 550 rev., 410 lbs., $264.
Ignition—Single cylinder, battery; 2-cyl. magneto.
Lubrication—Oil and grease cups.
Carburetion—Powell Adjusto Carburetor.
Reversing Mechanism—None furnished.

White Manufacturing Co.,
Goshen, Ind.

* * *

WISCONSIN

4-cyl., type 4-stroke, 3¾-in. bore, 5-in. stroke, 22-h.p., 1,000 rev., 566 lbs., $870.
4-cyl., type 4-stroke, 4-in. bore, 5-in. stroke, 24-h.p., 1,000 rev., 625 lbs., $950.
4-cyl., type 4-stroke, 4¾-in. bore, 5½-in. stroke, 40-h.p., 1,000 rev., 800 lbs., $1,260.
4-cyl., type 4-stroke, 5.1-in. bore, 5½-in. stroke, 50-h.p., 1,000-1,200 rev., 925 lbs., $1,500.
4-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 62-h.p., 900 rev., 1,275 lbs., $1,800.
4-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 62-h.p., 800 rev., 1,290 lbs., $1,900.
6-cyl., type 4-stroke, 4¾-in. bore, 5½-in. stroke, 60-h.p., 1,000 rev., 1,360 lbs., $2,400.
6-cyl., type 4-stroke, 5¼-in. bore, 7-in. stroke, 80-h.p., 800 rev., 1,540 lbs., $2,760.
6-cyl., type 4-stroke, 5¾-in. bore, 7-in. stroke, 90-h.p., 800 rev., 1,565 lbs., $3,000.
Ignition—Magneto.
Lubrication—Force feed.
Carburetion—Schebler.
Reversing Mechanism—Paragon.

Wisconsin Motor Manufacturing Co.,
Station A, Milwaukee, Wis.

* * *

WOLVERINE KEROSENE-GASOLENE ENGINES

1-cyl., type 4-stroke, 5½-in. bore, 6-in. stroke, 5-h.p., 500 rev., 600 lbs.
2-cyl., type 4-stroke, 6½-in. bore, 7-in. stroke, 14-h.p., 400-425 rev., 1,545 lbs.
3-cyl., type 4-stroke, 6½-in. bore, 7-in. stroke, 22-h.p., 400-425 rev., 2,285 lbs.
4-cyl., type 4-stroke, 5½-in. bore, 7-in. stroke, 35-40-h.p., 700-800 rev., 1,800.
3-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 32-h.p., 350-375 rev., 3,914.
3-cyl., type 4-stroke, 8½-in. bore, 9-in. stroke, 42-h.p., 350-375 rev., 4,130.
3-cyl., type 4-stroke, 9½-in. bore, 12-in. stroke, 60-h.p., 300-325 rev., 7,000 lbs.
3-cyl., type 4-stroke, 11-in. bore, 12-in. stroke, 80-h.p., 300-325 rev., 7,516.
3-cyl., type 4-stroke, 12½-in. bore, 14-in. stroke, 110-h.p., 300-325 rev., 12,400 lbs.
6-cyl., type 4-stroke, 11-in. bore, 12-in. stroke, 160-h.p., 330 rev., 13,600 lbs.
6-cyl., type 4-stroke, 11-in. bore, 15-in. stroke, 200-h.p., 330 rev., 17,110 lbs.
Ignition—Kerosene-gasoline engines. High tension magneto.
Lubrication—Kerosene-gasoline engines. Gravity feed oiler for 5 h.p. mechanical force feed oiler for larger sizes.
Carburetion—Schebler carburetor used on kerosene-gasoline engines 5 to 42-h.p. Kingston carburetor on 60 to 200-h.p.
Reversing Mechanism—Wolverine reverse gear.

Wolverine Motor Works,
35 Union Ave., Bridgeport, Conn.

* * *

WOOD & CHUTE

1-cyl., type 4-stroke, 6-in. bore, 7-in. stroke, 8-h.p., 400 rev.
2-cyl., type 4-stroke, 6-in. bore, 7-in. stroke, 16-h.p., 400 rev.
3-cyl., type 4-stroke, 6-in. bore, 7-in. stroke, 24-h.p., 400 rev.
4-cyl., type 4-stroke, 6-in. bore, 7-in. stroke, 32-h.p., 400 rev.
Ignition—Atwater Kent.
Lubrication—Splash.
Reversing Mechanism—Snow & Petrelli.

Wood & Chute Inc.,
Greenport, N. Y.

* * *

WRIGHT

1-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 10-h.p., 450 rev., 1,430 lbs., gasolene $740; kerosene $780,
2-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 20-h.p., 450 rev., 2,035 lbs., gasolene $1,120; kerosene $1,200.
3-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 30-h.p., 450 rev., 2,666 lbs., gasolene $1,590; kerosene $1,680.
4-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 40-h.p., 450 rev., $3,417 lbs., gasolene $1,960; kerosene $2,080.
6-cyl., type 4-stroke, 6-in. bore, 7½-in. stroke, 60-h.p., 450 rev., 5,550 lbs., gasolene $3,150; kerosene $3,290.
1-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 15-h.p., 350 rev., 1,985 lbs., gasolene $1,040; kerosene $1,080.
2-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 30-h.p., 350 rev., 3,235 lbs., gasolene $1,630; kerosene $1,710.
3-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 45-h.p., 350 rev., 4,400 lbs., gasolene $2,340; kerosene $2,460.
4-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 60-h.p., 350 rev., 5,550 lbs., gasolene $2,695; kerosene $2,830.
6-cyl., type 4-stroke, 7½-in. bore, 9-in. stroke, 90-h.p., 350 rev., 7,600 lbs., gasolene $4,280; kerosene $4,440.
Ignition—Bosch high tension starter coupling.
Lubrication—Force feed to all bearings and splash.
Carburetion—Schebler or Stromberg.
Reversing Mechanism—Joe's or Paragon.
Remarks—Prices subject to discount.

The Wright Machine Co. Inc.,
Owensboro, Kentucky.

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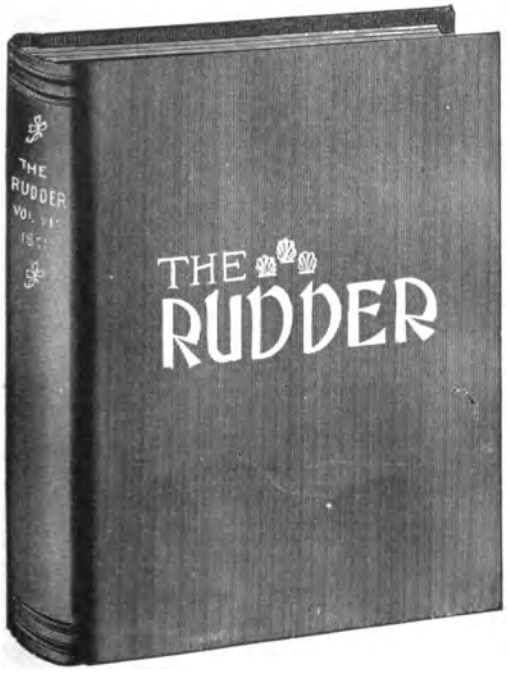

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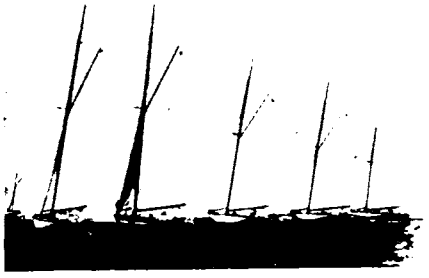

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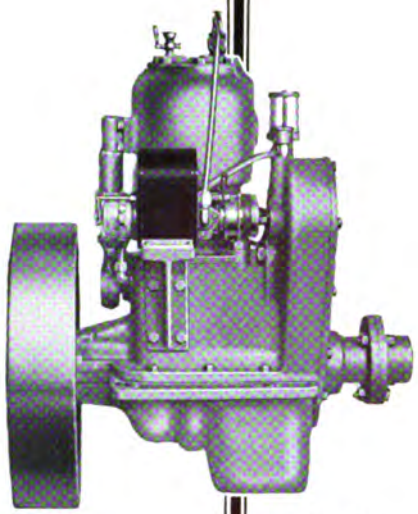

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1 Cylinder
3 to 4 H. P.

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The Kermath standard, 4 cycle, 4 cylinder engine is used today by over 80 percent of the leading boat builders of the world as standard equipment. Could you ask for stronger endorsement?

We particularly call your attention to the experienced individual boat owner. He is one of the strongest Kermath boosters. Having tried all types of motors, he finally settles on the Kermath as the only one he can always depend upon under all conditions to serve him 365 days in the year—year in and year out.

For example, Martin Welch of Winthrop, Mass., writes: "The Vanadium 20 H. P. Kermath which I purchased last May has run continually since installed, covering over one thousand miles without a single skip. Recently ran about seventy-five miles, using only eighteen gallons of gas, and made it in eight hours without a stop. Cannot say too much about the smoothness and efficiency of this engine."

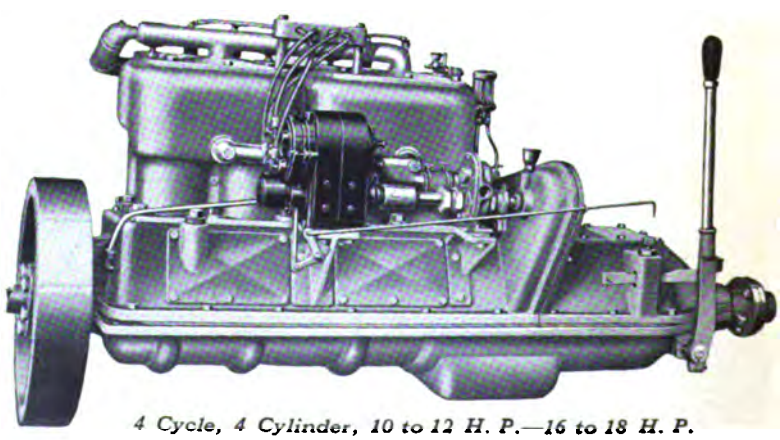
Jay Gould of Lake Geneva, Wisconsin, states: "The 16 H. P. Kermath motor I bought last fall was a dandy. Ran it from Kenosha, Wis. to Mobile, Ala. on only 200 gallons of gas. Didn't even have to clean the spark plugs on the whole trip! This motor was installed in a 26-foot raised deck cruiser!"

John Law Kerr of Useppa Island, Florida, writes: "It may interest you to know that the Kermath that is now installed and is giving such wonderful service, is the same rebuilt engine that you sold me in 1917! It was the pioneer Kermath around here, and has since been sold twice, and is still giving excellent service."

L. W. Kelsay of New York City writes: "I wish to buy a 12 H. P. Kermath to replace one of your engines that has been doing service in my boat since 1911! This is ten years' service this fall. My present engine is still in perfect running order. I cannot speak too highly of this really marvelous marine motor."

Stanley M. Turlington writes: "My 16 H. P. Kermath has been constantly at work since 1919. Four months of this time she ran from 40 to 60 miles per day to the fishing grounds. The other eight months she operated every day on pleasure trips and on top of this during the latter part of 1920, we had her coupled up to a force pump, pumping

"A Kermath always runs"



4 Cycle, 4 Cylinder, 10 to 12 H. P.—16 to 18 H. P.

Motor Be A World's Standard Motor

piling for a toll bridge. In other words, she has been constantly at work night and day, and we have not had one moment's trouble with her."

A. E. Heilbron of San Antonio, Texas, writes: "The Kermath I purchased from you has measured up in merit in every statement that you made. It is a very energetic, capable motor and eminently reliable, and has given me continuous and uninterrupted service. I cannot speak too highly of it."

And so we could go on. In fact, if space would permit, we could quote hundreds of such letters. The above are merely taken at random from letters that come in daily.

Kermath popularity is due to their reliability under all conditions. Their first cost is very low, and they are very economical to operate. No matter what the conditions, they always run. With good care, they will last for years.

So, if you are about to purchase a new motor, we suggest you investigate the merits of this motor before you place your order.

The latest Kermath success is the 3 H. P. one cylinder engine that sells for only $135 with Bosch Magneto and impulse coupling. If you operate a smaller boat, this is just the power plant you need—small, compact, very powerful and a regular bear for work.

This is a very popular model, and is selling as rapidly as we can produce them.

Other equally well known Kermath motors are the two cylinder, 4 to 5 H. P. and 6 to 8 H. P. units.

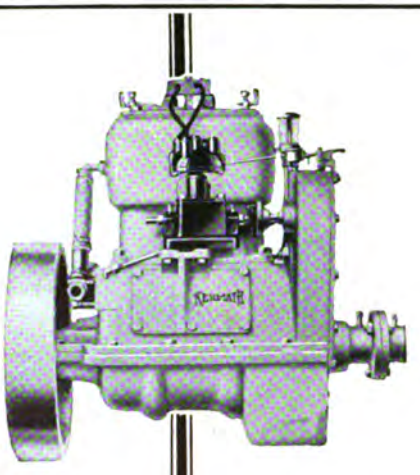
These are for slightly larger boats. They have been standard for years with the leading boat builders of the country.

Then, there are the 12 and 16 H. P. models—still larger, more powerful and very economical, and with the same Kermath stamina and reliability.

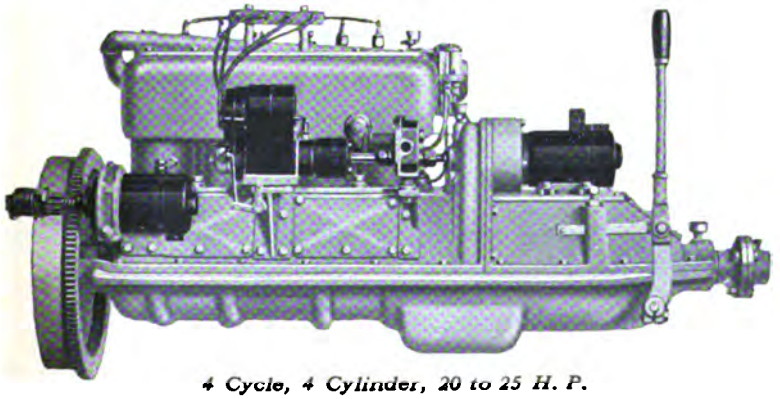
The famous Vanadium "20" which runs into still greater horsepower is a very efficient design.

The great Kermath "40" is a giant for work, and is found in many of the best power boats in this country and abroad.

No matter which Kermath model you select, if it is the type that fits your boat, you can be assured of the most efficient service, bulldog staying qualities and economy in operation at all times.

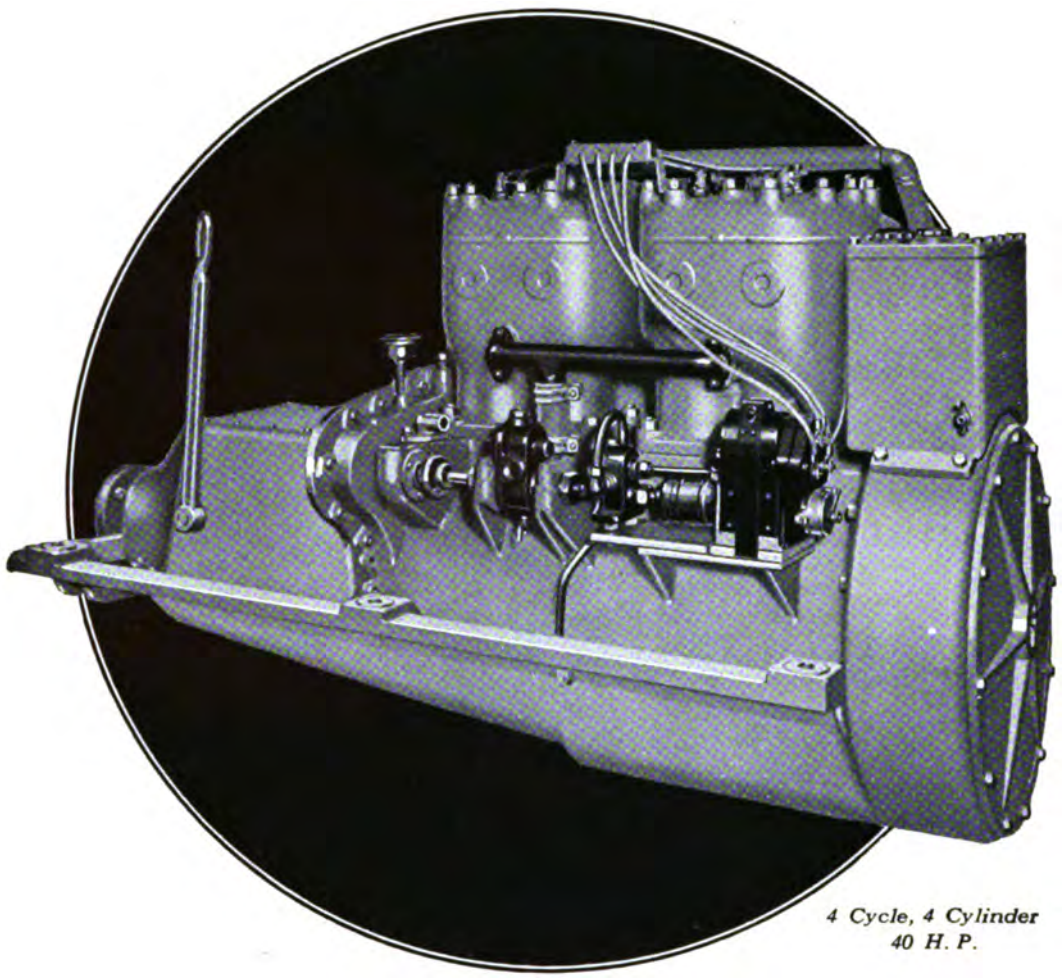


4 Cycle
2 Cylinder
4 to 5 H. P.
6 to 8 H. P.



4 Cycle, 4 Cylinder, 20 to 25 H. P.

"A Kermath always runs"



4 Cycle, 4 Cylinder
40 H. P.

Following is the greatly reduced Kermath price list for 1922. We cannot guarantee the length of time these prices will be in effect. But they are in effect now and if you place your order now (spring delivery if you wish) you will save money.

Write us at once for full description and further details of the entire Kermath line.

3 H. P.	$135	16 H. P.	$ 475
4 to 5 H. P.	270	20 H. P.	510
6 to 8 H. P.	290	40 H. P.	1,550
12 H. P.	445		

See the line of Kermath motors at the Motor Boat Show—Block E—Grand Central Palace, New York.

KERMATH M'f'g Co.
DETROIT MICHIGAN.
5880 Commonwealth Avenue

"A Kermath always runs"

Statement of the Ownership, Management, Circulation, etc., required by the Act of Congress of August 24, 1912, of THE RUDDER, Published Monthly, at New York, N. Y., April 1, 1922.

State of New York,
County of New York.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared Andrew Paterson, who, having been duly sworn according to law, deposes and says that he is the Business Manager of THE RUDDER, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown above, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The Rudder Publishing Co., 9 Murray Street, New York City; Editor, Gerald T. White, 9 Murray Street, New York City; Business Manager, Andrew Paterson, 9 Murray Street, New York City; Managing Editor, None.

2. That the owners are: The Rudder Publishing Co., 9 Murray Street, New York City; Gerald T. White, 9 Murray Street, New York City; Andrew Paterson, 9 Murray Street, New York City; Jas. R. Thomson, 9 Murray Street, New York City; A. F. Aldridge, 331 Adelphi Street, Brooklyn, N. Y.; A. deZ Patton, 9 Murray Street, New York City; Jas. R. Thomson, Jr., 9 Murray Street, New York City; E. Thomson, 9 Murray Street, New York City; John Thomson, 9 Murray Street, New York City.

3. That the known bondholders, mortgagees and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

ANDREW PATERSON, Business Manager.

Sworn to and subscribed before me,
this 30th day of March 1922.
HAROLD D. PENNEY, Notary Public.
Commission Expires March 30, 1923.

YOUR BOAT, ENGINE OR EQUIPMENT

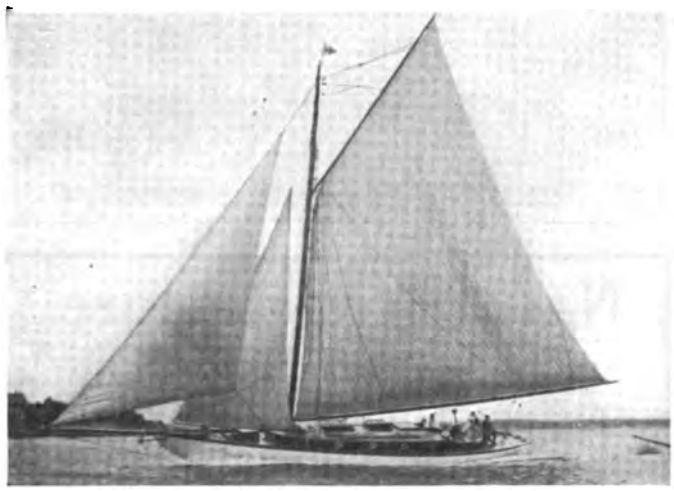
In storage is not worth its keep and unless taken care of will soon be worthless. A $1.00 advertisement will turn an old outfit into money, besides giving the purchaser an opportunity of making it useful and a help to the sport.

Advertisements 4c a word each insertion, minimum charge $1.00. Heavy-face type, double price.
Money must accompany copy. Forms close 10th of the month preceding.

For $6.00 we will from photograph furnished by you, prepare a half-tone plate of your boat, measuring 3½ inches wide by 1 inch deep, and print same with a 50-word description.

For $10.00 half-tone plate 3½ inches wide, 2½ inches deep and 50-word description.

FOR SALE—Beautiful auxiliary sloop. 53 ft. o.a., 37 w.l., 14-ft. beam, 7-ft. 6-in. draught. Built in 1906 with extra heavy construction. Cabin finish all mahogany. Main cabin has wide berths and transoms. Large stateroom and very roomy galley, all with full headroom. Two toilet



closets. Frisbie motor new this year 16-h.p. 2-cyl. 4-cycle. Brand new mainsail. This affords an opportunity to buy a most desirable modern yacht at a very reasonable price. Laid up near Boston. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.

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Power Cruisers—All Sizes
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FOR SALE—One of the well-known Star class one design Jib & Mainsail boats offered at attractive price as owner desires immediate disposition. Bargain for prompt action. Inspectable near New York. Apply to Simon Fisch, Yacht Broker, 185 Madison Avenue, Telephone, Vanderbilt 3877.

FOR SALE—Yacht Super-8-Six—65 ft. long, 13 ft. 3 in. beam, draught 4 ft. Powered with six cylinder 80-h.p. Winton engine, 6½ in. bore, 9 in. stroke. Speed 12 miles per hour. A beautiful and comfortable

cruiser finished in mahogany and white enamel throughout. F. E. Stuyvesant, Euclid Ave. at 49th, Cleveland, Ohio.

Genuine "Crosby" Cabin Auxiliary C. B. Cats

Good-Used-Sound-Tight catboats arriving direct from "Crosby" shops best available bargains, for early-May delivery, shown here in commission

18x17x8x2 sq. stern, new sail and rigging. 3 h.p. Palmer	$ 500
22x18x9x2 Counter stern, new sail and varnished decks. A. 1	750
22x21x7x2 sq. stern, Hunting cabin, launch, 5 h.p. Gaffga	200
24x23x11x3 sq. stern. Converted, good sail, 7 h.p. Lathrop	750
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25x24x12x3 sq. stern, Husky c.b. Good sail, 8 h.p. Mianus	800
30x28x12x3 C. stern, Knockabout rig, c.b. new sail, 10 h.p. Knox	1,000
32x21x11x2 C. stern, Fast, roomy c.b. cruising cat; new sail	1,000
33x26x12x4 C. stern, Lawley built, 3,500 lb. lead keel cat-yawl enclosed W. C.—big cabin, good sails, 15-h.p. 4 cycle Lamb-reverse	150

Buy! A "Crosby built" auxiliary catboat "real boats" and you will be satisfied. I specialize in Crosby catboats of the better kind. E. V. ROSEMOND, Widow's Hole Basin, Greenport, Long Island, N. Y.

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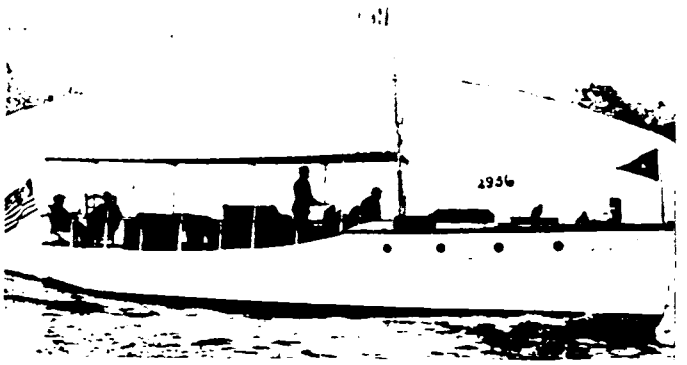
***Removed to* 25 Broadway, Cunard Building,** (Morris Street Entrance), **New York**

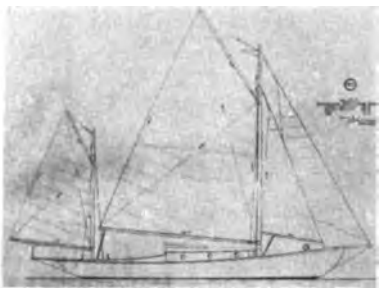
Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER.
A few are shown on this page. Plans, photographs and full particulars furnished on request.

No. 3911—FOR SALE—Practically new Power Houseboat 45 ft. by 14 ft. 6 in. by 3 ft. Built 1920. Exceptional accommodation, one single, one double stateroom and saloon, also deckhouse with two berths. Speed 9 miles, one 80-h.p. 4-cyl. Buffalo Motor. Price attractive. Cox & Stevens, 25 Broadway, New York.



No. 2936—FOR SALE—Elco bridge deck cruiser; 45x10.7x3.6 ft. Speed 11 miles; 32-37-h.p. Standard motor. Double stateroom, saloon toilet room, galley, etc. Good deck space. Price very reasonable. Cox & Stevens, 25 Broadway, New York.

No. 2131—FOR SALE—Very desirable cruising yacht, 60x12x4 ft. draught. One double stateroom; total sleeping accommodations 4 to 6 persons. Toilet and bath. Six-cylinder 20th Century motor. Cruising speed 12½ miles per hour. Motor compartment and crew's quarters forward. Equipment most complete. Located near New York. Price attractive. Apply to Cox & Stevens, 25 Broadway, New York.



No. 3211—FOR SALE—Moderate draught centerboard auxiliary yawl 40 ft. 6 in. by 32 ft. 3 in. by 10 ft. by 3 ft. 8 in. Very able and comfortable. In excellent condition. 35-h.p. 4-cyl. 4 cyc. Sterling Engine. Speed under power 9 miles. For further particulars apply Cox & Stevens, 25 Broadway, New York.

FOR SALE—1 pair Bausch & Lomb 6 x 30 power prism binoculars, with leather case. Same as new. Percy M. Child, 1110 14th St., N. W., Washington, D. C.

FOR SALE—Hall-Scott 4 and 6 cyl. Fiat Mercedes Liberty 8 and 12 cyl. aviation motors the kind that are cleaning up all over the country in speed and pleasure boats. Lee Templeton, 1325 Markley St., Norristown, Pa.

HALL-SCOTT ENGINES—I have purchased the War Department's entire supply of the famous Hall-Scott Engines and parts. We have these new engines as is and built over for marine work at very low prices. Henry Lowe Brownback, Norristown, Pa.

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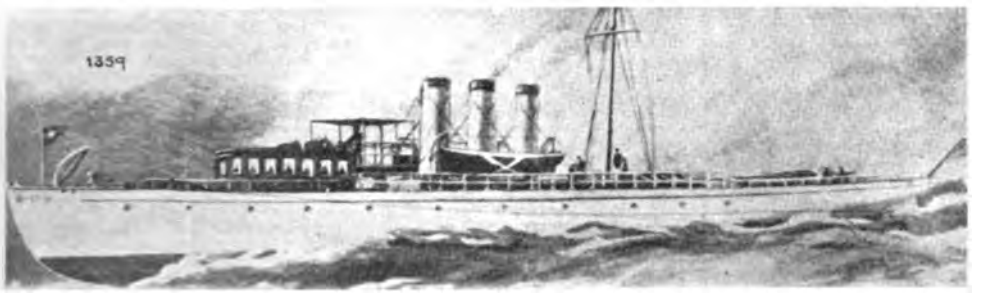
STANLEY M. SEAMAN
YACHT BROKER
1900-1917
have been purchased by the
G. W. FORD YACHT AGENCY
41 East 42nd Street New York City
Correspondence with his former clients is solicited.

FOR SALE—Yacht Celeritas, 61 ft. o. l. x 11 ft. 6 in. x 3 ft. 9 in. Designed by Sweasey. Built by Jacobs 1916. Redesigned 1919. Motors overhauled 1920. Power plant, two Sterling eight cylinders 150/200-

h.p. each. New power dinghey built 1920. Perfect order. Complete inventory. Price, $12,000. Must be sold quickly. Apply Oliver, 417 Canal Street, New York.

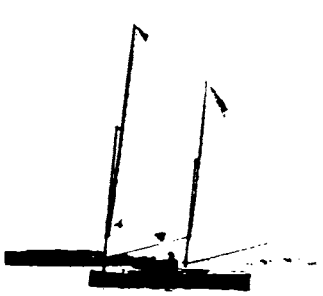


EXCEPTIONAL BARGAIN—Handsome 137-ft. twin screw, high speed, steam yacht. Deck dining saloon; two double staterooms, bathroom, two toilets, etc. Excellent opportunity to secure genuine bargain in high class craft adapted for fast ferry service. Cox & Stevens, 25 Broadway, New York. Telephone, Whitehall 2700.

FOR SALE—Auxiliary Yawl, 31x10x3, built by C. C. Hanley, 1913. Palmer motor, cedar planking, outside lead ballast. In good condition, sails almost new. Includes 8-ft. tender and very complete inventory. A fast, able boat for Sound cruising. B. H. Miller, 4 West 105th Street, New York.

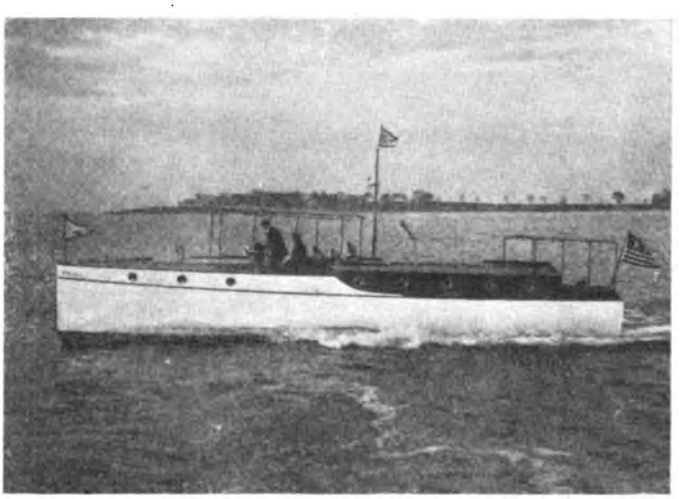
ENGINE BARGAINS—Sterlings, Doman, Erd, Kermath and many others—all sizes. Send for list. Also rebuilt second hand motor and sail boat. Everett Hunter Boat Co., Dept. A., McHenry, Ill.

FOR SALE—Bargain—Price $450. Auxiliary sloop 32 ft. overall, 8-ft. beam, 3½-ft. draught; 2,200 lbs. outside ballast; double-planked, mahogany outside; copper-fastened and in sound condition. Hollow spar equipment. 7-h.p. Eagle engine. Complete equipment. A. L. Fagerstrom, 116 Wentz St., Olney, Philadelphia, Pa.



FOR SALE—Sailing Canoe Doris III. Length 11 ft., beam 40-inch. Winner Nation Championship 1921. Finest boat of its type. Built of Spanish cedar and mahogany by Stevens. Price upon application. Hilding Froling, Naval Architect, Arlington, New Jersey.

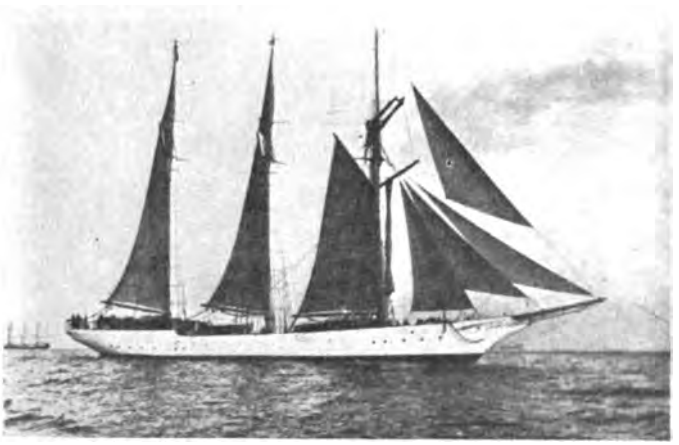
FOR SALE—Express cruiser, Emoh III designed by Frederick K. Lord, naval architect, and built by Greenport Basin and Construction Company, 1917, with new 6-cylinder 1921 Van Blerck engine, 150-h.p. A-1 condition in every respect; now stored at Greenport Basin and Dry Dock



Company; now ready for commission. Ideal cruiser in every respect; sleeping accommodations, three luxurious masters' Pullman berths with springs and mattresses; also extra pipe upper berth. Galley mahogany and arrangements perfect. Comfortable accommodations forward for crew of

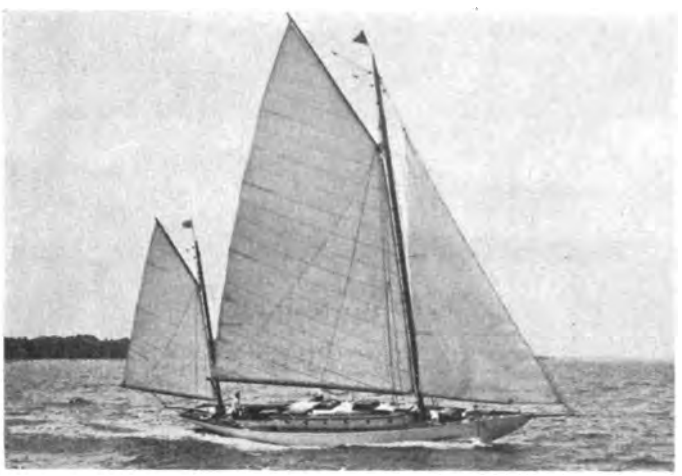
two—one sufficient to handle boat. Gasoline capacity 170 gal.; water, 60 gal.; length, 43 ft.; beam, 8 ft. 6 in.; draft, 3 ft. Extreme speed on trial trip, 24-7/10 miles. Best bargain for this class of boat in the market. Price, $9,800. Address Box 194, c/o THE RUDDER, 9 Murray St., New York City.

FOR SALE—3-masted Auxiliary Steel Schooner 180 ft. o.a., 145 w.l. Built by Krupp in 1921, designed by Max Oertz. Double bottom, 4 watertight bulkheads, 250-h.p. Diesel Engine. Speed, 8.3 knots; 17,000 sq. ft. Sails, Gyro Compass, 5 Repeaters, Self-Steering, Ship's position recorder, turbo log. Fitted for Tropical cruising and equipped with every known modern convenience and aid to navigation, wireless equipment, re-



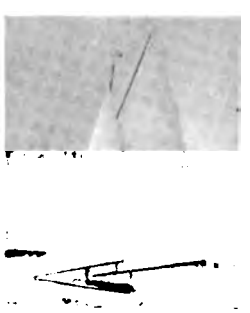
frigerator plant, ventilation system, temperature control, electric light and heating system. Finished in teak with mahogany trim. Complete cruising equipment. Will be delivered at New York or anywhere on Atlantic Coast and sold at a price far below the present market value. Highest classification by Bureau Veritas. For further particulars, address S.H.B. Box 28, c/o THE RUDDER, 9 Murray St., New York City.

FOR SALE—Exceptionally fine auxiliary keel cruising yawl, 52 ft. over all, 35-ft. water line, 13-ft. beam, 6-ft. 6-in. draft. Mower design, built by Hogdon Brotbers in 1914. Boat and equipment in perfect con-



dition. Large cabin, double stateroom, toilet, galley and forecastle for two men. Laid up at City Island, New York City. For full particulars and price apply to C. D. Mower, Naval Architect and Yacht Broker, 350 Madison Avenue, New York City.

FOR SALE—Fast cruising knockabout shallow draught, built by Crosby and in perfect condition. 30 x 25 x 11 x 27 copper fastened, bright throughout; enclosed toilet; hollow spars, best that can be bought. Made by Geo. Lawley. New sails 1922. Round, tender mooring; full inventory. Won two prizes last year. Price, $800. Charles Schriner. Williamsburg Y. C., College Point, L. I.



FOR SALE—Atkin Boats. Easy to build. Not expensive. Twenty foot auxiliary Typhoon Jr. Twenty-one foot flat bottom cruiser Splash. Twenty-six foot V-Bottom cruiser Gamecock. Twenty-five foot auxiliary yawl Imp II. Twenty foot hydroplane Scandal. Twenty foot runabout Carry On. Complete blue prints with specifications of any of above $6.00 per set. Also tenders, both round and flat bottom types. For full particulars write, William Atkin, Naval Architect, Montclair, N. J.

BOATS TAKEN ANYWHERE—Small craft fetched or delivered. Sail or power. Examinations made for buyers. Honest reports given. Capt. Pearson, Great Kills, Staten Island, N. Y.

FOR SALE—Atlantic dory, 28 ft., new 4 cylinder 4 cycle engine, spray hood, fully equipped; A-1 condition; reasonable. 247 Arlington Ave., Brooklyn, N. Y. Telephone, Cypress 0084.

FOR SALE—Auxiliary Crosby Cat, Gismonda—29 o.a., 2.6 ft. draft. Lathrop 7 h.; speed, 6 miles; in A-1 condition throughout. Harry Sanford, 501 Fifth Avenue. Telephone, Vanderbilt 969.

FOR SALE—Bridge deck cruiser, 42-ft., 4-cylinder motor. Electric lights, starter, generator, completely equipped. Launched 1914. Bargain, $2,500. Tallman, 49 Birckhead Place, Toledo, Ohio.

CANOE DESIGNS—FOR SALE—"Doris III." Sailing canoe. 17 ft. x 40 in.. Winner National Championship. Able cruising canoe. Complete set of plans. $7.00. "Universal." Sailable paddling canoe, 17 ft. x 33½ in. Complete set of plans, $4.00. Stations, stems and fittings drawn full size. Hilding Froling. Naval Architect, Arlington, New Jersey.

FOR SALE—Complete 1903, 1905, 1906, 1907, 1908, 1909, 1910 THE RUDDER. Also several years of odd numbers. Make offer for the lot. Write Wilson, Port Jefferson, N. Y.

FOR SALE—Herreshoff Keel Sloop; 56 x 40 x 13 x 8. Sleeps 6 people; 2 toilets. Complete cruising inventory including fine tender. Here is the biggest bargain ever offered to secure a first class outfit as owner desires immediate sale. Address Simon Fisch, Yacht Broker, 185 Madison Avenue, Telephone, Vanderbilt 3877.

FOR SALE—Launch, mahogany, 22 ft., Fay & Bowen Motor, summer cabin. In first class condition. Will sell cheap or exchange for good catboat. Chris Locker, West Sayville, L. I.

FOR SALE—Modern cruising racing sloop, 41 ft. x 26 x 12 x 2½ ft. New sails, bright power tender, full inventory, price low. Box 207, Rudder Publishing Co., 9 Murray St., N. Y. C.

FOR SALE—New motor boat hull, 28 ft. x 8 ft.; ready for engine. Raised deck cabin, white oak frame, planked with cedar, copper fastened. H. Duryea, Mattituck, New York.

FOR SALE—Outboard motors—2-h.p. Evinrude, battery ignition, $35.00; 2-h.p. Evinrude magneto ignition, $55.00; 2-h.p. Lockwood-Ash magneto ignition, $55.00; 2-h.p. Waterman, magneto ignition, $65.00. 1 cyl. 2 cycle 3-h.p. Ferro, $85.00; 4-h.p. Gray, $45.00; 4-h.p. Lathrop, $45.00; 6-h.p. Williams, $55.00; 7-h.p. Fox, $65.00. 2 cyl. 2 cycle 6-h.p. Gray, $55.00; 6-h.p. Gile, $65.00; 7-h.p. Eagle, $75.00; 8-h.p. Racine, $65.00; 10-h.p. Northwestern, $75.00; 20-h.p. Emerson, $115.00. 3 cyl. 2 cycle, 12-h.p. La Crosse, $55.00; 15-h.p. Elmore, $65.00; 12-h.p. Straubel heavy duty and gear, $145.00; 18-h.p. Fairbanks-Morse, $135.00; 45-h.p. Vim speed motor with gear, $185.00. 4 cycle, 5-h.p. Universal V-type, $45.00; 8-h.p. Dunn 2 cyl., $65.00; 12-h.p. Lamb 2 cyl., $145.00; 12-h.p. Buffalo 4 cyl., $135.00; 16-h.p. Dunn 4 cyl., $115.00; 20-h.p. Erd 4 cyl., $185.00; 30-h.p. New Doman, 5 x 6, $275.00; 45-h.p. Buffalo 4 cyl., 7 x 9, heavy duty with all supplies, reverse gear, air compressor, shaft, bearing and 36-in. bronze wheel, $945. Badger Motor Co., Milwaukee, Wis.

FOR SALE—Sailboat, real beauty, 25 ft., new sail, natural finished deck, summer cabin, A-1 condition; reasonable. 247 Arlington Avenue, Brooklyn, N. Y. Telephone, Cypress 0084.

FOR SALE OR CHARTER—By week, month or season—50-ft. Aux. yawl, sleeps 6 persons. John McCarthy, Orienta Boat Yard, Mamaroneck, N. Y.

FOR SALE—25-55-h.p. F. H. Sterling. This engine has been used only four months in yacht and has had best possible care. Price, $1,500. Francis Minot, 56 Fenway, Boston, Mass.

FOR SALE—4-h.p. single cyl. 2 cycle Detroit engine, completely overhauled, in fine running condition. $45. Subject to examination. H. E. Ullman, Box 225, Ironton, Ohio.

WANTED

WANTED—Copy of THE RUDDER for January, 1918, in good condition. E. F. Powers, 391 Second Ave. North, Troy, N. Y.

WANTED—Experienced man to assist owner captain in operation 85-foot cruising yacht. Must know Atlantic Sea Coast. Write fully. Box 205, THE RUDDER, 9 Murray St., New York City.

WANTED—MAN TO SELL MARINE MOTORS ON COMMISSION—Good commission paid live men to sell one of the leading marine motors in local territory. Quick seller. Price $375 complete with reverse gear. Box 206, THE RUDDER, 9 Murray St., New York City.

WANTED—Sea Sled Hull, complete, without motor, about 24 ft. x 5 ft. 6 in. beam. E. H. Steedman, Hamburger & Kienlen Aves., St. Louis, Mo.

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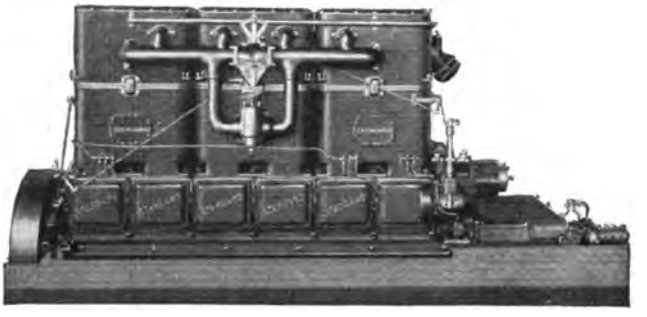
President Harding at Palm Beach, Florida, on the "Nahmeoka," equipped with H type, 70-90 h.p., 6 cyl. STANDARD engines.

Mr. H. N. Baruch in selecting the STANDARD engines for the "Nahmeoka" logically obtained all that is desirable in a marine engine: balance—in design, construction and operation; efficiency, economy of running and maintenance, dependability, unmarred pleasure and comfort.

The President on the "Nahmeoka" in Florida this year enjoyed the safety and the continuity of service of the **STANDARD Engine**, and avoided irritating delays and annoyances of repairs and maintenance.



70-90 h.p. STANDARD engine which contributed to the successful trip of the President in Florida.

Catalogue and complete data will gladly be given you upon request.

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The 20th Century

2, 3, 4 and 6 Cylinders **10 H.P. to 300 H.P.**

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Neatness of Design, Ease of Operation, Simplicity of Construction, Absence of Vibration and Noises, Economy of Fuel, Moderate Revolutions and Ample Bore and Stroke

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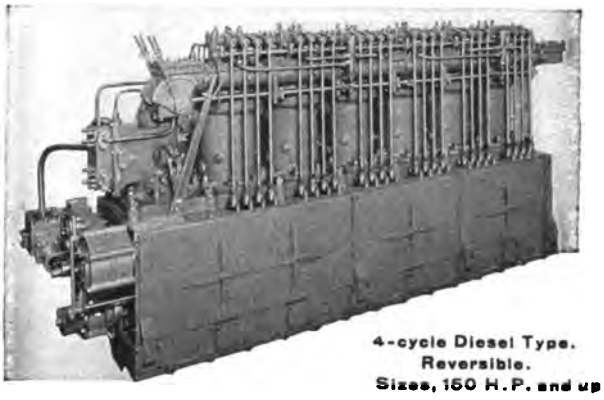

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Reversible.
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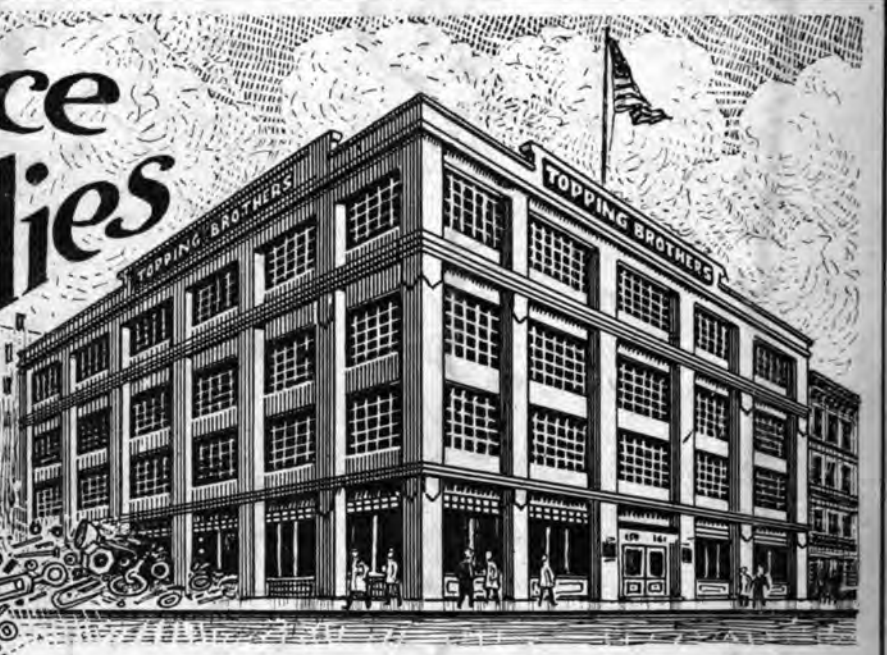

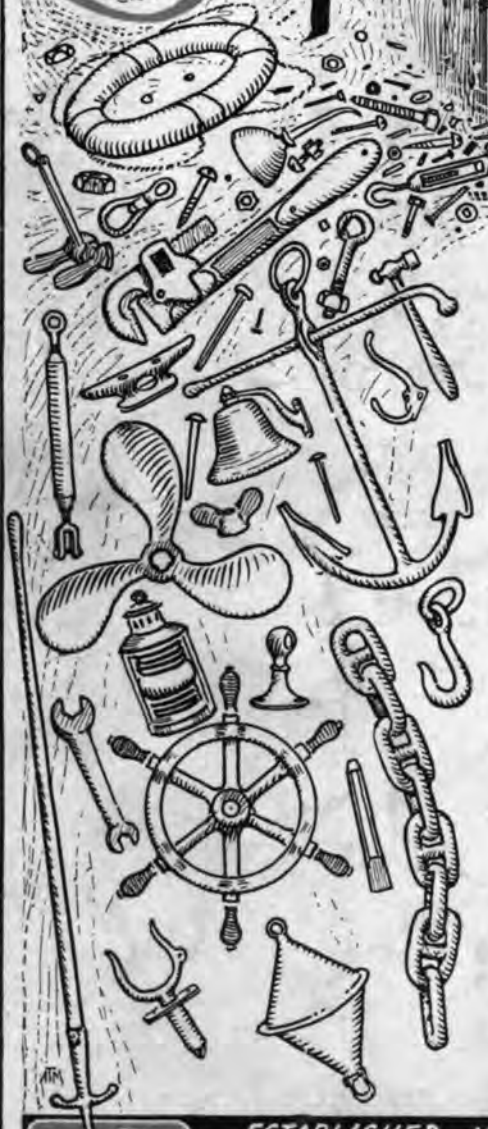

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33rd Year

June 1922

Little Miss Katherine Salvage, Fair Sponsor of Colleen — *Photo by Levick*

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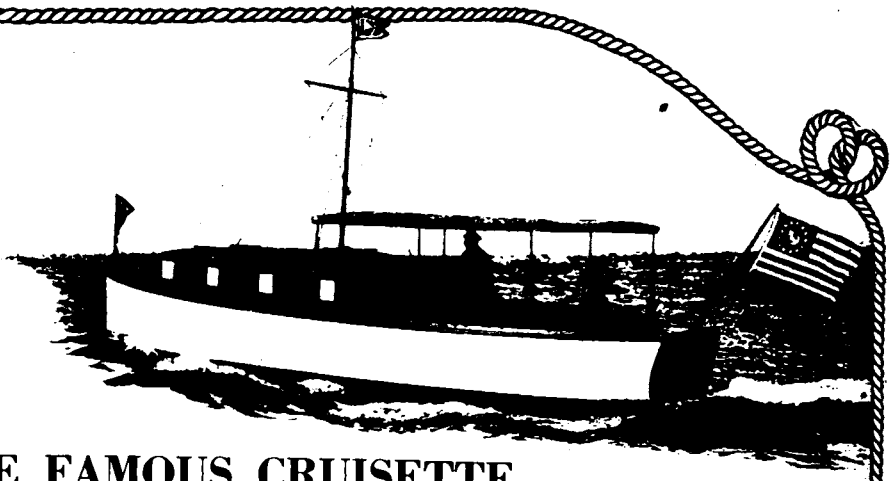

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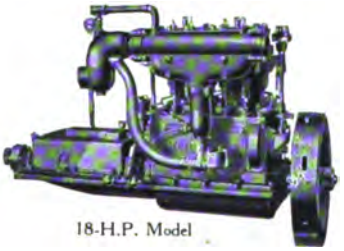

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Smallest Size
Body 18¾ inches long

Largest Size
No limit to length

There's a big Yankee clipper coming about,
"Maintops'l haul!" You can hear her Skipper shout.
There's a SHIPMATE in her galley, snug and clean and neat,
And the cook is at the fore-bitts easing off the sheet.
And when she wets her scuppers, boys,
On the other tack,
We can gamble that their suppers, boys,
Will be a bully whack.

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Made by

THE STAMFORD FOUNDRY COMPANY

Established 1830 Stamford, Conn.

Vol. XXXVIII

THE RUDDER

No. 6

Registered United States Pat. Office

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Opposite City Hall Park

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BRENTANO'S 36 Ave. de l'Opera, Paris, France.
GORDON & GOTCH, Sydney, Australia.
Or at any Bookstall.

Contents for June, 1922

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Plotting the Course

THE July Issue of THE RUDDER is going to be The Cruising Number. We are going to tell you fellows who don't cruise that you are losing a whole lot of clean, wholesome fun. If you live on some body of water that is too small for cruising, we feel sorry for you. After you read this article your life will be ruined until you move somewhere near larger bodies of water. Don't let your wife see the July Issue! The ladies are the greatest cruising enthusiasts and they will give you no peace.

Another big feature will be an article, well illustrated, telling you about some of the open and cabin boats that are built for stock and which are ready to step into and sail off at any time. We are going to quote prices of these boats so you can see exactly what sort of craft you can get for your money.

The big opening races of the season will be held in Milwaukee the middle of June and a special writer will tell you all about them. The International Model Yacht Race will also be covered and then we will give you the latest news about the Fourth of July race prospects at Peoria.

By the time we go to press the 6-Metre boats will be tried out. After reading our story of these boats you may be able to pick the winners of the International Races which will be held in September.

Naturally we had to get a crack-a-jack cruise story to run in the Cruising Number. We think the one by W. J. Schubert is good enough for anybody. If you like it let us know. If you don't like it let us know twice as fast. Don't forget for one inch of the earth's rotation that THE RUDDER is your magazine. All I do is to sit here and paste up your stuff so that it fills the pages right.

It looks as if Radio-Telephony is to be a boon to the yachtsman. Readers have asked us to publish some real information on the subject, so we got a man who is a professional radio engineer and a member of the staff of a radio paper to give you an article. He is one of those fellows who not only knows what he is talking about but he has the ability to put it in type for your education and entertainment.

There are some remarkable designs lying here in the sanctum ready for the July Issue. To tell you about them would spoil the fun. Christmas morning isn't half as thrilling if you sneaked downstairs in the forbidden hours and caught Santa stuffing the socks. Let me play Santa and surprise you with some real designs.

The Editor

THE RUDDER

Commercial Boats and Equipment · Yachts and Yachting · Engines and Accessories

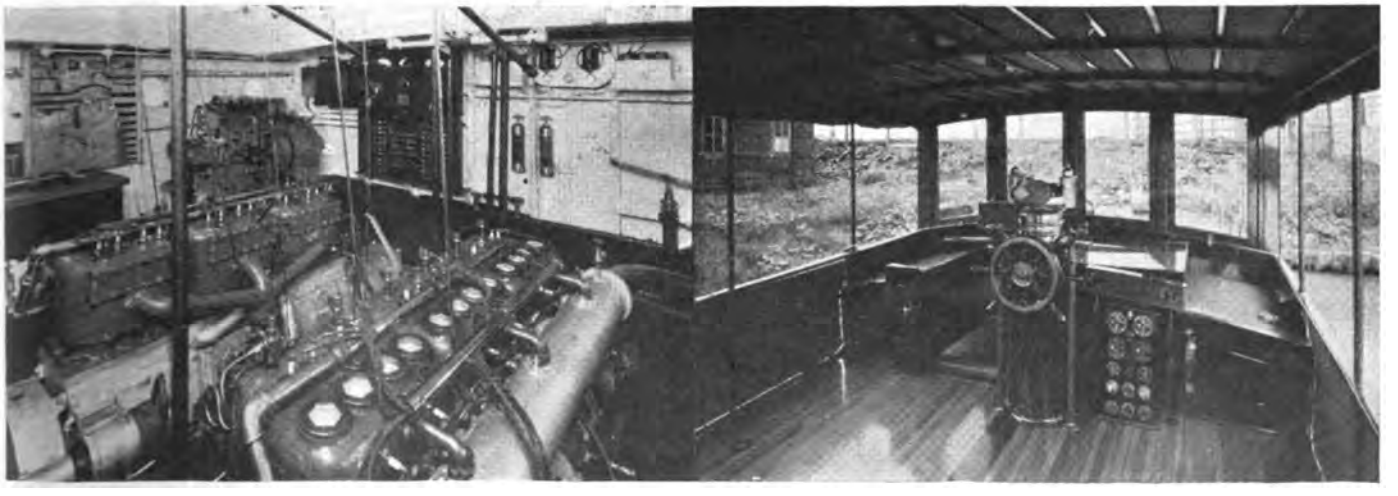
Volume XXXVIII **June, 1922** **No. 6**

Everybody's Equipment

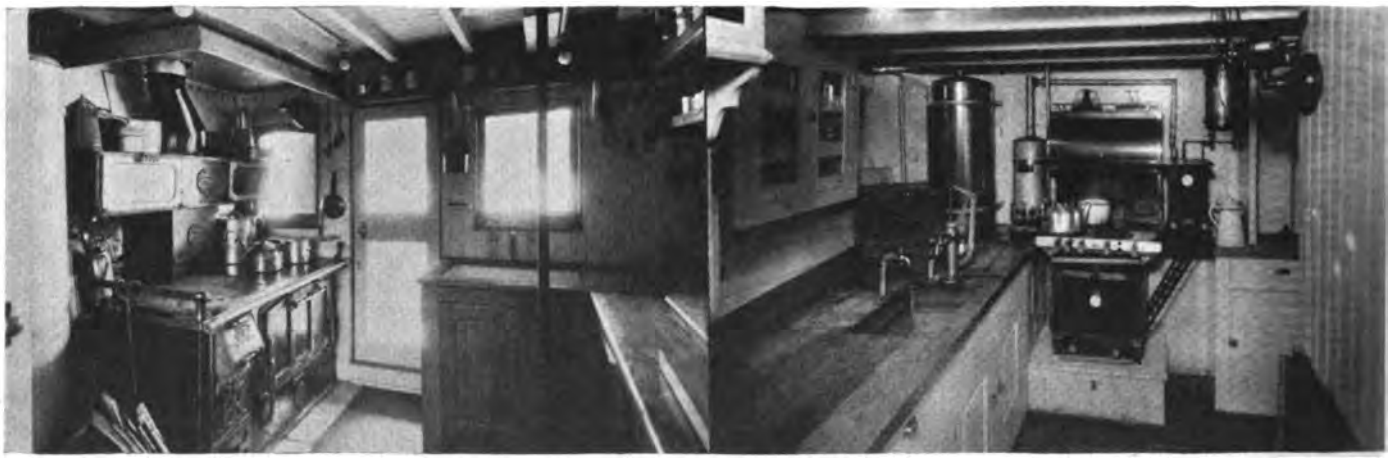
THE difference between a yacht and a hull is mainly a matter of equipment. It is of course true that the most important part of a yacht is the hull, but at the same time, the chief object of the hull is to float the equipment. Your comfort is entirely due to the class and adaptability of the boat's equipment. This subject is one that has had very little attention from marine writers. The usual subjects of discourse and yachting literature have been the hull, engine or sails. It is true that the two latter items are really included in the list of equipment, but in this article we are going to forget the propelling medium for the time being and talk about the many items that go towards the making of a yacht from a hull.

On a boat intended solely for speed, comfort is a more or less disregarded item. The vast majority of boats however are designed and built to provide the owners with comfort and convenience. The better part of the time is spent on deck, so we will mention some of the articles of deck gear first.

Irrespective of whether the owner handles his craft or has a professional crew the amount of pleasure to be derived from the craft bears very largely upon the method of control. On almost all modern power boats up to seventy or eighty feet in length it has been found advisable to run all the engine controls to the steersman's position. The proper assembling of these controls is of the utmost importance. In one of the



A Properly Arranged and Equipped Engine Room on Yacht Atlantan, and the Control Station on Dee Dee



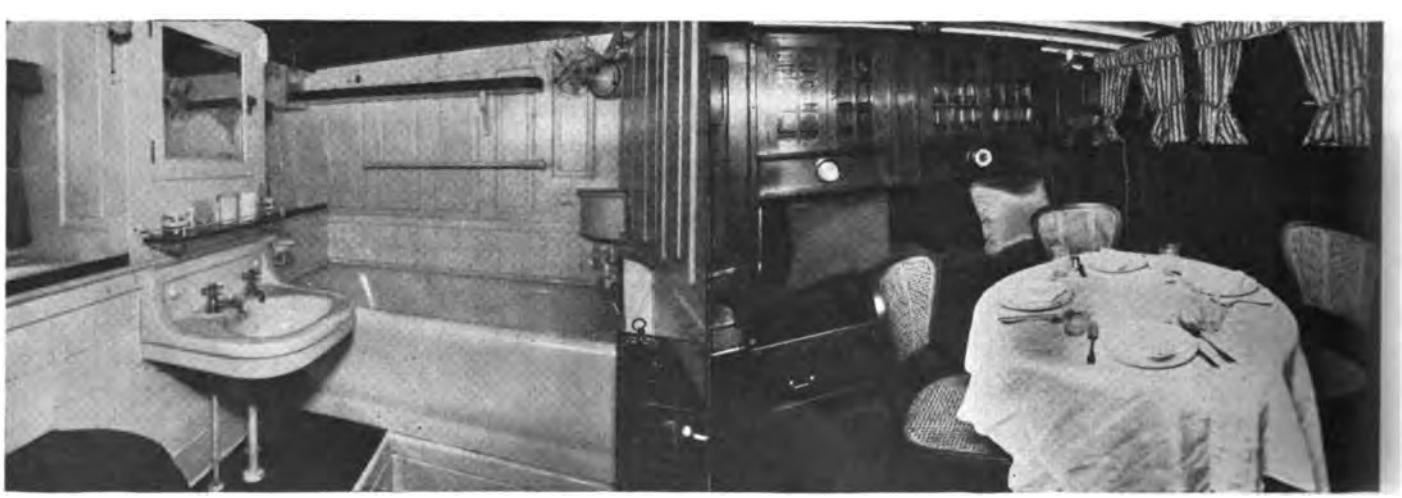
Two Galleys Where the Equipment Has Been Arranged, So That Real Meals Can Be Prepared in Comfort for a Large Party

pictures beyow we show the bridge deck of a Great Lakes Cruiser of the twin screw type. The main portion of the assembly is a vertical column containing the steering gear leads and surmounted by the compass in a proper binnacle. On either side of this column are fastened bronze levers that control the reverse gears of the two engines. The spark and throttles are also arranged above the reverse handles. The speed and direction of the entire craft is thus centered in a space which may be easily reached by both hands without moving from one spot or lifting the eyes from the compass card or course ahead. Alongside, and slightly lower than the steering wheel we find a handsome box attached to the after side of the cabin house. The top of this box is set at an angle and in it are mounted the two revolution counters that enable the captain to accurately tell his speed at any time. As the speed of a boat is always varied by the revolutions of the engine, the skipper soon learns that each engine speed is equal to a certain boat speed. His navigation is thus simplified. Below the tachometers, as revolution counters are termed, we find a double row of dials and gauges. By manipulating the switches the engines can be started, and various combinations of ignition system used. On all modern boats there are at least two distinct ignition systems, which can be used separately or together, as desired. Below the switches we find oil gauges that tell instantly if the oiling system fails, and also meters which acquaint us with the charging rate and condition of the electrical apparatus.

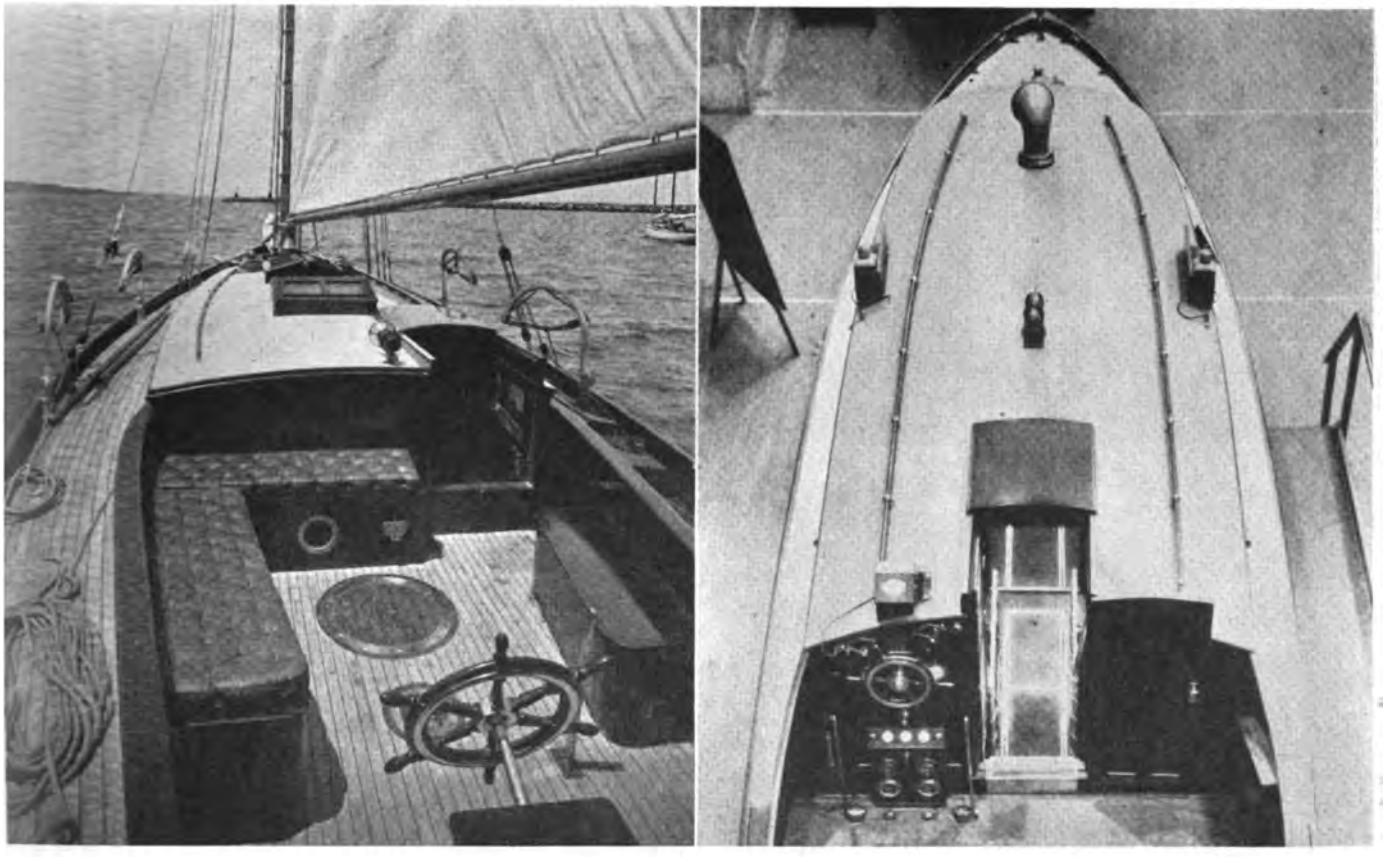
On an auxiliary, the power is usually less and it is not so necessary to have such a complete record of the engine room conditions at our call. On another page we show a deck view of an auxiliary showing the wheel, engine controls, compass under a glass deck plate and signal horn. Note also the hinged davits for handling the small boats. This type of davit is especially valuable on sailing boats as it does not project so high above deck that it interferes with the booms.

Beside the picture showing the auxiliary we show a deck view of a Consolidated cruiser which gives an excellent idea of the deck equipment of a high grade boat of about 35 feet in length. Note particularly the clean-cut appearance and the lack of unnecessary equipment. Each article was selected for the boat and installed so that it would be 100 per cent efficient. At the same time the runways on the sides are left clear for working forward or aft.

Below decks we find that equipment is cleverly designed to be as unobtrusive, as decorative and as



The Bath on Speejacks and the Dining Saloon on Atlantan Show the Proper Installation of Equipment on Modern Yachts

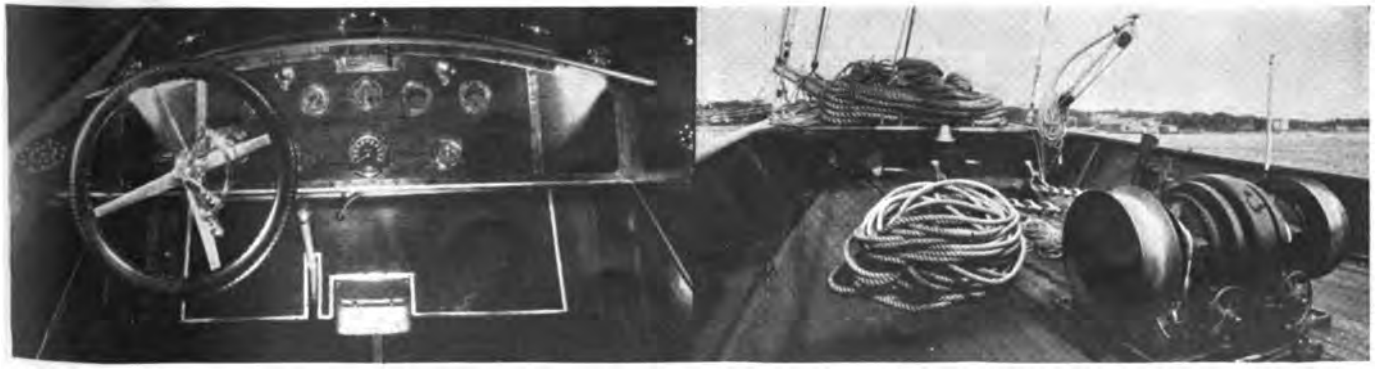


Two Deck Views, One Showing an Auxiliary and the Other a Power Boat. Note the Simplicity and Careful Arrangement of Equipment

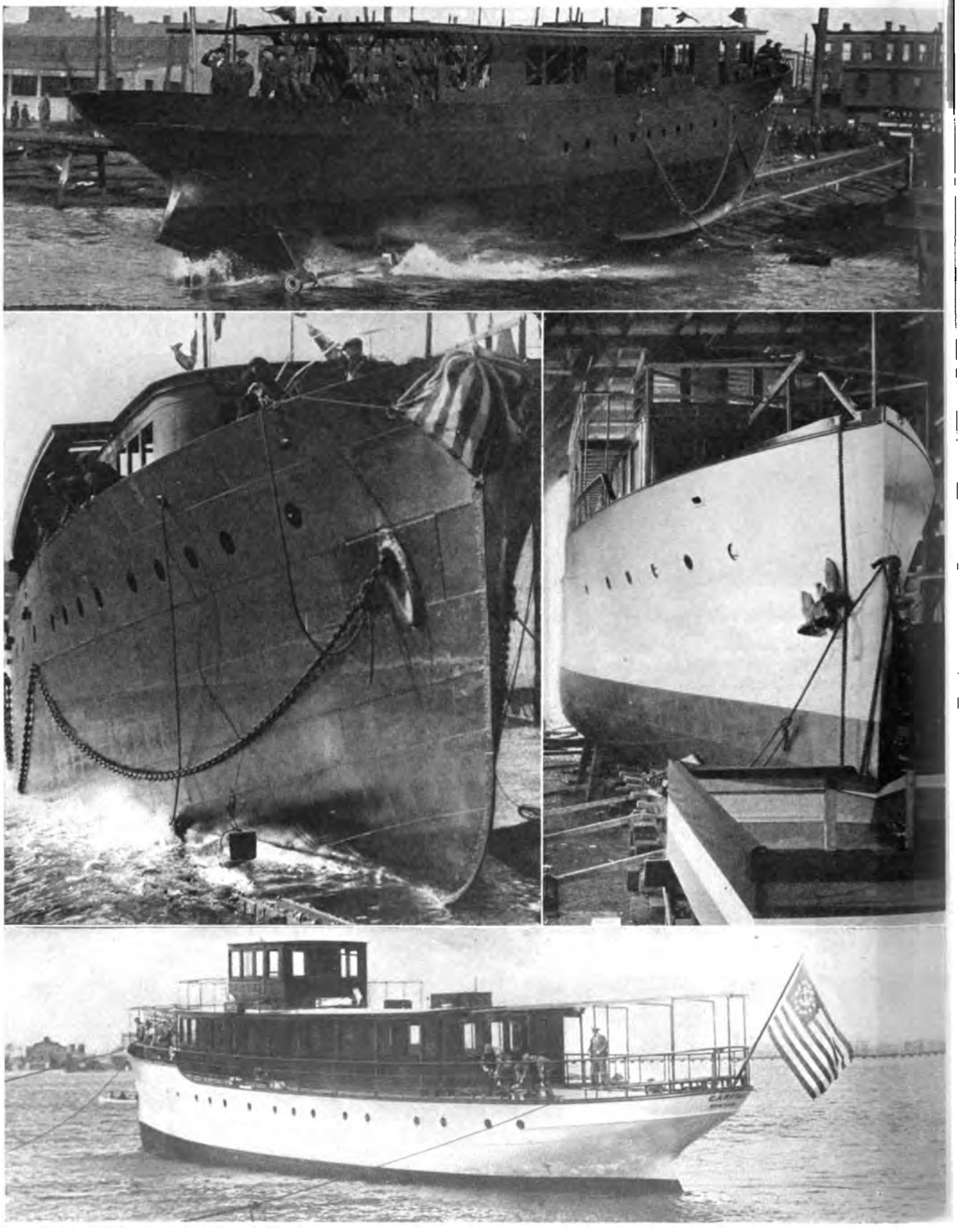
comfort-providing as possible. In our picture of the dining saloon of a fine yacht, note the ship's bell clock and the barometer. Both have been placed so that they are instantly available for their inestimable service and at the same time they lend themselves to the decorative scheme. The electric toaster in the corner as well as the fan are of the greatest value on hot days when one cannot wisely start a fire to cook a quick meal. On all good boats we find that electric fans are installed in every compartment, with switches arranged so that one can start or stop them without leaving seat or berth.

The equipment in the culinary department must be selected with care. Nothing will spoil a trip so quickly as poor food. On large yachts coal ranges are almost universal, but many cruising enthusiasts who own the tabloid variety of cruisers feel that their boat is not complete until a small coal and wood burning stove has been installed in the galley. Not only does this insure good food, but on cool days it turns discomfort into pleasure. Alcohol, kerosene and gasoline are also used for yacht cook stoves.

In selecting equipment it is always well to consult with your naval architect or else with the expert you will find in every house which deals in marine hardware as a specialty. The usual hardware store does not and cannot carry the class of goods that will be suitable for a boat. The design and manufacture of marine hardware is an art that has been handed down for years. With boats, as with everything else, the highest grade of equipment, properly selected and ably installed will pay dividends. The other kind is a fraud.



The Dash of a Runabout is Usually Arranged Like an Automobile. Large Yachts Like This One Require Electric Winches for the Handling of Ground Tackle

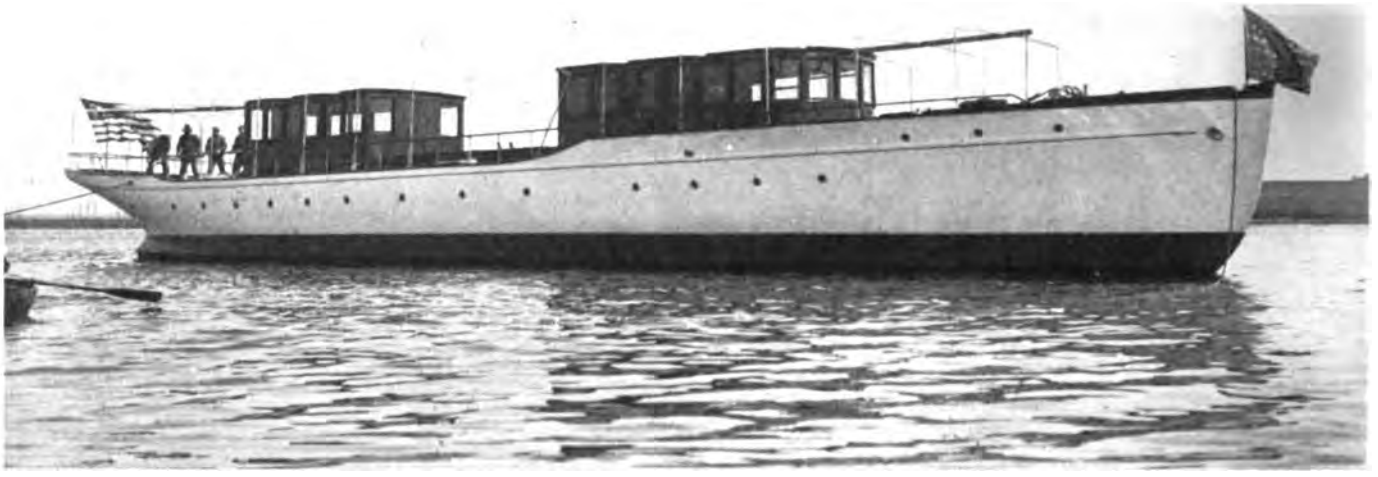


LAUNCHING VIEWS OF TWO RECENT COX & STEVENS DESIGNED YACHTS *Photo by M. Rosenfeld*

The Top and Left Center Pictures Show Cynthia, Designed for Com. Merrill B. Mills, a 129-Foot by 23-Foot Winton-Diesel Yacht. The White Boat is Caritas, Launched by Lawley, for J. Percy Bartram. She Also is Winton-Powered and Very Roomy

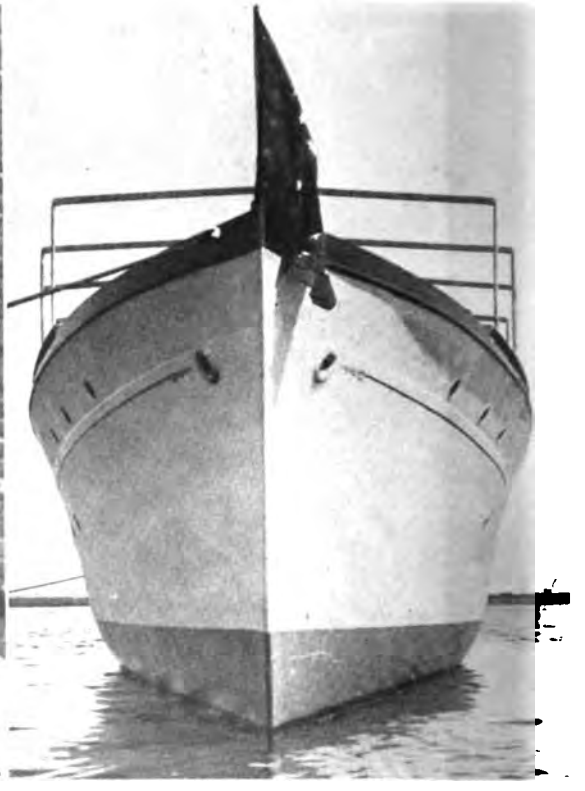
MIRAMAR AND HER LAUNCHING PARTY *Photo by M. Rosenfeld*

This Beautiful Gielow-Designed was Recently Launched by Kyle & Purdy, at City Island, for Louis H. Eisenlohr, of Philadelphia

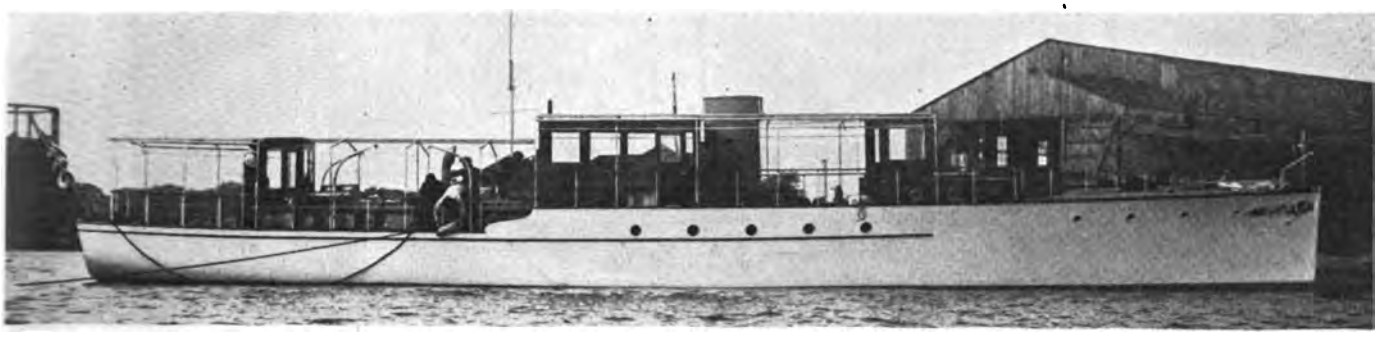


LAUNCHING OF POWER YACHT COLLEEN

George Lawley & Son Corp., Builders. Benjamin T. Dobson, Designer. Samuel A. Salvage, Owner. Miss Peggy Salvage, Sponsor. Length over all, 110 Feet; Length on Water Line, 102 Feet; Breadth, 18 Feet. Two Winton-Diesel Engines, 150-H.P. Each. Speed, 15 Knots



Members of the Colleen Launching Party—The Owner, Samuel A. Salvage, Mrs. Salvage, Mrs. Charles Belknap, Miss Frances Belknap, Mrs. H. A. Wilmerding and Peggy and Katherine Salvage in the Foreground. The Latter was Sponsor. A Bow View of Colleen Just After her Launch



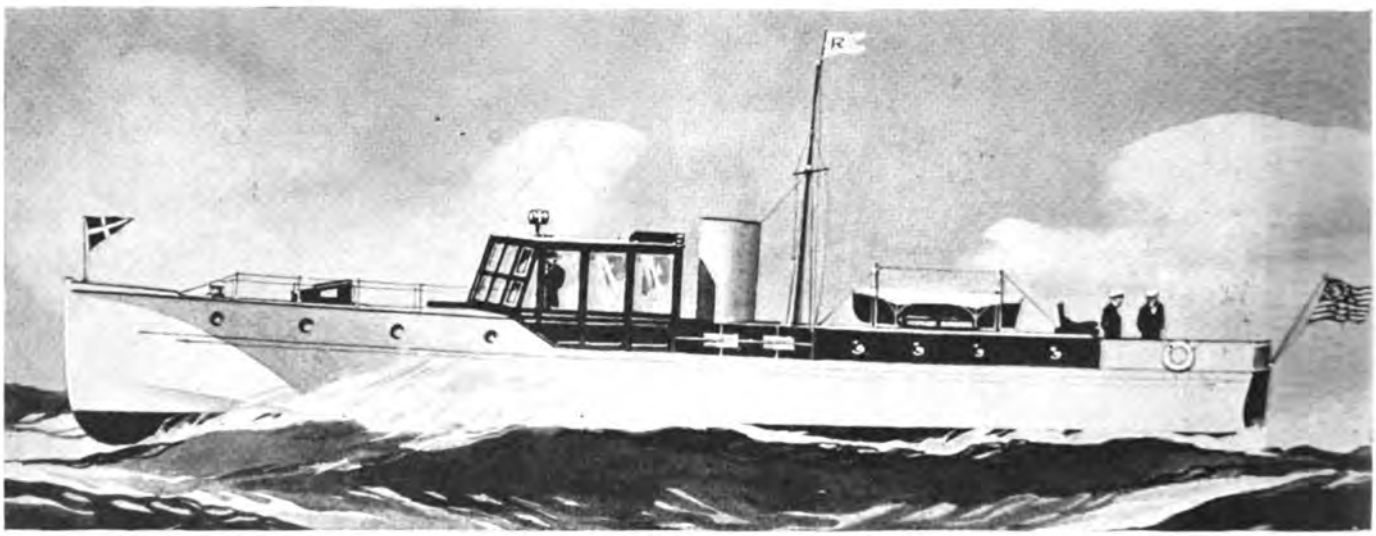
Sasqua, Owned by De Vere H. Warner, of Bridgeport, Conn., was Recently Launched by the Luders Marine Construction Company, at Stamford, Conn. She is a 90-Footer Powered with a Pair of Winton Gasoline Engines. The Deck House Abaft the Stack is Somewhat of a Novelty

This View of Sasqua Shows the Graceful Flam and Clean Entrance that Characterizes all Luders Designs

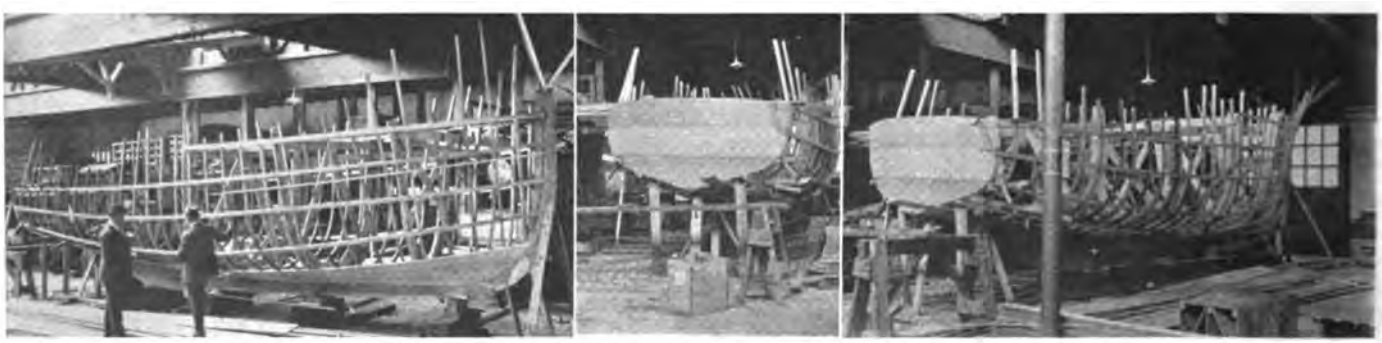
Bow View of Margaret II, Just After She Left the Ways of The Consolidated Shipbuilding Corp.

Margaret II, Latest Power Yacht to be Launched from the Consolidated Yard. She is 70 Feet by 15 Feet by 4 Feet 9 Inches Draught and is Owned by A. Roberson, of Binghamton, N. Y., Who Will Use Her on the St. Lawrence. Her Power Plant is a Pair of Speedway 150-H.P. 6 Cylinder Engines

L. L. Driggs, of New York, is the Proud Owner of Grenemar II, a Sterling-Powered 50 by 11-Footer, Designed by J. H. Wells, Who is Now with the Gielow Forces. She was Built by The Matthews Boat Co. and Recently Rebuilt by Frederic S. Nock, at East Greenwich, R. I. With the 95-H.P. Sterling the Speed is 13 Miles

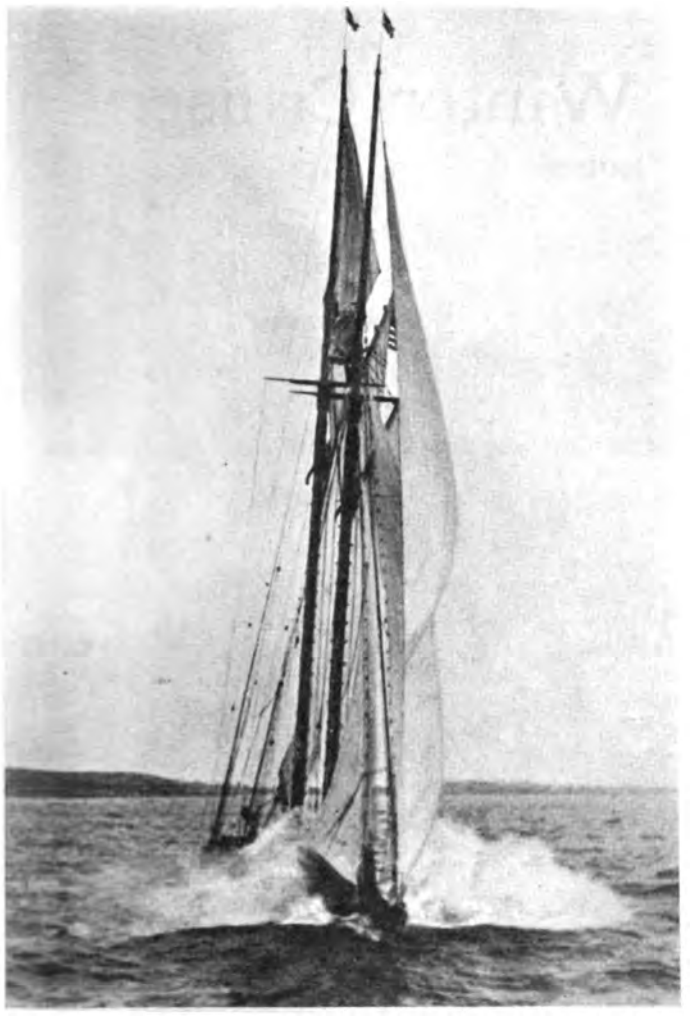


Wash Drawing of 65-Foot Wm. H. Hand Creation. This Fine Yacht was Designed and is Being Built by Hand, at New Bedford, for Col. H. H. Rogers, of New York. The Hull is Double-Planked Mahogany and the Power Two 300-H.P. Sterlings Giving a Speed of 25-28 Miles



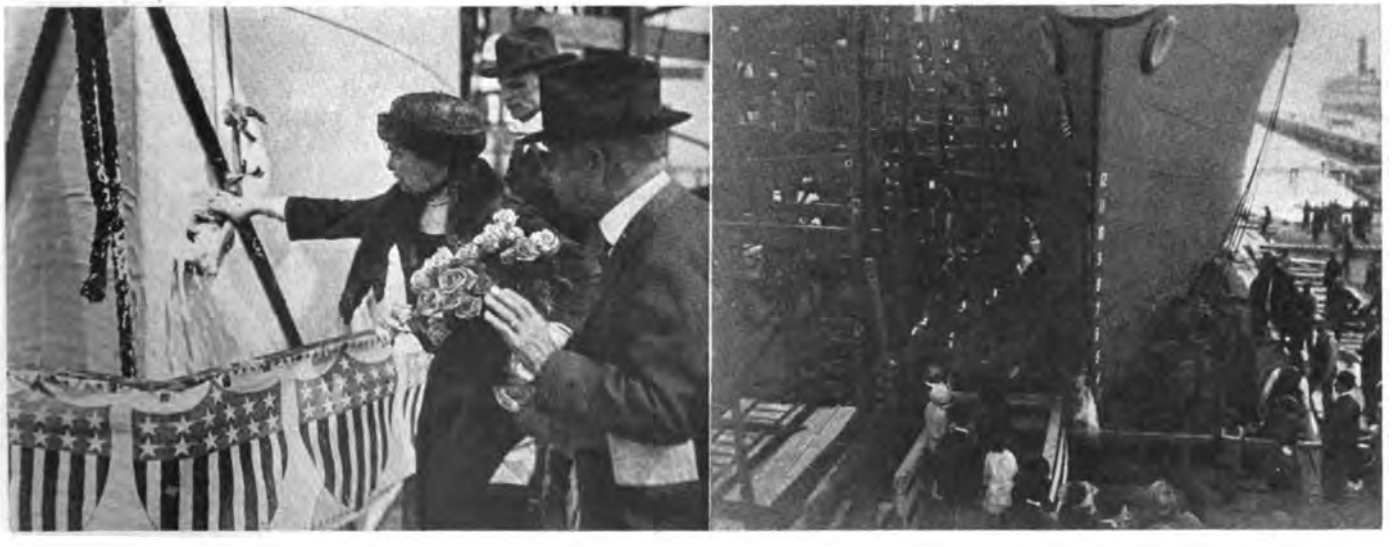
Photos by Courtesy of W. W. Nutting

Three Views of the Specialized Cruiser Being Built by the Gordon Boatbuilding Corp. in Their Brooklyn Plant. Note the Easy Lines and the Ample Deadrise Throughout. The Power Plant Will be a Kermath 20, and the Price $3,500 Complete Ready for a Cruise



The American Fishing Schooner Puritan Outward Bound for the George's Bank. She Will be an Entrant in the Forthcoming Fishermen's Race Against the Canadian Schooners. Burgess & Paine Were Her Designers

Three Views of the New Sea Sled Dinghies. Their Stability as Well as Their Adaptability with Either Oars or Outboard Engine is Well Shown. A Feature is Their Easy Towing at High Speed



"There She Goes!" These Two Pictures were Snapped Just as the Symbolic Bottle Smashed. On the Left is Miramar Slipping Into Her Element, and on the Right the Cox & Stevens Yacht Dolphin, the Largest American-Built Diesel Yacht, Recently Launched at Newport News. She is 180 Feet Long and Has a Speed of 16 Miles an Hour

St. Thomas for the Winter Cruiser

By Arthur S. Gordon

THE lure of adventure, exploring strange waters, new sights in old places and a desire to acquaint themselves with our newest possessions should lead more yachtsmen to turn their attention, and subsequently the nose of their yachts, toward St. Thomas. Especially, those summering out the northern winter in southern waters, should be interested. This island possession of ours provides a safe and easily entered harbor, and is acclaimed by all who visit it as a spot interesting in its historical lore as well as tropical beauty. Incidentally, and this despite its American identity, St. Thomas has all the anti-Volstead advantages of Nassau. A glance at a chart will prove the feasibility of the voyage, assuming Key West or Miami as a point of departure, and will also suggest an interesting itinerary, if easy stages are desired.

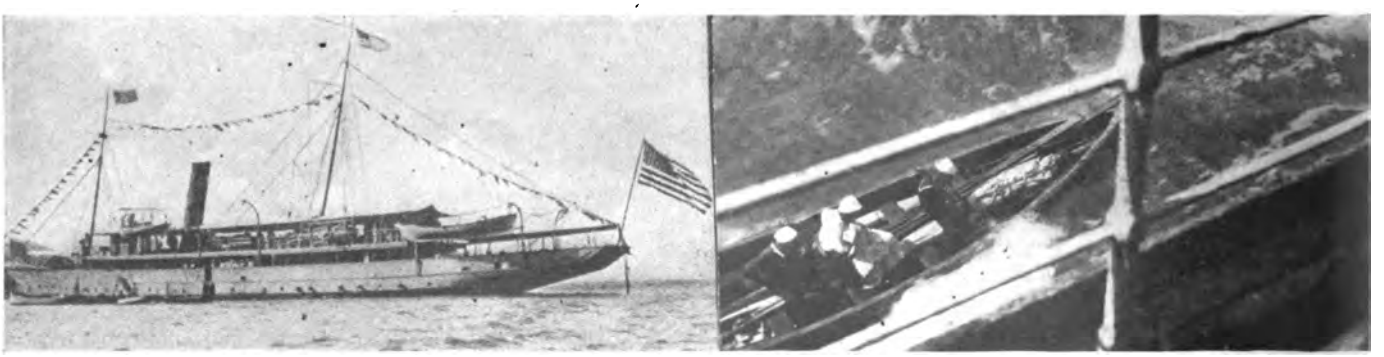
Other than to advise carrying a large scale chart of St. Thomas itself, on account of the numerous surrounding cays and false harbor entrances, further remarks on a voyage of this kind seem unnecessary. The yachtsman who is navigator enough to entertain such a cruise will be capable of planning his own courses, and, of course, will not neglect to provide himself with the proper clearance papers and health certificate if foreign ports are to be touched.

Liners are always met by a pilot at East Point and piloted in to an anchorage, a distance of half a mile. Yachtsmen will scorn this service, for once at East Point—easily located with large scale charts—the harbor entrance is obvious. There is no buoyed channel, because there is no need for one. Near Hassell's Island, however, is an isolated group of rocks, which is awash as all times. It is not especially dangerous, but it remains as the one pointed need of caution.

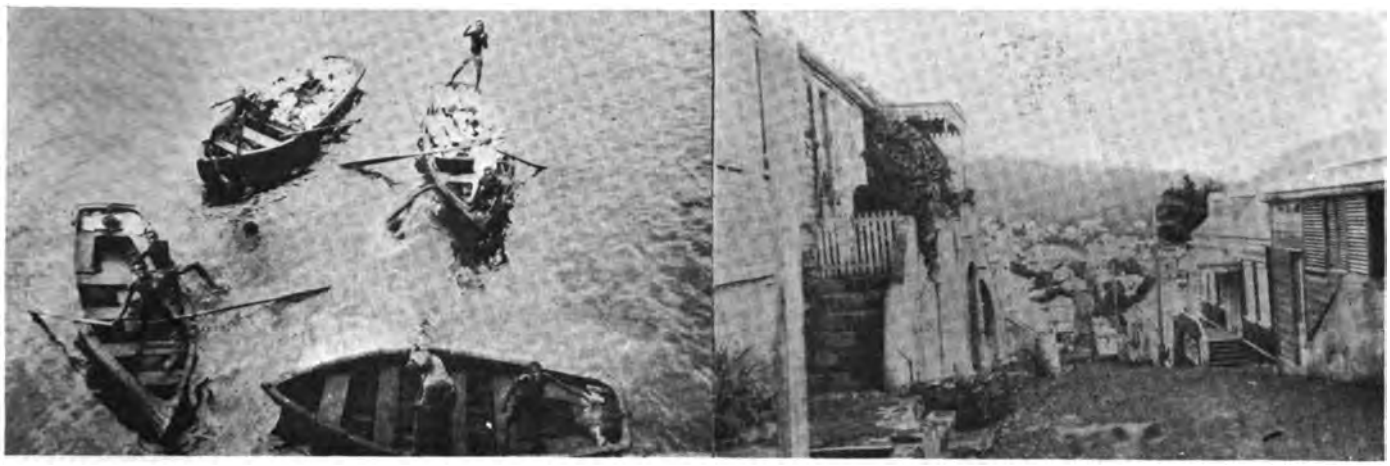
A Sample of St. Thomas Architecture

Once in the snug harbor, which is one of those natural affairs with no bothersome obstructions, the anchor may be dropped anywhere. The U. S. S. Vixen, harbor protector, generally anchors in the middle of the bay, well out of the way of entering and departing vessels. Yachts group together in front of Emancipation Park, within a stone's throw of the small boat landing, known as Governor's.

The arrival of a large vessel, putting in for fuel, always occasions great activity in the harbor. A naval barge generally labors alongside with the doctor and other port officials. A second naval barge receives the Virgin Island mail, if there is any, and deposits what outgoing matter there might be. Bumboats, second alongside by but a moment, bring wide stern thwarts full of sea-shells and coral oddities, the excellence and desirability of which can not be mistaken, if certain lusty throated boatmen are to be be-



The U. S. S. Vixen, Formerly J. D. Archbold's Yacht,—Harbor Protector. The Pilot Boat Comes Alongside



The Privileged Minority Diving for Coins. This View of a St. Thomas Street is Typical of the Caribbean Countries

lieved. A number of sleeked-skinned and almost nude islanders entertain by diving for coins, a diversion which never fails to fascinate tourists and to relieve them of all the copper and silver in their possession.

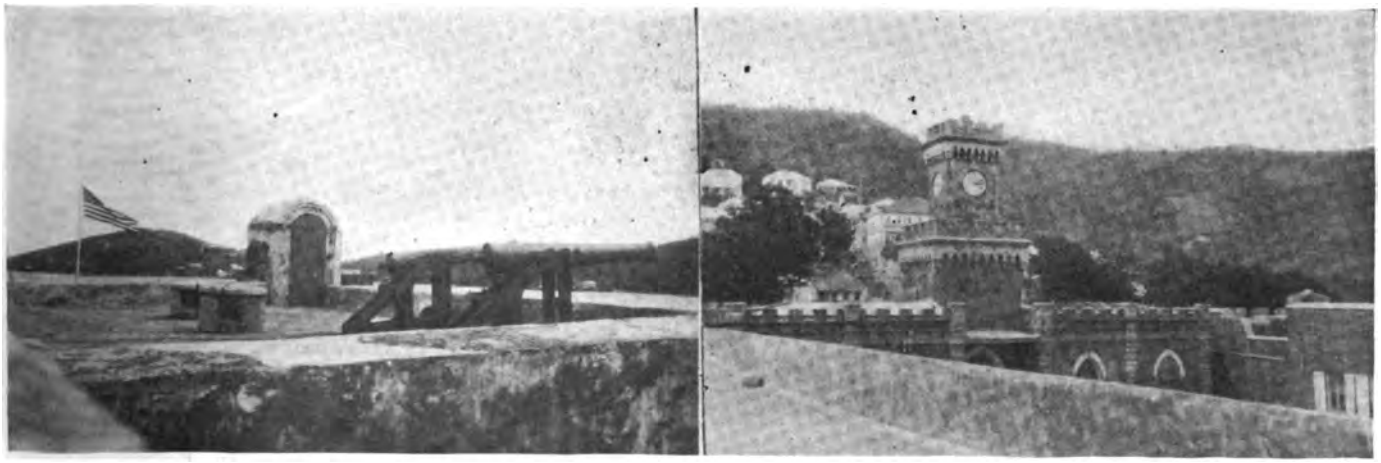
You might arrive, in your leisurely way, as all this is taking place and then these bumboats, tired of hawking at the big fellow, will paddle after you, and it will take the crew's honest efforts with a boat-hook to fend them off while you are mooring. Or the divers may crowd around you and offer to make great dives and huge splashes for some of your copper and silver.

The divers are the privileged minority in this port. They alone, it seems, can live without partaking in the coaling orgy which, in the case of the steamship, is soon to follow. The bumboat men disagree here and fancy themselves one notch higher on the social clothes-peg. Their claim, however, has no substance. Too often are they forced, by a noticeable and humiliating lack of tourist interest in their spongy "articles of virtu," to lower themselves to the diver's level; and as if that were not enough, to plunge with them to even lower levels, in perverted pursuit of the tourist coin.

There is no caste among them, you may be sure. At least, not a permanent one. But there is a distinction. However transitory and fickle this distinction may be, it must nevertheless be recognized. It seems that all of the natives are not employed at the same time, so that there perpetually exists a temporary superiority. This is assumed with the inability to obtain work, let us say, on the present occasion, when there is a ship to coal. That one half of the island's gentler element which is not balancing baskets of bituminous coal on its collective head, constitutes a sarcastic and advisory sideline, which, needless to say, is much resented by the other half. It, for the time being, gruntles and perspires under detached and sizable portions of the decreasing coal pile. As today's underdog, it bears both the coal and the comments as philosophically as a West Indian native might be expected to, and bides its time. Retribution, not so swift perhaps, but certain, will be its tomorrow when the next ship comes in and it will be the sideline!

The dress of those working is mostly scant. Two burlap bands, girdled over their outer garments, serve as stays. The length—or rather height—of their dresses is scandalous! Their feet are bare and flat, and the seventy-five pound load partly responsible for that interesting condition, is carried on their heads by the co-operation of a burlap turban, which serves as a pad.

St. Thomas has been duped! Its houses, its govern-



Christian's Fort Showing the Hollow Square Formation. Old Glory Proudly Waves Above What Formerly Was an Old World Possession

Some Ladies of St. Thomas at Their Toil

ment buildings, its sacred edifices, all have been robbed of their rightful tile roofs, their reddish tile roofs, and have been fitted with shed roofs of corrugated iron! Shades of all the humorists, particularly he who enjoyed rain patter on a tin roof! Instead of protecting the inhabitants from the tropical sun, the roofs now join it in roasting them.

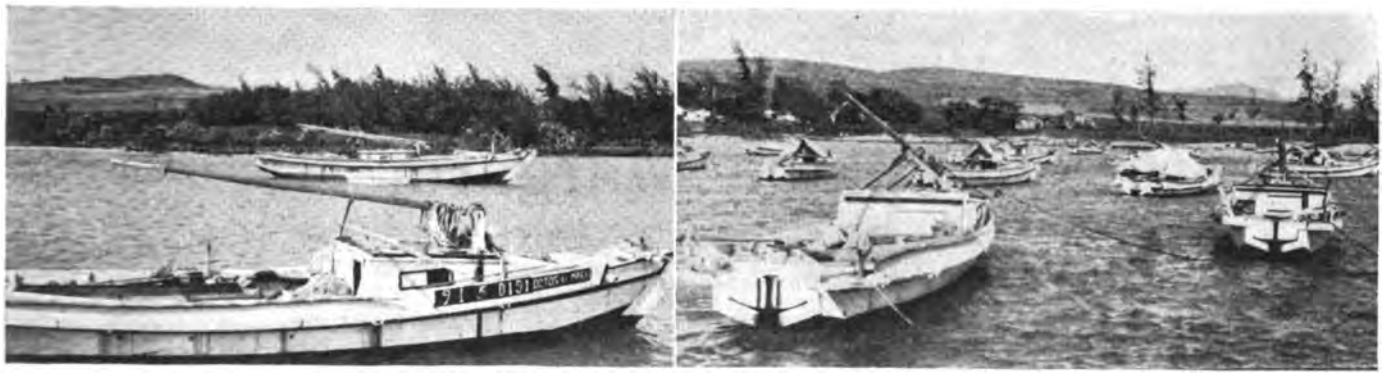
Topographically, St. Thomas is a single mountain ridge. Had our Anglo-Saxon forefathers discovered the island, they would have named it "krycg" or ridge, meaning the back of an animal: for were you to be suddenly startled by the apparition of a tremendous African crocodile sunning himself on that green plush carpet which was a gift, your astonished eyes would look upon a model bas-relief of St. Thomas. And were you to be so fearless, so sure of your sobriety, as it were, to place your finger in the angle between the apparition's left hind leg and its body, you might say with truth, "This is the location of Charlotte Amalie."

Charlotte Amalie, named after the Consort of Christian V, King of Denmark at the time of the town's founding, is built in the valleys and on the seaward sides of three small hills, jutting from the "back of the animal." One street runs fairly straight through the settlement, along the base of the three spurs, while the remainder struggle, as best they can, up and down the steep inclines. Most of the streets are narrow and some narrower, but all are filled with interest to the observant visitor.

A Danish fort, Blackbeard's Castle and the Tower of Bluebeard are the centers of interest. Fort Christian, dating from the Dutch occupation, is today much as it was built in 1672. That dread buccaneer, Edward Teach, actually lived in the island stronghold known as Blackbeard's Castle. The honorable Teach was professionally known as Blackbeard because of his interesting and captivating habit of tying up the ends of his long beard with ribbons and curling them behind his ears. His appearance, consequently, must have been remarkable as well as dreadful. He teased shipping more or less in the early eighteenth century, and was, from all reports, tolerably successful. His career, gay and gory while it lasted, was but short-

(Continued on Page 40)

Governor's Landing, Charlotte Amalie and a View of the Island as You Approach from the North



Uncle Sam's Sampans

By Frank S. Pugh

ONE usually associates the queer craft called a sampan with the weird and wilful Orient. It will come as a surprise to many therefore to learn that many sampans are in daily use, flying Old Glory. In the Territory of Hawaii there are any number of these peculiar craft operated by Japanese fishermen and powered, every one, with an engine made in the U. S. A.

The photographs accompanying this article show some closeups of these remarkable craft. To the naval architect or yachtsman who has never seen one of these boats in a heavy sea it may be hard to believe that they are excellent sea-boats and are preferred by the fishermen to any other type of craft. Of course the original sampans were propelled by sail. The wily gentlemen of Nippon however were among the first to realise that gasoline engines were the only means of propulsion that would provide a sure passage from wharf to fishing grounds and return in time to market the fish in presentable state.

Sampans are usually built of Douglas fir, fastened with Swedish iron nails with the heads well covered. They have a splendid reputation for seaworthiness and can be depended upon to live through the worst storms. One of them recently made a trip to Fanning Island and return across a trackless part of the Pacific. A typical sampan is Kauai Maru a 55 foot craft with a water line of 50 feet and 11 feet breadth. She cost about $8,000 with engine and is fitted with two auxiliary sails of the schooner type. The most of the boats use a single triangular sail for steadying and helping out in a fair wind.

In about 75 per cent of the sampans we find Frisco Standard engines. In fact, an enthusiastic Jap captain told me, "Japanee, he savvy plenty, then he get Flisco Stlandard, and suppose he no savvy plenty one time, then he get some dam fool engine." At any rate the service these boats get is hard, and an engine must be built to stand up day after day with no attention in order to satisfy the owner. The engine builder who goes after the sampan builder must be prepared to show service records. The Jap may be sentimental and romantic, but when he goes a-fishing he wants something in the engine room that knows only two commands, "Stop," and "Go!"

How to Build the 16-Foot Champion Hydroplane Margaret III

By Gerald T. White

(Concluded from May)

No. XV in The Rudder's Series of Working Plans

Note—We cannot guarantee safety, speed nor seaworthiness of this boat if built at variance with the drawings and specifications. If changes are contemplated we should be consulted

IN THE May issue we described the wonderful racing record of Margaret III and told you something of the sportsmanship of her owner, L. E. Selby of Pekin, Ill. and her designer Chris C. Smith who gave us the privilege of reproducing her plans so that all boat enthusiasts could build a hydroplane of the highest class. Although this is being written only about two weeks after the preliminary plans in the May issue have been in our readers hands, the response has been remarkable. We never knew there were so many red-blooded men with the love of speed inborn.

We believe the racing of small hydroplanes will be given a great impetus by the publication of these complete plans and specifications and we earnestly ask that every one who contemplates building a Margaret drop us a line immediately advising us of the fact. It may be possible that a little later we will try and arrange races between boats built to these plans. A series can be run in various localities and then the winners can possibly get together for a Championship meet. At any rate it will be of the utmost value to you to advise us of your intention of building, for we will arrange to notify every builder of any information which will be of value to them as the work progresses. We would also like to be advised immediately if there is any help we can render to builders. Although the plans and the specifications have been carefully checked over, it is humanly impossible to guarantee the absolute accuracy of the drawings or the specifications. If errors should happen to creep in we wish to hear of them at once so that we may correct them and notify all builders.

It will be of the greatest assistance in our effort to popularize class racing of these boats if you will co-operate with us with whatever information you may obtain and also let us have photographs of the boat, either running or under construction.

Professional boat builders will probably not find it necessary to lay down this boat full sized on the floor in chalk, as they will construct the frames and other parts directly from the drawings. Amateur builders should not attempt to do anything with the actual construction until they draw the lines of the hull on a smooth floor in chalk, full size. The lines can be drawn full size on a roll of heavy wrapping paper if the smooth shop floor is not available. In either case the body lines, shown on each side of the Offset Table, must be drawn full sized on wrapping paper. It is only necessary to draw one-half the section, as both sides are of course alike. You will note that the Offset Table only gives dimensions for one side of the frame. In drawing the body lines on paper, do not draw one on top of the other as shown on our plans, but make each one separately, with its own center and base lines and then cut out so that you have an accurate shape of every frame. After all are cut out, draw a line 5/16 of an inch in from the bottom and sides and cut off the strip between the two lines. This makes the deduction for the thickness of the planking, as the lines and offsets are made to outside of plank. At the top cut off a strip the same width to allow for the covering board or plankshear. The remaining pattern will be the exact shape to which the frames will be made. Be sure to mark each pattern with the proper number and also to mark the frames when made with that number and also with the centerline so that they can be set up properly on top of the keel.

We believe the construction is plainly shown in detailed plans and further described in the following specifications. In case anything seems vague, write us for help immediately.

SPECIFICATIONS

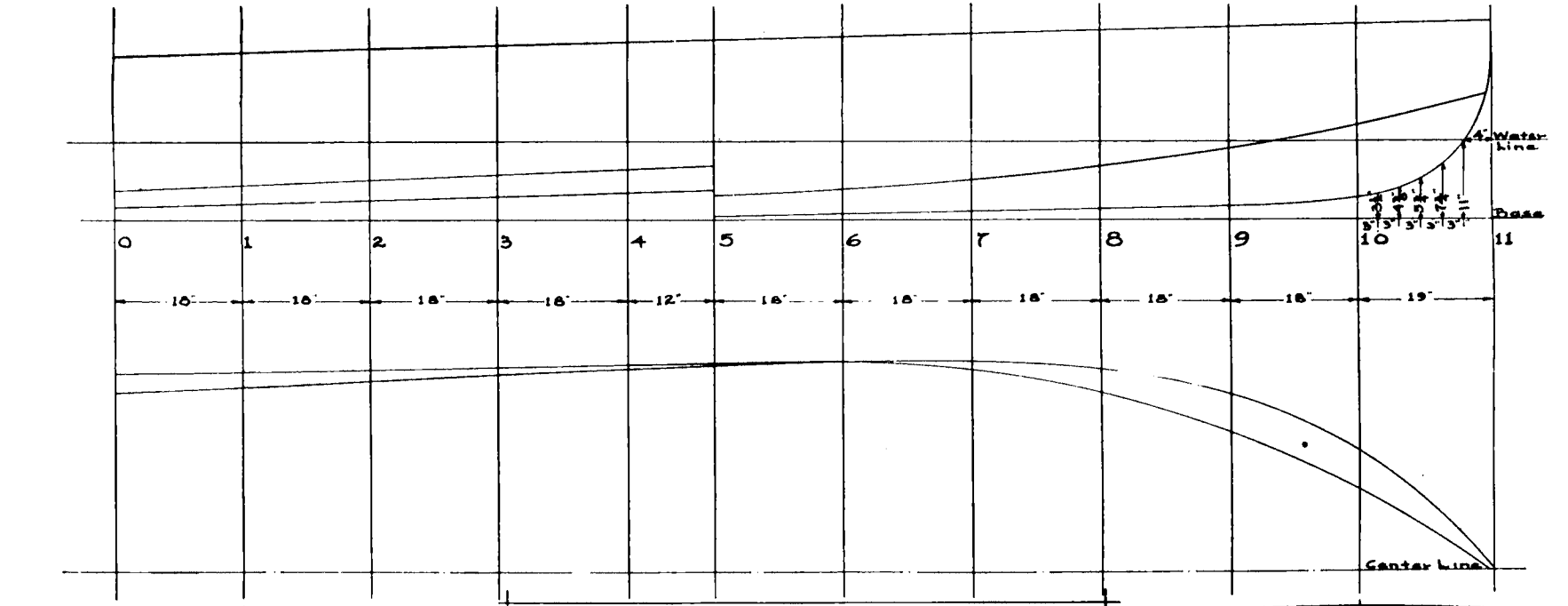
Inner Keel—White oak ¾ in. thick and 4 in. wide. Tapered gradually from frame 9 to the stem width. After the frames are set up the bottom of the keel will be beveled off so that the planking will lie flat.

Outer Keel or Filler—White oak 2 in. by ½ in., screw fastened to inner keel and shaped on outside to follow angle of bottom planks.

Step Construction—All pieces of white oak. The main step-piece is ⅞ in. thick running from side to side inside the planks. It notches over the forward half of the keel, the latter being screwed into it. The step-backing is ⅞ in. by 1½ in. and bolts to the step-piece after notching over the after keel. The shutter piece is ⅛ in. thick and is screwed in place after the fore and after planking has been put on. Screw to the step piece. Planking is screwed to step-piece and step-backing with ¾ in. No. 7 brass screws.

Stem Knee—Natural growth hackmatack knee 2 in. wide and shaped as shown. Make a paper pattern of this from the full-sized lay out on the floor. The stem should be carefully rabbeted for 5/16 in. planking and fastened to the keel with at least 3 through bolts through filler, keel and knee. The joint between knee and keel must be laid in white lead and very carefully made.

Transom—Mahogany or oak ¾ in. thick and in one width if possible. If a wide enough board cannot be obtained, make it of two pieces held together with ¼ in. dowels. Place several oak cleats up the transom on the forward side to prevent checking and warping. A cleat should also be screwed fast on the forward face of the transom to provide a little greater width for the after



Heights above Base

	0	1	2	3	4	5	6	7	8	9	10	11
Sheer	1-11-0	←			Straight						→	2-4-0
Chine	0-4-2	←	Straight		→	0-7-4 0-3-4	0-4-2	0-3-5	0-7-4	0-10-0	1-1-2	1-3-6
Keel	0-1-6	←	Straight		→	0-4-0 0-0-4	←	Straight		0-1-7	0-3-1	

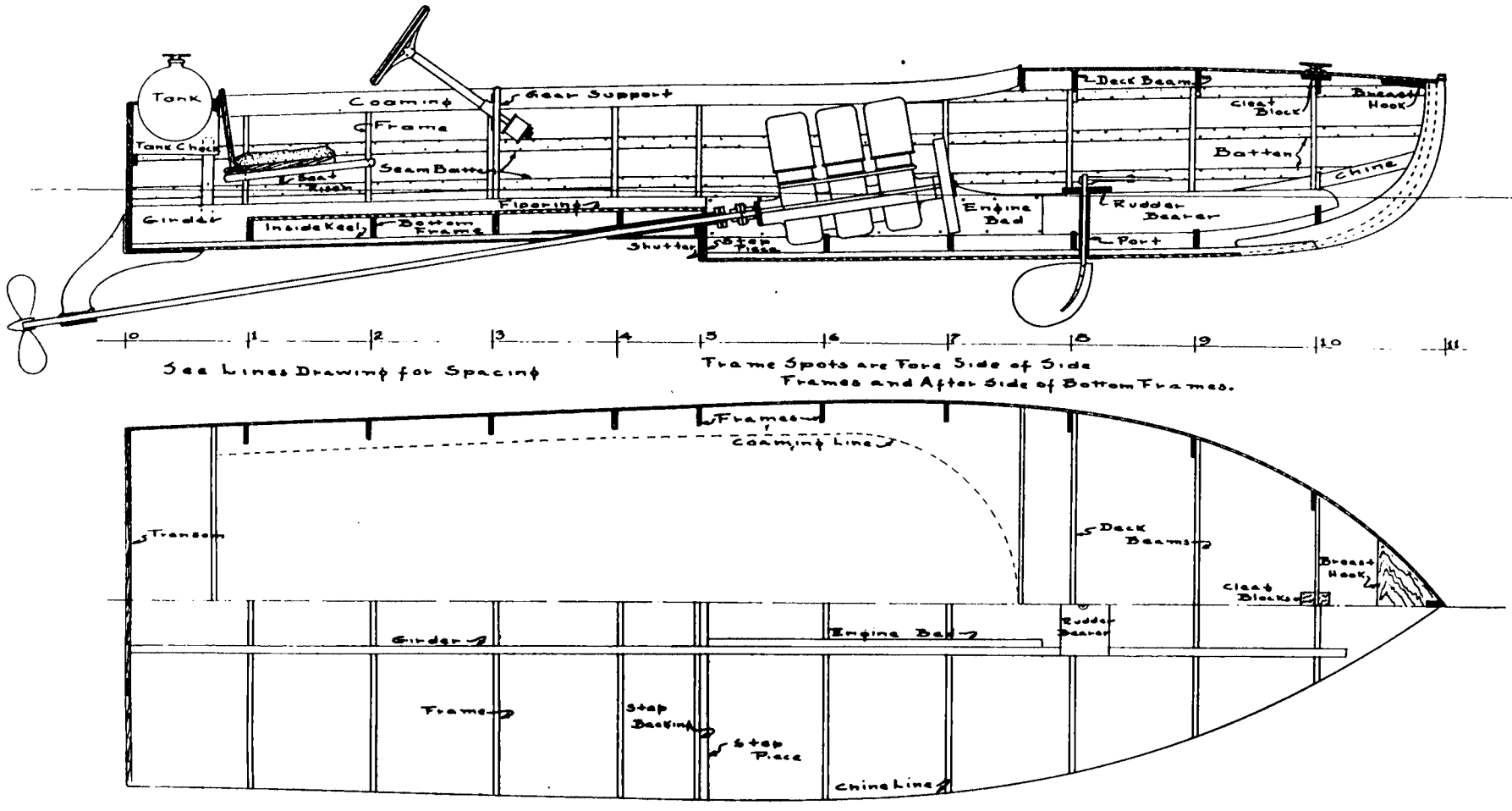
Half Breadths

Sheer	2-1-0	←	Straight		→	2-4-7	2-5-2	2-5-2	2-4-5	2-0-7	1-5-0	
Chine	2-3-6	←	Straight		→	2-5-1	2-5-2	2-4-2	2-1-1	1-7-4	0-11-4	

Offsets are in Feet-Inches-Eighths to Outside of Planks

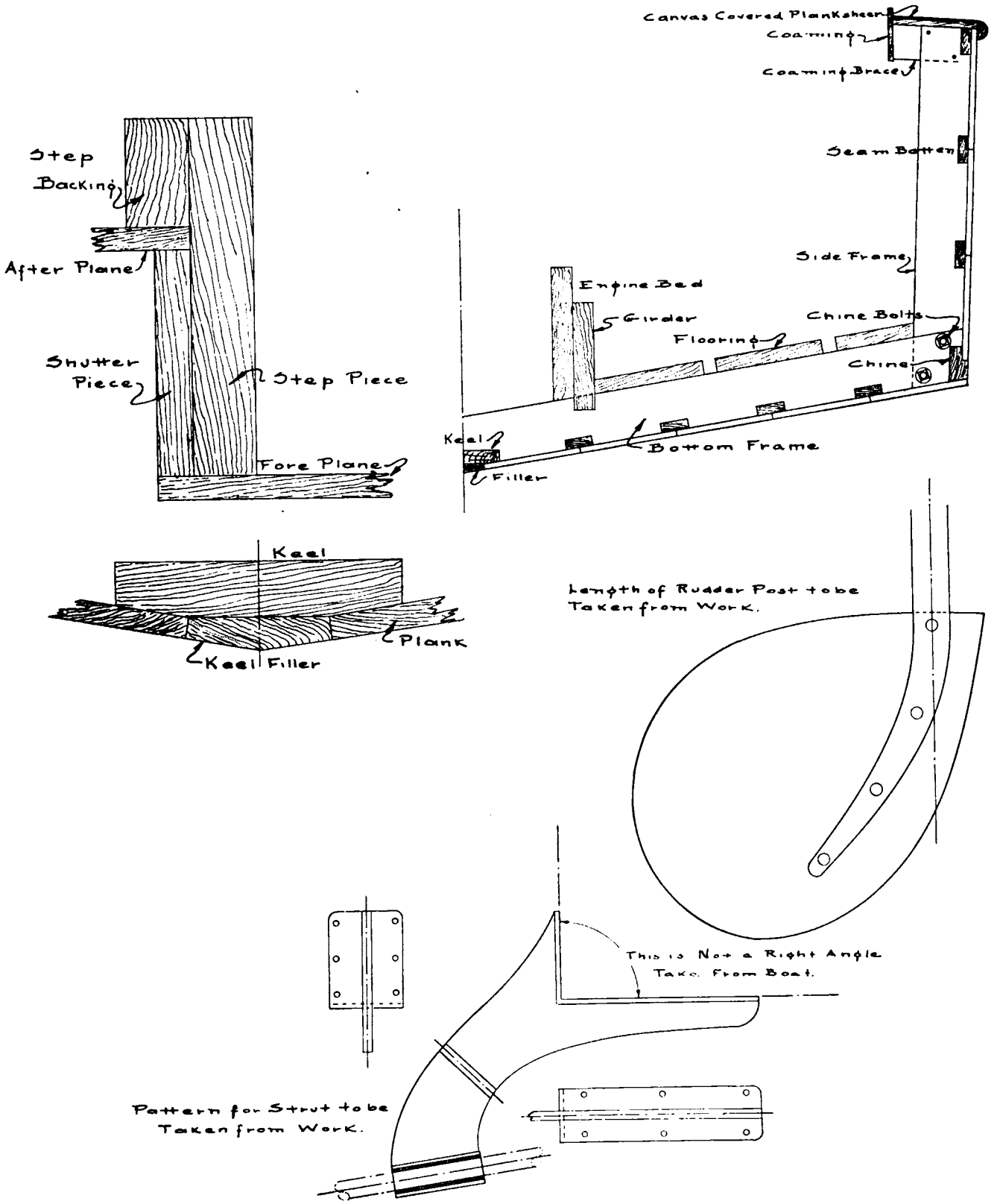
Margaret III

Lines and Offsets for the Construction of the World's Record Holding Hydroplane Designed by Chris C. Smith. It Must be Borne in Mind that Offsets are Given to the Outside of Planking and to Top of Covering Board. After Paper Patterns are Made for Each Frame, the Thickness of Planking and Covering Board Must be Deducted. The Drawing is Reproduced to a Scale of ½-Inch Equal 1-Foot



Margaret III

Inboard and Beam Plan Showing the Method of Construction Used on this Wonderful Boat. Note the Full-Length Girders to Which the Engine Beds are Attached. The Proper Fitting and Fastening of these Girders is of the Utmost Importance. The Numerals on the Line Between the Two Plans Give the Frame Numbers Corresponding to the Offsets and Lines. In Building this Boat Be Sure that the Engine, Rudder, Seat and Tank are Installed Exactly in the Same Fore and Aft Position as Shown. The Drawing is Reproduced to a Scale of ½-Inch Equal 1-Foot



Margaret III

Cross-Section Through Step, One-Half Actual Size, Cross-Section Through Keel, One-Half Actual Size, Cross-Section Through Hull, 1½ Inches Equal 1 Foot, Drawings For Strut, 1½ inches Equal 1 Foot, Drawings for Rudder, 3 Inches Equal 1 Foot. In the Case of the Strut, Patterns Will Have to be Made From the Boat to Insure a Proper Fit. The Rudder Can be Made from the Drawing, the Length of the Post Being Taken from the Boat.

ends of the planking to bear against. Notch transom over the keel the same as with a frame but be sure to get a water-tight job by using white lead.

Bottom Frames—All frames are of spruce and are sawn to shape. The bottom frames are in one piece from chine to chine, 2¾ in. wide and ¾ in. thick. Notch over inside keel and screw fastened from the outside.

Side Frames—Of spruce same dimensions as bottom frames. Fasten to bottom pieces as shown with two bolts and notch at the corner for the chine.
Note; On the original boat the side frames from about No. 7 forward were slightly hollowed on the outside to provide a little flam to the forward sections above water. As this point is one that makes no difference to the speed or seaworthiness of the boat we have eliminated it to save labor. Those who wish a fancy hull can arrange this curvature to suit.

Seam Battens—Notched into every frame and also into stem knee and cleats on the forward face of the transom. Of spruce ½ in. thick and 1½ in. wide. Fastened to frames with 1½ in. No. 7 brass screws. Spaced 5½ in. centers on bottom and 6 in. centers on sides.

Bottom Planking—Philippine mahogany in single lengths dressed 5/16 in. thick. Fastened to frames and seam battens with ¾ in. No. 7 brass screws closely spaced with the heads perfectly smooth with the outside.

Side Planking—Same as bottom planking except of white pine. Can be made of mahogany if desired. The lower edge of the lower side plank rabbets into the chine as shown.

Chine—Yellow pine, 1 in. by 2 in. notched into all frames, and stem and stern cleats. At the stem it must be tapered so as to not notch too deeply. The upper outer edge is rabbeted to suit as shown. Planking extends over the bottom without a rabbet. The forward chine pieces run from the stem to the step. The after chine pieces run from the transom past the step and fasten to frames 5 and 6 to help strengthen hull.

Deck Beams—Spruce, ¾ in. by 3 in. fastened to frame heads and cut to the curvature shown on the construction plan. An extra beam carries the coaming between Nos. 7 and 8 as shown.

Coaming Braces—Short pieces of ⅜ in. by 2 in. spruce fastened to frame heads in way of cockpit to support covering board and brace coaming as shown.

Decking—Located as shown, same thickness and material as planking, covered with 6 ounce canvas laid in marine glue or white lead.

Planksheer or Covering Board—Same as decking, 4¾ in. wide. Canvas covered.

Girders—Full length of hull as far as possible. Spruce 1⅛ in. by 6 in. Notch down ½ in. over every frame, bolted through every frame with ¼ in galvanized bolts and screw fastened to transom. As the strength of the boat depends upon these girders it is necessary to have a perfect fit and clear material.

Breast Hook—Spruce, ¾ in. thick fitted between upper seam battens at the fore end and against the stem as shown. Screw fastened from outside the plank.

Engine Bed—Spruce 1⅛ in. by 8 in. bolted to girders and shaped to take engine base. In case the engine used is not a Pierce-Budd 18-25 h.p. the bed will have to be arranged to suit the machine.

Coaming—Mahogany ⅜ in. by 3 in. Set so as to project ½ in. above covering board. At the fore end it is rounded and backed up by a filling piece to suit.

Flooring—½ in. by 6 in. strips laid down in the way of walking space and screwed to frames.

Moulding—1 in. mahogany half round all around at sheer line over the heads of the tacks holding down the canvas. Screw fastened.

Rudder Bearer—Oak ⅞ in. by 7 in. Screwed to girders. This piece takes the strain of the rudder.

Tank Chock—Two pieces of spruce ⅞ in. supported by posts from the girders and forming a saddle for the tank.

Seat—Mahogany 1⅛ in. thick resting on two risers screwed to the frames and set at a convenient angle. The fore and aft location must be the same as shown.

Steering Gear Support—1⅛ in. spruce fastened to No. 3 frame and shaped to support steering wheel and any desired instruments. Extends from side to girder only.

Cleats etc.—A 5 in. brass cleat will be fastened to the forward deck with an oak block under to take the strain. There is a ring bolt in the transom for stern painter. A handle for the mechanician is fastened on the starboard side on top of covering board, which is reinforced on under side to take strain.

Shaft Log—Self-aligning with stuffing box. Bronze.

Rudder Port—Brass pipe of size to allow 1 inch rudder post to work easily on inside. Threaded through keel and fitted with lock-nut above and below rudder bearer and flush lock-nut on outside and inside of keel.

Tiller—12 in. long of bronze with sliding collar. Keyed to top of rudder post or fitted over a square and set screwed.

Rudder—Located 4 feet 8 inches forward of step. Shaped as per detailed drawing. 1 in. diameter bronze stock 12 in. long. Blade 3/32 in. thick.

Strut—Special bronze casting as per details with babbitted bearing. The fastening bolts are to be passed through oak reinforcing blocks on the inside.

Steering Gear—14 in. diameter wheel with wooden drum and controls in center of wheel. Tiller line is ¼ in. bronze cable passing over 3 in. diameter sheaves.

Gasoline Tank—Set in after deck. Galvanized iron 11 in. diameter. 20 in. long. Strapped down.

Engine—Three cylinder 4 in. by 4 in. Pierce-Budd two cycle high speed model directly connected to shaft without reverse gear. Shaft angle must be taken from boat so that fore end of engine base is 34 in. from the step measured on the inside and at the same point 9¾ in. from top of keel to center line of shaft.

Propeller—Two blade, right hand, 15 in. diameter, 24 in. pitch.

Propeller Shaft—Steel for fresh water, bronze for salt. 1 in. in diameter.

Paint and Varnish—From the water line down the boat should be coated with the best racing composition or pot-leaded. Above the water line and inside it can be treated to suit with either three coats of paint or four coats of varnish. It is of the utmost importance that all outside surfaces be finished glass-smooth. Rough planking will cut miles off the speed.