JULY
1914

MOTOR BOATING

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The New Boats — Lots of Them

In This Issue

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NO need to wait for your Motor Boat until the summer is half gone. We can ship you one of our beautiful 1914 models at once.

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The real worth of an engine is shown by its marketable value after a few years' service.

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THE STANDARD ENGINE *and* THE STANDARD OIL ENGINE

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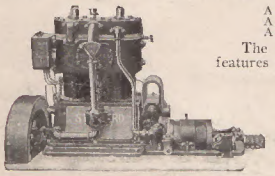

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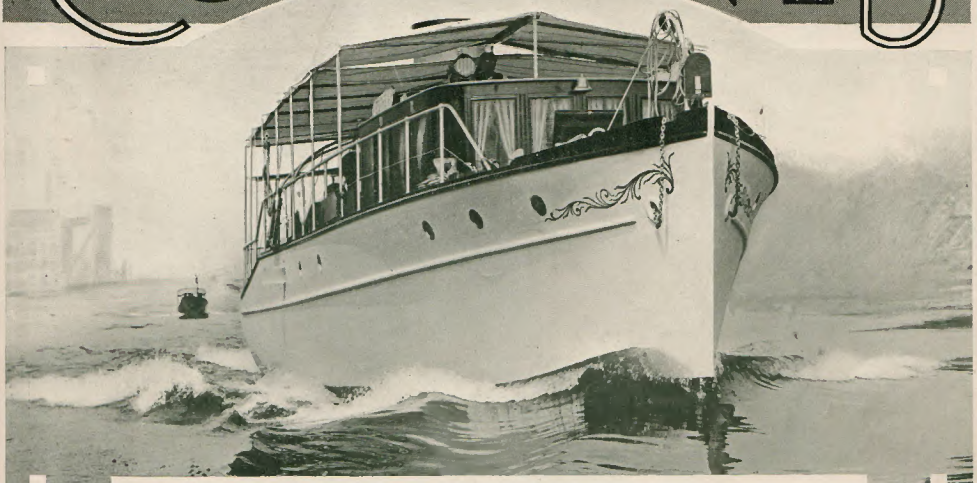

JULY, 1914.

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Two types of modern yachts, Vanitie, the cup defender candidate, and Sioux.

Photograph by Rosenfeld.

MOTOR BOATING

THE NATIONAL MAGAZINE OF MOTOR BOATING

The New Boats of the Season.

The Great Activity Shown in the Boat Building Industry This Year. Greater Tendency Than Ever Before Toward the Production of a Wholesome and Sensible Craft.

THE season of 1914 is now well on its way, and what it has brought forth in the line of new craft—cruisers, runabouts and those designed primarily for speed, would be a credit to the industries of any nation.

In this issue we show a number of typical examples, indicative of the progress in the motor boat and engine industry of this country to-day, only a small proportion of the enormous number of new boats turned out this year, to be sure, but they are representative and a fair criterion of what may be seen at anchor or under way at most any of our seaport or lakeside towns. Compare these types with those of only five years ago and note the changes which have taken place, not only in general appearance, but in the refinement of every detail. Note how owners, designers, builders and engine men have worked hand and hand to turn out a product that will be equal to every requirement for which it was intended.

Not only has the outboard appearance been improved upon, but below decks the general arrangement shows much broader foresight, and is capable of greater possibilities.

Five years ago was about the time of the passing of the trunk cabin type and the advent of the raised deck cruiser. Now the latter is seldom seen in the new medium size motor yacht of to-day, but a combination of raised deck with some other type is the practice to-day. The bridge deck boat is annually becoming more and more popular, and architects are now able to design a practical craft of this type in lengths as small as forty feet, and even less, when occasion demands it.

Owners have realized at last that in order to get room below decks it is necessary to give the boat ample beam, and designers, to meet this demand, are turning out boats to-day which have this requirement but are as graceful in appearance as any narrow boat of years ago.

Motor house boats, too, show remarkable strides forward, and in this issue a typical new one of only 68 feet in length shows the immense possibilities of this type. Their adaptability for shoal draft work is another strong point in their favor, and many large yachts are being produced to-day which require less than 3 feet of water to sail in, and are comfortable as well.

Auxiliaries are receiving their share of attention, not on account of any unreliability of the modern power plants, but mainly due to the owner's love for sailing when conditions suit him. Viola II, shown on pages 10 and 11, gives one an excellent idea of how far the auxiliary idea is being carried to-day.

In size, the increase is keeping pace with the gain in the number of new boats built each year. Later this season the largest motor yacht yet built will be put into commission. She is a 154-footer, powered with two six-cylinder, 200 h.p. motors. As many small boats, both open and cruisers, are being built to-day as ever before, but the increase in the number of the larger sizes shadows their smaller sisters to some extent, perhaps.

The condition of the industry itself was never in a healthier state than it is to-day, notwithstanding existing business conditions in other lines. Both boat and engine manufacturers are catering to wants of the motor boatman, and a state of high efficiency between the demand and supply has been reached.

The advances made in the design of the power plants for the up-to-date motor yacht have kept pace in every sense of the word with the development in the boat proper. No longer do we find the inefficiencies in the gasoline motor causes for worry, for with a standard make of marine motor to-day, it is a safe chance to take, that if started in the morning the motor will run through the entire day without a miss or a skip, if the proper fuel and lubricant is fed to it. There is even greater tendency this year than there was in 1913 toward enclosed parts. This insures an almost noiseless motor and one which will confine within its own walls whatever grease or dirt that may develop.

Another impetus which the development of the large motor and motor yacht has received since last year is the lowering of the operating costs, due to the reduction in the price of gasoline, which has taken place recently. At many ports the cost of this fuel has been reduced 25% and even more since 1913. It is hardly necessary to state that this means a motor with 25% more mileage for the same amount of money.

Speed and H.P. In

An Analysis of How the Power Has Been Footers and What Additional

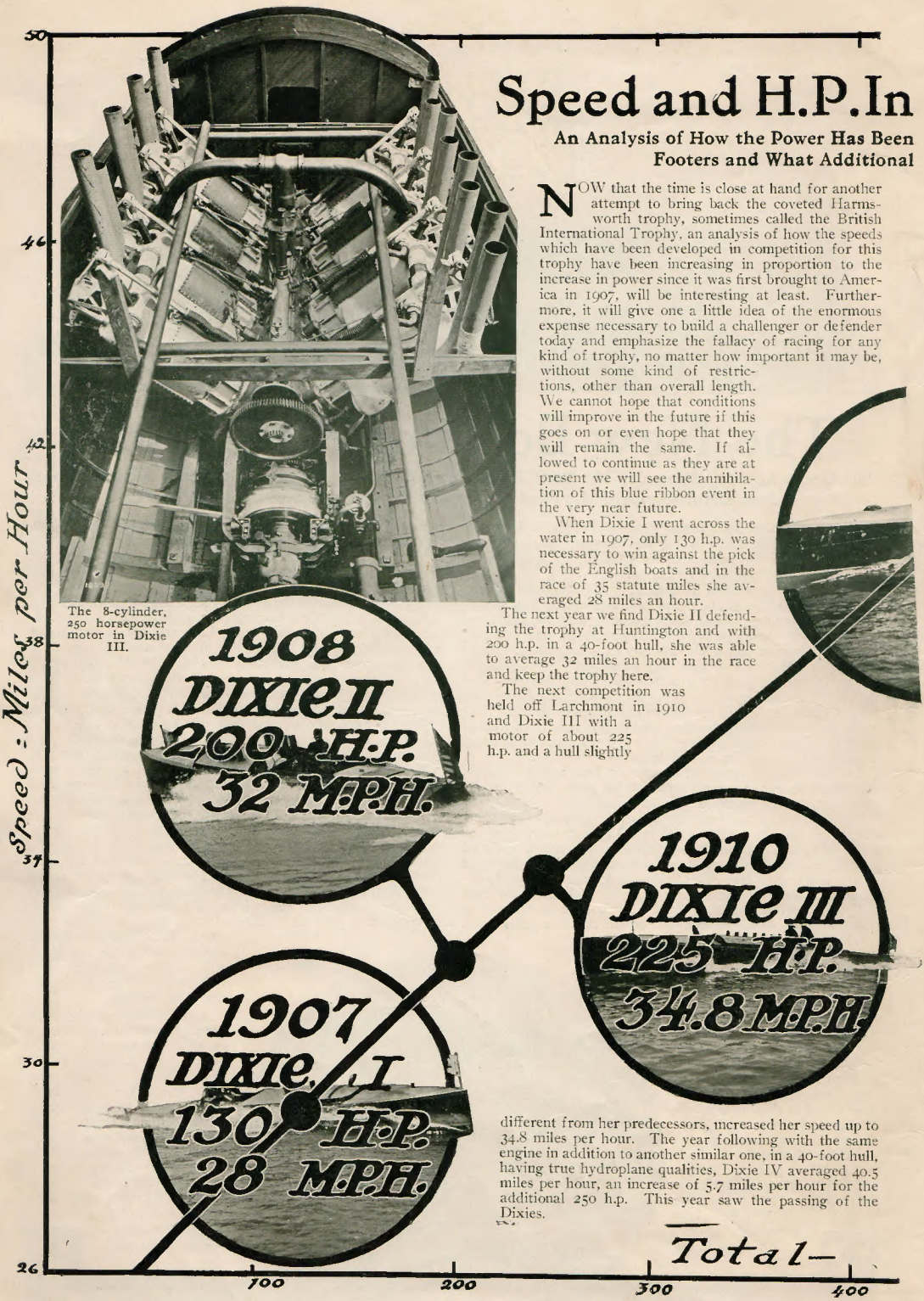
NOW that the time is close at hand for another attempt to bring back the coveted Harmsworth trophy, sometimes called the British International Trophy, an analysis of how the speeds which have been developed in competition for this trophy have been increasing in proportion to the increase in power since it was first brought to America in 1907, will be interesting at least. Furthermore, it will give one a little idea of the enormous expense necessary to build a challenger or defender today and emphasize the fallacy of racing for any kind of trophy, no matter how important it may be, without some kind of restrictions, other than overall length. We cannot hope that conditions will improve in the future if this goes on or even hope that they will remain the same. If allowed to continue as they are at present we will see the annihilation of this blue ribbon event in the very near future.

The 8-cylinder, 250 horsepower motor in Dixie III.

When Dixie I went across the water in 1907, only 130 h.p. was necessary to win against the pick of the English boats and in the race of 35 statute miles she averaged 28 miles an hour.

The next year we find Dixie II defending the trophy at Huntington and with 200 h.p. in a 40-foot hull, she was able to average 32 miles an hour in the race and keep the trophy here.

The next competition was held off Larchmont in 1910 and Dixie III with a motor of about 225 h.p. and a hull slightly different from her predecessors, increased her speed up to 34.8 miles per hour. The year following with the same engine in addition to another similar one, in a 40-foot hull, having true hydroplane qualities, Dixie IV averaged 40.5 miles per hour, an increase of 5.7 miles per hour for the additional 250 h.p. This year saw the passing of the Dixies.



B.I.T. Races.

Increased Each Year in the Forty Speed has Resulted.

In 1912 at Huntington, another 40-footer, Maple Leaf IV, took first honors, but a 20-footer, Baby Reliance II, made the best time in the first of the three races held this year, but was put out of the running in the final race due to an accident when she was leading the field.

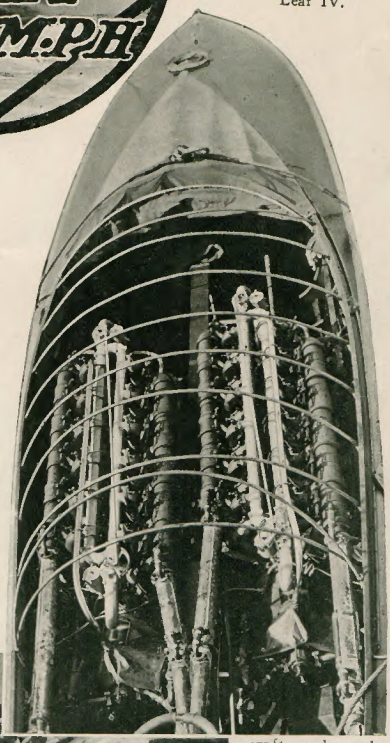
Last year's races are well remembered. Maple Leaf IV, greatly improved upon since her appearance in this country, and having an aggregate of 780 h.p., averaged 49.2 miles per hour.

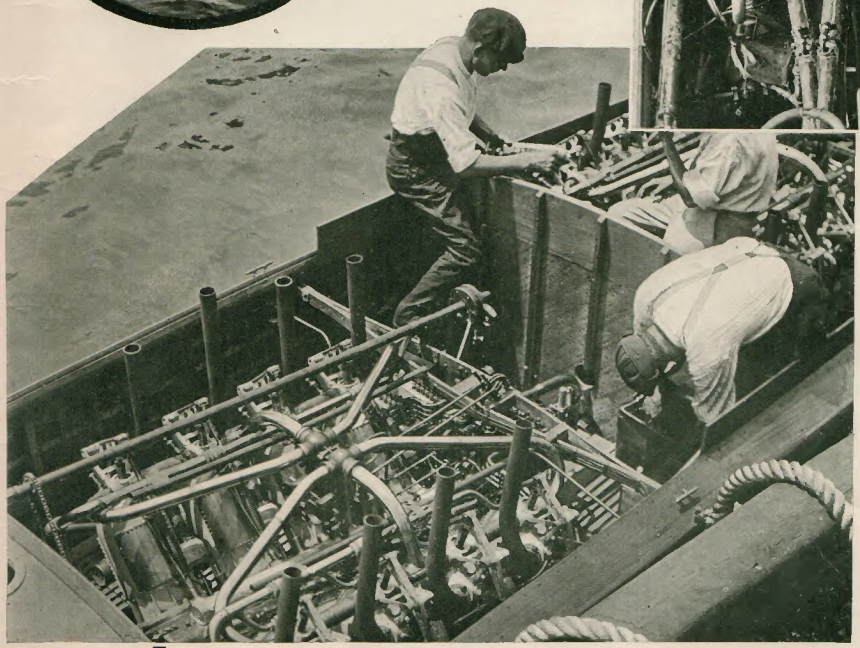
The possibilities of sending an American team abroad this year are not the brightest and even the most optimistic racing men hardly believe a boat will be found that can defeat Maple Leaf IV in her own waters.

One thing is certain and that is, that no existing American hydroplane can turn the trick. A new creation is an absolute necessity, and the early dates which the Englishmen have selected make it a great hardship to get a new American craft ready and thoroughly tried out in time for the competition to be held durofing the middle of August at Southampton.

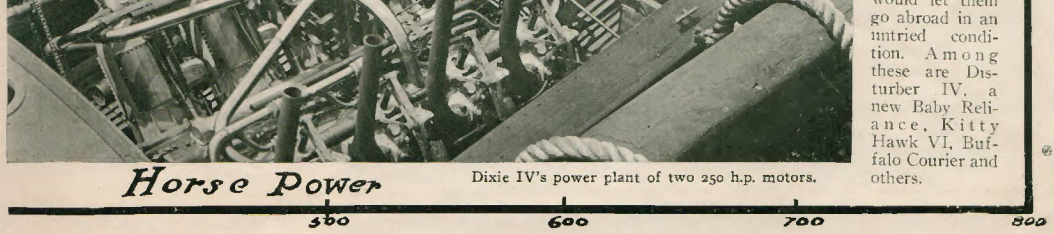
Several new boats are building at the present time, which should develop the necessary real fifty miles an hour in a long race, but it is doubtful if their owners would let them go abroad in an untried condition. Among these are Disturber IV, a new Baby Reliance, Kitty Hawk VI, Buffalo Courier and others.

The two 12-cylinder, 360 h.p. motors in Maple Leaf IV.





Dixie IV's power plant of two 250 h.p. motors.



Motor Boats and the

The Important Part Which Motor Boats Are Playing in Keeping America's Shamrock IV and Resolute, Vanitie or Defiance Can Be Best Seen

IN the trials which are now in progress to pick the defender of the America Cup, motor boats are playing a most important part. In every trial, scores and scores of motor boats are on the scene to watch every move which the skippers and crew of the three big seventy-five footers, Resolute, Vanitie and Defiance, make. The owners of the rival boats all have one or more motor boats in commission for their personal use, to say nothing of those motor boats which act as tenders and dispatch boats for the crews.

During the first trial race on Long Island Sound, between Resolute and Vanitie, held before Defiance was in racing trim, one of the latter's owners aboard his 75-foot motor yacht Marie could be seen closely following the two racers around the course, watching with a great deal of interest the manner in which the crews of his two rivals handled every sail and line and took advantage of every slant of wind.

When the first of the real races are called at Sandy Hook, on September tenth, between Shamrock IV and that one of the three American trial boats which proves to be the best in thirty odd times they are to come together before September, it is more than likely that a great fleet of motor boats and motor yachts will be there to welcome them.

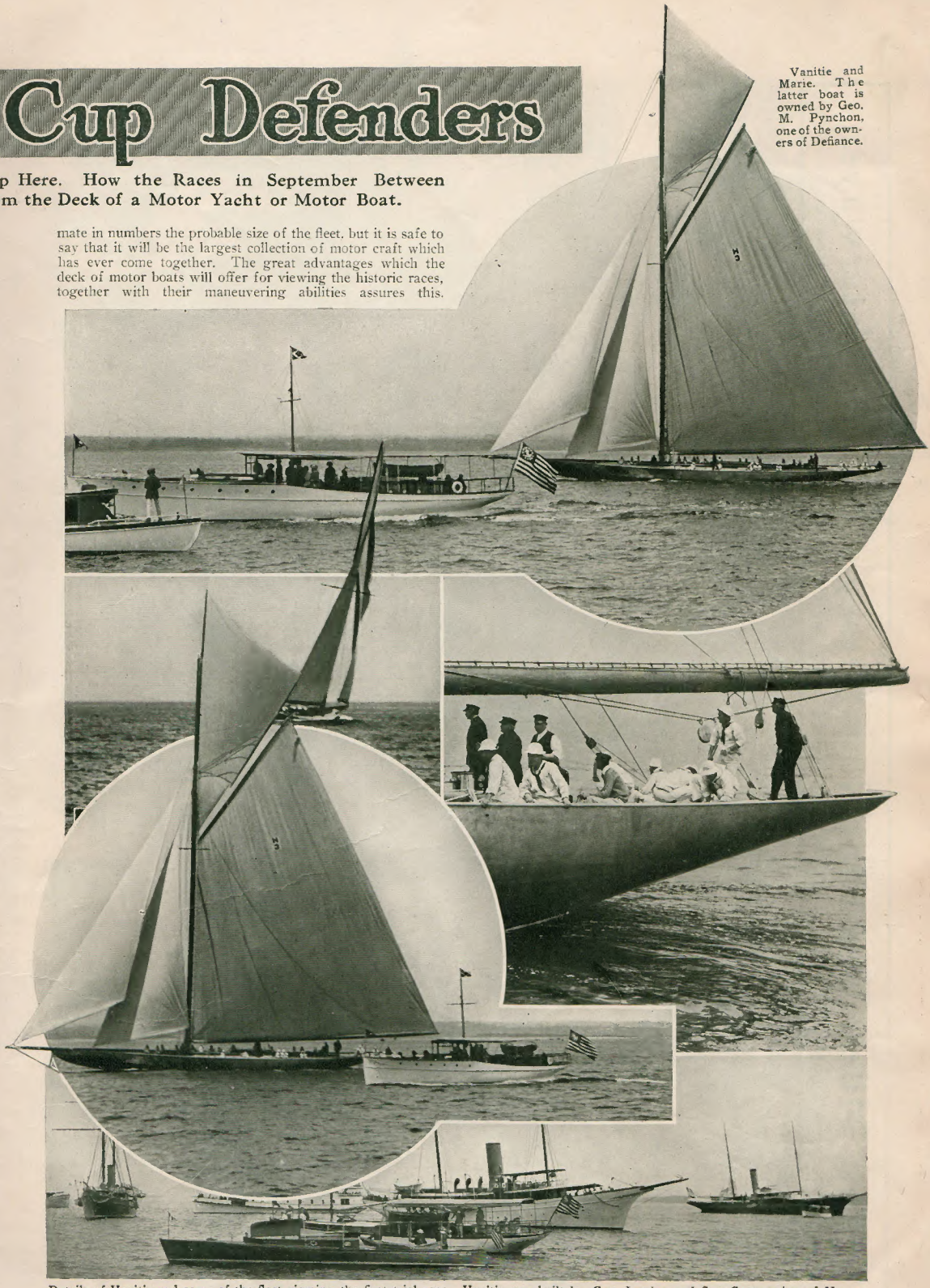
It would be hard for one to esti-

Resolute, the Herreshoff design and built candidate.

Cup Defenders

Cup Here. How the Races in September Between from the Deck of a Motor Yacht or Motor Boat.

mate in numbers the probable size of the fleet, but it is safe to say that it will be the largest collection of motor craft which has ever come together. The great advantages which the deck of motor boats will offer for viewing the historic races, together with their maneuvering abilities assures this.

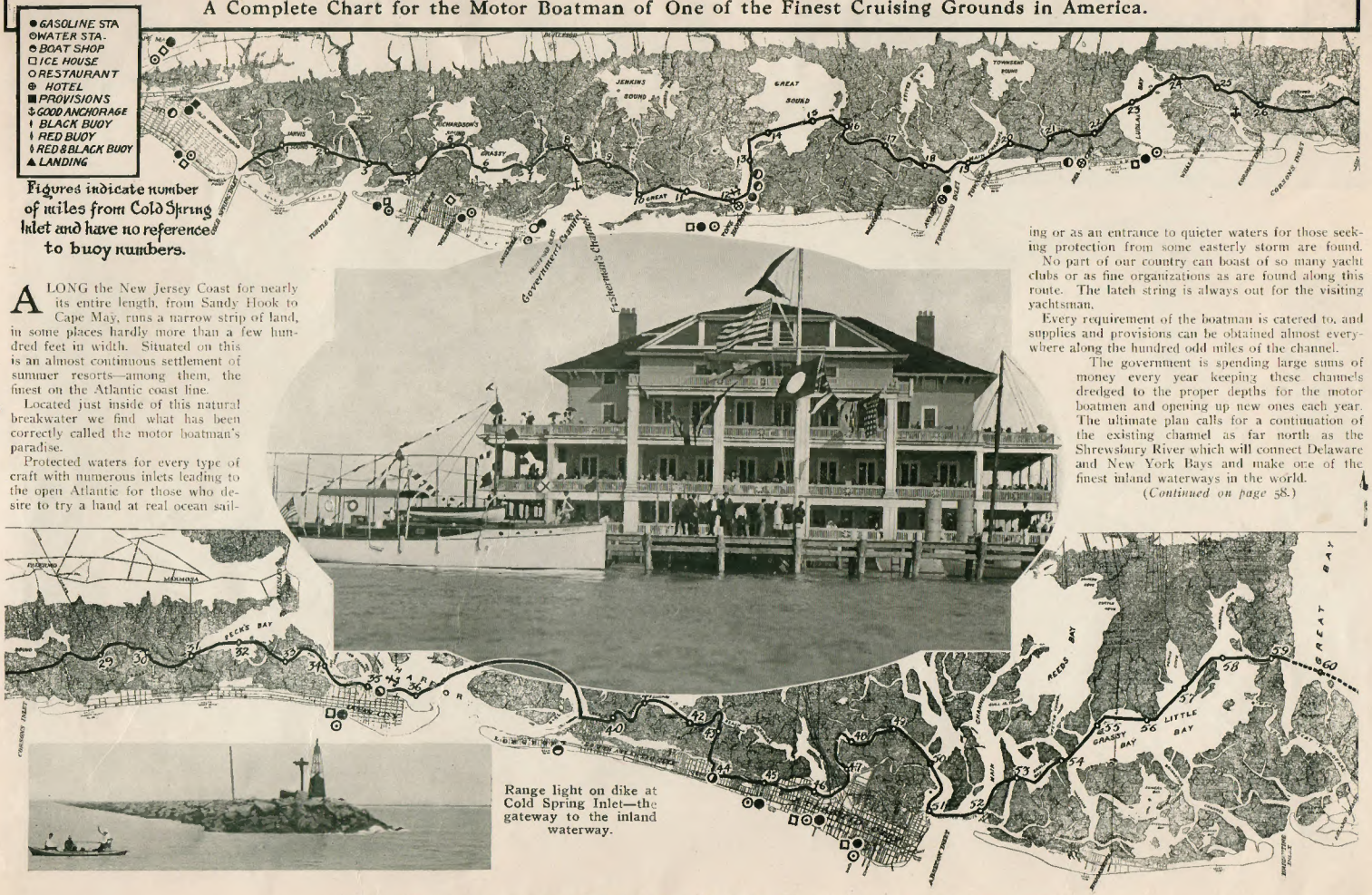


Vanitie and Marie. The latter boat is owned by Geo. M. Pynchon, one of the owners of Defiance.

Details of Vanitie and some of the fleet viewing the first trial race. Vanitie was built by Geo. Lawley and Son Corporation of Neponset, Mass.

100 Miles Through New Jersey's Inland Waterways.

A Complete Chart for the Motor Boatman of One of the Finest Cruising Grounds in America.



ALONG the New Jersey Coast for nearly its entire length, from Sandy Hook to Cape May, runs a narrow strip of land, in some places hardly more than a few hundred feet in width. Situated on this is an almost continuous settlement of summer resorts—among them, the finest on the Atlantic coast line.

Located just inside of this natural breakwater we find what has been correctly called the motor boatman's paradise.

Protected waters for every type of craft with numerous inlets leading to the open Atlantic for those who desire to try a hand at real ocean sailing or as an entrance to quieter waters for those seeking protection from some easterly storm are found.

No part of our country can boast of so many yacht clubs or as fine organizations as are found along this route. The latch string is always out for the visiting yachtsman.

Every requirement of the boatman is catered to, and supplies and provisions can be obtained almost everywhere along the hundred odd miles of the channel.

The government is spending large sums of money every year keeping these channels dredged to the proper depths for the motor boatmen and opening up new ones each year. The ultimate plan calls for a continuation of the existing channel as far north as the Shrewsbury River which will connect Delaware and New York Bays and make one of the finest inland waterways in the world.

(*Continued on page 58.*)

Range light on dike at Cold Spring Inlet—the gateway to the inland waterway.

The first 60 miles of the route and a view of the Cape May Yacht Club, one of the finest clubs in the country.

From Great Bay to Bay Head, a distance of 50 miles, the route leads through the famous Little Egg Harbor and Barnegat Bay. Black line shows the dredged channel for motor boats.

A West Indian Cruise in an Auxiliary Schooner.

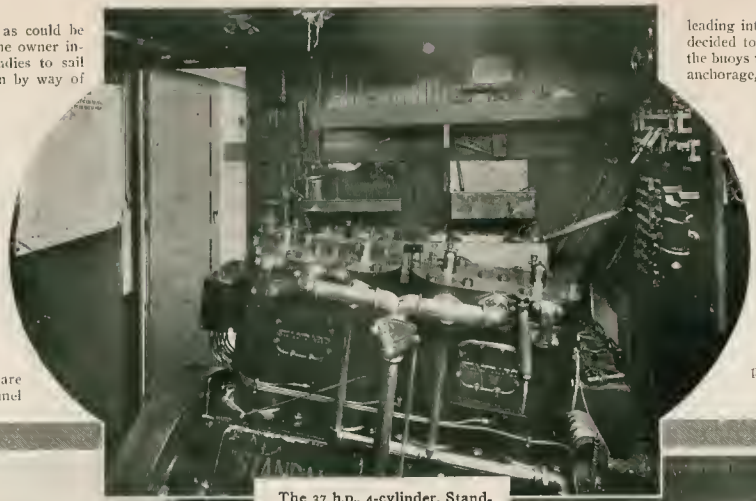
By J. Murray Watts.

Viola II, the 67-foot auxiliary topsail-schooner, returning from her 3,000-mile cruise to the West Indies.

VIOLA II was designed to be as small a boat as could be used for cruising in all parts of the world, as the owner intends after taking a trip through the West Indies to sail across the Atlantic to Europe this summer and return by way of the Panama Canal to make a trip to San Francisco. As a large part of this cruising must be done in the region of the trade winds, it was decided to use the square rig for going to sea as it does away with the slatting and jibing tendency of a fore-and-aft rigged vessel. The topsail schooner rig as finally adopted, is one held in great favor by England and continental countries for yachts and commercial vessels between 60 and 100 feet in length.

The yacht was completed by Smith & Williams Company, Salisbury, Md., for Marshel Jones, Jr., a member of the Corinthian Yacht Club of Philadelphia, the end of February and instead of waiting to go into commission in the spring, it was decided to try the boat out by an off-shore cruise in the winter time. The first day's trip was from the builder's yard at Salisbury, Md., to Cape Charles, Va. The yacht arrived off Cape Charles at night and burnt a flare for the pilot to take her up into the intricate channel leading into the harbor. No pilot came out, however, and it was decided to anchor off the shoals till daylight which would allow the buoys to be seen. At dawn, the yacht proceeded into the inner anchorage, where she was greeted with the news that her flare for a pilot was taken as a distress signal and that one of the marine reporters had telegraphed up that the yacht was wrecked on the bar. After getting provisions and some of her outfit at Cape Charles, a trip was made over to Norfolk where the clearance papers were obtained, and after getting all the final supplies on board, Viola II passed Cape Henry en route for the West Indies. She had no more than cleared the cape before she met a heavy southwest gale, which continued till the Bermuda Islands were nearly reached. Then the wind shifted to the westward and a course was laid for Nassau, New Providence, Bahama Islands. This port was reached twelve days from the time she left Norfolk. A short time after her arrival at Nassau, a U. S. steamer came into the harbor to refit, with both her whale boats carried away; her cabins flooded, her electric plant and wireless put out of business. The officers

(*Continued on page 64b*)



The 37 h.p., 4-cylinder, Standard motor and view of the engine-room.

A view of the galley looking forward into the crew's quarters.

Port side of saloon looking forward.

Drusilla, an 83-Foot Cruiser.

Deck House Used as Dining Saloon, Having Dumb-Waiter Leading Down to the Galley. Owner's Quarters Aft of Engine-Room Finished in White Enamel and Mahogany.

THE yacht Drusilla has just been completed and delivered to Mr. A. J. Drexel Paul, of Philadelphia, by the New York Yacht, Launch and Engine Company, of Morris Heights, N. Y. The Drusilla was designed by Messrs. Tams, Lemoine & Crane. She is 83 feet long, with a 14-foot beam and a draft of 4 feet, laid out with crew's quarters forward, engine-room amidships with watertight bulkheads fore and aft of engine-room, the gasoline tanks being installed in the after engine-room in separate boxes with copper pans having scuppers leading overboard.

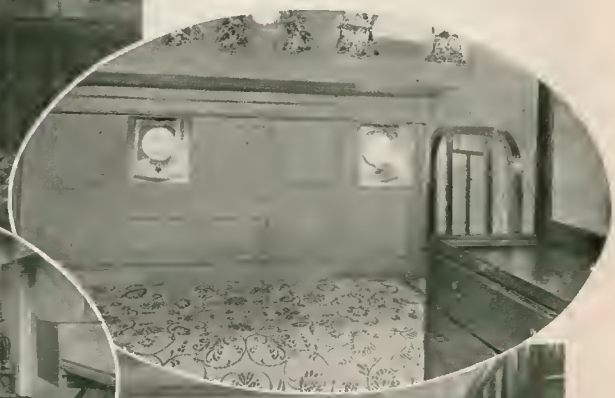
The owner's quarters are aft of the engine-room and are finished in white enamel with mahogany trim. The owner's stateroom extends across the boat and is fitted with two brass beds and mahogany bureau. A dressing-room and bathroom is connected with this stateroom. A saloon below deck is fitted with a berth on each side and stairway leads to side deck from the saloon. The toilet is opposite these stairs. A double stateroom is at the after end with trunk cabin.

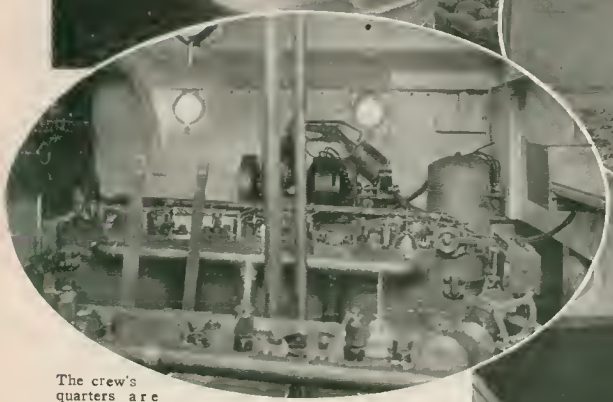
The motors are two 6-cylinder, 65 h.p., 20th Century motors, and the boat is complete in every detail. She will be used in Maine waters during the coming season.

Drusilla is 83 feet long with a beam of 14 feet and a 4-foot draft.

A corner of the deck house which is used as a dining saloon.

At the after end of the boat under a trunk cabin is a stateroom having built-in berths.





The crew's quarters are forward, followed by the engine-room with bulkheads fore and aft.

A stairway leads from the side deck to the saloon which is fitted with two berths.

Building a Useful Sharpie.

Two-in-One, an Ideal Combination Motor and Sail Boat of Sixteen Feet in Length. Complete Specifications for the Various Parts With Simple Directions for Building.

By C. E. Bradley.

TWO-IN-ONE is a practical little boat intended for all-around service. She is a motor boat in every sense of the word and, as shown, fitted with sail and centerboard, makes an ideal craft for the man with the summer cottage or the chap who enjoys short party sails and fishing trips.

Two-In-One is not planned for speed purposes though powered with a medium-priced motor, from 3 to 5 h.p., at a speed of 750 r.p.m., should be capable of making 7 to 8½ miles, and aided with the sail in a fair wind should do much better. Owing to her liberal breadth, 5 ft. across at top and 4 ft. at the chine (widest points), the space occupied by the centerboard is hardly noticed and ample room is afforded for cranking the motor

To start the construction of this boat, probably the primary step would be the laying out of the three forms or frame moulds, and transom. These should first be drawn and cut out exact on heavy wrapping paper, deducting the thickness of the planking (½" side planks, ⅝" bottom) from the figure given in plans of the forms. These as shown indicate the outer face of planking. The wrapping paper templates, although perhaps not actually necessary, will prevent possible error when later assembling the parts that make up each frame. With the completion of these paper shapes, construct the frames proper from oak to sizes shown at the sketch of Section Amidship at Frame 2, notching only for the chine and sheer batten notch in order to secure base line heights when erecting the frame. The transom should next be gotten out from ¾" oak and notched for the chine and sheer battens to within ¼" of its back face and also cut out for the keelson 4" wide by ⅞" deep.

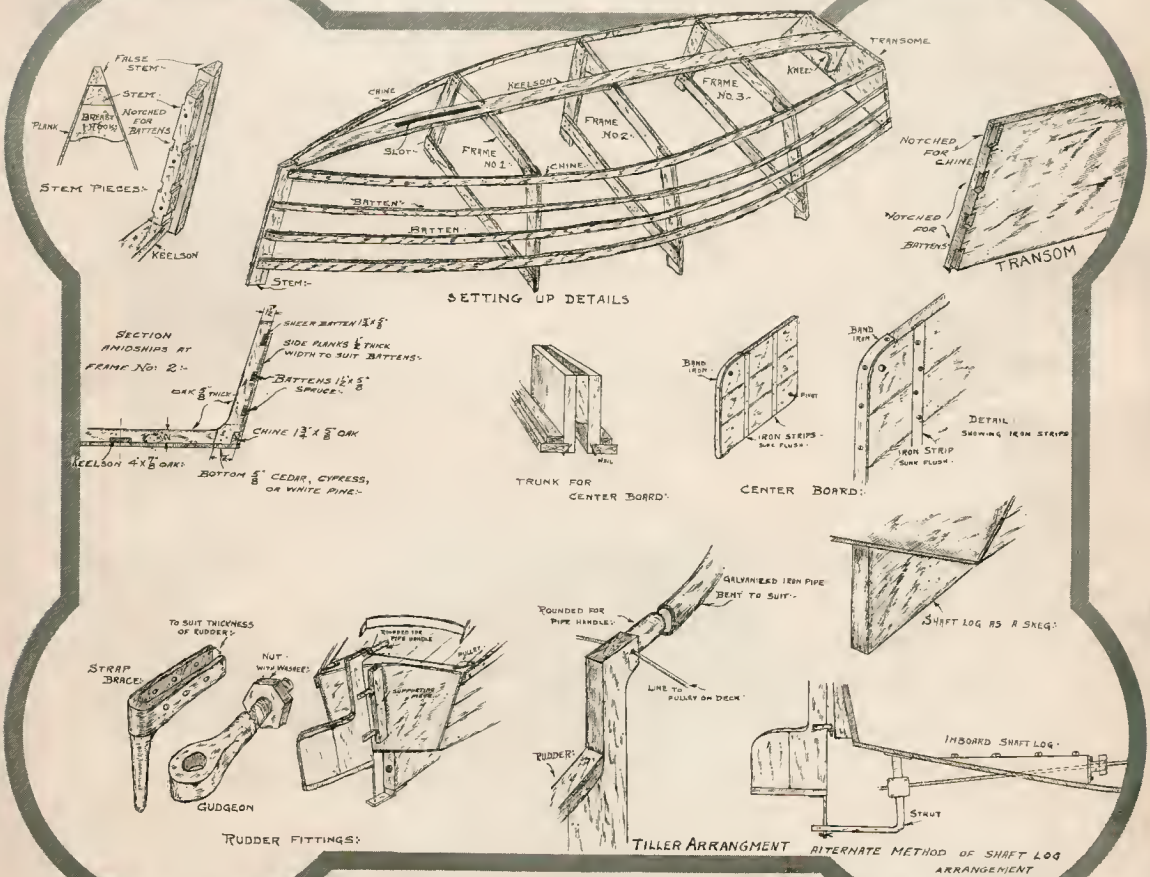
The stern should then be shaped out and for the sake of convenience this is made in two separate parts, the stern proper, and the false stern, or cut water. Oak or hard pine might be used for these parts, preferably the former. Plane down each to a V shape, the stern proper with a forward face ⅝" wide, and after face 2¾" wide. The distance across these flat portions (from face to face) should be 3". The false stern should also be about ⅝" wide at its forward face and 1⅜" wide at the after face with a distance of 2" between faces.

A transom knee from 2" oak should be sawed to the usual shape and the edges that rest against the keelson and transom shaped true to the desired angle.

The keelson should be prepared from oak, 4" x ⅞", tapering gradually forward to suit the stern proper. At a point beginning 36" from the front end, cut a slot (longitudinally) for the centerboard 1¾" wide, running back 36" towards the stern.

Now that the three frame moulds are gotten out and fastened together, and all other parts that go to make up the frame are completed, the actual assembling should commence. There is nothing difficult to this part and, with a little care exercised, the boat should rapidly take its form.

To begin with, first stay the frame moulds, by nailing a strip across to prevent their spreading. The handiest way to build the boat is upside down on a perfectly level floor, adjusting these frame moulds with the floor as a



Detail drawings of some of the important parts.

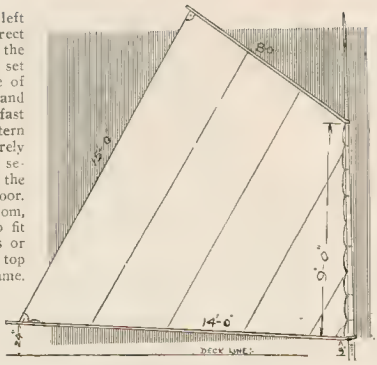
base line, sawing off the surplus stock you left on the side members in order to secure correct height from the base line, as shown in the drawing. With the frames and transom set at their respective stations, the center line of each falling on a perfectly straight line, and square with the floor, stay them good and fast by nailing cleats to the floor, etc. The stern should then be lined up and fastened securely in a like manner. Care should be taken to secure the required pitch or slope shown at the stern and transom before bracing to the floor.

Fasten the keelson securely to the transom, transom knee, frames and stern, and also fit in the chine battens. The sheer stringers or battens should next be placed with their top edges at the required heights on each frame. The remaining battens are next in order and, of course, their location will depend on the width of planks used (on the sides). To determine their places, divide up the space on the side members of the midship frame and nail each stringer temporarily to this frame, next fairing them out across the other frames to the stern and transom. Mark the position on each, withdraw the nails and cut the notches. Transfer the location of the notches to the frames, etc., on the opposite side of the boat and fasten in the stringers. With these parts all fastened in place, the frame work is practically complete and ready to receive the planking.

Begin with the lowest side plank, ¾" thick, clamping to the chine and next batten and marking along the edge of the battens to secure the developed shape. With a pair of dividers, set to half the width of the batten (next above the chine), follow out the line already marked, either adding or deducting from the width in accordance to the side from which you marked off the line. Dress down to this line, fasten the plank and repeat operations on the other side of the boat. Proceed with the planking from side to side up to the sheer line. Continue with the bottom; planking (⅜" thick) from bow to stern fastening directly across from side to side, excepting those planks butting against the centerboard slot in the keelson. It may be necessary to level off the lower edge of the lowest side plank at places in order to allow the bottom plank to lay fair and fit tight. Finish up the ends of the bottom planking to conform to the sides of the boat, and fasten on a strip along each edge for protection over the bottom plank fastenings, and bolt on the cut water.

The hull can now be turned over and the inside work begun. It would perhaps be a good plan to add extra ribs between the form frames; these would only need be straight pieces of, say, 1¼" x 1" oak, spaced about 10½" centers and fastened edgewise to the side planks with notches to clear the seam battens.

The centerboard equipment should be next in order. This consists of the trunk or well and the centerboard proper. The trunk is made in the form of a bottomless case, as shown in the sketch. The two side boards of pine, each 38" long, 15" wide and 1" thick, should be nailed snugly against two end pieces 15" long, 1⅛" wide and 1" thick, thus giving 1⅛" open space (width) for the raising and lowering of the board proper. The side boards



Sail plan for Two-in-One.

should be grooved on the lower edges, leaving a 5/16" thick tongue running down flush with the bottom planking through the slot in the keel. Cleats might be nailed along the sides of the case and to the keelson, and the tongue's toe nailed from the under side of the keel.

The centerboard proper is made from ¾" stock about 34" long and 15" wide, bound together with band iron sunk flush. At one corner bore a ¾" hole for the pivot point. At the lower forward corner of the trunk bore a ½" hole through both side boards. Place the board in the case and drive lightly a nicely rounded oak plug through the trunk and board, thus allowing the board to swing up and down. With the plug in place, round off the board at the oblique corner from the pivot point until the board raises and lowers without interfering with the case. When the right radius is secured, a thin strip of band iron should be fastened along this edge of the board and a staple driven in the top edge or a hole bored for a strong cord or wire for raising and lowering.

A small mast step should next be made by cleating pieces to the keel at the point indicated, and a shelf built in the bow for supporting the full tank.

Since the transom has a slant or rake of 6", a piece should be fitted here to support the rudder. This is simply a piece of 1" thick oak, with the inner edge sloped to conform to the angle of the transom and the after edge vertical. It is a simple matter to have girdeons forged out with long shanks and threaded with a die to receive a nut. These can then be set through holes bored in the supporting piece and transom and the nuts tightened, thus fastening these parts together.

The deck beams can next be shaped out and fitted. This part is left to the discretion of the builder; some desire decks with a good crown, others prefer them more flat. As shown in the side elevation, the boat is decked over 4" forward and 1'6" aft, leaving a 10' length of cockpit. The coaming might be also shaped in accordance to the ideas of the man doing the work. Floor timbers are hardly necessary, as flooring can be spread out in the form of a grating from the different frame moulds.

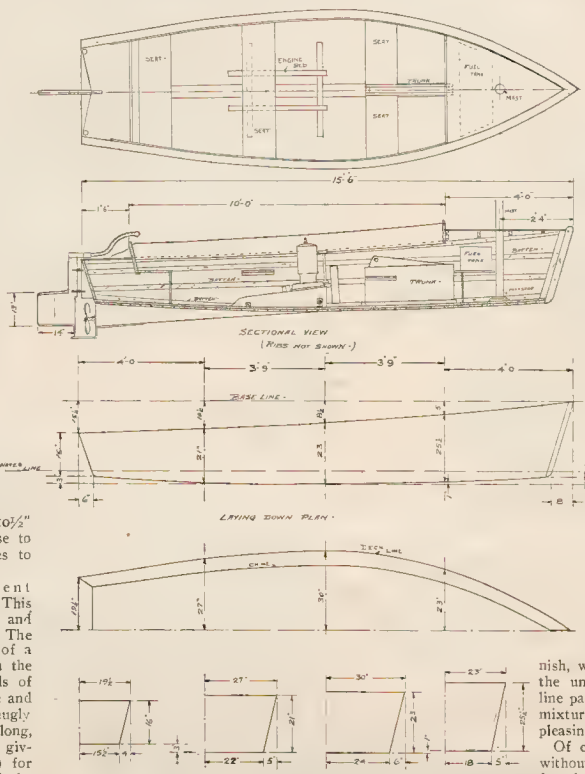
The shape and location of the engine bed will, of course, be determined by the size and weight of the machine to be installed. As shown in the sketch, the foundation is brought well forward, but should a light-weight motor be employed, the bed can be shifted farther aft. The shaft log arrangement might be of either the skeg type from 2" stock or inboard style, as shown in the sketch, preferably the former, as the skeg will aid the centerboard in preventing the boat from "sliding off" when using the sail. The hole for the shaft can be lined up and bored easily by using any one of the methods described in the March, 1913, issue of MoToR BoatinG.

The rudder can be made as per the drawings, with cleat at top and bottom edges to prevent warping. The arm extending out from the rudder post should be rounded to receive a piece of 1½" galvanized pipe (bent to shape) for a tiller handle when using the sail. A tiller line can also be run back to pulleys, one at each corner of the after deck, and controlled by a steering-wheel at the side of the cockpit. This form of arrangement allows the two methods of steering, without one interfering with the other. The handle can readily be unshipped and stored in the cockpit. The rigging of the sail is too simple to need detailed instructions and the sail plan gives all there is necessary for this part.

If the interior and exterior of the boat above the normal waterline are finished up natural with several coats of good spar varnish, well sanded between coats, and the underneath portions up to the line painted with a green non-fouling mixture, the boat will take on a pleasing effect.

Of course, the craft can be built without the sailing equipment, but for the slight amount of additional

(*Continued on page 64b*)



Plan and profile views with dimensions for molds. Figures given out to outside of planking.

The Largest Sixty-Eight Footer.

Nahmeoka, a Shoal Draft Motor House Boat of Moderate Power and Having a Beam of 20 Feet. A Craft Admirably Suited to Almost Every Kind of American Service.

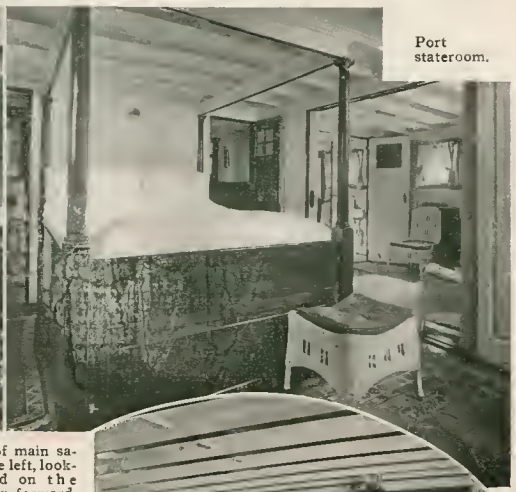
THE accompanying photographs show Nahmeoka, one of the latest motor houseboats turned out by the Mathis Yacht Building Co., of Camden, N. J.

This is the second boat of this type built by the Mathis Co. for Mr. H. N. Baruch, of New York City, and she has just returned from her first extensive southern cruise, on which she started as soon as completed by the builders.

Nahmeoka is a typical Mathis shoal draft tunnel motor houseboat. Her dimensions being: Length overall 68 feet, beam 20 feet and draft 2 feet 6 inches. Her accommodation was worked out to suit the special requirements of her owner, with owner's quarters aft, galley and machinery amidship and crew's quarters forward.

The owner's quarters consist of two state-

Starboard stateroom.



Port stateroom.

Two views of main saloon: On the left, looking aft, and on the right, looking forward.

The galley.

Motor room with two 50 h.p. Standard engines.

Deck house, looking forward.

Toilet-room and shower.

rooms arranged athwartship with large double sliding door between, making them, with door open, practically one room the full width of the boat. The port stateroom is the larger, being 13 ft. 6 in by 9 ft. 6 in., and is fitted with a 5-foot wide bedstead, large wardrobe and bureau. Forward and connecting with this stateroom is the owner's toilet which is fitted with a regular type of closet and lavatory, and in addition to this a shower bath. The shower bath is operated by a rotary pump electric driven. The starboard stateroom measuring 12 ft. 6 in. by 7 ft. 6 in. is fitted with a built-in berth with Pullman cover, large bureau and wardrobe. A private toilet is also connected with this stateroom. Both staterooms have doors leading to the lobby opening into the main dining-room which measures 10 ft. 6 in. by 18 ft. 4 in.

The dining-room is conveniently arranged with easy sofa seats, extension table, buffet, serving table and small desk. The dining-room and lobby are finished in mahogany panel work below window sill line and ivory above. The staterooms are finished throughout in ivory white and mahogany furniture.

On the forward port side of the dining-room is located a developing room fitted with dresser, sink and necessary appliances for photography.

On the starboard side of the dining-room a door leads to the galley, which is fitted complete with Shipmate range, dresser, shelves and complete galley equipment. A hot water boiler supplying water to the owner's lavatories and the sink is located over the range. The icebox is located forward of the galley and has a capacity of 1,200 lbs. of ice.

The engine-room is located alongside of the galley. Two 50 h.p., Standard motors, 1,000-gallon capacity gasoline tanks, auxiliary machinery, switchboard, work bench, oil filter, etc., are all conveniently installed. The two 50 h.p. motors give her a cruising speed of 9½ miles, which, considering her great beam and weight and large freeboard, is very efficient.

The crew's quarters are located forward of the engine-room and have accommodation for four (4) men. A hot water heater is located in the crew's quarters and pressed steel radiators are located throughout the owner's quarters.

Throughout the owner's quarters the boat is fitted with special Mathis type of windows which are all fitted with horizontal sliding blinds, screens and storm shutters. The floors in the owner's quarters are of hard wood.

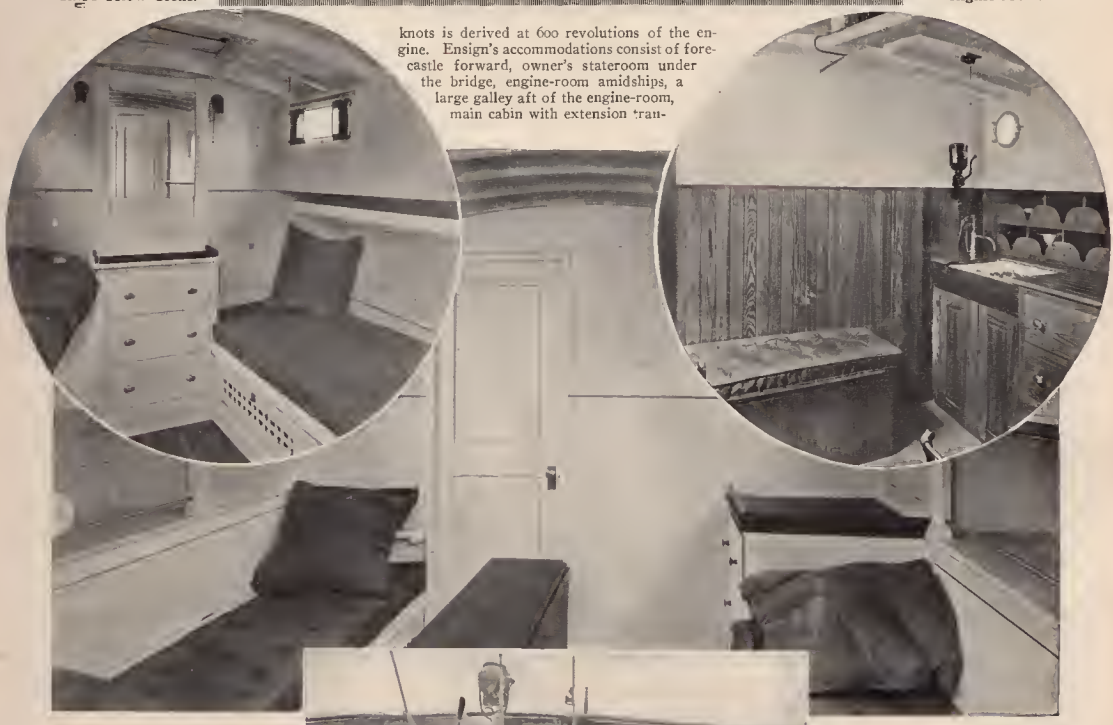
From the main saloon a mahogany stairway leads to the large deckhouse, which is one of the main features of the boat. This deckhouse measures 12 ft. by 16 ft., and is handsomely furnished with sofa seats and easy wicker chairs. The windows are of the low sill, observation type.

A Fast 68-Footer

With New Features

Comfort and simplicity have been combined below decks.

The large galley is directly aft of the engine-room.



knots is derived at 600 revolutions of the engine. Ensign's accommodations consist of forecastle forward, owner's stateroom under the bridge, engine-room amidships, a large galley aft of the engine-room, main cabin with extension tran-

ENSIGN, designed by Swasey, Raymond & Page, of Boston, for Mr. Irving E. Raymond, is built somewhat on the lines of the United States torpedo destroyers, her underwater lines being very different from those of the regular motor boat. They are kept very deep the whole length of the boat, so that there is no flatness at the stern, as is often the case. This is said to give the boat very good seagoing qualities, besides making her a very speedy boat for the power installed. She is 68 feet overall, with a 11-foot 9-inch beam on deck, and a draft of 4 feet. Equipped with a 6-cylinder, 6½ in. x 9 in. Sterling motor, she attains a cruising speed of 10½ knots, while an easy full speed of 12

By eliminating brass fixtures and by laying canvas over the decks, the labor of keeping the boat clean has been reduced to a minimum.

soms and a double stateroom aft.

Exteriorly, Ensign is painted entirely in gray, and with the exception of the steering wheel has no brasswork. With no brass to be shined and with canvas covered decks, the labor of keeping her clean is very slight.

The compartments below decks are finished in simple but striking style. Thus, the main cabin, separated from the galley by a bulkhead is plain white enamel with mahogany table and mahogany top to the built-in dresser on the port side forward. The alcoves, extending under the deck on each side, are set off at each end by miniature fluted columns, but aside from this touch and the lattice-work locker doors beneath the transoms, there is practically no ornamentation

A Twin Screw 65-Footer

Sapphire, designed by Whittelsey & Whittelsey, and built by Kyle & Purdy, City Island for J. D. Adams, Bay Shore, L. I., has her entire owner's quarters devoted to large cabin space, omitting the customary staterooms. When cruising the owner and his party will sleep ashore at hotel or clubhouse. See opposite page for description of this boat.

A Luxurious Day Cruiser.

Although Having a Length of 65 Feet Sapphire's Arrangements Include No Sleeping Quarters. Roomy and Handsomely Appointed Main Saloon Big Feature of Interior Arrangement Plan.

THE yacht Sapphire, shown in the photographs on the opposite page was designed by Whittelsey & Whittelsey, of New York City, for Mr. and Mrs. J. D. Adams, of Bay Shore, Long Island, and was built recently by Kyle & Purdy, of City Island. Sapphire measures 65 feet over all and she has a beam of 15 feet. She comes under the twin screw rating, having installed two heavy-duty Sterling motors of 45 h.p. each. Her estimated speed was between eleven and twelve miles an hour, but since trying her out the designers believe that she is easily capable of 13 miles an hour.

In accordance with the owner's requirements, the design of Sapphire devotes all of the owner's quarters to cabin space, thus saving the customary stateroom accommodations, and giving an amount of room below decks which would not be found on a boat of much larger dimensions. By this arrangement the yacht is a much better proposition for general pleasure cruising, and on her coastwise trips it is the intention of the owner and his guests to find nightly accommodation ashore at various hotels and clubhouses, each day's run being planned with that end in view. In the opinion of the designers this arrangement will become very popular in the near future, since in the smaller class of cruisers it becomes a rather difficult problem to afford the required sleeping quarters — especially when there are ladies in the party.

No expense has been spared in the construction of Sapphire to make her of the very best throughout. Over a substantial keel her hull is of heavy yellow pine planking with steam-bent oak framing, copper fastened, with six pairs of longitudinals running the full length of the craft. The decks are of paneled white pine and the outside joiner work, including the rails, etc., is of teak and mahogany.

The interior is exceedingly handsomely done, the main cabin being in selected model grain mahogany, finished with handsomely carved handwork. This compartment is large and it is well lighted by rows of plate glass windows. In addition to four extension transom berths with full box springs which can be ued for sleeping in emergency cases, the cabin contains a long drop leaf center table and a buffet. Locker space is obtained above the transoms on either side, as well as at the forward end of the transoms, and these lockers with their leaded diamond glass doors and glass knobs add materially to the attractiveness of the saloon. Flanking the buffet forward are doors leading to the toilet and galley, in which doors are inserted full length pier glasses.

The port door opens to the toilet, which is furnished with a handsome mahogany dresser in addition to the regular equipment, and is finished in mettile. The galley on the starboard side is a large room also done in mettile. The equipment of the galley is unusually complete, comprising a four-hole alcohol stove with oven and hot water heater, dresser, dish racks, sink, ice box and lockers for stores. The stove is furnished with a hood to collect cooking odors and prevent them from pervading the boat. The ice box is beneath the deck, and a hatchway permits its being filled from the deck.

Communication with the engine-room and crew's quarters is through the galley. Accommodation for four in the crew is obtained by two built-in transoms with pipe berths over. At the forward end of the forecastle space is partitioned off for the crew's toilet, where are provided bowl and wash basin. A hatch over the forepeak gives access to the chain well.

The engine-room is well equipped, containing in addition to the two Sterling motors a lighting set consisting of a 3 K. W. generator, Edison storage batteries and switchboard, engine telegraphs, additional pipe berth, etc. A careful attention to details is evidenced by the placing of metal guards over the engine flywheels.

The cockpit, which is very roomy, is self-bailing and is provided with rugs and easy chairs. A fixed settee at the stern provides additional lounging room. Beneath the cockpit floor room is found for two large gasoline tanks and a water tank of 150-gallon capacity.

Sapphire's home port is Bay Shore, L. I.

Seemego, a V-Bottom Runabout.

Designed to Weather Any Summer Sea Neptune May Kick Up in His Atlantic Ocean Play-Ground. Capable, Too, With a 60 H. P. Motor, of Reeling Off Over Twenty Miles to the Hour.

SEEMEGO, delivered recently to her owner, Mr. A. Gardiner Cooper, of New York City, for use at Greenwich, Conn., was built this spring after plans by William H. Hand, Jr., of New Bedford, Mass. She is 29 feet in length, with a beam of 7 feet 2 inches and an extreme draft of 26 inches. The motor installed is a 6-cylinder, 60 h.p. Loew-Victor with full automobile control, including electric self-starter, electric lights, etc. The boat is built for rough water use, and is eminently seaworthy, as well as being fast. In the opinion of the designer she will stand any weather which she would be liable to meet on the Atlantic Coast during the summer months. In lines and construction Seemego is developed from the Hand V-Bottom Piute IV, but the new boat, although equipped with the same power, is faster, owing to an improvement in line details, while she is fully as seaworthy. The boat is finished in white paint and mahogany, all metal work of her deck fittings being of polished bronze.

Seemego is a Hand V-bottom boat modeled after Piute IV, but having a refinement in line details which gives her a better speed with the same power.

A Motor Yacht for Roughing it

THE auxiliary yawl, Capt. Jack, has just been delivered by the New York Yacht, Launch and Engine Company, of Morris Heights, N. Y., to the owner, Mr. S. W. Eccles, of Freeport, L. I., who is a lover of fishing, and who has had his yacht built after the models used by the fishermen running off the Long Island coast.

Capt. Jack is to be used as a private yacht, and as Mr. Eccles does a great deal of fishing he has arranged his boat with that end in view. The interior accommodations are as follows:

The galley is in the forward end of the cabin and is 7 ft. long by the breadth of the boat, making a very large and roomy galley. The stove is a 4-hole coal stove. The galley is equipped with a very large icebox, sink fitted with pump from fresh water tank, and equipment complete in every way with dish racks, lockers, etc.

The saloon is 9 ft. 6 in. long by the beam of the boat, and is equipped with an extension berth on each side, the backs of which swing up to form upper berths.

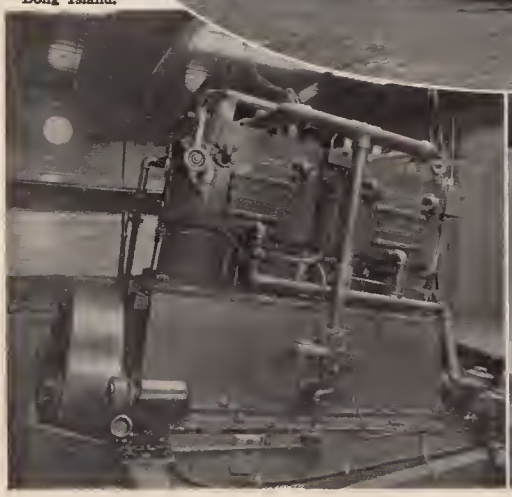
Interior of the deck house.

The table is of mahogany with large folding leaves. A sideboard and locker are located at the forward end of the saloon. The entrance leads from the saloon to the deck. The stateroom is on the port side and is equipped with permanent berth with lockers under, bureau and hanging locker. The toilet is equipped with modern open plumbing and is complete. The engine-room is equipped with a 4-cylinder, 8" x 10", 60-75 h.p., 20th Century motor. The engine is controlled from pilot house which is over the after end of the engine. The engine-room has a built-in berth on each side, and at the after end on the port side is the crew's toilet. The deck-house is provided with a berth, and the boat is steered and controlled from inside this pilot house.

Capt. Jack is 62 ft. over all, 16-ft. beam and 3-ft. 9-in. draft, yawl rigged, and has full sail equipment. The boat is finished inside in white enamel and is a very comfortable craft, quite different from the usual yachtsman's outfit.

Captain Jack is an auxiliary yawl designed after the models used by the fisherman off Long Island.

One of the features of the craft is the deck house aft from which the boat is controlled.



Captain Jack is powered with a 4-cylinder 8" x 10" Twentieth Century motor developing 60 to 75 h.p.

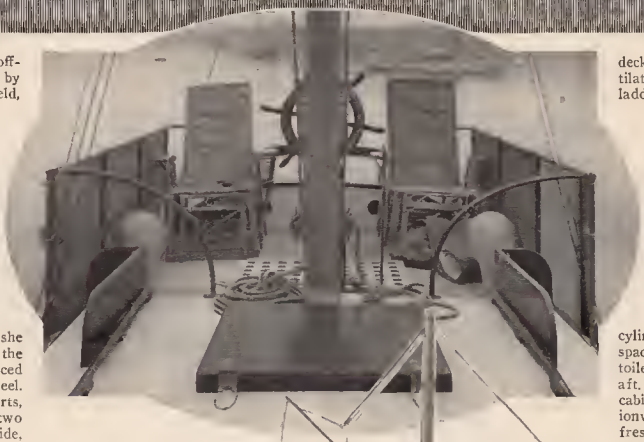
View of galley looking forward from the main cabin, showing arrangement of the large ice chest.

A 43-Foot off Shore Cruiser

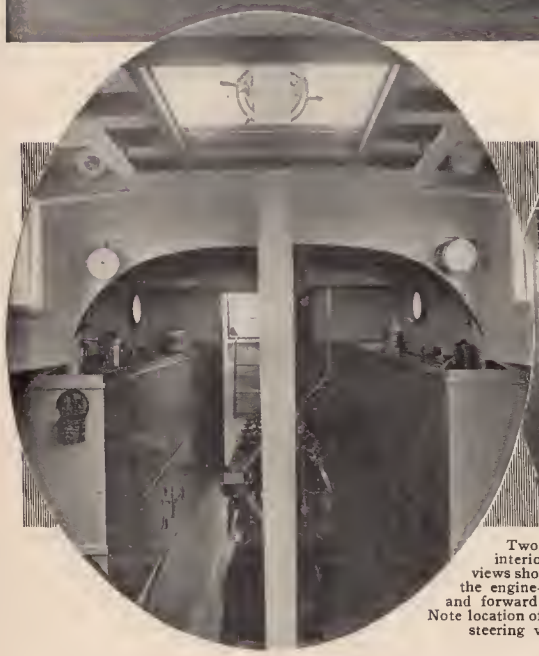
JUDY VI, a 43-foot off-shore cruiser designed by Mr. B. B. Crowninshield, for Mr. William Wallace, of Boston, is a ruggedly constructed craft which was originally designed to be a Bermuda Race entrant. She has a trunk cabin with bridge amidships and roomy cockpit aft. In pleasant weather she is controlled from the bridge where there is also room for two or three deck chairs, but when the going is bad she may be operated from the saloon where there is placed an auxiliary steering wheel.

In addition to five ports, the saloon is lighted by two large windows on each side, while a hatch through the deck provides additional ventilation and, by means of a ladder, egress from the compartment. The saloon is equipped with built-in transoms and the sleeping accommodations are brought up to four by providing pipe berths above.

The engine-room following directly aft is not separated from the saloon by any partition. Gasoline tanks of large capacity flank the engine, which is a four-cylinder Blount, and locker space is provided below. The toilet room is on the port side aft. Exit from the after cabin is made by a companionway to the cockpit. The fresh water tank is set beneath the cockpit floor.

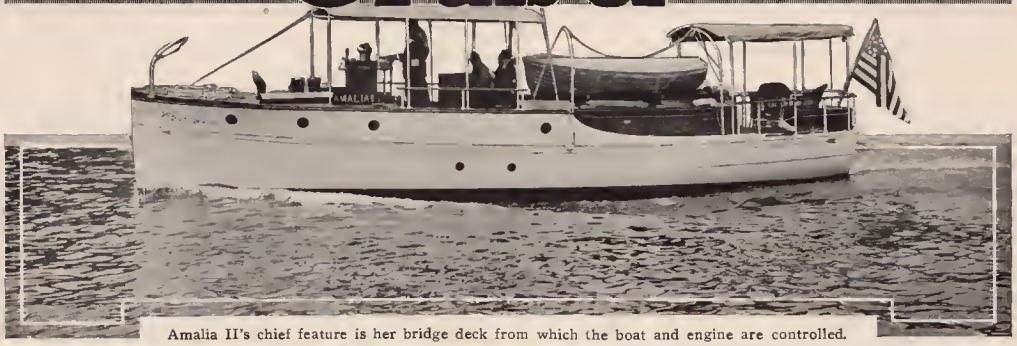


Bridge deck of Judy VI.



Two interior views showing the engine-room and forward cabin. Note location of auxiliary steering wheel.

A Honeymoon Cruiser



Amalia II's chief feature is her bridge deck from which the boat and engine are controlled.

Looking aft on deck, showing arrangement of the controls, whistle, etc.

AMALIA II, built by the New York Yacht, Launch & Engine Company, of Morris Heights, N. Y., has recently been delivered to the owner, Mr. Carl Reinschild, a member of the Colonial Yacht Club, for use this summer on Long Island Sound and the Hudson River.

Amalia II is a bridge deck cruiser 45 feet overall, with a beam of 11 feet and a draft of 3 feet, and her motor equipment consists of a four-cylinder 24-30 h.p. Twentieth Century motor controlled from the bridge deck.

This boat is laid out below with a stateroom forward, having a built-in berth on each side. Entrance to this compartment and the main saloon is by means of a stairway from the bridge deck, terminating in a lobby which is fitted up with a bureau, locker and desk. The main saloon is aft, with extension sofa berths, the backs of which swing up to form upper berths. The toilet room, which is 5 feet square, is fitted with modern open plumbing.

The galley is on the starboard side, with ice box and locker situated between it and the toilet. This ice box extends from the floor to the deck and ice is put into it through a hatch in the deck. The galley is complete with stove, stove compartment and sink. The engine-room, which is just forward of amidships, is complete in every detail, having a work bench with drawers and the necessary tools. Provision for the captain's berth is made in the engine-room, where there is also located a toilet and wash basin for this worthy.

The after deck of Amalia II is 9 feet long and about 7 feet wide, so that it makes a very roomy deck. It is covered with an awning. The bridge deck is the feature of this boat, and the seat, which is at the after end, is fitted with cushions. The water tank is placed under this seat, giving running water at any depth of the tank to all fixtures. The boat is steered from the wheel at the bridge deck box, on which is mounted the binnacle, fog bell and whistle. An awning attached to which are side curtains covers the bridge deck, giving full protection for the helmsman in bad weather.

Amalia II carries an 11-foot tender, and the cruising outfit is complete in every detail, ample fuel capacity being one of the features.

The forward stateroom of this boat is finished in white enamel and is trimmed with mahogany. The cretonne coverings for the berths and pillows add to the attractiveness of this well-lighted compartment. The after saloon is of mahogany. The upholstery is in light blue corduroy, and the curtains are of a color to match the cushions. The boat is lighted throughout by electricity.

The boat is fitted with a Twentieth Century reverse gear, integral with the motor, being contained in a cast iron drum which is fitted in the base of the engine casting. Power is transmitted in the reverse motion with this gear by means of beveled gears amply proportioned to the size of the motor. All cogs that revolve on spindles are provided with phosphor bronze bushings.

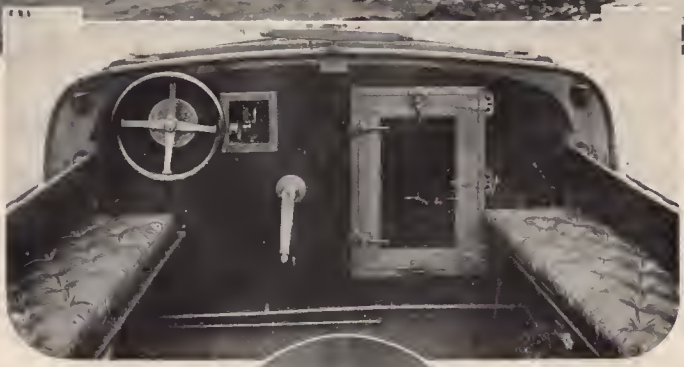
The forward cabin is fitted with two built-in berths.

View of the main saloon showing mahogany finish, and giving a glimpse of the galley.

A 36 Foot Lifeboat Cruiser

S. O. S., the 36-foot Holmes-McClellan life-boat cruiser which first made its appearance at the New York Motor Boat Show, and which has been briefly described in these pages, was recently given a test by the Holmes Motor Co., at West Mystic, Conn.—a test which she came through successfully as might have been expected of a "blood-sister" of the Holmes lifeboat, which has been in use by the government for several years.

Those of us who have been caught out in a small boat on a bad night with one of these government lifeboats offering the only possible way of getting ashore, realize that they are pretty handy things to have dotted along our coast, and it would now seem that S. O. S. has proved herself their equal in self-righting and buoyancy tests. To capsize the craft in these experiments it was necessary to use a tackle, and no sooner was she bottomside up and the tackle released than she rolled back, pouring water from her cockpit scuppers, but unwet in her watertight compartments. As a means to determine whether the boat would still live with her forward compartment stove in, the cabin was flooded with water until the toilet-room ports just cleared the water. She was then put through her paces, and it is said that the motor ran every bit as well as under normal conditions, while no difficulty was experienced in steering her.



Cockpit side of the engine-room bulkhead showing arrangement of controls.

Model J Holmes installed in S. O. S.

In design S. O. S. is very similar to the lifeboats above referred to, with the motor compartment under the after turtle deck. The motor installed is a Model J 4½ in. x 6¼ in., 20-25 h.p. Holmes set on a 2½ in. sided oak bed with the bilge cemented up to the floor, leaving no place for gasoline fumes to lurk. Ventilation of the compartment is taken care of by two bell-shaped ventilators, and these are so arranged that should the craft capsize valves will close and keep water from entering the compartment, while the air contained within the compartment is sufficient to supply the carbureter and keep the motor going until the craft has had time to right herself. Under ordinary running conditions it is not necessary to enter the motor compartment at all, as a starter is installed on the bulkhead in the cockpit while spark, throttle and reverse controls are also brought to this bulkhead. A heavy door held shut by four clamps completes the bulkhead equipment.

The cabin, entered from the forward end of the central cockpit is an exceedingly roomy affair, and as many as 45 men have been crowded into it. It sleeps four on the extension transoms and a pipe berth may be provided on each side if desired.

A toilet is installed in the bow.

Two views of the main cabin showing the roominess of this compart nent. There is full headroom throughout.

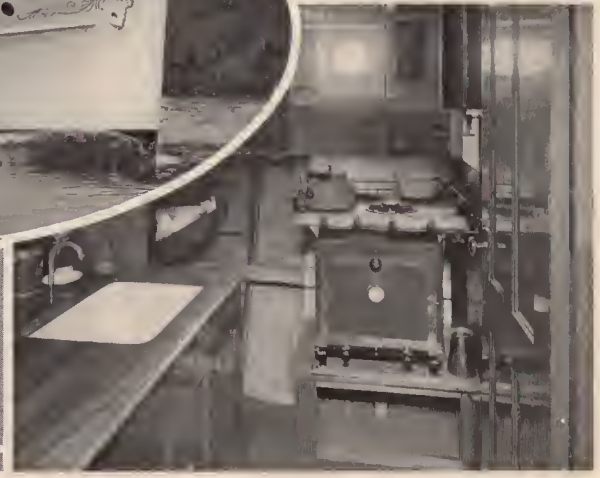
A 75 Footer for New England and the South

The owner's double stateroom aft is fitted with dresser, having mirror, folding washstand and full-length clothes locker.

The saloon (deck house) is equipped with buffet and also with Pullman berths. The galley stairway is aft, to port.

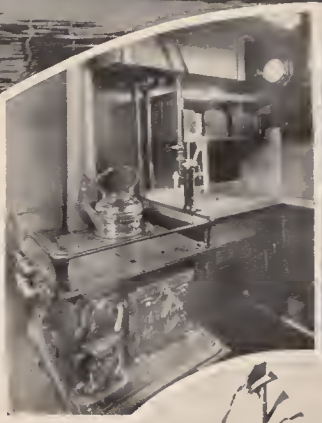
With a length, beam and draft of 75 x 15 x 4 feet, Edithena has recently been built by the Gas Engine & Power Co. & Chas. L. Seabury, Co., Cons., Morris Heights, N. Y., for Mr. L. Q. White, of Boston. She has a raised deck forward with trunk cabin aft, and a large flush deck which will be used for dancing.

Two 4-cylinder 50-65 H.P. Speedway motors, turning from 500 to 650 r.p.m., drive Edithena from 10 to 12 miles per hour for cruising. An independent electric lighting outfit is installed.



The galley, connected alike to forecastle and engine-room, is provided with a Speedway four-hole alcohol stove, large ice box, etc. The passage leading to the crews' quarters contains a water heater.

An Able-Bodied 61-Footer



The Shipmate range.

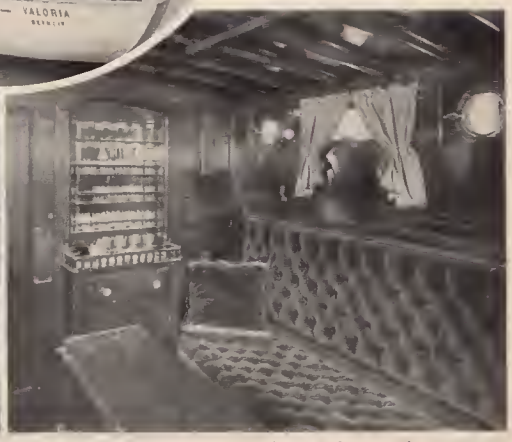
The six-cylinder Winton.

THE Matthews Boat Company, of Port Clinton, O., have recently delivered Valoria, a 61-foot deep sea cruiser, with a 13-foot 6-inch beam and a draft of 4 feet, to Mr. W. J. Gordon, of Detroit, Mich. This boat, which is the third designed by this company for Mr. Gordon, was arranged for operation by a one-man crew, making her inexpensive to keep up.

The usual arrangement of a boat of this size is reversed in Valoria, for, under her forward deck is a stateroom sleeping two people, followed by the owner's stateroom having two stationary single beds, with toilet-room adjoining. The forward stateroom is used for the owner's two children. Under the bridge deck and partly under the after trunk house is the engine-room, where a comfortable built-in bed is provided for the engineer, who is the only paid hand on the boat.

The finish of the engine and the entire room is enamel, and the appearance of this compartment with its pyramid pattern steel floor is said to be nothing short of luxurious. Ventilation is taken care of by the ports, windows and stack, and it is claimed that even while the motor is operating there is no smell of gas, oil or smoke. A small independent Fay & Bowen lighting plant is installed to one side with a bilge and air pump electric set arranged opposite. Fuel tanks having a capacity of 300 gallons are placed on the sides.

The motive power is supplied by a 6½" x 9", 6-cylinder Winton, this particular engine being the first of this size to be built by the Winton Company. All moving parts on this engine are incased, making it very quiet in operation, and a feature of the motor is its equipment with two independent systems of ignition. All controls are brought to the bridge deck.



The owner's quarters are finished in mahogany and in cream enamel with mahogany trim. On the left is seen the owner's stateroom, and on the right the interior of the after cabin, arranged as a dining saloon.

PRIZE CONTEST in QUESTIONS AND ANSWERS

Cleaning the Water Jacket.

Removing Sediment and Obstructions from the Cooling System of a Marine Motor. Several Methods Suggested for Keeping the Jacket Always Free and Clear.

THE PRIZE CONTEST—Answers to the First Question in the May Issue.

The Acid Treatment.

SALT WATER and water in which lime salts are present, as well as dirt and mud, are the causes of corroded and clogged water-jackets on marine motors.

This trouble is seldom noticeable the first, or even the second season, but as corrosion continues and the sediment from dirty water collects on the opposite side of the cylinder from the intake, and out of the line of flow of the cooling water, these spots will be considerably hotter than other parts of the cylinder, and the whole motor will run warmer than it should ordinarily.

When these conditions exist, the natural thing to do would be to take a wire and "poke" around the inside of the jacket. This may partially remedy the trouble for a time, but the former condition soon returns.

After using the wire, plug all but the upper opening and fill the jacket with a solution of fluorhydric acid (about 2% or 3%) for from one to three hours, depending on the amount of sediment, etc., to be removed. The acid will free the iron from the rust and imbedded grains of sand and other impurities, but not the metal. Follow this by washing with lime milk to neutralize any acid remaining, and then cleanse with clear water. If this were an automobile motor circulating the same water all the time, caustic soda might be suggested but this cannot be used advantageously on a marine motor.

There is a paint made in Germany for protecting boiler plates from rust and scale that will do the same in the water-jacket of a motor. This is composed of one pound each of train oil, horse fat, paraffin and finely-ground zinc white. To this mixture is added 4 pounds of graphite and 1 pound of soot mixed together into a paste with 1.2 pints of water and about .1 pound of carbolic acid. The horse fat and the zinc oxide make a soap hard to fuse, which adheres strongly to the metal and binds the graphite and the soot, while the paraffin prevents the water from penetrating the coats. When used, the paint should be just thin enough to pour and no thinner. If thinning is necessary, use water.

Fill the jacket completely with this composition and screw in a plug with a tire valve attached and pump up a good pressure which will force the paint into all the depressions, rough spots, etc.

After the paint has dried, the motor is ready to run and no more rust and scale will appear. If the intake has not been provided with a strainer, attach one now and keep it clean.

With the water-jacket clean and protected from rust and a strainer on the intake, the troublesome clogging simply cannot occur.

W. B MOORES, Newburgh, N. Y.

The Pressure System.

STOPPAGE of the water-jacket can cause serious troubles, even to breaking the engine cylinder casting if the engine is provided with a plunger pump.

If the stoppage occurs from the accumulation of rusted particles or from the formation of scale—both of which causes are of more frequent occurrence where the boat is used in salt water than they are in fresh water—the proper treatment is to clear these troublesome particles by filling the water-jacket with a diluted solution of sulphuric acid. The proportion of dilution used by foundrymen for cleaning castings is one part of acid to seven parts of water. This solution should be allowed to stand in the water-jacket for several hours, but preferably not longer than one day, and it should then be removed and thoroughly cleaned out with water, as it eats into the iron itself, and, if allowed to remain, would eventually go right through the casting.

If the stoppage is due to the accumulation of sand, mud or clay, acid solutions will have little or no effect. In such cases it is desirable to remove the water-jacket and to wash out the foreign matter by means of a supply of water under pressure. This can be done by connecting the water from a main to one of the ports of the water-jacket, preferably the outlet port. If, when water under pressure is thus applied, it does not run through the water-jacket, it will be necessary then to dig out enough of the accumulation to get a start for the water flow. This can usually be done by means of stiff steel wires bent to follow the courses of the water-jacket as much as possible, and if they cannot be moved around enough to disturb the particles, it is then necessary to drive them through the accumulation. In order to do this, wires of different lengths should be used, beginning with short ones and driving them in as far as they will go. Before pulling such wires out they should be seized by pliers and moved around as much as possible to loosen the accumulated mass.

In this manner the holes forced in from all of the different water ports will become deeper and deeper until they at last meet. Water flushing will then be used and after it the wires should be used again to dislodge any matter which may be reached by them, and after this water flushing used again.

Some engines are constructed with removable cover plates for the purpose of getting access to the water-jacket. If your jacket is stopped and you find such removable plates over it, you are lucky.

Of course, it is important to screen the intake to the water-jacket, but even when this is done small particles of foreign matter may get in and be lodged in sucb a manner as to gradually obstruct the flow of the cooling water.

E. W. MARSHALL, New York City.

QUESTIONS FOR THE SEPTEMBER ISSUE.

1. **Describe and illustrate the construction of some device whereby the exhaust from the motor can be utilized.**
Suggested by C. E. Bradley, Fall River, Mass.

2. **Describe how to build and attach to a transom stern cruiser an emergency rudder, considering strength, ease of attachment, looks and convenience in stowing.**
Suggested by R. W. Goddard, Lincoln, Neb.

3. **Suggest a practical means of galley ventilation in a small or medium size cruiser, which will eliminate draughts and rain, but will remove the cooking odors. Illustrate if necessary.**
Suggested by A. H. Farren, New York City.

RULES FOR THE CONTEST.

Answers to these questions, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (*a*) in our hands on or before July 25, (*b*) about 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of July.

The prizes are: For each of the best *answers* to the questions above, *any articles* advertised in the *current issue* of MoToR BoatinG, of which the advertised price does not exceed $25, or a credit of $25 on *any article advertised* in the *current issue* of MoToR BoatinG which sells for more than that amount. (*There are three prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer all.*)

For each of the questions selected for use in the next contest, *any article* advertised in *this issue* of MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in *this issue* of MoToR BoatinG, which sells for more than that amount.

Preventing Rust During Winter.

TO REMOVE the sediment from the water-jacket of a marine motor requires only a little patience and perseverance. The tools required are several pieces of steel wire, the ends of which are hooked or forked, an air pump and a piece of soft wood. Assuming that the obstruction or accumulation of sediment is at the lower part of the jacket, proceed as follows: Remove cylinder from base or bed and, with the forked end of the wire, loosen the sediment by prodding and turning at the same time; now turn cylinder so that the outlet is at bottom; attach air pump to inlet; now, by gently tapping with the block of wood, the loosened sediment will fall towards the outlet part; next apply light air pressure and the loosened sediment will be blown out; repeat until clean. The other shapes of wire will be found handy as you get towards the side where the straight wire will not reach.

To prevent corrosion while in use, several pieces of coiled zinc wire should be inserted in head or jacket of cylinder; this will quite effectively prevent corrosion.

When laying up for winter, first clean jacket of sediment and then dry the jacket by warming the cylinder; while cylinders are still warm fill water-jacket with ⅓ kerosene and ⅔ cylinder oil; this will not thicken and will prevent and clean cylinders of rust until spring, when it can be easily drained out; under no circumstances use or leave kerosene alone in cylinders, for, while it softens the rust, it also causes it to penetrate further.

I have employed this method for the last seven years and have always had good results with same.

T. P. KLEISRATH, New York City.

Painting the Jacket.

THE method that is described below requires few fittings and but a few moments' time to assemble them. The requisites are a small stream of water at moderately high pressure (a hand force pump will give good results), two feet of copper tubing such as is used for gasoline feed, a sufficient length of rubber tubing to reach from the water supply to the cylinder, and a metal band clip to join the two tubes.

With the water-jacket supply and drain pipes removed, insert the copper tube into the outlet (top) hole from which it can be readily guided to any part of the jacket, as when started in one direction the tube will almost invariably continue at the same angle until it has completely encircled the cylinder.

The water flowing at pressure from the tube will dislodge the packed particles of dirt which are carried off through the inlet at the base of the jacket.

To prevent rusting of the water-jacket, treat it as follows:

First, remove the water connections and flush out any dirt which may have collected. Plug up the lower hole with a cork and insert a piece of bent tubing or elbow in the upper hole with bend pointing upwards, outside the cylinder. This last must be wound with paper or cloth to make a reasonably tight joint.

Now pour in a sufficient quantity of engine paint to completely fill the jacket and the tube in the upper hole and let this stand for an hour at least when the cork may be removed from the lower hole and the paint drawn off.

If the jacket has been well cleansed the paint which is drawn off may be used at once for the outside of the cylinder and the balance of the engine, but if not smooth it should be strained through muslin.

Leave the water connections off until the paint has hardened and you will have a water-jacket which will be free from rust for the life of the engine.

R. H. HUESTIS, Springfield, Mass.

Laying Down a Boat's Lines.

The Way to Use the Plans of a Boat in Starting the Construction Work. What the Various Lines Represent and Several Methods of Transferring Them in the Loft.

THE PRIZE CONTEST—Answers to the Second Question in the May Issue.

Laying Down a 40-Footer.

LAYING DOWN the lines of a boat is simply drawing the lines full size, exactly as the designer did on a small scale. The first and most essential operation is to become thoroughly acquainted with the plans.

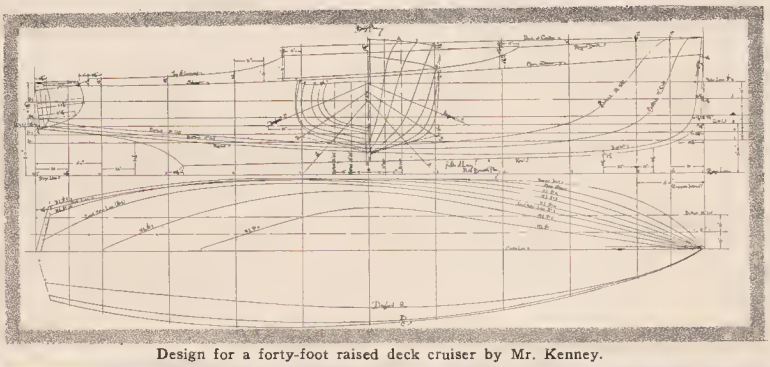
The profile shows the side of the boat and such things as sheer, rabbet line, keel bottoms, etc. The waterlines on the profile are horizontal and cut the boat at the planes, e. g., at the load waterline, 6 ins. above, 18 ins. above (42 ins. above in the fore body), and 6 ins. and 12 ins. below. The number of waterlines, sections, buttocks, diagonals and their spacing vary, of course, with the size of boat and plans of different architects. By consulting the hull breadth plan the shapes of the waterlines can be seen. Probably the easiest way to understand lines in their entirety is to imagine the boat already built with the waterlines, section lines, sometimes called ordinates or stations, buttock lines (sections out from center) and diagonals, painted on the hull in narrow stripes. Then the half-breadth plans would be a view of the waterlines looking down on the boat, which is in an upside down position. The body plan, or sections, would show the shape of the boat at intervals aft the bow, as in this case, section No. 1½, 2 feet aft the bow, section No. 2, 4 feet aft, section No. 3, 8 feet aft the bow, etc. In like way the buttock and diagonals can be seen.

The table of offsets is a list of dimensions, taken from the base line up to the bottom of the keel to rabbet, buttock 12 ins., out, buttock 24 ins. out, main sheer, raised deck sheer and coamings, on the profile. On the half breadth plan, the waterlines, starting with waterline 24 ins. above base line and the others in order are shown, with the sheer line, raised deck sheer line, etc. The diagonals are also given out from center line. All dimensions are to the outside of planking, as is the usual practise for wooden hulls.

The necessary floor or loft for laying down a boat of the size illustrated herewith, would be approximately 50 feet long. The floor should be of narrow plank, with no wide joints, be level, smooth and well lighted. A coat of white paint is usually applied to permit pencil marks to show more distinctly.

A scrive board is nearly always used for the body plans and a suitable size would be 8½ x 10 feet. This board should be made of narrow plank, 3 ins. or so, and planed fair and smooth.

Place the base bottom a foot or so from the wall. This batten, which will serve as the base line, should be a few feet longer than the boat and of about ⅞ ins. x 3 ins. pine. See that the batten is absolutely



Design for a forty-foot raised deck cruiser by Mr. Kenney.

straight, using a chalk line as check.

On laying the sections or stations start with bow No. 1, then make a point at No. 1½, 24 ins. from bow; then No. 2, 4 feet from bow; No. 3, 8 feet from bow, and so on. Use a steel tape measure from No. 1 bow only, not from one station to another.

Mark the waterlines necessary 24 ins. above base, waterline No. 1, 2 ft. 6 ins. above base, waterline No. 2, 3 feet above base load waterline until parallel with base bottom and all stations until right angles to base are obtained. Mark all waterlines, stations, etc., plainly to correspond with the blue prints. On a floor of limited dimensions the base line would also be used as center line for half breadth plan, so waterline No. 1 would also be buttock 24 ins. out, and buttock 12 ins. out would be 12 ins. above the upper or working edge of the base batten.

On the scrive board a similar batten (about 10½ feet) is fastened in place in addition to a center line batten which must be exactly perpendicular to base. Draw in and number all waterlines, buttocks and diagonals, positions of which are given on the lines.

Make several "pick - up - sticks" used in transferring spots from hall breadth and profile plans to body plan on scrive board. These sticks should be about 1 in. x ½ in. x 8½ ins. square and smooth.

Battens of various lengths and thicknesses will be necessary for drawing the curved lines. Naturally the body plan, owing to the "quickness" of curves, will require thin battens, while a rather stiff one must be used for sheer, parts of rabbet, buttocks, etc. The sheer batten should be about 45 feet long, 1 in. x 3 ins. with one smooth working edge, and the ones for the body plan may be ¼ in. and ⅜ in. square. They should be made of clear grained white pine, smooth, and square with sharp edges.

The sheer line is usually the first to be laid down. The table of offsets gives a dimension of 7-1-0 (seven feet, one inch, no eighths) above base line at No. 1, 6-11-3 (six feet, eleven inches, 3 eighths) above base line at station No. 1½, 6-9-6 (six feet, nine inches, six eighths—three-quarters) at station No. 2 and so forth, reading horizontally across the table. After all these spots are spotted in their respective stations on the floor, set the large batten with its edge to the spot on No. 1 (the bow). Hold in place by driving a wire nail through just into the floor, so that the batten can be readily shifted. Next fasten the batten about amidship and at the transom, then at the intermediate stations. The ends of the batten, outside bow and stern should be fastened in place, carrying out the general curve of the sheer.

By standing at the bow and sighting along the batten's edge any humps, hollows or flat spots are seen. Lift the nail at that point and the batten will spring toward fairness. Push up a little in the flat spots, adhering closely to the offsets or the line will be changed entirely. Sight also from the stern and after the line is fair or "sweet" draw in with a carpenter's pencil. After this is completed take the spots off on a pick-up stick, and transfer to the scrive board, taking care that the pick-up stick is at right angles to the base batten. Mark each spot plainly, as, sheer at station, No. 1, station No. 1½, station No. 2, etc.

The deck line (half breadth plan) which is usually the sheer line, is next to fair up, after which the spots are located on the scrive board. The spots must be plotted while the stick is held at right angles to the center batten. Draw a line through the intersection of these points and the sheer height points previously made. Considerable care is required in fairing the deck line in half breadth plan, as the flaring bow causes rather a full deck line. This line needs a much lighter batten than did the sheer. Draw in the rabbet line in the profile next, and plot spots in body plan (scrive board). The keel is straight between

(*Continued on page 64*)

Table of Offsets

Sections	1	1½	2	3	4	5	6	7	8	9	10	10½	11-T.
Keel Bottom		1-9-6	1-4-2	1-0-3	0-11-3					1-3-5	2-5-5	2-8-1	2-10-4
Rabbet		2-1-4	1-7-0	1-3-2	1-2-3	1-2-6	1-4-3	1-7-0	1-10-0	2-1-7	2-4-1	2-8-2	2-10-5
Buttock 12 Out		5-10-0	5-1-0	2-0-1	1-8-2	1-6-6	1-7-1	1-9-2	2-0-4	2-4-2	2-6-3	2-10-4	3-0-4	
" 24"			6-3-0	3-1-1	2-3-3	1-10-7	1-10-1	2-0-0	2-3-2	2-7-0	2-11-0	3-1-6	3-4-4
Main Sheer	7-1-0	6-11-3	6-9-6	6-6-6	6-4-0	6-1-1	5-10-5	5-8-4	5-6-6	5-5-5	5-5-3	5-5-4	5-5-6
Raised Deck	8-1-0	7-11-5	7-10-4	7-8-3									
Water Line No 1		0-1-2	0-4-6	0-8-7	1-0-5	2-2-7	2-6-4	1-11-4	0-9-6				
" " 2		0-3-2	0-8-1	1-0-3	2-3-4	3-0-4	3-4-0	3-4-6	2-9-5	1-8-1			
C.W.L. " 3		0-4-2	0-11-4	1-11-4	2-9-4	3-5-3	3-10-1	4-0-0	3-10-5	3-5-0	2-4-0	1-5-3	0-8-4
" " 4		0-6-6	1-2-0	2-2-6	3-1-1	3-8-2	4-0-4	4-2-5	4-2-1	3-9-6	3-1-0	2-6-4	2-1-6
" " 5		0-9-1	1-3-4	2-8-0	3-6-3	3-11-5	4-2-1	4-3-7	4-3-7	3-11-6	3-4-6	2-11-6	2-8-4
" " 6		0-11-2	1-9-3	3-0-0	3-9-4	3-1-7	4-3-0						
Sheer or Deck		1-2-6	2-2-2	3-5-3	4-0-6	4-2-6	4-3-0	4-2-4	4-1-2	3-9-6	3-2-3	2-0-3	0-5-6
Raised Deck		1-10-2	2-11-1	3-10-4	4-1-6								
Diagonal A		0-11-4	1-7-6	2-5-5	3-0-3	3-4-2	3-5-4	3-3-5	3-0-0	2-7-7	2-3-2	2-0-5	1-10-5
" B		0-11-0	1-7-6	2-8-1	3-6-0	4-0-4	4-3-6	4-2-0	3-9-6	3-3-2	3-3-2	2-10-4	2-7-2
" C		0-11-3	1-8-5	2-9-5	3-7-4	4-1-6	4-5-4	4-7-0	4-3-0	3-7-4	3-7-4	3-2-4	2-10-6

Note: See Blue Print of Lines for spacing of Sections, Water Lines, and positions of Diagonals - Heights at Coamings - Cabin Sides and other dimensions given on Lines - All Dimensions are in Feet, Inches, and Eighths and to outside of Planking

Table of offsets for 40-foot cruiser shown on page 27.

Using the Table of Offsets.

THE best definition of a Table of Offsets is "A tabulated set of measurements arranged so that a set of moulds can be constructed and the lines of a boat duplicated in the easiest manner." In a drawing shown on page 29, you will see the profile and half plan lines of a 22' 8" runabout. The lines have been simplified as much as possible, but will show the meaning very well. There is also a drawing of one section of the boat. In practice, there would, of course, be many other sections drawn on the same upright, but only one is shown to simplify the explanation.

In laying a boat down, the first thing to do after a large enough space on the floor has been chosen is to draw the base line for the profile drawing. This line is shown on two sketches. At the bottom of the table you will note that from the base line to W. L. No. 1 below the distance is 12". Lay this distance off and draw W. L. No. 1 below on the floor. Your table states that all other W. L. are 6" apart, so lay off the positions for L. W. L. and W. L. No. 1 above.

Your table also says that the stations are to be spaced 2' 10" apart. Draw these station lines at right angles to the waterlines and number them as shown. Now you will be ready to draw in the sheer or deck line on the profile layout. Note the table where it is marked "Heights Above Base Line." Following the lined marked "Sheer" across the table you would find the height of the sheer line at every station. I have only marked the height at the midship station, where, according to the table, the sheer is 2' 10" 4/8", or 2' 10½". When the sheer line has been drawn in you can measure for the rabbet or planking line in the same manner. Finally the keel will be marked in as indicated in the table.

The most important use of the table is to get the proper shape to the set of moulds over which the boat must be built. Choose another clean, smooth space on the floor a little wider than the beam of the boat and a little deeper than the depth of the boat from the base line to the highest point of the sheer. Draw the waterlines, base line and upright the same distances apart as you did on the profile plan, and then turn to the table where the half-breadths are shown. Lay off the sheer height on the section plans for the No. 1 section and then measure out on that line the distance given in the table as the breadth on the sheer line. Now measure out the distance shown on W. L. No. 1 above, then on the L. W. L., and finally on the W. L. below. Make a point where the rabbet is to come, and also where the bottom of the keel will fall. These last distances can either be taken from the table or from the completed profile layout. Measure out somewhere between the rabbet and the keel bottom and draw in a half section of the keel, and then connect the points of sheer and waterlines with a thin batten and draw a line.

G. T. W., N. Y. C.

The Full-Size Plans.

THE real idea in laying down the lines of a boat from blueprints is to enlarge them full size. If this idea is always kept in mind the process becomes much simpler. Study the plans carefully before starting.

A good designer furnishes with the blueprints a table of offsets, *i. e.*, a tabulation of all the measurements needed. The figures are read in feet, inches and eighths. The heights show distances up from a given base line. The half-breadths are measured from the fore and aft centerline, and on waterlines spaced at regular intervals. Generally, the plan of the body sections is drawn off to one side when laying down to save confusion. The half-breadth or deck plan can be drawn over the sheer plan if desired, as the lines are few. The important things to lay down are the sheer plan, which includes the sheer, stem, stern, bottom of keel and rabbet; the half-breadth or deck plan, and the body plan, showing the sections.

First, select a suitable place which should be longer than the boat. If a clear floor cannot be obtained, procure enough heavy builder's paper and glue or tack together. For tools, a board ten feet long, having one edge trued for a straight edge, a chalk and chalk line; carpenter's pencil; about a pound of sixpenny wire nails and a few smaller ones; hammer and a large steel square. Plane two white pine sticks to one-half inch square; subdivide into feet, inches, half and quarter inches, making one seven or eight feet, and the other about three or four feet long. A two-foot rule is likely to cause errors, but could be used. Get two or three good, yellow pine battens about one and one-half inches by half-inch and two inches by five-eighth inches if pos-

sible. A couple of smaller battens about one-quarter to one-half inches square will also be needed for bending in the sections.

Actual laying down can begin by striking in the base line with chalk line, penciling it with the carpenter's pencil. Beginning at one end, measure off the spacing of the stations—that is, their distance apart. At these points, carefully square up from the base line to a height of a foot or so above the highest point of the sheer line. We are concerned with waterlines only to get the body sections, and at the extreme ends of the sheer plan for the profiles of stem and stern. Therefore, through each end station for a distance of three or four feet each side of it, run in the waterlines at the proper intervals parallel to the base. Off to one end erect a perpendicular center line for the body plan, projecting across it the waterlines just drawn. We now have a foundation on which to lay down the real lines.

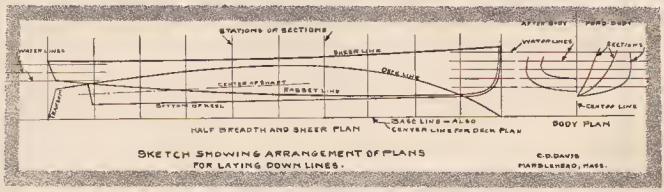
In the base line at each station drive a small nail, against which you can butt your measuring stick to save time and error. The sheer plan should be laid down first, so begin by measuring up from the base line the required height on each station or section.

Sheer heights are usually given to the top of planksheer, so bear this in mind when making the moulds, and laying down the body plans. Run the heavy batten through the spots just obtained, taking care that it has no humps or kinks. Do not, at any time, attempt to force it, but give a little here and take a bit somewhere else. Now measure up the heights for the rabbet and the bottom of the keel; also lay off the profile of stem and stern. Show the line of shaft and shaftlog on this plan.

We can next start the half-breadth plan, which shows the line of the deck, the half siding of the keel, stem and sternpost. All widths are measured out from a fore and aft center line, for which, in this case, we will take our base line.

The next and most difficult plan is the body plan. It is best to first lay down all the sections as measured, carefully fairing them. Put the forward body on one side of the center line, usually the right side, and the afterbody on the other. Take the heights of the deck, keel and rabbet from the sheer plan, and the deck widths from the half-breadth or deck plan, all of which have been faired.

C. D. DAVIS, Marblehead, Mass.



Sketch illustrating Mr. Davis' method.

What the Different Lines Represent.

THE following article has been written to explain to the amateur the method of "laying down" the lines of a boat, or, in other words, transferring the lines of the design from the scale drawing to the floor, and reproducing them full size.

In Fig. 1, for instance, is shown a straight line which represents the center line of a boat; at every two feet, if lines are drawn square to this center line and the distances measured off to the curve, these measurements are called the offsets. Offsets are merely the measurements taken at intervals along a straight line, by which a curved line of any shape is laid out.

Where there are a number of such lines, as in a boat design, they are tabulated for simplicity and called "Laying-Down Tables" or "Table of Offsets."

As an example, I will proceed to explain the method of laying down the lines of a small racer, which will be the same for any other type of boat.

If possible, select a place which has a fairly smooth floor, and clear a space about 27 feet in length and 4 or 5 feet wide. With a chalkline, strike a line for the base line. Parallel to this line and one foot above it, strike in the L. W. L., and above this, at intervals of six inches, three more lines, and below the L. W. L. at intervals of three inches two more lines, all being parallel to the base line.

Begin at one end of the base line, and with a square draw a line perpendicular to the base line, and at intervals of two feet erect other perpendicular lines until you have fourteen of them, numbering them below the base line 0, 2, 4, 6, etc., as shown at Fig. 2. These lines represent the stations, and the parallel lines drawn above the base line are the waterlines.

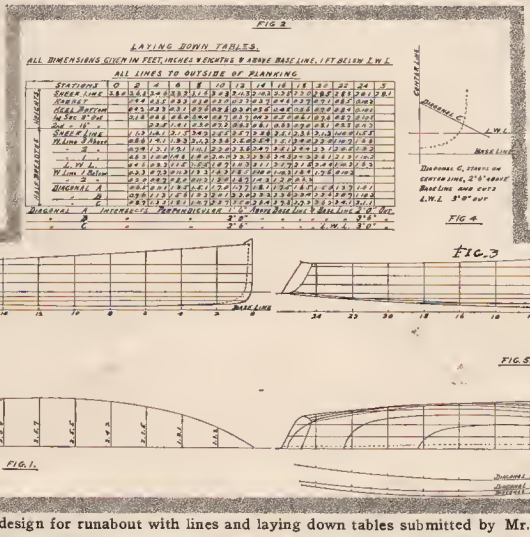
Now, if you consult the laying-down table (Fig. 3), you will note that the upper line of the table gives the heights (above the base line) of the sheer, on the different stations. They are read as follows: Height of sheer line above the base line at Station 0, three feet eight inches 0 eighths: at Station 2, three feet six inches and three eighths, etc. Measure off these heights and drive into the floor at each point a small bung-head wire nail. Then take a batten and bend it so that it touches all the nails, look carefully along the edge to see that it is fair; if there are any short kinks, move the batten until it looks fair, then with a pencil mark the sheer line, as shown at Fig. 2, elevation. Repeat the operation for the rabbet line, then the keel bottom and face of stem. This completes the lines on the elevation.

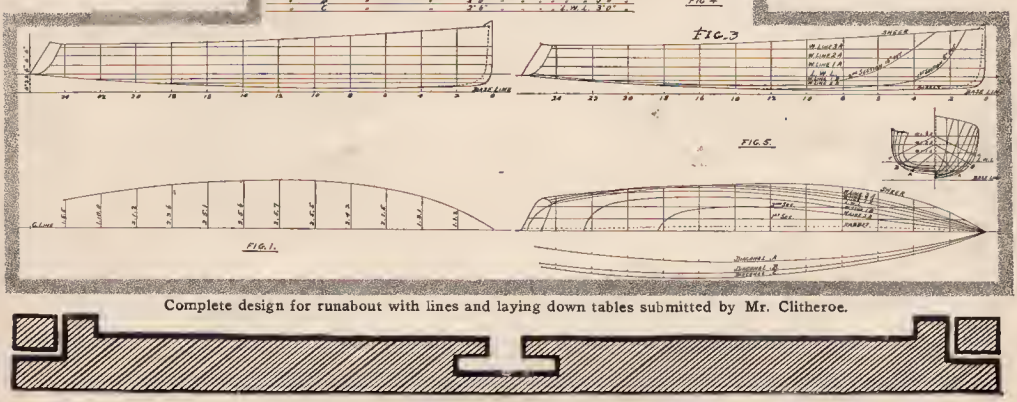
Attention is called to another set of lines shown in the table, Fig. 3. These are called diagonals, A, B and C; their name alone identifies them. They are lines which, in the end view, run diagonally across the waterlines, sections, etc. They are apt to confuse, but are by far the most important of all to fair up the boat by, as they run nearly square to each of the stations, allowing of more accurate measurements. These lines should be measured from where the diagonal starts at the center line, along the diagonal, in drawing the end view spots for the moulds, as shown at Fig. 4, or when laying out the diagonal on the plan, measure them out from the center line.

Now mark in the body sections, making a vertical line for a center line. The table of offsets states that all lines are to the outside of plank, and, as the moulds you require are to be made to the inside of the plank, they should be reduced ½" all around, as the planking is to be ½" in thickness.

That you may identify the various lines drawn, take table, Fig. 3, and compare it with Fig. 5. Here each of the lines named is shown, so that you can tell what is meant by sheer, L. W. L., first section, etc. These plans represent the shape of the boat, looking sideways at her (elevation), looking down on the top (plan), and looking end on (sections).

J. CLITHEROE, Attleboro, Mass.





Complete design for runabout with lines and laying down tables submitted by Mr. Clitheroe.

MARINE MOTORS

A New Speed Motor.

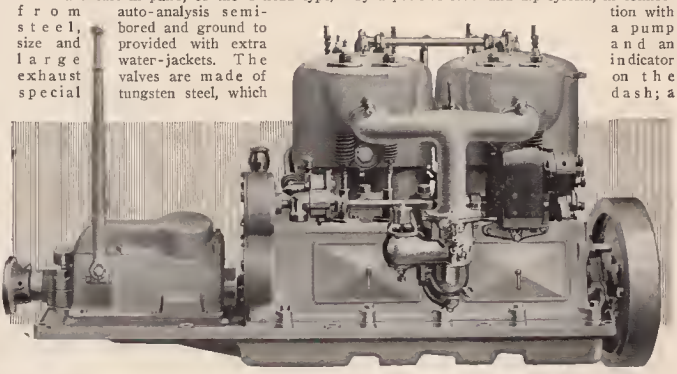
A Four-Cylinder Sterling Designed to Operate Continuously at from 1500 to 1600 R. P. M. Weighing 850 Pounds and Developing 90 H. P., It Is Intended for Runabouts and Hydroplanes.

THE Sterling Engine Company, of Buffalo, N. Y., have just started to ship some of their new four-cylinder, Model RI-90, high-speed engines. These engines are somewhat different from any existing Sterling model, as they are designed to operate continuously at from 1,500 to 1,600 r.p.m., without any undue strain and without causing the motor to disintegrate, as is so often the case with the average engine when operated at these speeds. It is stated that at a recent test held at the Sterling plant one of these four-cylinder motors developed 115 h.p. at 1,700 r.p.m., and it is hoped that even better than this can be expected after the engine has had some use.

The design and construction of this four-cylinder engine is an interesting combination. It is extremely simple and every feature has been scientifically designed to give the greatest amount of power and strength. It is not an experiment, but the culmination of years of labor and study and combines the latest improvements and advances in the manufacture of marine engines. Although not a heavy engine—its weight is but 850 lbs.—it is strong and powerful without loss of responsiveness or flexibility. Its weight is described as being in parts that bear the stress of hard use; its lightness in parts that make for speed and action, and its strength in all.

This engine has a bore of 5½" and a stroke of 6¾". The crankshaft is of chrome nickel steel, drop-forged and heat-treated. The cylinders are cast in pairs, of the T-head type, from auto-analysis semi-steel, bored and ground to size and provided with extra large water-jackets. The exhaust valves are made of special tungsten steel, which is said to do away with the old troubles of warping and pitting and the necessity of re-grinding, and is considered one of the most important improvements in this new motor.

The oiling system is efficiently taken care of by a positive level and dip system, in connection with a pump and an indicator on the dash; a system which insures a constant and uniform lubrication to all cylinders, connecting rods and bearings.



Starboard side of the new high-speed Sterling which is described as strong and powerful without loss of responsiveness or flexibility.

A New 32 H. P. Regal.

A High-Speed Motor Which is Equipped with Self-Starter and Electric Lighting Generator. Electric Motor and Generator Separate Units with Bosch Ignition System a Third Unit.

THE Regal Gasoline Engine Company, of Coldwater, Mich., have just brought out their new, high-speed, 4½" x 5½", 32 h.p. engine, equipped with electric self-starter and lighting generator and many other features that go to make up a first-class modern engine.

The crankcase is made of aluminum, and the reversing gear is contained in an aluminum extension of the base. On either side of the reversing gear, mounted upon this aluminum extension, are placed the starting motor and the lighting generator. The Rushmore starting and lighting system is used.

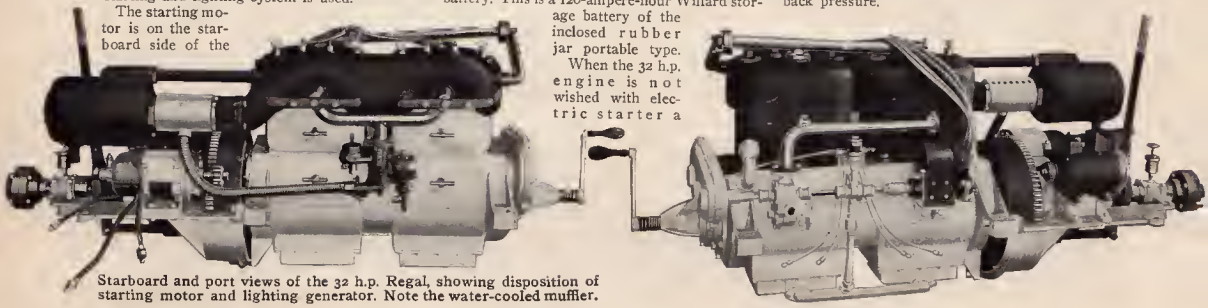
The starting motor is on the starboard side of the reversing gear and cranks the engine through spur gears cut upon the balance wheel. When the engine backs up the gear is automatically released and the motor does not revolve.

The lighting generator is on the port side of the reversing gear and is driven from the engine crankshaft by a silent chain. The generator is of sufficient size to furnish 72 candle-power, which can be distributed throughout the boat for search lights, cabin lights, etc., as the owner may desire. This generator also furnishes the current for charging the storage battery. This is a 120-ampere-hour Willard storage battery of the inclosed rubber jar portable type.

When the 32 h.p. engine is not wished with electric starter a safety rear starter is put upon the engine just aft of the balance wheel.

The Bosch DZ-4 dual magneto forms a part of the regular equipment of all 32 h.p. Regal engines whether they have electric self-starter or merely hand safety starter.

The exhaust manifold is water-jacketed, and connected to this manifold by solid iron pipe connections is the water-cooled muffler. This muffler is designed especially for Regal engines and is said to be highly efficient, both in silencing exhaust and in its almost negligible back pressure.

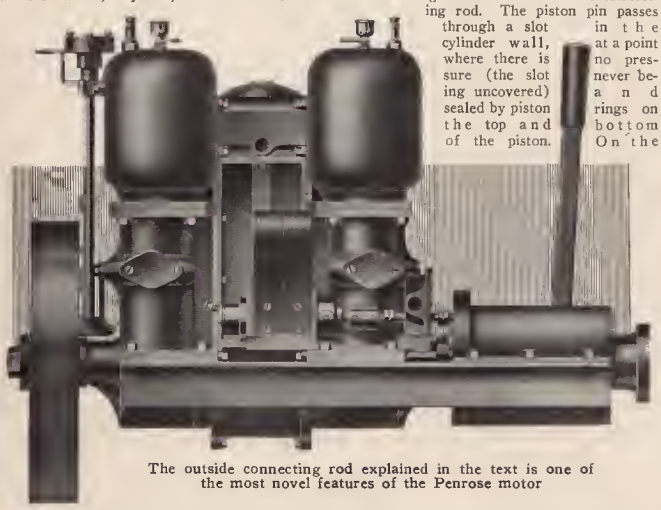


Starboard and port views of the 32 h.p. Regal, showing disposition of starting motor and lighting generator. Note the water-cooled muffler.

The Penrose Motor.

A New Departure in Two-Cycle Engine Practice, in which Crankcase Compression is Eliminated. Positive Transfer of Fuel Charge at all Speeds Among Principal Claims for This Motor.

THE Penrose Motor Incorporation, with offices at 502 Pennsylvania Bldg., Philadelphia, and factory at Woodbury, N. J., have recently designed and put on the market a motor which, they feel, marks a new era in two-cycle engine practice. In this new design, the motor has practically been turned inside out. There is no crankcase compression, the charge being taken right in the cylinder, under a hollow piston, and compressed to the desired pressure, and transferred through a port in the piston and by-pass in cylinder wall to the combustion chamber above the piston. There are no openings in the precompression chamber except the intake port, and, therefore, it is believed that the suction and compression will remain constant even after years of service.



The outside connecting rod explained in the text is one of the most novel features of the Penrose motor

Another big feature is the outside connecting rod. The piston pin passes through a slot in the cylinder wall, at a point where there is no pressure (the slot never being uncovered) and sealed by piston rings on the top and bottom of the piston. On the outer end of the pin is a nickel babbitt block which runs in a guide and takes care of all side thrust. The connecting rod is entirely outside of the cylinder and piston, and both of its bearings are positively and freely lubricated, and adjustments are made without disturbing any other part of the motor. All working parts are enclosed, securing a clean, oil-tight and dust-proof power plant. The removal of a plate exposes the whole connecting rod and crank assembly, and the removal of four bolts enables the piston to be removed, and all without disturbing a single adjustment of the motor. There are no gaskets in the motor.

Taking the charge in the bottom of the cylinder makes possible a high pre-compression, and secures a positive transfer of the charge at all speeds and thorough scavenging of cylinder. It is claimed that this motor will run perfectly at low speed without load, and will throttle the same as a four-cycle motor.

The oiling system is positive, and in the larger motors is very ingenious. A telescoping pump, with one end attached to the connecting rod, delivers oil directly on the piston pin bearing, and from there it passes through a hollow rod to the crank pin bearing, providing positive and ample lubrication to both bearings, which is under the control and regulation of the operator. Great economy and durability are claimed for this motor.

These motors are manufactured in two types and four sizes. The small high-speed model has the piston pin rigidly fastened in the extra long piston, with a guide outside, as described above. The Duplex, or heavy-duty type, is novel in design, in that the cylinders are exploded in pairs with a single connecting rod between each pair of cylinders. The piston pin is fastened in the pistons, and forms a crosshead, with direct and positive drive on the rod between. The piston pin bearing is extremely long, ensuring little or no wear. This model has double ignition in the real sense of the word, as the failure of either cylinder to fire will not stop the motor, which will continue to run indefinitely on the remaining cylinder.

The 3½ and 7 h.p. models run at 800 r.p.m. normally, and the 10 and 20 h.p. Duplex models develop their rated power at 500 r.p.m., but it is claimed that all these models will readily run at increased speed and show big increase over rated power.

Van Blerck Racing Engines.

Four, Six, Eight and Twelve-Cylinder Models in This Line of Consistent High-Speed Motors. Differing from Van Blerck Runabout Motors Only in Valve Timing and Amount of Compression.

VAN BLERCK racing engines, made by the Van Blerck Motor Company, of Monroe, Mich., are regular stock design motors, differing from the Van Blerck runabout motors only in that they are fitted for higher compression and with special timing to adapt them to the high speed necessary in racing engines.

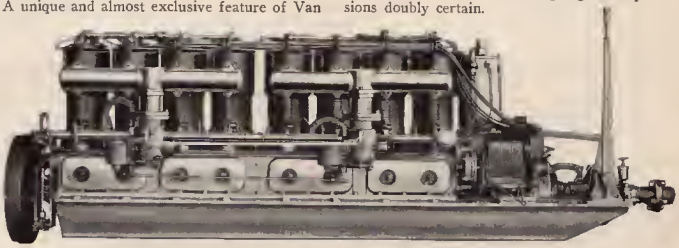
Technically known as Models C-Special, they are built in four, six, eight and twelve cylinders — the last on order only. They are built on the same general design and specifications, material and workmanship as the regular runabout motors, catalogued as Type C, and differing from them only in compression and timing. They have 5½-inch bore, with a stroke of 6 inch, and a range of revolutions from 1,000 to 1,800, the normal revolutions being 1,600. At normal r.p.m., these engines are rated as follows: C-4-Special, 90 h.p.; C-6-Special, 135 h.p.; C-8-Special, 180 h.p., and the C-12-Special, 270 h.p. They develop power at these speeds, however, approximately 20 per cent. in excess of their ratings.

These horsepowers were proven by a remarkable series of tests made by Mr. George F. Crouch, well-known New York engineer and marine designer, at the company's plant shortly after the New York motor boat show. Every model and size, as well as the racing models, were subjected to a most impartial and exhaustive test.

The cylinders are single-unit castings, with open water-jackets, the openings being covered with thin sheets of non-corrosive metal and tested under water pressure at sixty pounds. This insures a perfect and uniform thickness of cylinder walls and a minimum weight of casting. The pistons and rings, like the cylinders, are semi-steel, unequaled for strength and wearing qualities.

The crankcase extends aft of the motor, affording a suitable support for the reverse gear. A unique and almost exclusive feature of Van Blerck design are the staybolts, which secure the upper half of the crankcase to the lower half, and support the weight of the cylinders, at the same time transmitting all of the strain of the explosion directly to the main bearings, thus relieving the crankcase flanges of the strain.

The regular specifications for this type of motor call for the well-known Bosch dual, double-spark ignition system, with Bosch spark plugs, thus securing two simultaneous sparks in each cylinder, one over the intake and one over the exhaust valve, making regular explosions doubly certain.



Van Blerck type C-8, the motor which won cups and fame for Hydro Bullet at the St. Augustine races last spring.

An 80 Foot Great Lake Cruiser

Niagara is a Sterling-powered craft with engine-room amidships and owner's quarters aft separated from the rest of the boat by a watertight bulkhead.

NIAGARA, shown in the accompanying illustrations, is a Great Lakes cruiser, designed by J. H. Wells, for Mr. Charles W. Kotcher, of Detroit, and built by the Matthews Boat Company, of Port Clinton, Ohio. She has an overall length of 8 feet 6 inches, a 14-foot beam, and a draft of 4 feet 6 inches. Of slightly raised deck construction, she has a low trunk over the dining saloon forward and another trunk over the main quarters aft, while her bridge is located between the two.

Directly beneath the bridge is the engine-room, containing two 75 h.p., 6½" x 9", six-cylinder Sterling motors, and a 1 k.w., Fay & Bowen lighting outfit as auxiliary equipment. Communication to crew's quarters is had forward, but the owner's quarters aft are cut off by a bulkhead.

The owner's quarters consist of two large, double staterooms, a single stateroom and a bathroom with tub and the usual equipment. One of the double staterooms is situated directly aft of the engine-room bulkhead, and following this compartment are the bathroom on the port side and the single stateroom to starboard. A passageway runs between the two to the other double stateroom at the stern of the craft.

Victrola and electric fan add to the comforts of the dining saloon.

The owner's stateroom has telephonic connection with the crew's quarters.

From MOTOR BOATING Readers

A Department for the Exchange of Ideas and the Discussion of Questions of General Interest. Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case and return postage enclosed to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Leaky Hull and Steers Hard.

To the Editor of MoToR BoatinG, *Sir:*

There are four questions that I am desirous of having answered at this time. If not putting you to too much trouble, I would be pleased to receive information on any one or all that you may be able to answer.

Question No. 1. My boat, now four years old, has always leaked more than it should. It is a home-made boat, and I judged that it had been improperly calked so at the end of the second season I dug out all the old calking, after first removing all paint by burning and scraping, and had it re-calked. I was disappointed to find that it leaked as much as ever. Other seasons I have contented myself with one or two coats of paint inside and out, but last season it leaked more if anything than ever before. In fact, I have to pass chains under bow and stern to keep it from sinking between one Sunday and the next. There seems to be no one place where it leaks more than another, and yet as it lays in the boat house now thoroughly dry, I can see no place where it looks as though it would leak. My idea is to thoroughly cover the inside of the bottom with hot tar. Do you think this would do, or can you suggest something better?

Question No. 2. My boat has the old fashioned torpedo stern, steering post way back in the angle, tiller swings from one side of the boat to the other, alternately tightening and loosening the tiller rope. I have a side wheel and, unless I have the rope so tight that my little girl can hardly turn the forward wheel, I find that I am unable to swing the tiller when it is clear to one side, as the rope being at its loosest point slips on me. I would like to use a quadrant, but cannot do so on account of not having the room to swing it.

Question No. 3. Where on the east side of the Hudson near New York City is there a good site for a small party who want to run down next summer and camp for a few days with the intention of running into the city every day by car?

Question No. 4. What is the best treatment to give boat and tent awning to prevent leaking?

A. P., Macedon, N. Y.

[We are afraid it will be impossible to ever rectify this, as the fault appears to be in the construction of the boat itself, and while it will help somewhat to cover the bottom with tar, yet we fear the job will not be altogether satisfactory. However, there is nothing better that we know of, and the application of this should help some.

In regard to the trouble you are having with your steering-wheel and tiller arrangement, we showed in our last issue a device for rectifying this. Briefly, it consists of an oak tiller and a brass slide around the tiller, capable of moving in a forward and aft direction along the tiller. The position of the slide depending upon the tiller. The ends of the tiller line are made fast to the slide and lead through sheaves placed on each side of the boat, as you have them in your installation. You will see that as the tiller is in a central position, the slide will be somewhat aft of the forward end of the tiller, but when the latter is moved to port or starboard the slide will move forward on the tiller, and thus maintain a straight line at all times from one sheave to the opposite one, and thus keep the tiller line constantly tight.

There is no place on the east side of the Hudson River within 25 miles of the city which is suitable for camping. As you probably know, the New York Central Railroad occupies most of the space which makes it unsuitable for camping purposes. However, on the Jersey side of the Hudson River from opposite about 180th Street, continuing for 10 miles or more along the Palisades, is located the Palisade Interstate Park, which is well suited for camping; in fact, it is thrown open to campers the year around. While this is not very accessible by any car line to the city proper, yet there are numerous small boat ferries running across the river to different railroad stations on the east side which make it very easy to make train connections. A permit for camping privileges can be obtained free upon written request to the Palisade Park Commission, New York City.

A good way to treat canvas to prevent its leaking is to coat it with a mixture of paraffin dissolved in gasoline as follows:

A gallon of gasoline is warmed by allowing the vessel containing it to stand in hot water for some time, and to this one pound of paraffin which has been previously flaked is added. After all the paraffin has dissolved in the gasoline, the mixture is then painted on to the canvas by means of an ordinary brush. The gasoline will soon evaporate from the canvas, leaving the latter coated with paraffin which will form a permanent waterproof agent.]

Striking a Fair Waterline.

To the Editor of MoToR BoatinG, *Sir:*

Will you please explain by what plan or system of measurements I can restore the true dividing line between the white upper and green bottom paint on my 27 ft. x 5 ft. 10 in. launch, which has become irregular by frequent paintings.

H. B. R., Chicago, Ill.

[First, plumb the stem to make sure that the waterline will be an equal distance from keel on either side of the boat. Then mark the point on the stem and stern where you want your waterline. It is good policy to raise your line up about four or five inches, depending upon the size of the boat, so that the scum that collects on the boat will not show on the white paint. After you have your points on stem and stern, take two pieces of board of any width, say about four or six inches, and plane one edge straight. Tack one to your stem with the top edge at mark which you made and other one on the stern. Take a spirit level and get this straight edge level, then brace the outside end to something. After you have the two boards level and fastened, get two of your friends to stretch a string over the tops of the straight edges and hold it taut, letting it barely touch the hull, and put a small brad just under the line. You can start at either end and work around to the other, and placing the brads about a foot apart. When you get to where the hull slants under, be careful not to let the string touch the hull as this will tend to draw the string out of alignment. After you have all the brads in, take a narrow strip of wood, say about ¼" x ½", and hold it up tight against the brads. Take a scratch awl and scratch the waterline in about 1/32 or 1/16 of an inch; then you will always have a line that is easy to paint along without running the colors together. Do the other side of the boat in a similar manner.

This may look like a lot of work, but you will be surprised to find how quickly you can do it. You will also find by following the above instructions that you will have a waterline as straight as though you had drawn it with a straight edge and one that will add to the beauty of your boat.]

A new Hudson River day cruiser capable of about twenty miles per hour.

Flywheels and Meta-Centers.

To the Editor of MoToR BoatinG, *Sir:*

I am taking advantage of the privilege accorded a reader of your magazine, through the question department, in submitting the following subjects of somewhat general interest, for your advisement.

Am planning the construction of a motor boat 35 ft. x 9 ft. x 30 ft. and intend installing a 4-cylinder, 4-cycle 4½ in. x 5 in. medium speed engine. The following question has arisen through discussion: In the matter of placing the engine if I were to connect up the flywheel end of motor to shaft through the reverse gear, would there be any liability to distortion of crankshaft, would there necessarily be an unusual strain on main bearing next to flywheel, or on the other hand, could I attain any more perfect mechanical balance, were I to connect the end opposite the flywheel?

What do you consider the best weight for a flywheel for the average engine of above dimensions —speed about 800 r.p.m.?

Please explain the technical term "metacentric height" as applied to bulls.

F. J. R., Oakland, Cal.

[We would advise against the installation of the motor in such a may that the flywheel end of the motor is connected to the propeller shaft. This might work out very satisfactorily if the motor were designed to stand this sort of strain, and it would probably do so if it is of the medium or heavy-duty type, but if it is a light weight, high-speed motor, there is considerable liability of distortion of the crankshaft and an unusual strain on some of the main bearings. If there is any reason why the motor must be installed in this way, of course these difficulties can be overcome with the proper motor, but, as a general rule, not knowing more about this particular motor, we would not recommend it.

We cannot give you the best weight for a flywheel for the average engine, as this depends entirely upon the particular motor in question, its design, weight of moving parts, balance properties, etc. There is no such a thing as the best weight for a flywheel for a motor for a 35-ft. cruiser. If this is a question of requiring a new flywheel, we would suggest that you make it a little heavier than you think is necessary, and then give it a trial under working conditions, and if you find this weight keeps the revolutions per minute down below the desired r.p.m., then a little can be taken off the rim o the flywheel, thus reducing its weight. We could give you several formulae for determining the weight of a flywheel, but in general these are not desirable when practical experience with different weight fly-wheels can be resorted to. This particular type of hull and the installation of the motor, shaft crank angle, etc., have as much to do with the proper weight of the fly-wheel as anything else.

To give you an explanation of what is meant by the term "metacentric height," it would be necessary to go very much into detail in regard to centers of buoyancy, metacenter weights, etc., which, if you are not familiar with them, would require much detailed information. We would, therefore, refer you to some standard work on naval architecture for this information. A very good explanation of this is given in Atwood's Text Book of Theoretical Naval Architecture, pages 90 to 115. Of course, you understand that the metacentric height is nothing more than the distance between the transverse center of gravity and the metacenter, but this definition is not worth very much unless you understand just what these other points mean.]

Atwood's or other text books will give you several ormulas for approximately locating the center of gravity and the center of buoyancy from the boat's general dimensions. They will also give you the accurate method of locating them rfom the ship's lines. Of course to locate their positions accurately requires considerable computation.

The Proper Place to Fly Colors.

To the Editor of MoToR BoatinG, *Sir:*

Will you kindly inform me the correct position for using the following flags, when at anchor off the club, and under way, for a launch with military mast, bow and stern poles: yacht ensign, club pennant, owner's flag, Waterway League pennant, and the Union Jack.

This is in regard to an argument that has arisen between myself and some club members.

A. M. J., New York City.

[The yacht ensign should be flown from the stern staff, the club pennant from the bow staff at all times except when at anchor, on Sundays and holidays, when the Union Jack may be flown in its place; the owner's private signal should be flown from the signal masthead, unless the owner is a flag officer of some yacht club, in which case the officer's flag should be substituted for his private signal. No provision is made in yachting etiquette for flying such flags as that of the Waterway League, but it perhaps would be permissible to fly it in place of your club signal when you are on a cruise with the Waterway League. At other times this flag should not be flown.

Of course, all colors should be raised at 8 A. M., and lowered at sunset, except a flag officer's flag, which is flown at all times, during night and day.]

One of the motor life boats equipped with wireless on the New Atlantic liner Aquitania. One of the main objects of this boat is to be

Poor Efficiency Somewhere.

To the Editor of MoToR BoatinG, *Sir:*

Having been a reader of MoToR BoatinG and the owner of a boat for the last year, I am writing to you for a little advice. I knew practically nothing about engines or boats before I started in and I picked all my information from your magazine and a few so-called supposed-to-be boatmen. Each one of them has a different theory which they claim as the goods, but to which I now pay no attention whatever. I have tried some of their theories to my own expense and disgust, so I now try to pick everything from your magazine and readers, as experience is a great teacher, but an expensive one sometimes. Now, what I want to know is what would be the proper power plant for my boat which is 20 ft. long 5½ ft. beam, draws about 6 inches at bow and about 21 inches at the stern. She sets quite high in the bow and rides waves well. At the first of last season my power plant consisted of a 6-horsepower, 2-cylinder, 2-cycle light-weight high-speed engine, turning a three-blade 12-inch diameter, 13-inch pitch with wide blades at 800 r.p.m. This drove me at about 8 miles an hour, which was just about what I wanted. After a while the engine commenced to get freaky and would run for a couple of hours and stop, and it would take about three hours to coax it into running again. I wasted the whole summer tinkering with it and finally got disgusted. Everybody used to say, "Get a single cylinder engine which is some good." In the fall I purchased a 6 h.p., single-cylinder, 4¾ in. bore, 5 in. stroke, turning a three-blade 16-in. in diameter, 20 in. pitch of the elliptical type with narrow blades, 700 r.p.m. This drove the boat only about 6 miles an hour. The propeller sometimes would seem to be churning nothing but water, and not pushing the boat at all. I was told there was not pitch enough on the propeller, so this year I purchased a 16-in. diameter, 24-in. pitch, three-bladed propeller. This holds the engine down to 500 r.p.m. but gives me about 6 miles an hour, but the boat seems to drag down at stern and there seems to be an awful draw back. She will tow just as fast as when going alone. I was thinking of trying a 16-in. diam., 20-in. pitch, three-bladed propeller. Do you think this would give me any more speed? Or do you think a larger diameter with less pitch would be better? The new engine is in the same place as the old one, amidship. The old engine weighed 135 lbs., while the present weighs 270 lbs. There is a reverse gear which weighs about 60 lbs. Do you think this added weight of 135 lbs. makes her drag? The first engine was a smoother running outfit than the present, and the boat did not drag, but the engine I have now I can go out and get back the same day. I have been told that the boat is too short and that she is overpowered, and that if she were about six feet longer, with a fantail stern, she would not drag. I seem to think my boat has very good lines and don't believe this.

I am thinking of installing a 10-h.p., 2-cylinder, 2-cycle, 4 in. by 4 in., turning a two-bladed propeller, 16 in. dia., 22 in. pitch, 800 r.p.m. Do you think this would drive the boat nine miles and make a better power plant for the boat of my type?

E. W. N., Boston, Mass.

[You have given us very little data about either the particulars of the hull or the motor to work with, and it is, therefore, very hard for us to give you an intelligent answer on this subject.

Of course, you understand that each particular motor is designed to develop its maximum power at a certain number of revolutions per minute, and if you depart from this number of r.p.m.'s by using an improper propeller you will be losing power and thus be losing speed. Moreover, there is a certain size propeller and propeller speed which is best suited for each hull, which you will see makes it necessary that not only the proper motor must be chosen for your boat, but one whose maximum power is developed at a speed which will give you the best propeller for your boat.

We agree with you that the speed of 6 miles an hour is very poor efficiency for a 20-ft. boat equipped with a 6 h.p. motor, but as you have not given us the r.p.m. at which this motor was designed to develop its maximum power, we cannot be of much assistance in advising the proper wheel. However, if you this figure is 600 r.p.m., we would suggest a two-bladed wheel, 18 in. in diameter by 20 in. pitch, having blades not less than 6 in. in width. On the other hand, it may be that your hull is not suited for a slow-speed motor, which seems to be the case from the results you obtained with a 16-in. by 24-in. wheel turning at 500 r.p.m. In this case probably a two-bladed wheel 17 in. in diameter by 19 in. pitch would give you somewhat better results, but we would suggest that you first purchase the former wheel, and if this does not give you the speed of at least 8 miles an hour, a little can be trimmed off the tips of each blade, thus reducing its effective diameter.]

Burning Igniter Pins.

To the Editor of MoToR BoatinG, *Sir:*

Some time ago I saw an article in MoToR BoatinG from a fellow having trouble with his igniter burning off.

I have had the same trouble. I found it to be due to a slight leak of gas, either past movable igniter or piston rings. The movable igniter would get to leaking and the pins would burn off quicker. I would grind in igniter and it would not act as badly, but it would soon start leaking again. The pin was about 5/16" by 2" long. I replaced it with a ¾" pin, thinking that the larger pin would conduct away the heat and would not get hot enough to burn. I have run two years since without any trouble, so have concluded my supposition was correct.

C. T. B., Eagle River, Wis.

A 21-Foot Yacht Tender.

Having Lines Somewhat Different From Those of the Average Tender—Speed, 18 Miles per Hour. Also, a 26-Foot Runabout of Sturdy Construction for Comfortable Use as a Family Boat.

THE two accompanying photographs show a new yacht tender which the makers, the Fay & Bowen Engine Company, of Geneva, N. Y., have recently delivered to a prominent southern yachtsman. This boat was designed under suggestions from the makers by Mr. Morris M. Whitaker, of Nyack, N. Y., and her lines are somewhat different from those of the usual yacht tender. She is constructed with keel, stem and stern posts, framework, etc., of white oak under southern white cedar planking, and her entire top and interior are in mahogany.

She is laid out with her motor compartment forward under deck, and a roomy cockpit aft, fitted out with cushioned-back stern transom and seats running along the side. The seats are upholstered in a hue to conform with the mahogany brightwork. The cockpit will accommodate six or seven passengers, in addition to the helmsman who controls the boat from an automobile-type steering-wheel aft of the engine compartment bulkhead on the port side.

The power installation consists of a Fay & Bowen, 15-28 h.p., four-cylinder, four-cycle engine, which, it is said, drives the boat at the extremely good speed of 18 miles per hour. This speed is partly ascribed by the makers to her engine, and partly to the special lines given her by the naval architect. The motor is accessible by means of hinged hatches. A spray board forward of these hatches serves to prevent any water from finding its way into the engine compartment, and an air scoop provides ventilation for this section. The boat measures exactly 21 feet in length by 5 feet beam.

This tender was designed for a southern yachtsman by Morris M. Whitaker under suggestions from the makers. She is powered with a Fay & Bowen engine.

These makers also put out a sturdy family runabout somewhat similar to the yacht tender just described, although the runabout has a length five feet greater and is powered with a larger engine. In this runabout a high sustained speed is guaranteed by the makers, although no attempt has been made to sacrifice comfort for the sake of speed. In building this stock runabout, the chief consideration has been to supply at reasonable cost a craft which will do both purchaser and builder credit, not only when the outfit is new, but for many years. The boat is framed of the best white oak and is planked with southern white cedar, copper-riveted over copper burrs, and her top and interior work is all of the best mahogany, counter-bored and plugged.

The cockpit is roomy, seating several people on thwartship seats, and the motor is installed under the forward deck. Her power equipment consists of a four-cylinder, four-cycle, 20-35 h.p., Fay & Bowen engine integral with a multiple-disc reverse gear also of this firm's own manufacture, and the craft is completely equipped. The equipment is included in the initial purchase price. Her measurements are 25 feet 11 inches overall and 5 feet beam, which keeps her within Federa regulations.

A Raised-Deck Cruiser for Mexico.

To Be Used for Pleasure and Business Purposes in Tampico When Conditions Warrant. Having Sleeping Accommodations for Four, and Cockpit Taking Six or Eight Easy Chairs.

THIS 30-foot, raised-deck cruiser was designed and built by the Camden Anchor-Rockland Machine Company, of Camden, Me., for Mr. T. D. Warden, of New York City, to be used for pleasure and business purposes in Tampico, Mexico. She has a 7-foot beam with freeboard forward of 4 feet 3 inches, and 2 feet 4 inches at the stern. Her 20-35 h.p., Sterling motor is located in the forward end of the cockpit, the fly-wheel projecting into the cabin, and the motor is protected by a folding mahogany cabinet. The cabin has extension seats, giving plenty of room for four people to sleep. The cabin is finished throughout in mahogany and the cushions, floor covering and draperies are all dark green. The toilet is located in the bow. The cockpit is arranged to accommodate six or eight chairs and has a large lazy-back seat in the stern.

The framing is of Maine oak, and the planking of Maine cedar, with fastenings of copper and bronze.. Although not shown in the photograph, the boat was fitted with six polished brass port lights, and the cockpit was covered with a standard awning before shipping. She was sheathed with yellow metal 6 inches above the waterline.

This cruiser is one of this company's stock boats. Owing to the size and roominess of her cockpit she is considered an exceedingly good boat for such work as taking out parties or using for ight commercial purposes in semi-protected waters.

Reeling of the required speed of 15 miles on her trial trip in Camden Harbor. Subsequent to the taking of this picture the cruiser was fitted with six port lights, cockpit awning, and a sheathing of yellow metal six inches above the waterline.

Helpful - Hints For Motor Boatmen

Hold Your Face
Clear of the spark plugs when listening for sounds.

* * *

Voltage Readings
Should only be taken when a storage battery is charging or discharging.

* * *

Broken Down Insulation
Will sometimes cause a loss of battery current or produce erratic operation.

* * *

If the Engine
Should start but suddenly die down, try depressing the float in the carbureter.

* * *

Remember
That dry cells should be tested for amperage and storage batteries for voltage.

* * *

Petroleum Jelly
Which is commonly known as vaseline is an excellent lubricator for timers.

* * *

When Piping
Be sure and use plenty of unions. A union on each end of a pipe is good practice.

* * *

Don't Tinker
With the carbureter every time the engine runs poorly—perhaps the battery is weak.

* * *

A Check Valve
Is necessary between the carbureter and the engine on two-port motors, but not on three-port engines.

* * *

Never Search
For a gasoline leak with a naked flame. Use an electric light or else reflect light with a mirror.

* * *

A Small Spring
Such as is used for the carbon brushes in magnetos may be strengthened by drawing it out a little.

* * *

A Fuel Soaked
Cork float should be dried out in the sun or warm oven and then given three coats of the best shellac.

* * *

Soft Leather
Is good material for gaskets for the unions of the circulation water pipes, but steam packing material is better.

* * *

Denatured Alcohol
Is a very efficient decarbonizer for gasoline engines. Best results are had by using it when the engine is hot.

* * *

Carbureter Trouble
May be due to a loose intake manifold, allowing thinning down of the mixture, as air will be drawn in through the joints.

* * *

Exhaust Pipes.
Stove blacking presents a very neat appearance and proves a serviceable coating for the exhaust pipe near the motor where it overheats.

* * *

Cold Chisels
Are sometimes useful to start nuts which are difficult to reach with a wrench, but otherwise this method should not be resorted to.

* * *

A Broken-Down Coil
Or one in which the insulation is defective or water soaked, allowing internal leaks and sparking will first cause misfiring and then become useless.

Hack Saw Blades
Are very useful in removing piston rings. The best number to use to hold the rings free from their grooves is three, placing them 120 degrees apart.

* * *

Never Salute
In close quarters by sounding three blasts as this signal also means "my engines are full speed astern," and if they are not a collision may result.

* * *

Have You a Good Mixture?
With a good mixture any advance in the spark will produce a noticeable acceleration in the motor. Therefore, if there is no change in the speed the mixture is at fault.

* * *

Exhaust Piping.
When piping the exhaust use one size of pipe. Never reduce the size of the pipe as this is apt to result in back-pressure in the cylinders and decrease the motor's efficiency.

* * *

Leaks in the Water-Jacket.
Water-jacket leaks may be stopped by a rust-making solution composed of one-half pound sal-ammoniac to one gallon of water, letting this solution remain in the jacket ten or twelve hours.

* * *

A Good Iron Cement
To fill cracks in the water jacket is made of iron borings, sal-ammoniac and sulphur made into a paste by adding fresh water. This compound proves an effective and permanent remedy.

* * *

When An Engine
Is installed below the water line with under-water exhaust it will not run well unless the exhaust pipe is carried above the waterline and an air valve or relief cock placed at the highest point.

* * *

Placing a Mooring.
After placing a mooring in position, heave the mooring line short and take a couple of bearings. Better make a sketch of the bearings; then, if the buoy is cut off or sunk by a passing craft, the mooring may be easily located.

* * *

Overheated Bearings
Should be cooled by liberal oiling. A little flower of sulphur mixed with the oil is often effective for yellow metal bearings, but this compound should not be used on white metal or babbitt bearings as the sulphur abrades these anti-friction metals.

* * *

When Priming
The cylinders to facilitate starting, do not fill the priming cups and allow the gasoline to seep into the cylinders, but open the cocks first, insert the nozzle of the priming can and then forcibly inject the gasoline. This has a tendency to atomize the gasoline and produce a quicker and better mixture.

* * *

New Dry Cells
Should have a voltage of 1½ volts. About 6 volts are required for the proper working of the average coil. Thus it is necessary to use at least four cells connected in series, which consists in joining positive pole of one cell to negative pole of the next cell. Dry cells registering less than 8 amperes should be replaced by new ones.

* * *

Painting the Engine.
Before painting an engine remove all oil and grease with gasoline with the aid of a stiff paint brush, then after the engine has dried give the old enamel a good sandpapering and then dust the motor with a dry brush.

Battery Out of Service.
When a storage battery is to be out of service for any length of time, it should be charged once every two months, and the plates should be kept covered by adding water as it evaporates. Should the battery go for a long time without recharging, care should be taken when it is charged that it is done slowly and by an expert.

* * *

Four-Point Bearing.
The distance a boat is off a visible object such as a lighthouse, buoy or point of land may be closely estimated by a simple method which is known as a four-point bearing. Example: Suppose you are running at a speed of six miles per hour and you sight a buoy four points on your port bow. Holding your course you find the buoy bears eight points or is abeam at the end of ten minutes. From this you know that the buoy is one mile distant, as the distance run equals the distance to the buoy.

* * *

Making New Electrolyte for Storage Batteries.
Electrolyte for storage batteries may be made by mixing chemically pure sulphuric acid and distilled water in the proportion of about two parts of acid to five parts of water. In making this solution, remember that the acid must always be poured into the water, as if the process is reversed an explosion will ensue which may cause the loss of the operator's eyesight. Any acid-proof vessel, such as glass or earthenware may be used, after it has been thoroughly cleaned, and the solution after mixing should be allowed to cool before it is used.

* * *

Cylinder-Head Gaskets.
To make a gasket for the cylinder-head easily, the head should be placed on a work bench or other suitable support, and the old gasket scraped off so that both the cylinder-head and corresponding part on cylinder will be left entirely free from any foreign substance. Next place a piece of 1/32" asbestos paper or other suitable material on the head and cut same to coincide with the head by gently tapping the packing with a machinist's hammer, using the round nose for the stud and other interior holes, and the flat face of the hammer to cut out the exterior of gasket. Gaskets of this nature should be given an even coat of shellac, which will cause them to adhere to the cylinder while the top surface should be coated with oil and flake graphite which not only insures a perfectly gas-tight joint, but allows the easy removal of the cylinder head without damage to the gasket.

* * *

The Art of Filing.
Since it looks easy the average amateur thinks that the easiest job which a mechanic has to do is filing, when the fact is that a properly done filing job is one of the hardest. No man can file truly flat, but by paying a little attention to the way the hands are held on the file a "flat-enough" surface can be obtained. In beginning a stroke a little extra pressure should be applied to the end of the file nearest the metal on which you are working, and this pressure should be gradually diminished until at the end of the stroke there is a noticeably greater pressure on the other end of the file. The reason for this is that if equal pressure is applied with both hands the file will serve as a lever for which the object being filed is the fulcrum, with the result that there being greater leverage at the long end than the short, the file will slant down at that end and so give a rounded edge. By exerting greater pressure on the short end of the file, as above stated, the file will lie more nearly flat, and a better job will be executed.

Edgewater Motor Boat Club Regatta.

On July 12th, in conformity with the schedule of the Hudson River Yacht Racing Association, the Edgewater Motor Boat Club, of Edgewater, N. J., will hold an open regatta to the members of the H. R. Y. R. A. A handsome prize to each of four classes will be awarded. The races will be under the rules and direct supervision of the regatta committee of the racing association, and the Edgewater club extends a cordial welcome to all the clubs of the organization.

City Island Y. C. Club Expectations.

The City Island Yacht Club is looking forward to a very successful season, as many races have been arranged by the committee. Two events to which the members are looking forward with a great deal of pleasure are a visit from Sir Thomas Lipton, who is a life member of the club, and the annual cruise of the Waterway League. The City Island Yacht Club will be the rendezvous of the league. The rival speed boats of the Club, Le Core and Result, are now in commission and some interesting brushes may be seen.

Nyack Boat Club Joins H. R. Y. R. A.

At the last meeting of the Nyack Boat Club the following officers were elected to hold office for the ensuing year: Commodore, Wm. C. Dyker; vice-commodore, Henry Doersch; rear commodore, Louis V. Cooper; financial and recording secretary, John T. North; treasurer, Wm. H. White, and measurer, Leslie C. Robertson. The club's new building is nearly completed now, and it occupies a fine position on the river front, just south of the ferry landing, making a very desirable landing place for cruisers. The club has joined the Hudson River Yacht Racing Association, and a lively entertainment and regatta committee are planning a clam bake to be held at Croton Beach on July 4th. A dance was given last month at which the club's orchestra played.

Fulton Motor Boat Club Holds Annual Election.

The Fulton Motor Boat Club, of New York, held its annual election recently, when the following men were elected for the ensuing year: Commodore, Richard Heinrichs; vice-commodore, H. H. Stansbury; rear commodore, P. Peterson; treasurer, A. Bernins; secretary, J. Kellener; board of governors, L. Amberg, J. Schlenker, C. Frelloehr, J. Spiro, H. C. S. Stimson and C. Schmidt. In the future on the club's dock, at 138th Street and the North River, weather signals will be displayed from the flagstaff for the benefit of small boats, Mrs. Jack having been designated by the U. S. Weather Bureau as signal-woman.

Handicap Cruiser Race.

The Delaware River Yacht Racing Association has announced a long-distance race which has been sanctioned by the Racing Commission of the A. P. B. A. under the title of Handicap Cruiser Championship, Camden to Baltimore. The start will be from the Camden Motor Boat Club on Wednesday, July 22nd, and the race, which will be run under the rules of the American Power Boat Association, will be open to boats divided into two classes—cruisers of not less than 43 feet overall length, and cruisers of not less than 30 feet overall length and under 43 feet. Entries to this race must be made in writing to the secretary of the regatta committee not later than noon, July 20th, and all inquiries should be addressed to the secretary, Mr. S. C. Delanater, 1006 Pennsylvania Building, Philadelphia, Pa.

Pistakee Y. C. Doings.

The Pistakee Yacht Club, of Pistakee Bay, Ill., announces a very full schedule of events for the summer season. Fourth of July will be a very busy day with motor boat and sail boat races, swimming events, etc., and races are down for practically every Saturday following, up to September 5th. There will be dances and other indoor entertainments at frequent intervals.

Cornfield Light Ship Race.

Interest hereabouts is now centering in the Cornfield Light Ship and Return race which the Colonial Yacht Club, of New York, will start on July 4th. This race is run over a course 210 statute miles in length for the Cyprian C. Hunt trophies, and it is open to cruisers not less than 25 nor more than 50 feet overall length. The start will be from off the Colonial Yacht Club (north of 138th Street, on the Hudson River), between the Regatta Committee boat and a stake flag on the southerly end of the club float. Entries will be received not later than 4 p.m., July 1, and any inquiries should be addressed to the secretary of the regatta committee. Following is a list of other races scheduled for this summer by the Colonial Yacht Club: July 4th, Ladies' Race—open; July 5th, Entertainment Race—open; July 18th, Rockland Light Race—club; August 1st and 2nd, Poughkeepsie Race—open; August 16th, Bang-and-Go-back Race—club; August 29th, Around Manhattan Race—club.

Eastern Star, which at the recent opening of the racing season of the Columbia Yacht Club won the first event over a 10-mile course in 0:35:443. She is powered with a 40 h.p., 4-cylinder Loew-Victor motor.

Reliance Peter Pan Makes New Record.

At the inauguration of the racing season of the Columbia Yacht Club, North River, the feature of the races was the performance of the displacement boat, Reliance Peter Pan, which, though overboard only a week, set up a new record for the thirty-mile course from 86th to Ardsley and back, covering the distance in 1:05:30.

Class 1, Division 1.—Distance, 10 miles.

Boat—	Start. H.M.S.	Elapsed Time. H.M.S.	Corrected Time. H.M.S.
Eastern Star	2 15 00	0 35 43	0 35 06
Firenze	2 15 00	0 51 55	0 51 55
Bunk III	2 15 00	1 11 03	0 55 56
Class 2, Division 2.—Distance, 30 miles.			
Reliance Peter Pan	2 40 00	1 05 30	1 05 30
Senorita, Jr.	2 35 00	1 34 29	1 13 04
Class 2, Division 1.—Distance, 30 miles.			
Adelaide	2 35 00	1 40 17	1 40 17
Alene III	2 35 00	Did not finish.	
Class 3, Division 2.—Distance, 10 miles.			
Vanguard	3 00 00	0 44 12	0 42 17
Squaw II	3 00 00	1 13 12	1 13 12
Class 3, Division 1.—Distance, 10 miles.			
Fabius	2 55 00	0 59 11	0 57 59
Respite	2 55 00	1 12 08	1 00 09
Vic IV	2 55 00	1 19 47	1 04 30
Gracie B	2 55 00	1 14 36	1 06 11
Francis H	2 55 00	1 10 35	1 07 49
Cele	2 55 00	1 16 27	1 07 54
Alforida	2 55 00	1 16 42	1 10 08
White Swallow	2 55 00	1 45 50	1 27 11
Isis	2 55 00	1 28 50	1 28 50

New Things For MOTOR Boatmen

Trebert Rotary Motor.

Henry L. F. Trebert, of Rochester, N. Y., has brought a new type of motor which is described as a four-cycle valveless reciprocating rotary engine. This motor requires no flywheel, as the whole engine revolves and acts as its own flywheel. There are no poppet valves, camshafts or cams, pushrods, springs, timer, or manifold, and a one-cylinder magneto with double breaker is used on both the four and six cylinder types, the only wiring necessary being one wire about 2 feet long from the magneto to a master plug. Vibration is said to have been reduced to an absolute minimum, and the oiling system is simple and reliable. These engines are built with either air or water cooling system in sizes ranging from 10 to 300 h.p.

* * *

Olson Putty Plane.

The Olson putty plane, manufactured by the A. E. Olson Company, Holton, Mich., is a simple device designed for use by boatmen, carpenters, and painters, for filling cracks and seams with putty, cement, floor filler, etc. In operation the tool is pressed into the mixture for filling, and then used like a plane over the crack or seam, with a heavy downward pressure on the handle and a lighter pressure on the center, leaving the seams evenly filled and smoothed off. These planes which are made of first class material and are easy to keep clean are sold for $1.

* * *

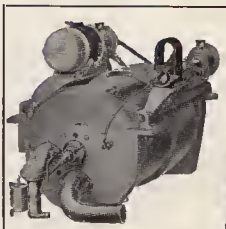
Sankey's Metallic Lifebuoy.

Joseph Sankey & Son, Ltd., Bilston, England, manufacture the Sankey corrugated metallic lifebuoy which is shown in the accompanying illustration. These buoys are made of 24-gauge or 16-oz. copper with a die, and stamped (each half) out of the sheet in male and female sections. The joints, on the outside and inside edge of the buoy, are made by fitting the one into the other and clinching them over to form double hook joints. The seams are then soldered. The buoys measure about 29¼ in. outside diameter, and 14¼ in. inside, while the diameters of the elliptical tube are 5¼ x 4¼ inches over the corrugations. These buoys, which are one-third lighter than cork, are said to be strong enough to bear the weight of a man when being hauled out of the water by one of them. They need practically no attention except an occasional coat of paint, and are guaranteed to float for 24 hours in fresh water with 32 pounds of iron suspended from them.

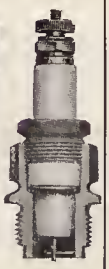
* * *

The W. T. Co. Bucket.

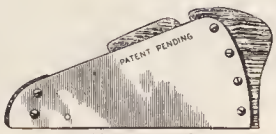
The Whitall Tatum Company, 46-48 Barclay Street, New York City, manufacture a collapsible bucket which is made of fine maroon rubber, cloth lined, and which has a capacity of 1½ gallons. The bucket, which should prove itself of value around a boat because of the little room it occupies when folded up, has a reinforced center to stand heavy strain, double corners and bottom to prevent leaks, and strong handles. There are no braces or mechanism to get out of order and no frills or extras—the bucket is made for service. As it is shaped to pour cleanly, it is unnecessary to have a spout or funnel with this bucket. The price is $1.25.



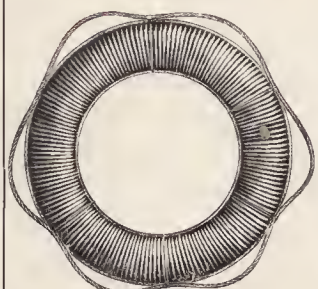
Six-cylinder Trebert rotary motor.



Auto-Marine Spark Plug.



The Olson putty plane.



The Sankey corrugated metallic lifebuoy.

The W. T. C. collapsible bucket has a capacity of 1½ gallons.

Detroit Glass Minnow Tube.

The Detroit Glass Minnow Tube Company, of Detroit, Mich., are manufacturing a new fishing device consisting of a glass receptacle that houses a live minnow, and has attached to it four hooks. The glass tube magnifies the minnow two or three times its size. It affords free circulation of the water and keeps the captive alive all day, no matter how many times it may be cast. The tube is so designed and made that it will meet the least of atmospheric resistance when cast, while it is said to prove irresistible to the wariest fish when trailed through the water. When you are through fishing for the day the minnow may, as it rightly should, be returned to the water, since it has not been injured by impalement on any hook.

* * *

Auto-Marine Spark Plug.

The Auto-Marine spark plug is made by automatic machinery, and, according to the makers, the Auto-Marine Supply Company, of Atlantic City, N. J., it is only owing to the large number manufactured that they are able to sell this plug at the reasonable price of 50 cents. German porcelain of the best quality and nickel sparking points are used in the construction of this plug, which is easily taken apart for cleaning purposes. The base of the plug provides electrodes so positioned that they present a round surface to the action of the spark, absolutely eliminating, it is said, pitting of the electrodes, thereby prolonging their life, and producing a uniform spark at all times.

* * *

Prentiss Kitchenettes.

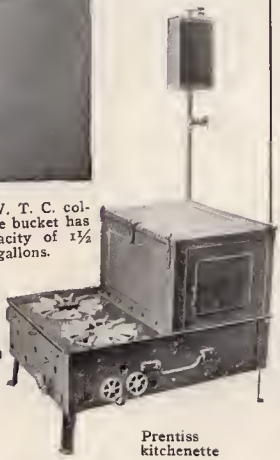
The Prentiss Manufacturing Company, of Racine, Wis., specialize in portable kitchenette outfits suitable for the use of motor boatmen. These are made in various sizes and in addition to the necessary cooking utensils a folding gasoline stove forms part of the equipment, which is completed by plates, cups, spoons, knives, and forks, etc. An outfit for six persons measures 17½ inches high, 28 inches long and 12 inches wide. The case is made of steel in black, and with imported enamel ware this outfit costs $37.50. Other kitchenette outfits have white enameled interiors with aluminum utensils.

* * *

Sta-tite Piston Rings.

The Piston Ring Co., of Muskegon, Mich., make a piston ring which they say insures perfect compression and lubrication, increased power and fuel economy, and elimination of carbon troubles. The "Sta-tite" ring is composed of three rings—an inner ring and two outer ones—and the slots in these rings are staggered and held in position by pins so that there is no opportunity for gases to find their way through the slots, while the pins keep them from lining up. By having the rings staggered in this way at three equal intervals the pressure is more evenly divided, with the result that the wear in the cylinder is true and round. The metal used in these rings is a few points softer than the commercial cylinder material so that whatever wear there is, is taken up by the rings, which then automatically change themselves to fit conditions.

The Detroit glass minnow tube.



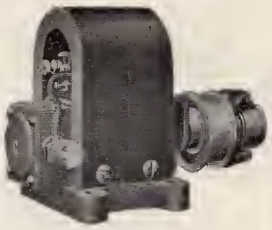
Prentiss kitchenette

The three-piece Sta-tite piston ring.


Nathan Comfy cushion.

The Wiard Speedler.

Strelinger Boat-Drive.


The Eureka lighting geerator is of the permanent magnet type.

Durkee's Specialties.

Among the many things recently introduced by C. D. Durkee & Co., New York, are a brass bitt with self-contained bowlight, the new Crescent ammeter and voltmeter, Crescent alcohol yacht ranges, fog horns, etc. The bitt does double service for it provides a well-protected rest for the bowlight as well as doing work in its regular line. It comes in galvanized iron or bronze. The Crescent ammeter and voltmeter registers 1 to 30 amperes, and ½ to 8 volts in ¼th divisions. The horn shown in the accompanying cut is made of galvanized iron with brass reed and wood mouthpiece and is provided in various lengths.

* * *

The Lebby Searchlight.

The Lebby Engineering Company, Charleston, S. C., has recently produced a new searchlight for use with the Lebby No-Automatic lighting system. Used in this light is a nine-inch crystal glass parabolic reflector, mirror-finished and copper-plated for better penetration of fog, and the reflector is mounted in a heavy brass shell with pivots set slightly above the center of gravity of the lamp body to keep the lamps steady regardless of vibration. All parts are simple and sturdy, and the outside focusing nut and easy control make the light very practical. With deck control it sells for $22.

* * *

Eureka Lighting System.

The Henricks Novelty Company, of Indianapolis, Ind., is now marketing the Eureka lighting outfit, consisting of a Eureka generator with automatic cut-out, a governor control and storage battery. The generator keeps the battery fully charged at all times and the current supply for ignition and light is taken from the battery. However, the capacity of one size BC 1 (for instance) is sufficient to furnish a total of 52 c.p., and it is possible to carry the light-load directly with the generator if necessary.

Tourist Multiple Camera.

Herbert & Huesgen Company, of New York City, have recently perfected a camera which they state is ideally adapted for tourists, travelers, and all others who desire to obtain an instrument with which they may make a complete and consecutive photographic record of any undertaking. The Tourist Multiple Camera, as it is called, is so compact as to fit in an overcoat pocket, and yet it is loaded for 750 exposures on one film, the cartridge used being an Eastman moving picture reel, fifty feet in length and taking negatives measuring ¾" x 15/16". The operation of the camera is practically automatic as it is only necessary to move a conveniently placed lever up and down to set the shutter, wind the film and register the exposure number. By means of a projection instrument which is part of the equipment, it is possible to throw pictures taken by this camera on a screen at home to any size from two to ten feet, a positive having first been taken from the negative.

* * *

Comfy Cushions.

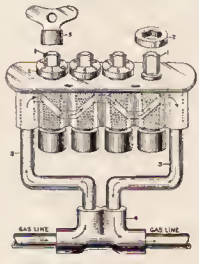
Comfy cushions, manufactured by the Nathan Novelty Company, 84 Reade Street, New York City, are filled with specially imported non-absorbent vegetable fibre, soft and downy, and are covered with high-grade Spanish fabric leather in green, brown or maroon. They are guaranteed to have four times the buoyancy of cork and to keep the heaviest person afloat in the water for 48 hours. The regular price of these cushions is $1.50 each, but special club prices are also listed.


Multiple Tourist Camera.


J-M Mobilite electric lantern.


Durkee fog horn.

Old Sol Storage battery.


Lebby Searchlight for use with the No-Automatic lighting system.

The Security Auto Lock.


Finch-E-Conomizer.

Strelinger Boat Drive.

The Strelinger Portable Boat-Drive, manufactured by the Strelinger Marine Engine Company, of Detroit, Mich., is an outboard motor of a new type, inasmuch as the propeller turns on a straight shaft direct-connected to the crank-shaft without the use of bevel gears. The boat-drive comes in 2 and 5 h.p. sizes and is made in three parts consisting of the frame, motor and gasoline tank. The frame comprises the base, shaft tube, propeller and stay rods, while the motor is a stock one, which has been made by this concern for several years. The fuel tank is detachable for ease in filling.

* * *

The Wiard Speedler.

This device, which is distributed by the Bresler-Wallace Sales Company, of 1031 Dime Bank Building, Detroit, Mich., is automatically regulated by the heat of the motor. Attached to the intake manifold close to the carbureter, the air admitted is regulated by a thermostatic blade which, when heated, raises a mushroom valve from its seat, breaking up the particles of gasoline, and ensuring a perfect mixture and maximum expansion. When the motor is stopped and cools off the blade returns to its normal position, allowing the former to be started on its regular mixture. The cost is $4.

* * *

J-M Electric Lantern.

The H. W. Johns-Manville Company, New York, have just put on the market a new electric lantern which operates on regular dry cells. This lantern, called the J-M Mobilite electric lantern, overcomes the usual difficulty in securing the proper size batteries, for it uses standard ignition cells, on two of which, it is said, it will burn intermittently for 150 hours. It is fitted with a tungsten bulb of especially low amperage and a specially designed parabolic reflector, with which combination it is claimed that objects are made remarkably brilliant at a distance of 150 feet.

* * *

Old Sol Lighting System.

The Old Sol electric lighting system for operation on a storage battery is put out by the Hawthorne Manufacturing Company, Inc., 44 Spruce Street, Bridgeport, Conn. This outfit which lists to sell at $25 complete, consists of a large Old Sol search lamp either nickel-plated or brass-finished with a substantial swivel tilt bracket for deck or bulkhead; a 6-volt, 60-ampere hour storage battery constructed to prevent leakage of acid, one switch and ten feet of wiring.

* * *

Security Auto Lock.

The Security Auto Lock, manufactured by the Security Auto Lock Company, of 1733 Broadway, is a simple device intended primarily for use on motor cars, but which serves as well for installation of motor boats to prevent theft of the boat by cutting off the flow of fuel. The lock, the construction of which can be seen from the accompanying illustration, is installed in any convenient place in the gas line.

* * *

Finch-E-Conomizer.

The J. H. Finch Company, of Boston, Mass., have introduced a device which is designed to save gasoline by so purifying it before it enters the carbureter that the fuel on entering the motor is entirely consumed at each explosion. Provision is made for cleaning out water or dirt which may have accumulated. The cost of the device is $5.

YARD AND SHOP

The motor yacht Florence, the largest vessel of this type now afloat.

A 35-Footer from Auckland, N. Z.

One of the accompanying photographs illustrates a cruiser built by Mr. Charles Bailey, Jr., of Auckland, N. Z. The dimensions are 35 x 7 feet, built from a single skin of ¾" Kauri planking. This cruiser has an 8-foot 6-inch cabin with glass sides, fitted with locker bunks and cushions, and a large cockpit 10 feet in length fitted with lockers under the seats. She is equipped with a Loew-Victor engine.

* * *

Efficiency Metal Products Co.

The address of the Efficiency Metal Products Co., whose automatic ice saver was described on page 34 of our June issue was erroneously given as 220 W. 30th Street. The correct address of this concern is 242 W. 42d Street, New York City, and persons desiring information relative to their tube shelving should write to this address.

* * *

Willard Storage Battery Company to Establish European Branch.

Mr. H. C. Norberg, Assistant General Manager of the Willard Storage Battery Company, of Cleveland, Ohio, has sailed for Europe, where he will arrange for the establishment of a main branch of the Willard Storage Battery Company and institute service stations in the larger European cities. The company's foreign business has increased rapidly in the past two years, so during his stay Mr. Norberg will visit several existing connections, manufacturers and dealers who are handling or using Lead storage batteries.

* * *

Carload of Machinery.

At the beginning of the year the Michigan Wheel Company, of Grand Rapids, Mich., had shipped to them a carload of machinery to facilitate in the manufacture of reverse gears, propeller wheels and other accessories, so that they would not have to run a night gang. It is stated that for several years back they have been obliged to do this, but the installation of the new machinery has enabled them to discontinue this practice as well as keep up with their increasing business and make prompt shipments. This year, it is said, they have been crowded with orders and have had to double their force.

* * *

B. F. Brown Joins Frisbie Motor Co.

B. F. Brown, of New York, has become associated with the sales organization of the Frisbie Motor Co., of Middletown, Conn., and is at the present time on the road for the firm. Mr. Brown is well conversant with the various phases of the motor boating business and is an old hand at the game.

* * *

Mission boat built for the Rev. C. E. Whittaker, for the purpose of converting the Eskimos. The boat is powered with a 26-30 h.p., Buffalo.

"Langley's Folly."

Piloted by Glenn H. Curtiss and driven by the power of the first gasoline motor ever used in an aeroplane, Langley's famous old aerodrome flew recently for the first time in its history. Eleven years ago this aerodrome made two unsuccessful trials, in the second of which it was wrecked so badly that Dr. Langley could get no one to further finance him with his experiment, with the result that the machine was moved to the Smithsonian Institution, where it has since reposed as a curiosity recalling the first attempts of man to fly. The aerodrome is still a curiosity, but it is more than that, for with an added weight of 340 pounds in the form of pontoons and other fittings it rose from the water before Mr. Curtiss was ready, and sailed for some distance, thus finally vindicating the unsupported belief of the inventor.

* * *

Duluth Office of H. W. Johns-Manville Co. Moves.

The Duluth office of the H. W. Johns-Manville Co. has moved to larger quarters at 327 W. First St., in order to take care of its increased business. The new office is on the ground floor, with windows for the display of J-M asbestos roofing, pipe coverings, packings, sanitary specialties, automobile accessories, and other products of this company's varied lines.

* * *

Portable Boat-Houses.

Mach & Relcelle, Inc., 15-25 Whitehall Street, New York City, have been appointed export and eastern representatives of the American Portable House Co., of Seattle, Wash., who manufacture various portable buildings of which their boat-houses will have the most interest for motor boatmen. Weights, measurements and any other information that may be desired will be furnished by this concern on request.

Margo II.

In reply to those who have requested the name of the builder of Margo II, illustrated with several photographs on page 18 of our last issue, we take this opportunity to say that the boat was built by the Mathis Yacht Building Co., of Camden, N. J.

Wisconsin Motors at the London Show.

At the recent Aero and Marine Exhibition—one of the largest motor boat and accessory shows in the world, which is held annually at the Olympia, in London, England—the booth of the Wisconsin Machinery & Manufacturing Co., of Milwaukee, Wis., attracted unusual attention. A complete line of Wisconsin row-boat motors and Wisconsin valveless marine motors and the stationary type were on exhibition. In the detachable stationary type were on exhibition. In the detachable the stationary type were on exhibition. In the detachable the 2 h.p. and the 3½ h.p. were shown and created a great deal of favorable interest and comment. Many well-known marine engineers, it is reported, commented most favorably on the design, workmanship and material of the Wisconsin detachable row-boat motors, and a large number of sales were made. The Wisconsin Company was represented directly through its New York export agents, Markt & Hammacher Co. Those in charge of the exhibit expressed themselves as being delighted with both the impression created and the sales made during the exhibition. The accompanying cut shows the complete exhibit of these marine motors and outboard motors.

* * *

Moves to Larger Quarters.

The New York service depot of the Philadelphia Storage Battery Co., of Philadelphia, Pa., has yielded to the demands of a growing business and removed to larger quarters at 651-655 W. 43rd St., New York City, where it occupies the entire ground floor. The plant has been considerably enlarged with modern equipment, and it is devoted exclusively to the construction, repair, recharging and sale of storage batteries and supplies. The station is operated by W. L. Thompson, of 1780 Bway., N. Y. City.

Booth of the Wisconsin Mach. & Mfg. Co., at the London Aero and Marine Exhibition.

Establishment of Webb & son Co., Philadelphia agents for the Caille line.

The "Smile" Direct-Connected Generator.

In the article, "Gasoline-Electric Lighting Plants," on pages 6 and 7 of the June issue, the "Smile" lighting set, manufactured by R. S. Mills, 136 Liberty Street, New York City, was among those illustrated, although the caption for this cut was inadvertently omitted. The "Smile" set, which is a very compact affair carrying with it air and water circulating pumps is on the right hand side of page 7 (June issue), the third picture from the top.

* * *

Willard Storage Battery Co.'s Detroit Branch.

Through its branches and service depots the Willard Storage Battery Co. has gone to great lengths to afford its patrons the best possible attention to every demand occasioned by the use of the storage battery. Perhaps the utmost in this service has been attained at the Detroit branch, at 736, 738 and 740 Woodward Avenue, where from eight to ten thousand batteries and a complete assortment of repair parts of every description are carried in stock. The facilities here are so adequate that complete batteries can be built should the occasion require. All repairing and charging facilities are of the most up-to-date description, and forty-six charging stations are required to take care of the demand at this branch.

L. R. Pomeroy, appointed manager of the New York office of the U. S. L. & Heating Co.

The front part of the building, which in its entirety occupies ten thousand feet of floor space is given over to the general offices, and the private office of Mr. M. G. Hillman, branch manager, while the stock room, the charging room and the service station are in the rear. At the extreme rear of the building, approached by three well paved alleys furnishing ready admittance from three streets, is the company's service station for the use of its transient patrons. The shipping and receiving department is sufficiently extensive to admit the entrance of two or three large trucks at a time, and the labor of handling batteries has been reduced to a minimum.

* * *

Morristown Boat & Engine Works Appoint New York Agent.

The Morristown Boat & Engine Works, of Morristown, N. Y., have appointed Mr. Gruver C. Kirchhof, of 136 Liberty Street, New York City, their sales agent for the New York territory. Mr. Kirchhof, who will have on display the complete line of this company's motors, has been interested in boating matters since his early days.

* * *

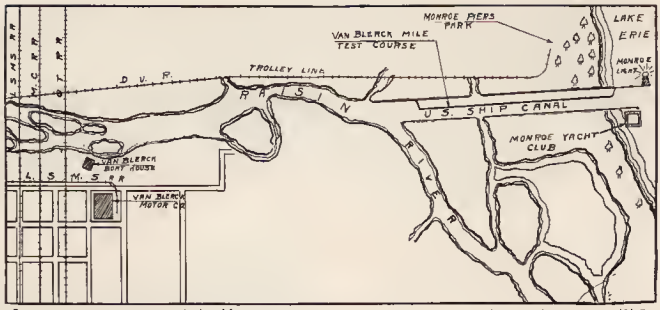
San Francisco Sales Agents for Buffalo.

The Buffalo Gasoline Motor Co., of Buffalo, N. Y., has announced the appointment of the Columbia Machine Works, 215 Shear St., San Francisco, Cal., as sales agents for Buffalo marine engines in San Francisco and vicinity. The firm will be supplied with a representative stock of engines and will continue the Buffalo repair service. The branch office at 23 Main St. has been discontinued.

* * *

A Missionary's Motor Boat.

A 45-foot auxiliary sloop powered with a 20-30 h.p. Buffalo heavy-duty engine is to be used by the Rev. C. E. Whittaker, a Church of England missionary stationed at Herschel Island, in the Beaufort Sea, in an effort to reach the tribe of "blond" eskimos recently discovered on the islands off the mouth of Coppermine



Motor boat speedway of the Van Blerck Motor Co., in the River Raisin at Monroe, Wis.

River. The boat has just been completed at the plant of Watt & Sons, Collingwood, Ont., and Mr. Whittaker will take her to the Arctic by way of the Great Slave Lake and the MacKenzie River. The boat has been named Atkoon, which in the Eskimo language means "torch bearer," or "one who carries a light." She is 45 feet in length overall, with 11 feet beam, and is equipped to operate on kerosene.

* * *

Photographs of New Boats.

Credit for the photographs of the new boats in this issue of MOTOR BOATING is given to the following: Ensign and Judy VI to N. L. Stebbins, Boston, Mass.; Sapphire to Brown and Dawson, Stamford, Conn.; Capt. Jack, Drusilla, Amalia II and S. O. S. to Edwin Levick, New York City; Edithina, to M. Rosenfeld, New York City; Valeria and Niagara to the Korb Photograph Co.; Toledo, Ohio; Vioia II and Nahmeoka to J. N. Penree, Philadelphia, Pa.

* * *

A Fast Family Runabout.

The accompanying illustration shows a fast family runabout, designed by the Everett Hunter Boat Company, of McHenry, Ill. The hull is 30 feet in length by 5 feet 6 inches beam. The power plant is a 6-cylinder Van Blerck motor, built by the Van Blerck Motor Company, of Monroe, Mich. A speed of 23 miles an hour is estimated. The hull has white oak frame and keel, carefully fitted and riveted together. The frames are mortised into the keel, every third or fourth one running through from rail to rail, thus adding greatly to the strength without increasing the weight. The ribs are ⅝ by ⅞ inches placed 6 inches apart. Planking is ⅝ inch white cedar on the bottom, and ½ inch above the water line. Each piece of planking is fastened to the ribs with screws, more than 6,000 of them being used. The engine bed construction is practically rigid, the stringers running the entire length of the hull.

The interior arrangement provides for one large seat in the rear end of the cockpit. The gasoline tank is installed aft of this in such a manner as to be entirely out of view, and connected to the motor by seamless tubing, with the necessary number of stop cocks. Forward of the engine compartment is a water tight bulkhead, and another one aft of it, the latter one being constructed of mahogany. The steering wheel is mounted on the aft bulkhead in such a position as to be convenient when reclining in the front seat. The front seat is cut in two, to allow a passageway from the front of the boat to the space aft, which is reserved for chairs.

The side light boxes, search light, running lights and electric horn are all properly positioned, and their controls within easy reach of the helmsman. An automobile top, of the best mohair, covers the entire cockpit. The mahogany interior and decks are finished in natural color, varnished with spar varnish and rubbed to a piano finish. The outside is finished in white, varnished with white marine enamel above the water line; the bottom is a rich bronze green.

The power plant is a model B-6 Special, intermediate-speed Van Blerck motor, rated at 1,000 r.p.m., developing 77 brake horse power according to the guaranteed horse power curves, published by the company.

* * *

Latest Extension of Durkee Factory.

C. D. Durkee & Co., 2 and 3 South St., New York City, announce the opening of a new addition to their factory at Grasmere. The new building which measures 125 x 40 is two stories high, and marks the third addition which has been made to their plant.

* * *

Floating Supply Station for Cleveland.

The Motor Boat & Supply Co., of Cleveland, Ohio, have just opened a floating marine supply station, on which they will carry a complete line of supplies, together with oils and greases — practically everything that is required by yachtsmen. This station should prove a great boon to Cleveland yachtsmen as it will be open at all times, including Sundays.

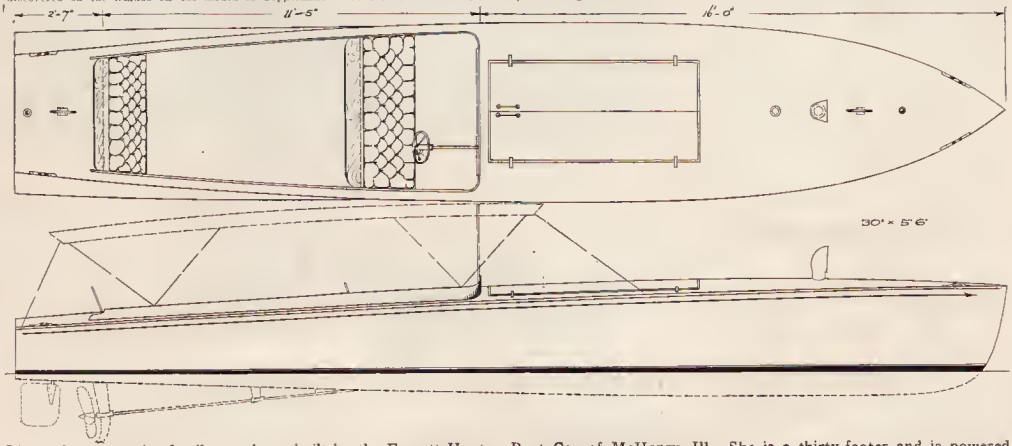
* * *

New New York Branch Manager For USL.

Mr. L. R. Pomeroy, a railway and electrical engineer, has been appointed manager of the New York sales office, 1064 West 61st Street, of the U. S. Light & Heating Co., the general offices of which are now at Niagara Falls, N. Y. Mr. Pomeroy has under his direction the sales of the USL Axle Electric Car Lighting Equipment, USL Electric Starter and Lighter, and USL Storage Batteries, in the territory of the New York branch office. Mr. Pomeroy has long been engaged in work in the railway and electrical fields, and enjoys the reputation of being an authority along several lines in both industries.

Just previous to his becoming associated with the U. S. Light & Heating Co. he had an office at 50 Church St., New York City, as consulting engineer.

The 34-foot Fra, owned at Hoonah, Alaska. She is powered with a two-cylinder, 8-10 Sterling engine, giving her a speed of 10 m.p.h. it is claimed.



Plans of an attractive family runabout, built by the Everett Hunter Boat Co., of McHenry, Ill. She is a thirty-footer and is powered with a Van Blerck B-6 Special motor.

"Langley's Folly," an account of the flying of which by Glenn H. Curtiss appears in this section.

Van Blerck Speedway.

Rather out of the common practice is the establishment, by the Van Blerck Motor Co., of a speedway in the river Raisin, at Monroe, Mich., over which Van Blerck-powered speed boats will make their official tryouts hereafter. The plan on page 41 gives an idea of the layout of this speedway. The illustration shows the new Van Blerck factory, situated but a short distance from the Raisin, while the Van Blerck boathouse is shown directly at the water's edge. From a point above the boat house the Raisin is navigable to its outlet in Lake Erie, shown at the extreme right of the picture. Among other boats which will be tried out over the Van Blerck course is the Lake George Syndicate boat, which is being built from designs by John L. Hacker, and is to be powered with a 12-cylinder Van Blerck motor. The Lake George Club, it is said, looks to this boat as the principal defender of the Gold Cup which was won last year by Ankle Deep.

One of the first of this season's speed boats is Kitty Hawk VI, owned by H. H. Timken, which was given her trials over this course recently. Kitty Hawk VI is powered with a 12-cylinder Van Blerck, and great things are being said about her. She is a 28-foot single-step hydroplane designed by John L. Hacker, and while her exact speed has not been stated, she is said to be miles faster than Kitty Hawk V.

Colonel, which is in service with the U. S. Engineers at Galveston, Texas. She is powered with two four-cylinder 40 h.p. Lamb engines.

An attractive little cruiser owned in Aukland, N. Z. She is a 35-footer and is powered with a Loew-Victor engine.

Colonel, a 66-Footer.

One of the pictures on this page shows Colonel, a 66 x 13-foot boat owned by the U. S. Engineers and located at Galveston, Tex., where she is used in the Inspection Service. This boat is equipped with a pair (right and left hand) of Lamb engines. The boat with a crew of four lies at the orders of the officer in charge, who makes inspection trips viewing the progress of the work on the various engineering undertakings in the district lying between Houston and Corpus Christi. Over a stretch of 300 miles, through bays and bayous, she goes at the word of her commander.

* * *

Gordon Reversible Propeller.

With the leasing of the Gordon Propeller Co., 9906 Desmond Ave., Cleveland, Ohio, by the Upson-Walton Co., of the same city, the manufacture of the Gordon reversible propeller has been resumed. This propeller is made of the best quality phosphor bronze for the hub, pinion and casing, and Government-tested manganese bronze for the blades, and the manufacturers believe that they are constructing a propeller which provides absolute safety against accident and annoyance from repairs. The propeller consists of four parts—the phosphor bronze hub attached to the hub, and milled with large bearing surfaces and pilot openings to receive the blades, the manganese bronze blades, two or three as the case may be and in any type, which fit snugly into the hub and are provided with ample bearing surfaces and gear teeth which engage those of the pinion without backlash; the phosphor bronze pinion, screwed and sweated on to the sleeve that fits around the propeller shaft and rotates in accordance with the movement by the operator of the reversing lever; and the casing which holds the hub and gears and is held securely in place by nuts or collars fore and aft. An advantage advanced for this type of reversing propeller is the case with which replacements of broken blades are made, and it is also pointed out that should one find his blades of the wrong diameter or pitch for the best service from his power, it is possible to secure new blades and fit them to the old hub.

* * *

Foreign Interest in the Anderson.

The Anderson Engine Company, of Chicago, reports a constantly increasing foreign business. Among the latest orders is one from O. A. Solnio, of Turku, Finland, for an 8 h.p., 2-cylinder, 4½ x 5-inch engine with kerosene attachment. Mr. Solnio has accepted the agency for the Anderson engine in Finland and will use this motor for show purposes.

Mr. A. V. Dodwell, managing director of the Canada Cycle & Motor Agency, of Brisbane, Australia, recently stopped off at the Anderson works while on a jaunt across-continent with his family. Mr. Dodwell who is the agent of the Anderson in Brisbane, reports that this engine is well liked in his country.

* * *

Caille's Service Branch in Philadelphia.

Coincident with the elaborate Service Station plan of the Caille Perfection Motor Company comes the announcement from Elisha Webb & Sons Company, at Philadelphia, that they have agreed to extend to Caille engine owners in their territory the One Hundred Point Service demanded by the rigid Caille requirements. As a matter of fact, it is just this type of service that has made the name Elisha Webb stand for a splendid integrity and good will in the minds of Philadelphians for many years past. The Caille and Webb service-to-owner plan therefore are identical.

About the Makers and What they Make.

Rosie B at Sacramento.

The Rosie B, designed and built by the Nunes Bros., of Sacramento, Cal., and powered with a Type C, 6-cylinder Van Blerck motor, won the championship of the Pacific Coast under the A. P. B. A. rules on Decoration Day. She also established a new record for 32-footers in this race, winning against the fastest hydroplanes of the western coast.

Rosie B is a displacement boat, with dimensions of 26 feet overall by 5-feet beam, and a carrying capacity of seven passengers. She is equipped with all the comforts of modern high-grade runabouts, and is a splendid type of the fast family boat, which is so fast coming into general favor in all parts of the country. The trappings of this boat, such as exhaust manifold, floor-

(Continued on page 64b)

The handsome new branch and service station of the Willard Storage Battery Co., on Woodward Ave., Detroit, Michigan.

CALENDAR

JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29

July 2-4—M. V. P. B. A. Annual Meet at Peoria, Ill.
July 2-3-4—Astoria Motor Boat Club's Regatta and Pacific Coast Championships.
July 4—Colonial Yacht Club Race, New York to Cornfield Lightship and return.
July 4—Open Races at Tappan Zee Yacht Club.
July 5-10—Elimination trials for B. I. T. challengers on Long Island Sound.
July 11—Open Races at Edgewater Motor Boat Club, New York City.
July 11—Columbia Yacht Club Race to Stratford Shoal and return.
July 16—Open Races at New York Motor Boat Club, New York City.
July 22-23-24—Delaware River Association's Camden to Baltimore Race.
July 25—Open Races at Hudson River Yacht Club, New York City.
July 29-30-31—Gold Challenge Cup Races for speed boats, Lake George, N. Y.
August 1-2—New York to Poughkeepsie and Return Race, Colonial Yacht Club.
August 15—Open Races at Yonkers Yacht Club, Yonkers, N. Y.
August 20-23—National Motor Boat Carnival, Long Island Sound.
September 3-4-5—Buffalo Regatta.
September 5—South Jersey Finals.
September 5-6-7—Annual Hudson River Yacht Racing Association Regatta at Croton Point on Hudson.
September 19—Open Races at Shattemuc Yacht Club, Ossining, N. Y.
Sentember 19-26—Annual Race Meet at Chicago, Ill.
October 10—Delaware River Speed Championship.

MOTOR BOATING ADVERTISING INDEX

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We can offer a number of high grade yachts of all types for charter, for the American Cup Races. The demand even at this early period is unusual, and early action is strongly advised if a good choice is desired.

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No. 1820.—For Sale or Charter.—Modern, twin-screw cruising power yacht, 98 ft. x 16 ft. x 4 ft. Built 1911 from our designs. Speed 14-16 miles; two 100-125 h.p. 6-cylinder air-starting Standard engines. Large accommodation, including five staterooms and two bathrooms aft; dining saloon and galley forward. Price attractive. Cox & Stevens, 15 William St., New York City.

No. 885.—For Sale or Charter.—Exceptionally handsome, fast, steel, twin-screw cruising power yacht; 118 x 16.6 x 5 ft. Built 1910, from our design. Speed up to 18 miles; two 300 h.p. Craig motors, three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.; handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William St., New York.

No. 363.—For Sale or Charter.—The best houseboat available. Entirely new equipment. In perfect condition, ready for immediate use. Inspection solicited. Cox & Stevens, 15 William St., New York.

No. 1662.—For Sale or Charter.—Modern twin-screw power houseboat; 90 x 17 x 3.5 ft. Built 1911. Speed 10-12 miles. Four staterooms, large saloon, two bathrooms, electric lights, etc. Price attractive. Cox & Stevens, 15 William St., New York.

No. 1828.—For Sale or Charter (in commission).—Attractive gasoline yacht; 73 x 13 x 3.6 ft. Recent build. Speed 11-12 miles; 50-65 h.p. Standard motor. Dining saloon, three staterooms, bath, two toilets, etc. Handsomely finished and furnished. Cox & Stevens, 15 William St., New York.

No. 940.—For Sale or Charter (in commission).—Bridge deck cruiser; 60 x 11.6 x 4 ft. Speed 11 miles; 35-45 h.p. 20th Century motor. Large saloon, double and single stateroom and bathroom aft, also separate galley. Apply to Cox & Stevens, 15 William St., New York.

No. 2168.—For Sale.—Very attractive, fast, roomy gasoline cruiser; 60 x 11 x 3.6 ft. Built 1912. Speed up to 15 miles; 100 h.p. 8-cyl. Sterling motor. Large saloon, double stateroom, toilet room, separate galley, electric lights, etc. One-man control on bridge. In commission. Cox & Stevens, 15 William St., New York.

No. 1469.—For Sale or Charter (in commission).—Desirable bridge deck cruiser; 52 x 11 x 4 ft. Built 1911. Speed 11-12 miles; 25-35 h.p. Standard motor. Electric lights. Double stateroom, saloon, bathroom, separate galley, etc. Finish throughout of African mahogany. Bargain for quick sale. Cox & Stevens, 15 William St., New York.

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MARINE INSURANCE

GIELOW & ORR

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Crogie, New York
A. B. C. Code

We have probably the largest list of American and European Yachts of all types for sale, charter or exchange, of any marine brokers. We give special attention to this department so that our information on each boat is always the most complete and up-to-date available.

As there are upwards of 3,000 yachts in our list, we can furnish you with exactly what you want, whatever the type, size, cost, equipment or class of service you have in mind. We publish no book of these, because our list is so large and constantly changing, but we will promptly submit photographs and full information on all suitable boats on the market, if you mention your requirements.

Our long experience as architects and engineers lends an added value to our brokerage service, in expert appraisal and advice, estimates and supervision on alterations, etc.

No. 104.—Sale or Charter.—Steam yacht 110 ft. x 16 ft. x 7 ft. 6 in. Speed 12-14 knots. 3 staterooms. Large deckhouse. Fully furnished and equipped. A-1 throughout. Favorable terms.

No. 4.—Sale or Charter.—187-foot steam yacht. 7 staterooms. In commission. Well found. Fast, roomy and comfortable.

No. 63.—For Sale or Charter.—155-foot steel, steam yacht. Speed up to 18 miles. Sleep 12-14 in owner's party. Excellent condition throughout. Fine seaboat.

No. 2330.—Sale or Charter.—Fastest twin-screw cruising steam yacht in the fleet, 227 feet long. 7 staterooms, 4 bathrooms, 2 large deckhouses. New boilers. A-1 throughout.

No. 4594.—For Sale.—120-foot high-class twin-screw motor yacht, 17 ft. 2 in. beam x 4 ft. 6 in. draft. Built 1913. Two 150 h.p. air starting and reversing motors, 6 cylinders each. 5 staterooms. Bathrooms. Steel hull. Speed up to 16 miles. Very completely found.

No. 3876.—Sale or Charter.—Reasonable terms, modern 55-foot motor yacht, excellent accommodations, fine seaboat. Standard motor. Complete.

No. 4652.—For Sale.—64-foot cruising motor boat, 12 ft. 8 in. beam, 3 ft. 6 in. draft. Built 1913. Twentieth Century motor. 2 staterooms. Bathroom. Every convenience. Fully found. Fine seaboat.

No. 3490.—For Sale or Charter.—Raised deck cruiser, 75 ft. x 15 ft. x 4 ft. 6 in. 6-cylinder Standard motor. Electric lights. Fine seaboat, roomy and comfortable. Extra large deck space.

THE MOTOR BOATING MARKET PLACE

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

The rate for "For Sale" and "Want" advertisements is 3 cents per word. If an illustration is used the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $2
Cut 1¾ inches deep, 1¾ columns wide..... $5
Cut three inches deep, three columns wide..... $15

35-foot Gentleman's Runabout, 50 H. P. Chalmers Auto engine with complete equipment, including auto canopy, electric light plant, all extras, cost $3500.00; for sale at less than half cost. This is a bargain and will go quick. Can be seen at any time, or full information by mail. Write or wire A. M. Ratigan, 200 East Grand Boulevard, Detroit, Mich.

No. 168.—For Sale or Charter—100-foot twin screw express steam yacht, speed up to 19-20 miles per hour. For further particulars apply to Gielow & Orr, 52 Broadway, New York.

No. 940.—For Sale—Exceptional Opportunity—The best 60-foot gasoline cruiser available at price. Now in commission. Speed 10-11 miles; 35-45 H. P. Twentieth Century motor. One-man control on roomy bridge. Engine-room forward; large separate galley, roomy saloon with two extension berths, doule and single stateroom and bathroom aft. Mahogany finish throughout. Owner has built larger boat, similar type, only reason for selling. Apply to Cox & Stevens, 15 William St., New York. Telephone 1375 Broad.

What Have You For Sale? What Do You Want To Buy?

Every motor boatman, every yacht owner, sooner or later, has something to sell—something for which he has no further use—a boat, an engine, some equipment or other marine article that is just as good for service as ever. The fact that he no longer needs it does not diminish its value to the man who has a use for something of the kind.

There is a good customer looking for every article which is in serviceable condition. The question is to find that customer. That is what Motor Boating's Market Place is for. Send us an advertisement of your discarded articles today.

J. S. HILDRETH, Adv. Mgr., Motor Boating — 119 West 40th Street, New York

CANADIANS, Second-hand engine bargains. Send for list. Guarantee Motor Company, 73 Bay Street, North, Hamilton, Ont., Canada.

FOR SALE—27 ft. cruiser, brand new, latest style. Price $600 for quick sale. James Wilde, Pearl River, N. Y.

WANTED—A neat intelligent young colored man, 21 years, desires a position working on house boat, private yacht, launch or regular steamship. Willing to begin at anything. Willing to go abroad or remain in America. Will remain permanent if necessary. Can furnish best of references. Address, J. A. Brooks, 324 West Liberty St., Savannah, Ga.

FOR SALE—A 6-cylinder, 4-cycle, Holmes get-at-able gasoline engine, bore 6½ in., stroke 8½ in., specially built with hollow imported steel crank shaft and connecting rods. Imported English carburetor. Bosch Dual electric make and break ignition system with magneto. Rear starter. Joe's clutch and reverse gear. Complete mechanical oiling system. Engine cost $3400 and has not been run long enough to show wear of any kind. Develops over 100 h.p. Will sell for less than half. Weight about 2,000 pounds. Address R. C. Seymour, Larchmont, N. Y.

FOR SALE.—Six-cylinder, 48 h.p. Wisconsin motor. Complete with magneto and carburetor. 1913 model. First-class condition. $400.00 cash. G. H. CURTISS, Hammondsport, N. Y.

RUN YOUR BOAT AT LESS EXPENSE.
Send for our latest complete Catalog of Marine Supplies and Motor Boat Accessories. Shows a complete line of marine goods, practically everything needed for equipping or running any motor boat, yacht or row boat. This book is FREE. Mail us a postal card; ask for "Marine Supply Catalog No. 9049M."
SEARS, ROEBUCK & CO., CHICAGO.

I HAVE THE BOAT YOU WANT
listed in my office—will find it for you—or it hasn't been built. Let me know your wants. Small boat owners, send in your particulars. I specialize in boats under 50-foot. Agent for MORRISTOWN motors. KIRCHHOF, 136 Liberty St., New York City.

FOR SALE—Ladoga 117 ft. Herreshoff steam yacht, in commission. A-1 shape; for sale or charter, with or without crew. Accept small boat part payment. Available immediately. Now in New York Harbor. Address Mr. D., 390 Belleville Ave., Newark, N. J.

ABSOLUTELY new 1914 Ford Motor. Separate oil and water gear pump circulating systems designed for marine use. Bosch high tension magneto, Stromberg carburetor. Drove 17 ft. Hydroplane 20 miles. Replaced by more powerful engine. Cost over $500. Will sell as a whole for only $250. H. W. Law, 636 Pine St., San Francisco.

WANTED—Experienced boat builders at once. THE CURTISS AEROPLANE CO., Hammondsport, N. Y.

GUARANTEED factory rebuilt motors, 2 to 50 horsepower. My special 16-ft. boat, mahogany finish, ready to run, $215. E. E. Palmer, 31 E. 21st St., New York.

A BARGAIN—6-cylinder Speedway engine, 50-60-h.p., all latest improvements, Bosch magneto, Kingston carbureter, copper tank, bronze shaft. Room 803, 74 Broadway, New York City.

FOR SALE: New 20 ft. hydroplane, equipped with 40 h.p. motor. Also sail and motor boats suitable for Great South Bay, for sale and to rent. Frank M. Weeks, 272 River Ave., Patchogue, L. I.

A LIGHT, fast, 21 ft., 4 ft. 6 in. beam, cedar hull, runabout type, two years old; complete, except bare engine; mahogany decks, bronze shaft, tank clutch, piping, etc.; excellent condition. The first $100 takes it. WM. H. HICKEY, Jr., 194A Savin Hill Ave., Boston.

MISSISSIPPI RIVER CHARTS
Government navigating maps, St. Louis to St. Paul. Cruising necessity. Guaranteed correct. Complete set, bound, postpaid, $2.00. Address Open Exhaust Publishing Company, La Crosse, Wis.

MORRIS MOTOR BOAT, 20 x 4, mahogany trimmed, 2 cyl. Palmer engine, speed 13 miles; cost with extras about $350; used two weeks; sell quick purchaser $275. Telephone, No. 883-M Paterson.

FOR SALE—Elmore 4 cyl., 2 cycle high speed engine with magneto rebuilt and has new carburetor. Big bargain for early buyer, $175. Jos. Marcotta, 84 Hampshire St., Holyoke, Mass.

USE "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

CYLINDERS REBORED—Pistons and rings fitted, new cranks, connecting rods, cases, transmissions, any part for automobile or motor boat motor reproduced like original. The shop of quality. McCadden Machine Works, Minneapolis, Minn.

THIRTY-FIVE foot cruiser built on special order, 35 feet long, speed 18 miles an hour, lavatory, etc., complete. Owing to business reasons customer left the U. S. and we are to sell boat at best offer we can get immediately. Full information can be had from Detroit Boat Co., 1256 Jefferson Ave., Detroit, Mich.

For Sale—Especially low price, 25 ft. x 6 ft. 6 in., raised deck, seaworthy cruiser. Toilet; galley; 15 horsepower 3-cylinder Roberts non-back-firing engine. Cruising accommodations for four. Completely overhauled and fully equipped. Harry A. Schaeffer, Lockport, N. Y.

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Cut three inches deep, three columns wide..... $15

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AN EXCEPTIONAL CHANCE TO GET A MATTHEWS BOAT.

50' x 9' x 3'6" Florida day cruiser ZUMBROTA, 32-37 H.P. Standard Motor. Speed 13 miles. Mahogany finish. Crew's quarters, motor space, large cockpit, main cabin, galley, and two toilets. Sleeps four comfortably. Our build, and taken in trade on new boat for Chas. E. Ringling. Condition guaranteed. Price, half original cost. Boat in Florida. Write for particulars.

THE MATTHEWS BOAT COMPANY, PORT CLINTON, OHIO.

MUST SELL—Most desirable raised deck cruiser, 33 x 9, just overhauled. Complete in fittings and furnishings of the best. Run only thousand miles, one hundred hours. Has conveniences and comforts equal to forty-footers; consider maintenance cost, and write, phone Walter Selleck, Stamford, Conn.

FOR SALE.—Speed boat, 25 x 4 ft. One of the finest hulls built. 35 H.P. Vim motor, Baldridge reverse gear. Very dry; new; speed 22 miles per hour. L. T. Wissmach, Toms River, N. J.

SPECIAL PRICES.

Famous "Kitty Hawk, Jr.," 20-foot Hacker hydroplane; 6-cylinder Van Blerck racing engine, complete. Guaranteed speed of 40 miles, or no sale. Write for specifications and net price.

26-foot hydroplane hull without engine; suitable for 4 or 6-cylinder Van Blerck motor. Estimated speed, 36 to 40 miles, according to size of engine. Write for complete specifications and net price.

Three exceptional bargains in factory-rebuilt Van Blerck motors:

Model C-6, 75 H.P. at 900 R.P.M., suitable for day cruiser, $750.00.

Model C-8, full 1913 model, 135 H.P.; full guarantee, same as new motor, $1250.00.

Model C-6, 75 H.P. at 900 R.P.M., suitable for fast runabouts, $700.00.

VAN BLERCK MOTOR CO., Monroe, Mich.

FOR SALE.—Three 1913 model 7½" x 7½" two-cylinder, four-cycle, heavy-duty Clay engines, 20 H.P., $275.00 each, with carburetor, timer and water pump. Factory guarantee with engine. The Clay Engine Company, Cleveland, Ohio.

80 H.P. Jager 4 cyl. 4-cycle, heavy-duty: One pair at $825.00 each.
50 H.P. Raleco 4-cyl., 4-cycle, heavy-duty: One pair at $750.00 each.
A bargain in a 31' x 6' 9" Runabout at $600.00.
A 28' Runabout hull for $500.00.
40 H.P. Holmes 4-cyl., 4-cycle, medium duty at $750.00.
THE HOLMES MOTOR COMPANY, Inc., West Mystic, Conn.

A REAL BARGAIN.

FOR SALE—31 ft. x 8½-ft. beam, raised deck cruiser; 15 H.P., 4-cycle motor, all equipments and in commission.
BARGAIN, c/o Motor Boating, 119 W. 40th St., N. Y.

FOR CHARTER—By day or week, cruiser *Lily*, 30 x 8, completely equipped, electric lights, lavatory, galley, icebox, etc. Otto Thomas, 324 East 89th St., New York City. 'Phone Lenox 5123.

FOR SALE.—Motor boat, 22 x 4½ ft. in fine condition. 8 H.P. Ferro engine, everything complete. L. T. Wissmach, Toms River, N. J.

40 FOOT MOTOR BOAT FOR SALE.—The cabin cruiser Thistle is offered for sale as the owner is unable to use her during the coming season. Length on load waterline 37 feet. Beam 8 feet. Engine 5¼" x 6", 4 cylinder, 4 cycle Sterling, 30-45 h.p., and Bosch ignition system. Winner in Block Island and New York to Albany races in 1912; holds the first race for the Lipton Viking Trophy for 1913. Was built by the Fore River Shipbuilding Co. at Weymouth, Mass. Full particulars of equipment with deck and sheer plans will be mailed to those interested. Address Joseph H. Wallace, 5 Beekman Street, New York City. Just the boat to follow the big racers in this summer. The boat is in commission, fully equipped, and can be seen at City Island, New York.

ATTENTION! MUST SELL AT SACRIFICE elegant, practically new, trunk cabin cruising power yacht, 60 ft. x 16 ft. x 3 ft. 6 in.; cost $15,000; unusual and extensive cruising accommodations; full headroom; complete modern equipment. High-grade, heavy-duty 60 h.p. 4-cyl., 4-cyc. engine. Price $3500 in commission. Address owner, P. O. Box 96, New Rochelle, N. Y.

BUSINESS OPPORTUNITIES

A DESIGNER wants co-operation to try out plans for a four-cycle gasoline engine with novel features, but nothing freakish. T head without side pockets; single valve; spark plug in the valve (built in, not screwed in); no poppet valves. Address MECHANICIAN, Motor Boating, 119 West 40th St., New York City.

I WISH TO CHARTER OR BUY A CRUISER

Rather odd, isn't it, to advertise to buy something? Frankly, it is too confusing to read advertisements, and you know less when you finish than when you began. Here's what I want:

A raised deck cruiser, 50 to 70 feet, good sea boat, *modern* power plant, electric lights, galley complete, power dinghey. Must have one or two staterooms; sleep six passengers in comfort, also one maid, one cook, and engineer, deck hand and pilot. Not over two years old. New preferred.

(a) To charter such a boat for this summer on the great lakes.
(b) To buy such a boat—this summer.
(c) To have such a boat built.

Please do not communicate with me on any "lemon" as my time is too short to waste, also don't try to sell me any other style than the above.

I want the best boat of its kind built and am taking this way to get in touch with Builders and Owners.

M. F. PERCY,
CALIFORNIA MOTOR COMPANY,
10th and Hope Streets, Los Angeles, Cal.

Ignition and Batteries.

By A. L. Brennan, Jr.

ELECTRICITY employed in connection with gas engine ignition usually has one of two sources of origin, *i.e.* the first brought about by chemical action, and the second by the direct conversion of mechanical energy into electricity. There are several other ways of producing an electrical current, but the two foregoing methods prove quite adequate in meeting the most exacting conditions.

The galvanic (wet battery), dry cells and storage batteries are dependent upon chemical action to maintain or induce a primary current. This holds especially true in regard to wet and dry batteries, as they are solely dependent upon the enclosed elements, while on the other hand a storage battery acts as a "reservoir," as the name implies, for a certain amount of electrical energy, the charge and discharge of the current being accompanied by chemical action.

Considering the mechanical depreciation of a magneto, or dynamo, we find it to be considerably less than the chemical disintegration of a chemical producer of an electric current, and in consequence the majority of gas engine manufacturers have for some time equipped their product with suitable means of generating a current for continued operation by a mechanical appliance, that is, either a dynamo or magneto; but in the majority of instances batteries of some form have been incorporated into the ignition system to facilitate starting and to serve in case of emergency.

In regard to batteries there are several conditions that enter into realizing the highest efficiency that must bear consideration to a certain extent, the principal ones being:

1. Using a battery of ample voltage and amperage.

2. Employing large wires of suitable material and suitable contacts to allow current an easy flow.

3. Allowing battery ample time for recuperation.

It must not, however, be concluded from this that it is advisable to use additional potential (voltage) in connection with a coil especially in respect to high tension coils of the vibrating variety, for the detrimental effects to the vibrating points will not make up for any further induced efficiency; but on the other hand amperage is to be desired.

Amperage has to do with the flow of current and so ampere is a unit of measure for quantity of current. Voltage on the other hand has to do with the existing potential—hence a volt is a unit of measure for the pressure of current. A watt which is a unit of power, commonly used in electrical engineering is obtained by multiplying volts by amperes.

Since space does not permit a long discussion on batteries only a few suggestions will be made in regard to their care and so forth. The prime essentials to be constantly born in mind are: (1) Use sufficient current to maintain high operating efficiency, (2) on the least consumption of battery current consistent with good results.

This second consideration does not apply to cases where a mechanical generator is employed to supply the electrical pressure for in this case a certain amount of energy is being developed and in consequence might just as well be utilized. However, if you are employing a continuous current generator to supply the necessary potential to a step-up transformer coil of the vibrating type do not make the mistake of adjusting the tension on the tremblers too severely for this will produce a decidedly detrimental effect on the contact points. If the tension on the tremblers is increased beyond a certain point the operating efficiency of the motor is not increased.

This control over the current does not hold true in regard to mechanical make and break, except to a very limited extent. But in order

(*Continued on page 56*)

The "Great White Fleet"

The 32 steamers of the United Fruit Co. (the "Great White Fleet") meet almost unparalleled extremes of temperature. In winter each trip subjects the varnish first to the icy winds of the North Atlantic, then to the warm sun of the tropics and back again to the freezing north.

Ordinary varnish under such a terrific test would soon turn white, become dingy and spotted. But the steamers of the Great White Fleet are Valsparred. They are spotlessly clean and have a well-kept appearance. They sparkle and gleam throughout the season. They are varnished with Valspar, wherever varnish is used—on the woodwork of decks—on cabins—even on the furniture and pianos.

Constant exposure to salt air does not harm Valspar. Flying spray cannot hurt it. Repeated washings, even with hot water and soap, do not injure it. The rich gloss of Valspar stands the most severe test.

It is not a mere accident that the Great White Fleet is Valsparred; nor is it by chance that the biggest and speediest yachts are varnished with Valspar. It is because owners everywhere have learned that *Valspar is the only varnish in the world that won't turn white in water* and does not scratch white underfoot. Valspar is an extra durable, quick-drying varnish.

To be sure of getting a really good bottom paint, specify Valspar Bronze Bottom Paint. It has great durability, is handsome in appearance and is anti-fouling. It is easy to put on.

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

A 4-ounce can of Valspar will be sent on receipt of 10c. in stamps to cover mailing and package. Write for our practical booklet on finishing a boat. Keep this booklet for reference—it discusses painting, varnishing, finishing and removing old paint, and contains price list and description of our marine products. Use the coupon. Name of nearest dealer on request.

VALENTINE & COMPANY
456 FOURTH AVENUE *Est. 1832* NEW YORK CITY

Largest Manufacturers of High-grade Varnishes in the World

NEW YORK
CHICAGO
BOSTON

VALENTINE'S VARNISHES
Trade Mark

TORONTO
PARIS
AMSTERDAM

FREE BOOKLET COUPON

VALENTINE & COMPANY, 456 Fourth Avenue, New York.
Please send me free booklet, "Valspar for Boats," and name of nearest dealer. Also 4-oz. can of Valspar, for which I enclose 10c. in stamps to cover mailing and package. (M. B. 7)

Name.....
City.....
State.....
Dealer's Name.....

Tear out and fill in carefully or send postcard.

Ignition and Batteries.

(Continued from page 54)

that good results be in order from this last-named mode of ignition care should be exercised to keep the igniter points in good order—that is free from any foreign matter, smooth and bearing on their entire area. This point should be remembered when filing or otherwise adjusting the points to cause the points to contact parallel when together.

Since low tension ignition is dependent upon a rapid separating of the igniter points to insure the best results the several actuating parts should receive constant care and attention. Weakened igniter springs can be improved by drawing them out a little or by employing a few washers.

Broken igniter springs can be repaired in most cases by placing a washer between the broken ends of spring on the igniter rod. However, the above methods should only be resorted to in case of emergency, it being a better practice to employ a new spring.

Since only a primary current is required in this type of ignition it follows that there are one or two advantages, *i.e.*, (a) system is practically waterproof, (b) less liability to short circuit. On the other hand the system being dependent upon mechanical timing which is subject to a certain depreciation it follows that the timing will in some instances fluctuate to a certain degree and erratic operations follow.

But taking up the subject of vibrating coils, we find that the consumption of battery current is quite under the control of the operator through the proper adjustment of the coil, but at the same time the fact must be borne in mind that not only the ignition must be in order but the other features of the motor as well. This has reference to the mechanical features, which control the functional and consequently the chemical features as well. The fundamental feature has reference to the proper working of the carbureter and the chemical consideration has to do with the combustion of the compressed mixture. Thus, if one feature is impaired—for instance, one that interferes with good compression—in all probability the subsequent phases of operation will be affected, and so on. If the following suggestions are put into practice in adjusting the tension of the vibrators of jump spark coils the minimum rate of consumption of battery energy consistent with high operating efficiency will be realized.

1. See that all wiring is of suitable material and in good repair.
2. All terminals of ample area and secure.
3. Battery of sufficient voltage and amperage to supply the necessary current without being over-taxed.
4. Switch and contacts in good repair.
5. Timer points making positive contacts.
6. Spark plugs are free from foreign substance, component parts tight, points bright and set about a thirtieth of an inch apart.
7. The contact points on coils must be in good repair, that is the surfaces free from any pitted or other formations and contacting on their entire surfaces. This is very important, for if contact surfaces are reduced additional tension will have to be exerted upon the tremblers to make up for this discrepancy, hence increased load on battery.

With the above points in order the motor should be turned over to the firing point, place switch in position and if the trembler on coil is not set in operation, increase the tension until the unit buzzes. Then lessen the tension until the coil ceases to buzz, and then again increase the tension past the first high note that is heard when it first starts to buzz and when the second note which is more regular is recognized, secure the locknut. If the motor is of the multi-cylinder type, fitted with a coil unit for each cylinder, proceed in like manner to bring about their adjustment.

This is only an elementary adjustment of the coils as it is necessary to have the motor in operation in order to realize the best results. After the motor has picked up its cycle,

(Continued on page 58)

Ignition and Batteries.

(*Continued from page 56*)

the tension on a vibrator should be reduced until the cylinder corresponding to that unit mis-fires, due to a weak spark, then increase the tension by degrees until regular firing is in order, and secure the locknut. Proceeding in a similar way, regulate the remaining units, employing in each case a tension merely sufficient to produce steady firing, for any additional pressure exerted upon the tremblers will not increase the efficiency of the motor, but will increase demands upon the battery.

The only practical way to test a spark plug is to remove it from cylinder, reconnect secondary wire, place switch in position and crank engine over to firing point of that cylinder or else move timer which will induce an electric arc to take place between the points of spark plug, if the system is otherwise in order; but it does not necessarily show that the plug is O. K., for if the porcelain is cracked, a short circuit may be in order when the plug is called upon to induce a spark in the high pressure of the cylinder.

New Jersey Inland Waterways.

(*Continued from page 8*)

Some of the points of interest along the route are as follows:

Corinthian Yacht Club, Cape May. Gasoline, water, ice and phone orders for provisions. Anchorage any place in the basin. Trolley cars to Cape May City.

Cape May Yacht Club. Ice, water, gasoline. Tie up to the dock. Aground at low tide. Repair shops handy and provisions across the street. Stalls for boats across the harbor.

Cape May City. Many fine hotels, board walk, plenty of fresh provisions, many repair shops, railway for boats.

Cold Spring Inlet has two big jetties. One has light. Buoys lead right to Basin.

Inland waterways of New Jersey are marked with barrels floating on their sides. They are painted white and black (channel buoys). Stakes are marked with red and black rags. Leave all red to starboard all the way to Bay Head, and black to port.

Turtle Gut Inlet not safe to enter. No water at low tide.

Holly Beach Yacht Club. Landing on the channel front. Good anchorage above club. Club will furnish meals to yachtsmen. Ice at club, gasoline and some provisions. Not far to the town; plenty of repair shops, hotels and provisions there.

Wildwood Yacht Club. Channel is called Ottens Channel. This is marked by stakes and must be followed closely as it is a dredged channel 20 feet wide. Club has water, gas, ice. Repair man located near club. Plenty of room to tie up for days there.

Trolley to Anglesea, where plenty of fittings, repairs, provisions may be had. Good landing Macy's Pier, located on the inlet. Hundreds of fishing boats. Good landing and yachtsmen may take trolley to Holly Beach and then boat to Cape May from this point.

Hereford Inlet marked by the government and fishermen. Last, best entrance to Anglesea. Marked by floating kegs right in the channel. Some stakes with properly colored rags.

Stone Harbor Yacht Club. Every accommodation. Basins for boats, provisions, meals at club, ice and water at club. Repair shop located up the channel. Townsend's boat shop half mile above club. Good anchorage in this wide channel anywhere. Big hotels, plenty of provisions, Stone Harbor.

Avalon. Hotels, repair places, ice and water; good anchorage on the channel.

Townsend's Inlet. Fair, but avoid in heavy weather. Marked with channel buoys. Must pass through draw-bridge after crossing the bar.

Sea Isle City Yacht Club. Very large club with every accommodation. Water, ice, meals at club. Gasoline; repair shops near. Five minutes' walk to trolley. Town has hotels, many repair shops for boats, all provisions in town.

Pecks Bay. Avoid at low tide. Channels are marked, will be dredged coming summer to give six feet at low water.

Ocean City Motor Boat Club located below the bridge. Fine club, will accommodate yachtsmen. Water, ice, phone for provisions, gasoline at club. Repair man takes care of your wants. Short walk to trolley. Every accommodation in Ocean City.

Ocean City Yacht Club, largest on the coast. Every accommodation, meals to yachtsmen. Water, ice, gas. Big yacht basin—best of harbor. Near the Inlet. Phone for provisions. Trolley to Ocean City center ten minutes. Trains to all points. Many boat builders and repair men.

Ventnor City. Appel, the builder, located on the channel. Gas and repairs at his place.

Chelsea Yacht Club, the fashionable club of the coast. Water and ice. Phone for provisions.

Atlantic City Yacht Club. Landing on Inlet very rough at times. No place to leave boat. They have accommodations for boats in Gardner's Basin. Head of this basin every conceivable repair and supply for motor boats. Vansant's boat plant located there.

Atlantic City. Finest resort in this section. Hotels and city supplies.

Absecon Inlet. Very good. Many boats going and coming at all times give a feeling of confidence when crossing this bar. Anchorage in Clam Creek or Gardner's Basin.

Absecon Bay and Reeds Bay are noted for their good fishing.

Grassy Bay draw-bridge is a delapidated affair. Beware of pilings. Follow the buoys.

Brigantine Inlet. Keep out of there. Better go to New Inlet or Absecon Inlet.

New Inlet the best on the coast. Well buoyed. Good anchorage after rounding the point. Fine fish-

(*Continued on page 64*)

Try MoToR Boating's Market Place

It will sell the boats, engines or accessories you have laid aside—turn them into cash. There is a customer somewhere for every usable article in existence.

Hints from Practical Experience.

THE task which confronts the prospective motor boat owner in selecting the proper design for his new boat will be made much lighter if, at the outset, before looking at a single design, he decides two vital questions: First, just how much money he can place in the new boat; and, second, just what does he want the boat for. He should then consult only such designs as call for an expenditure of from three-fourths to four-fifths of the maximum sum, and exclude further all those which are not, at least, remotely suited to his specific needs. Naturally, if he wants a cruiser with liberal living accommodations and good seaworthy qualities, he can eliminate designs for speed boats and runabouts, and vice versa. The designer who claims that he can furnish a boat which combines in one hull the speed of the hydro, the seaworthiness of the offshore cruiser, and the roominess of the houseboat at a low cost is both a fraud and a menace. The combination cannot be obtained at any price, for speed is necessarily obtained at the sacrifice of beam and, therefore, of accommodations, just as seaworthiness must be sacrificed to obtain extreme speed.

Neither should the newcomer seek to obtain too much for his money in the matter of size and expensive furnishings and fittings. A plain, but well-appointed, strongly-constructed thirty-footer, equipped with a standard make of engine which gives it a moderate speed, is a far more satisfactory and safer possession than a cheaply-built sixty-footer, covered with fancy and ornate trimmings, and bristling with useless accessories, whose power plant is an overrated machine which may give good service for a time, but soon falls down under the strain. It should be borne in mind, too, that the larger the boat is, the more it costs to run it, the more it costs to equip it, to haul out, to store, and so on.

Having decided what kind of a boat he desires, and what he can afford to pay for it, the newcomer must then decide how much to set aside for the engine; how much should be devoted to the necessary fittings and other accessories. He can then form an idea of how much he should pay for the finished hull, and talk intelligently with the builder after selecting the proper design. In the hull he should look first for seaworthiness, especially if he is buying a cruiser, for his very life may depend upon this. The proportion of beam to length, of draft to length, of draft to freeboard, of waterline length to overall length should all be considered in this connection. The amount of freeboard forward, the amount of least freeboard, absence of topheaviness, and the types of bow and stern are important items of seaworthiness.

There should be plenty of deck forward, and the cockpit floor, if the boat has a cockpit, should be at least fourteen inches above the load waterline. Strength of construction is also a prime factor of seaworthiness and the soundness of the material used, as well as its size and thickness, are points which should not be ignored.

The interior arrangements are not as important, and can be fashioned to conform with the owner's individual ideas in the main. He should remember, however, that the fewer partitions and compartments he has below decks, the roomier his boat will appear, and the cooler and better ventilated it will be. A raised-deck cruiser under thirty-five feet long should not have more than five feet, four inches headroom, or the chances are it will be either topheavy or so deep-drafted as to be sluggish. Plenty of space should be left for the engine-room, or, if the engine is under cockpit floor, companionway steps, or bridge deck, there should be sufficient room left around it for comfortable working, and the removal of parts. The galley should not usurp engine-room space, but the sink and stove space may be so constructed as to serve as a spare bunk at night, by the introduction of slats and cushions. Locker space should not be cut down too much, and they should be made waterproof by zinc lining.

B. B., Norwich, Conn.

¶ Motor Boating's Market Place columns offer the buyer and seller of used motor boats, fittings, etc., a quick and convenient clearing house.

¶ If you are getting a new boat or a new engine, and wish to sell the old one, don't have it rotting, or rusting or collecting storage charges—sell it—in the Market Place.

New Jersey Inland Waterways.

(*Continued from page 58*)

ing in this inlet. About fifteen miles to Atlantic City, outside route.

Little Egg Harbor Yacht Club just organized. Landing at club station.

Cbannel into Beach Haven. Pick up red barrel on stakes and black barrel on stakes at entrance. Small stream runs from bay to Beach Haven Yacht Club wharf. Channel marked by stakes on each side of cbannel. Good anchorage inside.

Beach Haven Yacht Club has very large wharf and will accommodate yachtsmen for several days. Tie bow to dock and put over stern anchor as this dock bas some two hundred boats at night.

Plenty of restaurants right near the club. Repair shops and ice, gasoline and water at hand.

Corinthian Yacht Club is located in the town near the Hotel Baldwin.

Beacb Haven bas fine hotels, several repair men and plenty of fishermen and fine, big boats to take parties to the best fishing grounds.

Tuckerton, on the mainland, bas fine, big railway and repair shops, but you must sail up the Tuckerton Creek for several miles. It is well marked. Plenty of provisions there. Ice plant and gasoline. Good place to repair or haul out for big cruisers.

Tbe fishing in this location on tbe West shore and at mouth of West Creek is the finest. Hundreds of weakfish are nothing for a day's catcb.

Manahawken Bay must be followed closely to keep in the channel. Small draw-bridge across. Well-marked channels rigbt to the draw, no need of slowing down. Send her to starboard after passing draw going North. Provisions and ice and water at the draw.

Surf City has hotels, ice, water, provisions. Watcb the eel grass going to wharf.

Harvey Cedars. Big hotel near their landing. You must come out of channel and cross to wharf in about four feet of water witb lots of grass, but don't fear, she will go there all right.

Gas, water and ice at hotel. Cruisers make tbis port for a good meal at the big botel. Short walk to tbe town. Repair man there.

Good fisbing all around tbis section near Harvey Cedars.

Barnegat. Don't confuse this main land town witb the shore resort, Barnegat City, where the Inlet is and the ligbt house.

Barnegat bas small stream to wharf, where you will have a walk of mile to town. Everything you want may be had there. Gas, water and ice at the wharf.

Fine fishing out in the bay from this point.

Barnegat City at the entrance of Barnegat Inlet, wbicb is well marked and good to enter. There is a small stream back of the city that can be entered if you wisb to stay here for any length of time. Plenty of landings and several men to fix things.

Ice near at hand but water must be carried. Provisions at the Sunset Hotel, right on tbe Inlet front. Wharf for landing good at flood tide. Get out on the ebb. Gasoline at this hotel. Good meals and plenty of fishermen who make tbis hotel a stopping place to enjoy the outside fisbing for blue fish.

Warner's Island and North Point Beach directly across the Inlet from Barnegat City.

Fine fisbing, good barbor, but away from civilization.

Cbannel runs back of Warner's Island and lets you out in Barnegat Bay. Take all provisions when visiting these waters back of Warner's Islands. Drum fishing on the beacb.

Waretown is reacbed by following the government buoys. Has fine hotel right on the Bay. Gasoline and water, but you must carry. Big meals and stopping place for fishermen.

Forked River. Enos, the famous fishermen's hotel, located up the river three miles. Two repair shops and big railway located here. Gas and everything for the motor boat at Enos and boat shops.

Fine anchorage in this river and right near the best fishing grounds.

Cedar Creek. Good barbor and near the fisbing grounds of Cedar Creek. Four miles from Barnegat draw-bridge. Big red buoy off Cedar Creek.

Barnegat drawbridge, fishermen's paradise. Hotel at draw, water and ice, some gas. Bait man located here. Draw opens by gas engine.

Good Luck Point has black buoy. Round it and lay for red buoy off Long Point going to the Island Heights Yacht Club.

Toms River has several yacht clubs: Island Heights, Cedar, Ocean Gate, Toms River. Island Heights is the center of attraction. Has good water right to its club wbarf, where water and ice and provisions may be bad. Stores of every description here. Just below the club is Rotes and Stokes boat building plant. Everything for the motor boat there. Railways and supplies.

Toms River at the head of the waters. Has big boat building plant, Kirk's. Cedar Yacht Club across from Island Heights. Ocean Gate on the South shore, not much water to their landing.

Side Park Yacht Club located on the bay, but only half mile from the beach, has water, gas and provisions in the town. Above the club is located Harper's Basin, where boats may be hauled out or repairs made. Plenty of motor boat fitting there.

Going to Bay Head follow the channel markings carefully to avoid the grass.

Mantaloking Yacht Club has gas and water.

Bay Head Yacht Club has gas, water and ice. Morton Johnson is located here and can make repairs or furnish everything for the motor boat.

Hotels on the beach; provisions in the town.

Anchorages are safe throughout these waters after crossing the bars and entering the inlets. Roll of the sea will be felt at Atlantic City Yacht Club wharf around the Point at New Inlet, in Cold Spring Inlet, in front of Hotel Barnegat Inlet.

Entire chain of clubs make it a point to accommodate the cruisers.

From any one of the clubs, trains may be taken to New York and Philadelphia, about two hours is the longest time.

New Jersey Commissioner has several boats and his staff keep the channels clear and the marking up at all times.

Barnegat Inlet is the entrance from the North. About 60 miles from Sandy Hook.

Cold Springs Inlet is the entrance from the South.

Distance from Cape May to Bay Head about 115 miles.

Plenty to see, tbirty clubs, good cruising grounds, fine fishing and accommodations every five miles.

Motor Boating's Big Sales Co-operation

Buy from Your Nearest Dealer

FOR the convenience of readers, Motor Boating has made arrangements with leading dealers in the largest cities to handle all articles advertised in Motor Boating. This, of course, refers to all goods that lend themselves to dealer business. If they do not carry the goods in stock they will be in a position to give you the prices and other information and then get same on order. In short, Motor Boating will be their special catalogue.

These dealers have been very carefully selected and have the absolute endorsement of Motor Boating.

This plan means that you can buy all these nationally advertised accessories from your own dealer. You can see, or know all about the goods before you pay your money.

The fact that an article is advertised in Motor Boating is a stamp of quality. The management of Motor Boating makes it a point to eliminate all inferior goods. This, of course, does not mean that all products not advertised in Motor Boating are unworthy of your attention.

Call on, or write, the dealer nearest your home.

The following list of responsible dealers has been entered by Motor Boating. New names will be added as soon as our representatives get in touch with other desirable dealers.

Atlanta, Ga.
Chas. E. Miller

Atlantic City, N. J.
Auto Marine Supply Co.

Baltimore, Md.
The James Walker Co.

Brooklyn, N. Y.
Chas. E. Miller

Boston, Mass.
Chas. E. Miller
A. S. Morss Co.

Buffalo, N. Y.
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Geo. B. Carpenter & Co.

Cincinnati, Ohio
The Herman Burmiller Co.

Cleveland, Ohio
Chas. E. Miller
The Motor Boat & Supply Co.

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Hartford, Conn.
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J. C. Shadegg Engine Co.

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New Orleans, La.
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New York, N. Y.
Auto Supply Co.
C. D. Durkee & Co.
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W. & J. Tiebout
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Philadelphia, Pa.
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A. S. Kellam, Inc.

Rochester, N. Y.
The Hall Tuckitt Co.

Springfield, Mass.
Chas. E. Miller

119 West 40th Street — MOTOR BOATING — New York City

Laying Down a Forty-Footer.

(*Continued from page 28*)

stations No. 3 and 3 feet, 1⅜ inches aft No. 8 requiring no offsets between these points. Snap in with a chalk line, then draw in with a pencil and straight edge. There is no set rule for the order in which the waterlines should be faired. It is convenient, however, to spot out from centerline, waterline No. 1, No. 2, No. 3, etc. Run a line in forward parallel to center line and half the width of keel. Spot on the center line the intersection of the face of stern and waterlines as on the profile. In this the waterlines are faired, terminating at the respective points at the stern. Where the waterlines cross the half siding of the keel are the points to be projected to the profile for the rabbet line. The face of the transom is drawn on the profile and dimensions hardly need an explanation.

The body plan serves as a check and discrepancy can be more easily noted here than on the half breadth plan as, for instance, waterline No. 4, station No. 3 might be a little flat and not cross the spot made by diagonal B. If the error is not too great the correction might be made by pulling in a little on waterline No. 4 on the half breadth plan and it may be also necessary to "let out" on diagonal B, section 3. After the tedious "give and take" and "padding" process, working from one plan to another, the entire job will be fair when all three plans "check" or coincide with each other.

Note—Taking off the plan is clearly explained on Page 27, May, 1914, issue of MoToR BoatinG.

LESTER KENWOOD, New York City.

A West Indian Cruise.

(*Continued from page 11*)

reported that the gale attained a maximum of 65 to 75 miles an hour. This speaks well for the seagoing ability of this little topsail schooner.

Owing to a southwest gale which sprang up after we anchored at the harbor of Nassau, we were unable to leave for three days as the sea was breaking across the bar. As soon as it was possible, we left for Miami, via the Islands of Bemini, where we anchored to catch some of the craw fish for which this island is famous. This island was the place where Ponce de Leon first landed and has since been the habitat of pirates and wreckers. Several of the descendants of these gentry came out in small boats to beg old clothes, canned goods, etc., or to steal anything that was loose. The leader of the party had a shirt on; the others contented themselves with dungaree trousers and handkerchiefs around their heads. Anyone looking for a good professional pirate crew cannot do better than to recruit at Bemini.

The final traverse across the Gulf Stream to Miami, was without incident, except for flocks of flying fish encountered. We anchored off the Biscayne Yacht Club after about three weeks' trip with all hands in good health and without having lost a rope yarn and after having encountered the two worst gales of the season.

It may interest you to know that the crew consisted of two Swedish sailors forward, a cook and the owner's chauffeur to look after the engine and electric light plant. The boat was navigated by the after guard, all being amateurs and consisted of the owner, Mr. Marshel Jones, Jr., Mr. Chas. Earle, Jr., Mr. Thomas Fleming Day and the writer.

There is certainly nothing like the square rig for going to sea. There was considerable criticism about putting the square rig on so small a vessel, but after our experience in these winter gales, I would not use anything else, for real off-shore cruising.

About the Makers and What They Make.

(*Continued from page 42*)

ing seats, deck cover, light boxes, etc., are all removable for converting her into a racing boat; the exhaust manifold is exchanged for a set of racing stacks, and in this condition she is about three hundred pounds lighter than when fully equipped for pleasure service.

In describing the race, the Nunes Bros., who drove the Rosie B, said that her Van Blerck power plant worked perfectly, and was not even crowded to the limit.

* * *

Lubroleine Oil Helps Boat to Capture First.

In a recent regatta at Atlantic City, at which about 200 boats participated, Peggy, a 50 by 10-foot cruiser, designed by George Apfel, made excellent speed and came out a winner in the cruiser race. Peggy was powered with a 4-cylinder, 110 h.p., Mercury motor, and was lubricated with Lubroleine oil, a product of the Fiske Brothers Refining Company, of 24 State Street, New York City.

* * *

Anderson Marine Engine to Serve in New Role.

F. H. Badger & Son, contractors, of Greeley, Colo., have placed an order with the Anderson Engine Company, of Chicago, for a 100 h.p., heavy-duty, four-cylinder, 9¼" x 11", marine engine, to be put in service in Palestine, Ill. This engine is to be equipped with a Harroun kerosene carbureter and Splitdorf high-tension magneto, and will operate a pump dredge, more commonly known as a "sand sucker."

* * *

Van Blerck Motors for Costa Rica.

A battery of Type C, 4-cylinder Van Blerck motors was recently shipped to the Government of Costa Rica for coastal defense work at the city of Punta Areuas. The sale was made purely on guaranteed horsepower and endurance, the contractors being guided in their choice of motors by the report of their engineer, who personally conducted the test at the company's plant. The following announcement by the Van Blerck Motor Company, of Monroe, Mich., is interesting:

"The test to which the motors were subjected was a continuous, non-stop run of 12 hours at 1,200 r.p.m., with a constant delivery of not less than 75 h.p. The prescribed fuel was California distillate, testing 44 to 47½ degrees Baume.

"The run was made successfully, and the engines were accordingly delivered to the railroad for shipment, with the certificate of the engineer attached to the bills of lading.

"The engineer's report of the tests of these engines shows that the average speed, at which they ran, was 1,220 r.p.m.; the average power developed was 76.87 h.p. The fuel consumption was an average of .76 pints of California distillate per horsepower hour.

WHY CERTAIN MOTOR-BOATS ALWAYS WIN

That Crucial Moment of the Race—

THAT instant when you want to get out and push—and something slips. Then your motor commences to miss. Then the race has been lost; perhaps your motor wasn't taking her gas and oil rightly.

Did it Ever Happen to You?

If it did you'll want a different motor on your next boat. You'll want a motor that slips into high and keeps going consistently, surely, straight hrough those nerve racking miles of water, you'll want a

Wisconsin Motors

CONSISTENT

More Miles—Less Gas

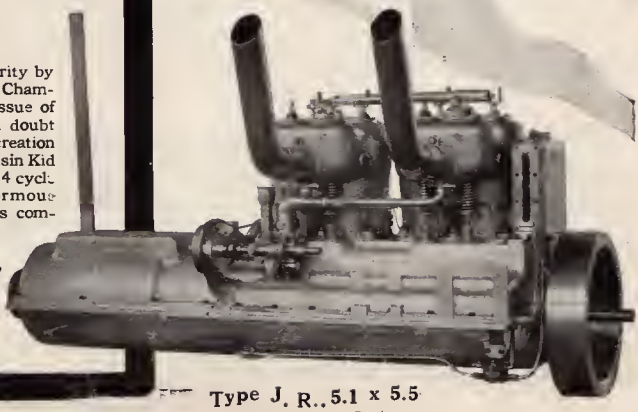
The motor that goes into a race, stays there and gets home first. Some boats always win; most of the winners are "Wisconsin" driven. How about yours?

Wins Southern Championship

Again the *Wisconsin Kid* proved her superiority by coming over the line first, capturing Southern Championship. Mr. W. H. Henszey, in the May issue of Power Boating, states in part: "Without a doubt one of the most spectacular sights in speed creation the writer has so far witnessed. The Wisconsin Kid is driven by two 110 horse power, 4 cylinder, 4 cycle Wisconsin Motors. She is capable of enormous speed which will, undoubtedly, be proven this coming season in the western regattas."

Write for our catalog—it tells why

WISCONSIN MOTOR MFG. CO., 100 W St., MILWAUKEE



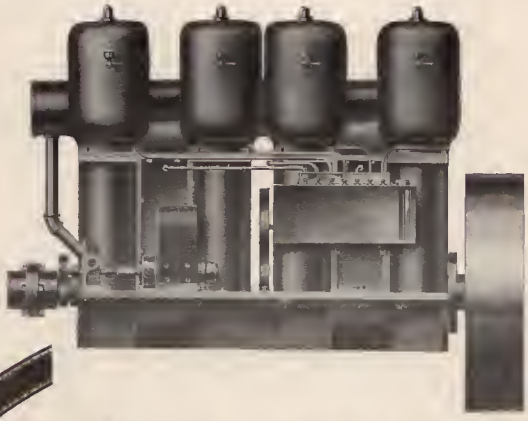
Type J. R., 5.1 x 5.5

Motor Boating is the most tangible dealer aid known. All the best dealers read it regularly, and they see what is being done for them in the way of advertising by the manufacturers they represent. Whether marketing a product through established dealers, or selling direct to owners, Motor Boating is the most economical advertising medium.

THE FINAL IMPROVEMENT

IN TWO CYCLE DESIGN

Plate removed.



Top cylinders removed.

PENROSE

THE PERFECTED TWO CYCLE MOTOR

Mr. Motor Boat Man: Have you ever burnt out your main connecting rod bearings when you were far from shore and night coming on?

Have you ever broken a piston ring and had to replace it rolling in the trough of the sea?

Have you ever had to replace a wrist pin or connecting rod or a bearing when far from home?

Have you ever blown out the gaskets in your engine and had it stop dead?

If so, you have been up against a hard proposition, and either had to be towed home or spent hours of the hardest kind of dirty work getting your engine to run again.

Now compare the Penrose Motor and see what a simple and quick matter it is to do any one of these things and continue on your way home.

In five minutes you can remove a plate and have every moving part of your engine in full view for adjustment or repair. You can replace a connecting rod and be going again in fifteen minutes. You can put in a new piston ring in twenty minutes. And what is more to the point you do not change a single adjustment on your engine. This means a great deal to you in the way of safety and comfort.

When you combine with this the many new features of the Penrose Motor, which insure constant service, long life, maximum power and minimum repairs, is it not worth investigating? We would be glad to hear from you and we will send you descriptive catalogue and full particulars.

High Speed Motors **Heavy Duty Motors**

PENROSE MOTOR, Inc.

502 PENNSYLVANIA BLDG.
PHILADELPHIA, PA.

Why X-Celo Excels

X-Celo Runabouts, termed the "finest motorboats in the world," maintain their enviable reputation largely because of the following four reasons:

First—They are designed by a naval architect whose continual achievements in motorboat construction are the admiration of the entire boating world.

Second—They are built in the finest boat yard in the West, under ideal conditions and under the personal supervision of the designer, who personally tries out every boat before it is placed in the owner's hands.

Third—The X-Celo comes to you so absolutely "complete" that you need never contemplate the purchase of accessories. When you buy an X-Celo you not only buy a motorboat but everything that ought to go with it.

Fourth—Its durability, seaworthiness, comfort, luxury of appointments, silence of operation, reliability and beautiful lines make it a boat that you delight in using and are proud to own.

So when you purchase an X-Celo Runabout you know that you are buying

The Finest Motorboat in the World

Note the X-Celo Windshield. It divides and folds back into the side arms of the seats. This windshield is found only on X-Celo boats.

Realizing that the demand for X-Celo Runabouts would exceed the number we first planned to build, we have constructed several in addition to our regular orders. These few extra boats may now be procured for immediate shipment.

X-Celo Day Cruisers and Yachts are constructed with the same care and attention to details which have created the reputation of the X-Celo Runabout.

Those naval architects who have had the opportunity of inspecting X-Celo Boats have been glad to express their approbation in the highest possible terms, and we are always ready and glad to co-operate with your naval architect, should you desire us to do so. Naval architects have found that we have a peculiar faculty of following their directions in a most precise and careful manner and a readiness to co-operate with them to the fullest possible extent.

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THE PERFECT PLUG FOR MARINE ENGINES

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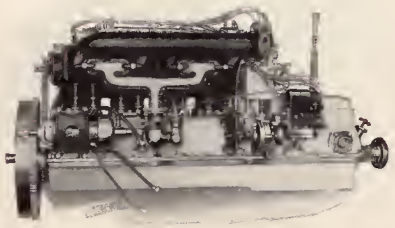

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This new starting system is simple and satisfactory—an installation that has been selected after 2 years of exhaustive experimental work, as one which can be depended upon to fully live up to Scripps requirements of reliability and service.

With a gearing of 7½ to 1, it will spin one of our Model H, 4-cylinder motors more than 150 r. p. m. Furthermore, it will start the motor "on the magneto," and with the throttle wide open. This shows how positive and powerful its action is.

It is so designed that the moment the marine motor starts, the driving gear of the electric starting motor is thrown out of mesh, thus automatically disconnecting the device.

The 1914 Scripps book tells you in detail all about 15 different models, including 1-, 2-, 4- and 6-cylinder types, semi-speed, medium duty and extra heavy duty. You will be interested in the new kerosene and distillate motors, and other vital improvements. Write for your copy to-day.

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Here Are 2 of the Reasons Why

REFLEX
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Give Hottest Sparks—Last Longest

Firstly: They are the only plugs with patent Baffle that reflects the soot and dirt *away from* the interior and drives it *out through* the gap at every explosion.

That keeps them from short-circuiting and prevents carbon from gathering on the sparking points.

Secondly: The enclosed end is an original Reflex feature. It exposes the largest possible surface for sparking purposes. In connection with the Baffle, it makes ignition doubly sure with Reflex Plugs.

Reflex Plugs are good, *not merely* because we Fully Guarantee them; but we Fully Guarantee them because they are so good.

Try Them 30 Days at Our Risk

Besides guaranteeing Reflex Plugs against any and all defects, we make you this Special Offer: Buy a set from your Dealer; use them full 30 days. Then if they are not the best spark plugs you ever used, take them back and you will get your money back right on the spot, without delay. Play safe—take us up on this Offer.

Write for Catalog showing complete line of Reflex Plugs for each and every purpose. Special 1914 Proposition to Dealers.

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The Highest Quality Ever Achieved in Boat Building

Motor Boats, Tenders, Cruisers, Auxiliaries, Engines

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For those wishing a power equipment we can guarantee as unreservedly as our boats, we build Lawley Heavy Duty Motors. Four cycle, two, four and six cylinder, 20, 40 and 60 horsepower respectively. Also steam.

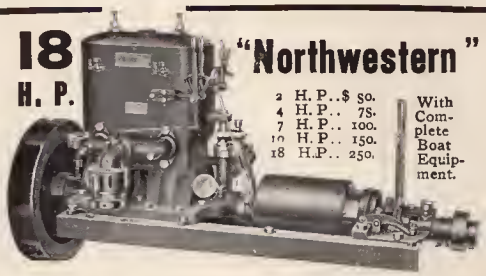
Correspondence solicited from prospective boat buyers. Our catalog sent on request.

George Lawley & Son Corporation

Established 1866

Neponset, Mass., U. S. A.

18 H. P. "Northwestern"



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With Complete Boat Equipment.

Compact, Long Service, High Duty Engines

The most powerful, compact and reliable engines for their size in existence. Not the flimsy built engines—over rated in horsepower and with innumerable springs, cams, gears and parts to rattle loose and give trouble, but heavy service, high duty engines of medium weight and extreme compactness. Equipped with the Rosholt patented gas tight bearings giving high compression and extremely low fuel consumption. Highest grade float feed carburetor, flange couplings, electrical circuit break reverse lever, brass plunger pump and brass fittings throughout, Northwestern water and spark proof commutator without beveled gears or complicated timing device. They are simplicity personified—nothing to get out of order and nothing to wear out except the main bearings which can be replaced at a nominal cost. Strictly the highest grade engines ever sold at a moderate price. We also furnish

Complete Lighting Equipments.

Comply with government requirements and save damage suits. These equipments include high-grade charging magneto with automatic electric cut-out for charging storage battery, also a 6 volt, 80 ampere, heavy service storage battery; long distance searchlight, electrical hand lamp, electrical horn and complete switchboard with registering volt meter, etc. Send for 1914 catalog.

7 H.P.

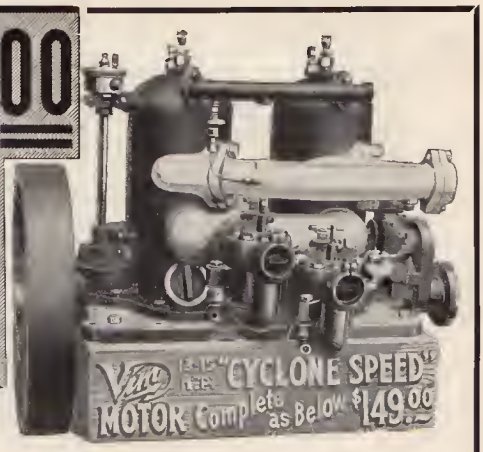
NORTHWESTERN MOTOR COMPANY

771 Spring St.

Eau Claire, Wis.

U.S.A.

Vim 13-15 H.P. CYCLONE SPEED MOTOR $149.00



A sensational motor at a sensational price. Powerful, speedy, smooth-running. Ideal power for speed boats, family boats, runabouts, or small hydroplanes. Extremely economical in fuel consumption. Easy to start and operate. Its simple construction is one of its strongest points, and is one of the many reasons why it has always given complete satisfaction.

Notice the location of the exhaust ports and the long, easy angle of the exhaust manifold. Just an indication of how perfectly this motor is designed from start to finish. This motor is also equipped with our patented double fuel inlet port system, explained at right, and exclusively a *Vim* feature—the real reason why

***Vim* "Cyclone Speed" Motors develop from 20 to 30% more power than other engines of same bore and stroke.**

Note this also: If desired, one carburetor can be closed off entirely for ordinary running. Then, by simply throwing open the throttle you instantly have the full power of the motor. For emergencies, or where you want to "put one over," this is a great feature.

The usual high quality for which the Vim is known from Coast to Coast, has been maintained in this Vim "Cyclone Speed" Motor. Nothing but the price has been cut.

Nothing has been spared to make this an engine that will give long, continuous, dependable service. Our regular ten year guarantee goes with it. Note (under cut) the complete outfit of fittings which is included at the special low price of $149.00.

After All—It's Results That Count

Wheeling, W. Va., May 9th, 1914.

The Vim Motor Company,
Sandusky, Ohio.
Gentlemen:—

The 13-15 H. P. high speed Vim motor that I purchased of you last fall is O. K. I installed same in my boat "IMP" which is 23' 10" long with a beam 3' 6" and I can say the result was more than I ever dared to expect. I have the fastest boat of its horsepower, or anywhere near the horsepower, on the river. At present time I do not know exactly what speed I am making, but as soon as I can put over a course, I will advise you and as soon as I can get a photo of the boat I will mail it to you and you can use it to your best advantage; also, anybody making inquiries in this locality you may refer to me, and I will be glad to demonstrate the Vim motor as there is nothing just like it in existence.

Yours very truly,
GEO. KRONENWETH, No. 609 Grand View St.

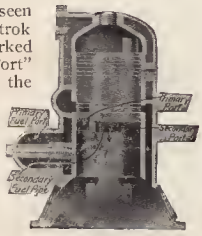
SPECIFICATIONS

BORE 4". STROKE 4". R. P. M. 800-1200
ALUMINUM BASE AND FUEL MANIFOLD.
WEIGHT 195 LBS

EQUIPMENT INCLUDES

the following: Motor fitted with all necessary fittings, bronze rotary pump driven by steel spur gears covered with case, two floating ball type Kingston float feed carburetors fitted with new fuel and throttle control lever, elevated reversing timer and gear, Kingston Mica Spark Plugs, Switch, flange coupling, ball thrust bearing, grease cups, gasoline strainer, wrench, oil gum, can of oil, screwdriver, lag screws and book of instructions.

The Real Reason For Vim Cyclone Speed Motors' Wonderful Power



By referring to the cut it will be seen that the piston is at the top of its strok in which position the ports marked "Primary Port" and "Secondary Port" are uncovered by the bottom of the piston. The piston on its upward stroke has created a suction in the crankcase and the instant these ports, shown at the bottom of the piston, are opened, this suction or vacuum immediately draws in a charge of fuel through these ports into the crankcase.

It will be seen that the port at the left marked "Primary Port" is smaller than the one to the right. This "Primary Port" is about the size used in the average engine, but it is not large enough to admit a full charge of fuel in the crankcase when an engine is running at a speed of 1,000 or more revolutions per minute. It is when the high speed is desired and the throttle of the second carburetor is opened that the "Secondary Port" (see cut) is brought into use, resulting in the engine getting a full charge of fuel mixture and consequently producing a wonderful increase in power.

WRITE FOR CATALOG

Describing this wonderful motor in detail. We also manufacture a complete line of Vim motors from 5 to 27 H.P. in three types; Regular, Heavy Duty, and Cyclone Speed. Don't fail to investigate Vim motors before buying any engine. They are fully covered by a binding ten year guarantee.

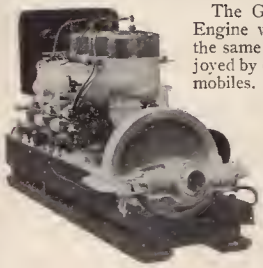
THE VIM MOTOR COMPANY,

2807 WATER STREET - - - - SANDUSKY, OHIO, U. S. A.

GRAY MARINE 2 STROKE & 4 STROKE MOTORS

THE *ONE* COMPLETE LINE—complete in selection, complete in quality. The man wanting an engine for a row boat or the man wanting power for a big cruiser will find the *right* engine in the Gray line—and back of every engine is a *lasting* guarantee that means absolute motor boat satisfaction.

Self-Starting Marine Motors

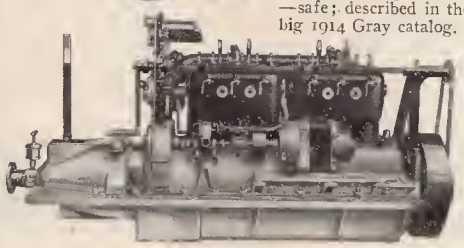


The Gray Self-Starting Marine Engine will give your motor boat the same comfort and luxury as enjoyed by drivers of high grade automobiles.

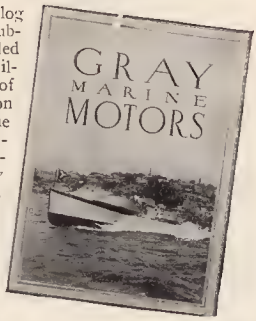
No more cranking—just press the button.

Place your engine anywhere you wish in your boat—under the cockpit floor if you wish. Start from the wheel—just press the button.

Clean—simple—sure—safe; described in the big 1914 Gray catalog.



We Want To Send You This BIG ENGINE BOOK



The most complete catalog on marine engines ever published. 48 pages of boiled down *engine facts*—finely illustrated. Gives you a lot of general engine information—a real education in marine motors—their design, construction, care and operation. Tells the true story about Gray Motors and shows how they are made.

Brimful of *real engine information*—you will know exactly what to expect if you decide on a Gray.

And you can select your engine from this catalog with perfect confidence—you won't be taking any chances. You will know that there is a responsible concern back of every statement made—a concern that is financially responsible and will be ready to look after your needs and render intelligent, efficient service during the entire life of your engine. This big, valuable book is sent free on request and without any obligations whatever. Write for *your* copy today—a postal will do.

Gray 4-Stroke Motors--Model "C"

In the new 4-stroke Gray Model "C" motors we are supplying the engine buying public with the most complete marine power plants ever built. Made in six-cylinder, 40-50 H.P. as shown; also 20-30 H.P., four-cylinder.

Every possible engine convenience that makes for ease in installation, care and operation is incorporated in their design. Complete unit power plants, equipped with Bosch High-Tension Magneto, Paragon Clutch and complete Instrument and Control Board—the height of perfection in marine engine construction in which you will find every possible refinement of detail that could possibly be desired.

Designed to take either electrical or air self-starter.

Gray Instrument and Control Board

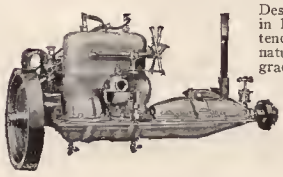
The Gray 4-stroke motors are furnished with this complete instrument board which gives your boat that modern requisite—engine convenience.

It is mounted aft of cylinder. Carburetor and spark control, magneto coil and lock are instantly accessible. Oil feed indicators are mounted in plain view and provisions are made for mounting instruments where either electric or air self-starter is used.

A complete—compact—centralized control.

Board is made of polished mahogany with all fittings and mountings nickel plated—the finishing touch to the perfect engine.

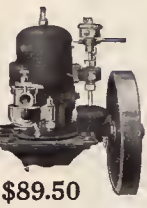
"Baby Grand"



Designed especially for power in high class mahogany yacht tenders and all boats of this nature where a strictly high grade, clean and beautifully finished engine will be appreciated.

Bosch magneto. Nickel plate—aluminum and grey enamel finish.

3 H. P. Gray Motor guaranteed to develop 4 H.P. The ideal power for family launch. An easy starter and a favorite with the ladies. A splendid example of Gray values, material and workmanship, same as on highest priced motors we build, and absolutely guaranteed in every detail. Price with complete electrical and propeller equipment, everything ready to install motor in your boat.. **$55**



6 H.P. single cylinder motor guaranteed to develop 7 H.P. Price with complete outfit **$89.50**

GRAY SERVICE IS COMPLETE. You can get immediate shipments of Gray Motors direct from factory or through any Gray agent. Our 1000 agents sell Gray Motors and give Gray Service. Stock of motors and rep air parts carried in New York, Boston, Baltimore, Philadelphia, Cincinnati, Chicago, New Orleans, Los Angeles, Seattle, Montreal.

GRAY MOTOR COMPANY 774 Gray Motor Building DETROIT, MICH.

The Ideal Semi-houseboat Cruiser

An excellent sea-boat which is easily handled by one man

43 feet by 12 feet 10 inches, with 2-foot 10-inch maximum draught.

The roomiest cruiser of the size ever built.

Gives every house comfort—plenty of light and ventilation. 6-foot 1-inch headroom throughout.

Economical to run—will make 9 miles per hour with any medium type 20 or 24 h.p. motor.

Select any of the three interior arrangements shown below—you have a boat with maximum comfort and speed, and at most moderate cost to own and run.

The development up-to-the-minute and down-to-the-size of the Mathis houseboat idea. No other firm has specialized so largely or so successfully in this field of houseboat and comfort-cruisers.

Catalog of larger houseboats free on request

MATHIS YACHT BUILDING COMPANY

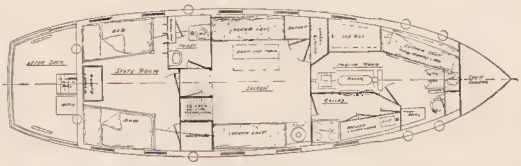
Specialists in Houseboats and Cruisers from 40 to 120 feet

COOPER'S POINT **CAMDEN, N. J.**

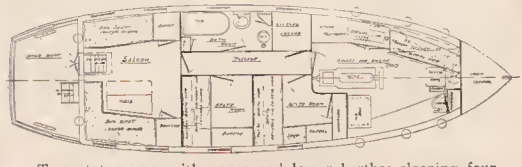
Looking aft, showing combination engine-room and galley, as called for by plans Nos. 1 and 3.

The double stateroom on the Margo II has two large beds such as shown here. The color scheme of the room is green, white and mahogany.

Interior arrangement similar to the Margo II. One double stateroom, sleeping two in beds. Saloon with drop table and sleeping accommodations for four. Galley, engine-room and crew's quarters in combination.



Plan the same as arrangement No. 1, except that galley is separated from engine-room and crew's quarters; owner's toilet being moved aft.



Two staterooms, with upper and lower berths; sleeping four. Large saloon with drop table and two transient berths; and bathroom. Galley, engine-room and crew's quarters combined.

"ROAMER", Van Blerck powered

A fast, 30' 6" x 6 feet, all-mahogany runabout, designed and built by John L. Hacker, for the Holley Brothers, of Detroit, and powered with a type C, 6 cylinder Van Blerck motor. She is an improved type of the famous "Stroller," also Hacker designed and built, last year, for Mr. Percy Reddick, of Albany, N. Y., and powered with a Van Blerck C-6. This new creation has made the amazing speed of 38 miles an hour down stream over a measured course, carrying five passengers. With the same load, her average, both with and against current, is 36 miles an hour.

Best Built

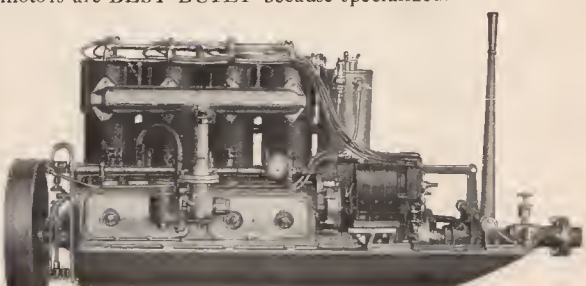
Because—Van Blercks are a specialized product

The specialty manufacturer, the same as the medical or law expert, reaches the highest efficiency through concentration of his time and resources on one particular kind of work. In line with this advanced idea of manufacturing, the Van Blerck Motor Company, departing quite radically from the almost universal practice of marine motor manufacturers, has specialized on practically one size and type of motor.

The specific standards, clearance limits and exact dimensions which are necessary in the production of high-grade motors differ widely between large and small engines. Any practical shopman knows how impossible it is to maintain these standards, except and only, where the factory product is highly specialized.

We have concentrated all of our experience, study and resources on the production of motors for high-grade, high-powered runabouts and small cruisers. No other kind of work is undertaken in our works. Our whole factory organization is trained to those particular standards of workmanship which make possible the production of engines of the highest grade. Van Blerck motors are *BEST BUILT* because specialized.

Van Blerck powered boats now hold practically every American and many foreign records. An amazing predominance of Van Blercks will be noticeable in the fastest boats of 1914. All American speed records have already been broken by Van Blerck powered craft. But we are in the racing game for one reason only—that it offers the severest test to which a marine motor can possibly be subjected—searching out the slightest weakness in design, material and workmanship. Van Blerck racing engines are stock runabout motors, timed only, and fitted for higher compression, to suit the higher R. P. M. necessary for racing purposes. They are the only **STOCK** engines in American or foreign make that have made good in the racing game.



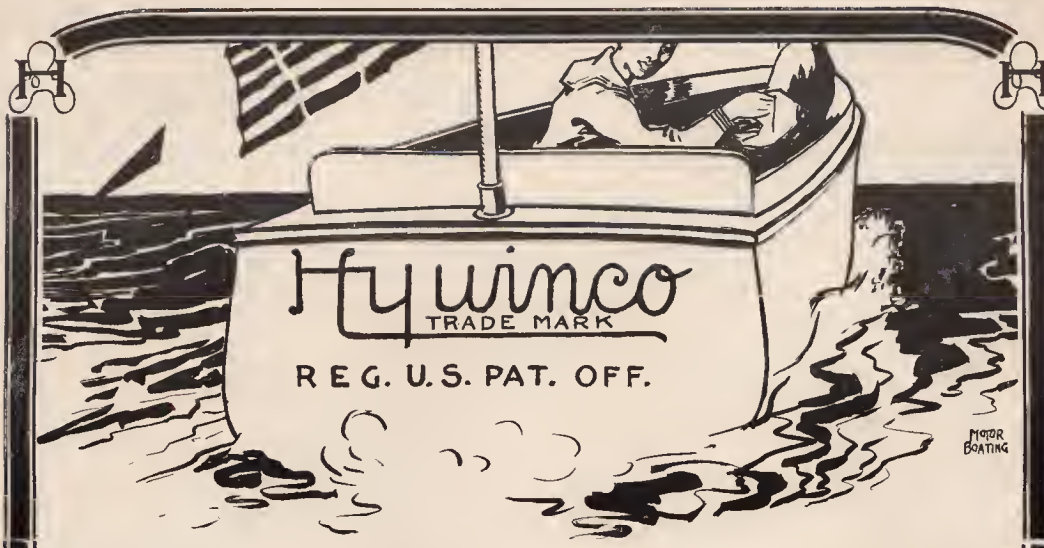
Type C.—4 Cylinder, Rated 65 H. P.

MEDIUM SPEED			INTERMEDIATE SPEED			HIGH SPEED		
Rated H. P.	Rated R. P. M.	Net Price	Rated H. P.	Rated R. P. M.	Net Price	Rated H. P.	Rated R. P. M.	Net Price
15	650	$500	50	1000	$1020	65	1200	$1160
30	650	860	75	1000	1440	100	1200	1760
45	650	1200				135	1200	2400

Send for Catalog and "Review of the Racing Season of 1913"

VAN BLERCK MOTOR CO.

MONROE, MICHIGAN.



Don't Buy a Wheel

Without This Guarantee

The Hyde Windlass Company

Guarantees to Replace

without charge, any Hyde Turbine Type Propeller from which a blade may be broken due to striking any object in the water.

If the maker of the propeller you are using, or the one you contemplate buying, does not have sufficient confidence in his product to make a positive guarantee of this kind, it isn't a safe buy for you.

Better to play safe and get a genuine Hyde Propeller. It will give you maximum power and speed—and reliability always.

Made for all Sizes and Types of Boats, from a Tender to a Battleship.

The Hyde Windlass Company, Bath, Maine

New York Office: 30 Church Street

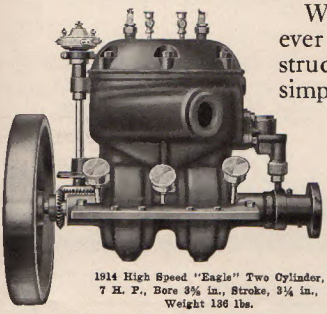
Hywinco TRADE MARK REG. U.S. PAT. OFF.

Hywinco TRADE MARK REG. U.S. PAT. OFF.

THE "EAGLE"

Matchless in Price and Efficiency. The Leader in Quality, Design and Variety. Lighter and Better Than Two-Cycle Engines Usually Offered. An Engine for Every Purpose. No Substitution Necessary. Made in High Speed, Medium Speed and Extra Heavy Duty Models.

It is absolutely impossible for you to do a satisfactory business unless you have the support of a live and successful organization back of you. Prompt service means additional business; delays in receiving shipments mean a loss. There is going to be an unusual demand for Engines during 1914 and we have prepared to meet this increased demand. We will have engines to ship when you want them and at attractive prices.



1914 High Speed "Eagle" Two Cylinder, 7 H. P., Bore 3⅝ in., Stroke, 3¼ in., Weight 136 lbs.

Completely Equipped

with Schebler carburetor, "Black Eagle" spark plugs, roller contact-timer, bronze plunger pump with self-contained check valves, priming cup, grease cups, ball thrust bearings, flange coupling, Eagle water-cooled exhaust silencer, wrenches, screw driver, can of cylinder oil, can of grease, two oil cans, lag screws and instruction book.

Price, $95.00

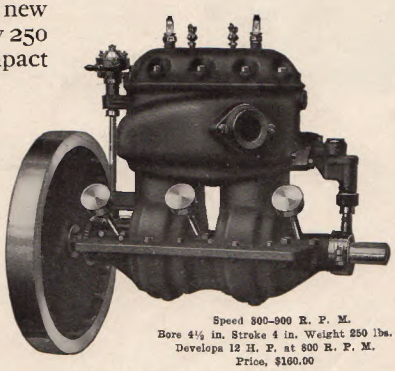
We are illustrating two of the greatest values in Marine Engines ever offered. They are in advance of all known two-cycle construction. You will find them lighter, more condensed, more simple than any two-cycle engine offered at this time.

We direct your attention to our latest two cylinder, three port, two-cycle en bloc motor. This particular engine was designed for speed boats, yacht tenders and auxiliary purposes, where a powerful, light and compact equipment is desired. This engine develops 7 H.P. (all we claim) at 900 R.P.M. Most of these in use are running at 1000 R.P.M. and over. They are built from materials made to our exacting requirements. They are fitted throughout with die cast bearings. The crank shaft is specially forged from high point carbon steel, heat treated with a greater tensile strength than ever supplied in the past in this part. This model 2 K is not only the highest grade motor built in this or any other country, but it is the only strictly high grade motor that is sold at an attractive price.

Our 2-O High Speed cast en bloc motor is an entirely new 1914 model with 4½ in. bore, 4 in. stroke weighing only 250 pounds. It develops 14 H.P. at 800 R.P.M. Its compact design, high efficiency and H.P. development makes it suitable for a large range and variety of boats. This engine installed in a 20 ft. 4½ ft. beam, square stern boat with a round bottom weighing 1260 pounds, with engine and two passengers turned a three blade 18 in. diameter 22 in. pitch Hyde propeller 830 R.P.M. in the open sea—*A wonderful performance.*

The Model 2-O is a popular priced engine regardless of the fact that it is the best built high speed two-cycle engine on the market.

Send for our free 1914 catalog illustrating 18 models of high speed, medium speed and heavy duty models.



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

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

It will be to your interest to investigate what we have to offer in the way of Engines and prices. Just stop and consider what it means to you as a dealer, boat builder or owner to have back of you one of the greatest and most up-to-date business organizations in America.

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

The Motor the Life Savers Use

MOTOR BOATING

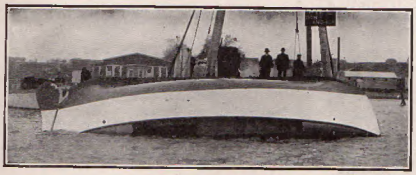
The Holmes McLellan Life Boat Cruiser

Non-Sinkable **Self-Righting**

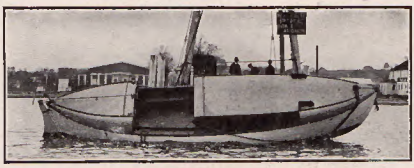
Equipped with 20-25 H. P., 4 Cylinder

Holmes Get-At-Able Motor

Is a Combination Life Boat and Tender Which Ought to be Installed on your Yacht.



Launched Upside Down



Righted in 10 Seconds

Running with Cabin Compartment Pumped Full of Water

Running Normally 9½ Miles an Hour

The Holmes Motor Co., Inc., West Mystic, Conn., Boston Office: 50 State Street

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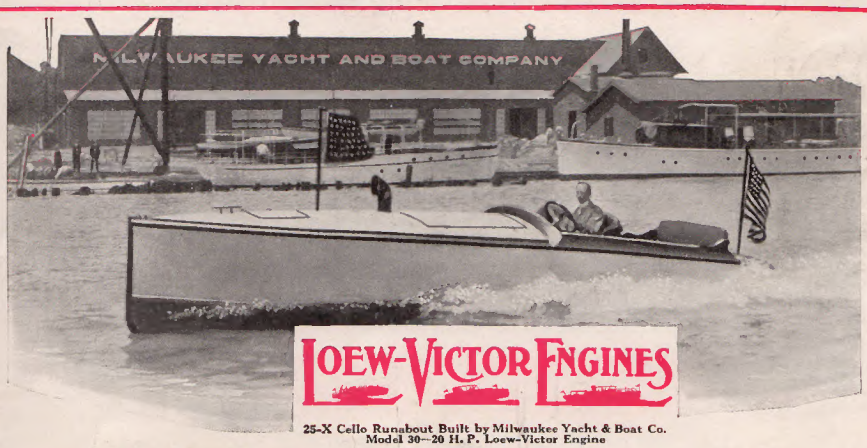


25-X Cello Runabout Built by Milwaukee Yacht & Boat Co.
Model 30—20 H. P. Loew-Victor Engine

Here's Real Praise from Motor Boat Experts

Our claim that our new Model 30, 20 H. P., motor is unquestionably America's finest marine engine for runabouts and launches up to 26 ft. in length is proven by the endorsements of the leading boat builders in Canada and the United States. The fact that these men offer LOEW-VICTOR ENGINES as standard power plants in their boats and pay more money for Loew-Victor Engines than for competitive makes is sure proof.

"To say that this is the finest small marine engine that we have ever seen would be putting it mildly. We are delighted with the results obtained with same in our 25 ft. stock runabouts, and your Model 30 will hereafter be the standard power plant for same."

MILWAUKEE YACHT & BOAT CO.

"Our customer is delighted with the Model 30, due to the easy starting of the motor, the perfect control and smooth running. Your claim that this is the finest motor for runabouts yet produced is certainly true, and we expect to use a great many of them during the season."

VALLEY BOAT & ENGINE COMPANY.

Send for new folder "Why Loew-Victor Engines Stay Sold"

LOEW-VICTOR ENGINE CO.

Oakley and Oakdale Avenues **Chicago, U. S. A.**

THE MAN, THE ENGINE

RELIABLE, TRUE AND TRIED COMPANIONS

Sterling Engines for heavy duty work are designed and built with all the care that has made the Sterling Speed Engines so famous.

Sterling
THE ENGINE of REFINEMENT
For the finest boats that float

There is no excess weight in their construction. They are built with refinement and with material that makes them stand up for longer and harder service than many engines of much greater weight.

Sterling Heavy Duty Engines are doing their share in maintaining the Sterling reputation. In all types of commercial craft, tow boats, fishing schooners, passenger boats and in heavy cruisers, they are giving the satisfaction and reliability that is characteristic of every engine bearing the Sterling name plate.

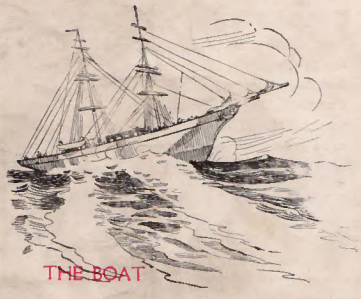
The power plant is too vital a part of a boat to admit of uncertainty or unreliability. Especially is this true of commercial boats where the earning power of a large investment depends upon steady service.

The most experienced boatmen, architects and builders are selecting Sterling Heavy Duty Engines. Their popularity is increasing with every passing season. The same qualities for which Sterlings are used in America's finest and fastest boats are built into the heavy duty models.

Write for complete Sterling catalog

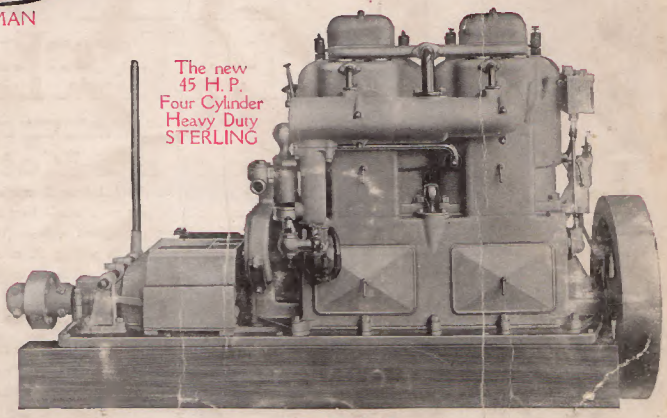
The Sterling Engine Co.
1254 Niagara St., Buffalo, N. Y.

THE MAN



THE BOAT

The new 45 H. P. Four Cylinder Heavy Duty STERLING



THE ENGINE

QUADRI-COLOR COMPANY, NEW YORK