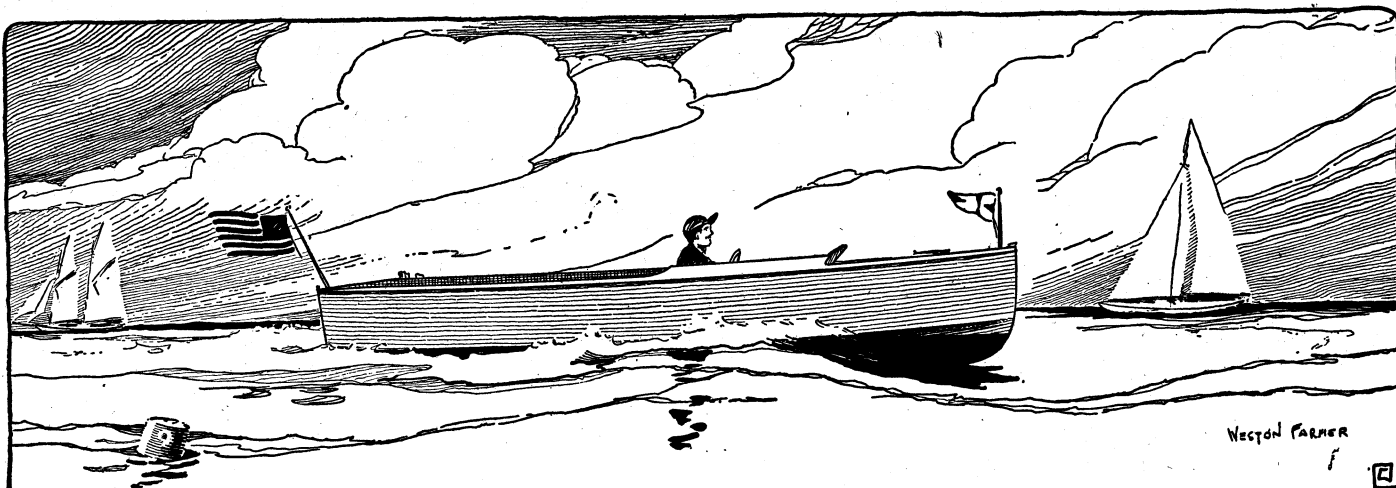




PIUTE — Complete Plans For a Sensible Deep Sea Runabout

Go where far shores call—go when you want to go
regardless of rough water in this fine family boat

By **WESTON FARMER**

PIUTE was conceived miles offshore mid towering black seas such as seem to run only on October afternoons. The "modern" basket of slats I was ferrying across Lake Superior was typical of the fancy, or showroom school of design, and was making lousy weather of it.

Right then it dawned on me why you never see the runabout type of

boat on big water: they can't take it. When you check them down to sensible going at a safe speed of 18 to 20 miles an hour, they get wet enough to drown you.

So I dipped back into experience for that once-prevalent type of boat which could slice through the going in easy fashion. The call for "showroom" speed has killed off production of the type. But you can't use any "showroom" speed except under ideal, or advertising conditions:

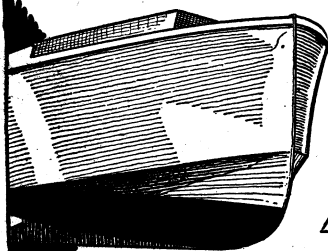


Fig. 1

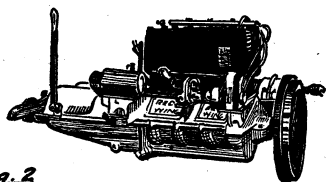
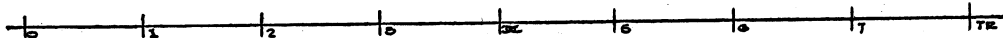
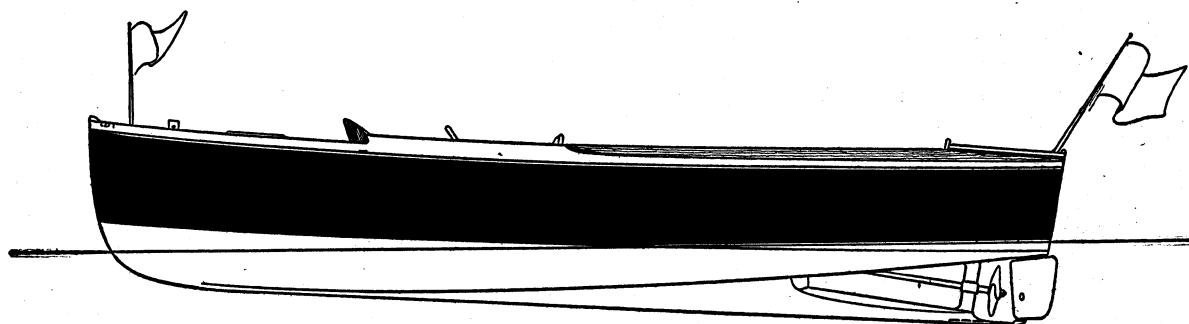
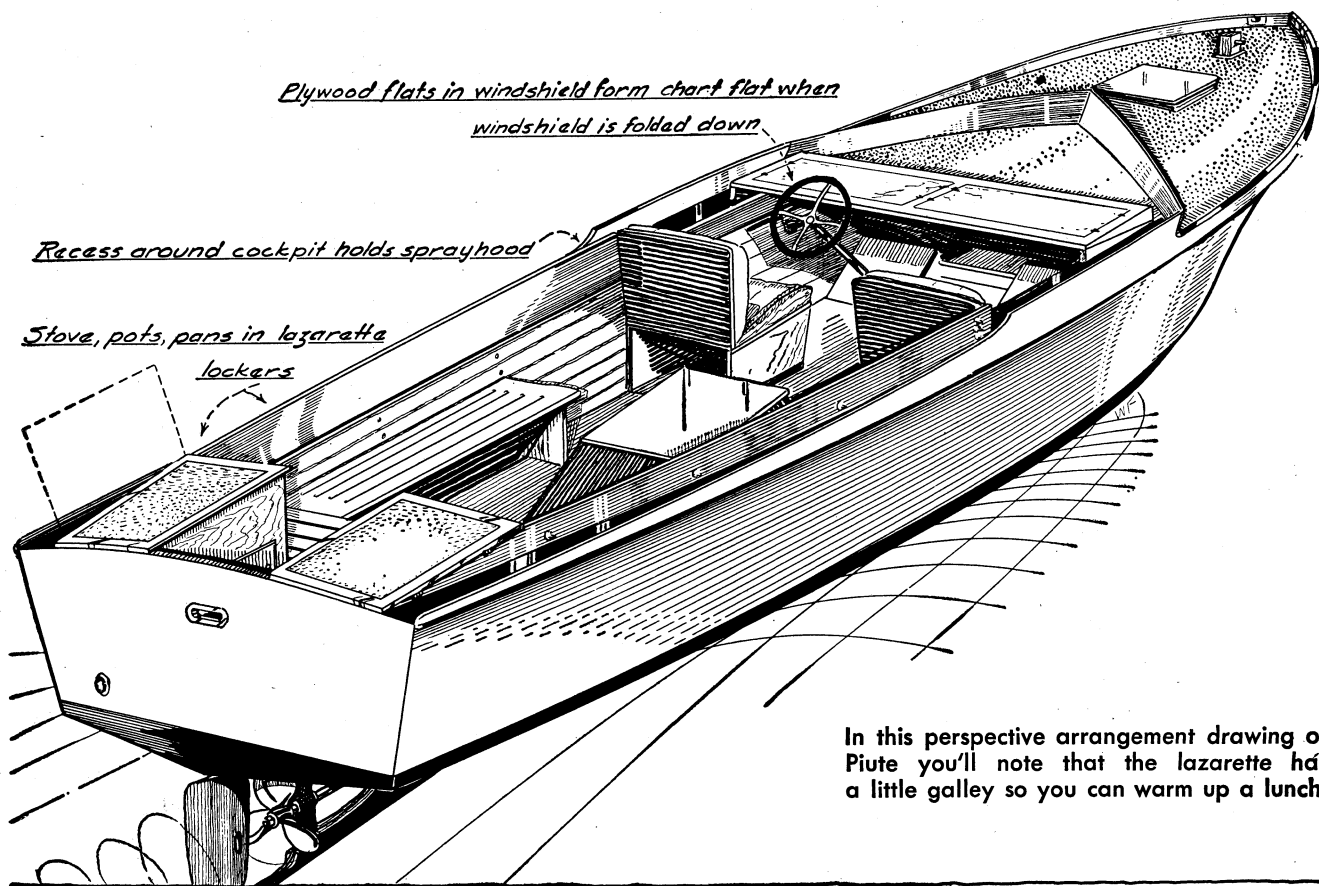


Fig. 2

Outboard Profile



Scale



Mediterranean blue skies, glassy surfaces on which everything appears like a shallop on a sea of dreams.

The weather still blows on big water. It always will. It rains, too. And weather won't wait. So since time is precious, why not have a boat that doesn't have to wait, either? *Piute* is my answer to this need. Powerboat men who know big water will cheer her advent.

The hull is of semi-planing type. She will lope along all day at 18 to 20 miles, will not be insufferably wet when checked down in the harder chances, and is premised on weight, length, brawn, and a slow turning prop—about 16-inch diameter at 1,000 rpm.

Now this is fortunate. You can use the modern and utterly reliable 40 to 50 horsepower runabout fours with a reduction gear and get the prop kick you need. Without a reduction gear on today's motors in this boat you won't have that Cadillac ride. Modern motors *without* reduction do not have prop diameter enough to give a real horse kick to the business end.

So, to get this kick on a *direct* drive, we can fevert to type in motors, too, and use the kind shown in Fig. 2—an older type such as the Red Wing AA, or Kermath Vanaadium 20. This kind of motor never

seems to wear out in normal use.

Motor makers are always well-stocked with such engines they have taken in trade, reconditioned good as new, and can sell for \$200 to \$300. Gray model Z, Kermath, Palmer, Red Wing—all are available today. They will swing the wheel area wanted, and they have Percheron horses in their cylinders—not hysterical Shetland ponies.

Any motor of about 4-inch bore by 4-inch stroke delivering 20 to 25 hp at 1,000 to 1,200 rpm and weighing in the neighborhood of 650 pounds will be ideal.

I mention power at some length, with highlights, because you won't get the feel designed into *Piute* if you substitute a lightweight, high output direct drive mill. Large diameter props of low pitch, wound up at 3,000 or so, won't give you the lope and ease and range you need. So much for feel.

Now a word about arrangement, and then to building specifications.

On a lovely and nicely balanced hull of the semi-planing, or more nearly true displacement type, we have a high-stepped chine as shown on the lines plan and at Fig. 1. This gives an easy riding boat. The bow wave of this hull cleans off the chine right around Frame 3, according to

the testing model I built and towed. The crew sits at about this point and so will ride dry.

Freeboard will give you shoulder-high protection behind the coaming, which is nice in blowy weather. In plan, as you can see from the perspective, the forward deck is encompassed by a rail or bulwark a couple of inches high. This deck drains rain and spray outboard through a scupper at the visor break.

Up forward is an access hatch for gear, and to stand in when securing ground tackle. All boats should have this. Ventilation, security, escape, stowage are all factors obtainable only with such a hatch.

Next on the deck comes the visor. This is primarily a spray and rain break. By raising the bulwark to visor height in way of the best riding position in the boat, we thus surround the covering board, making it a nest for the bows of a sprayhood, without which no open boat is really stormworthy.

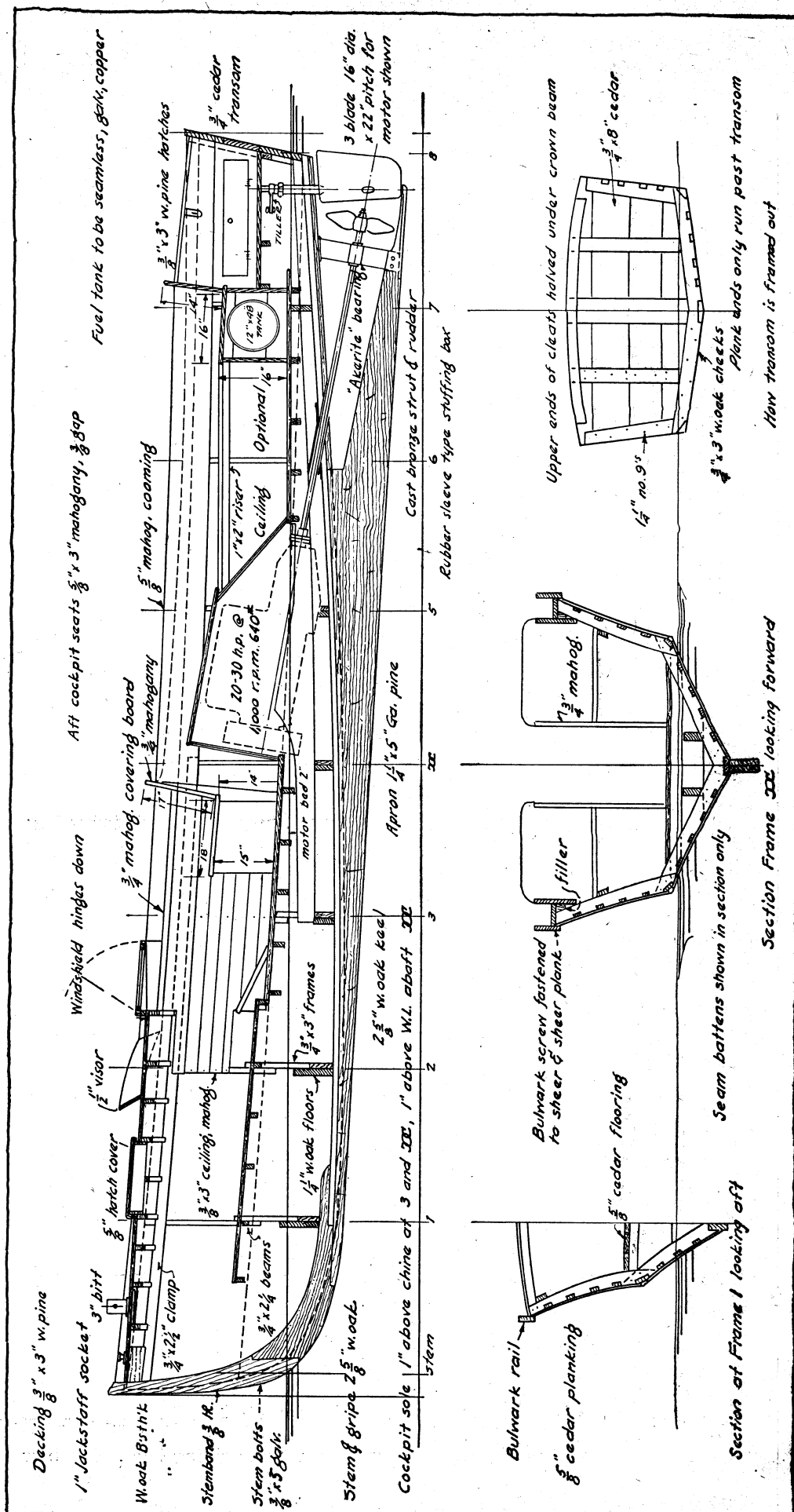
That the visor is most practical is attested to by its continuing popularity, and by the fact that the Navy uses it freely today in all their stuff. Coast Guard, too. Hence the term "military type" which I use to explain why she is not the boat the modern streamline-dreamline-scream-

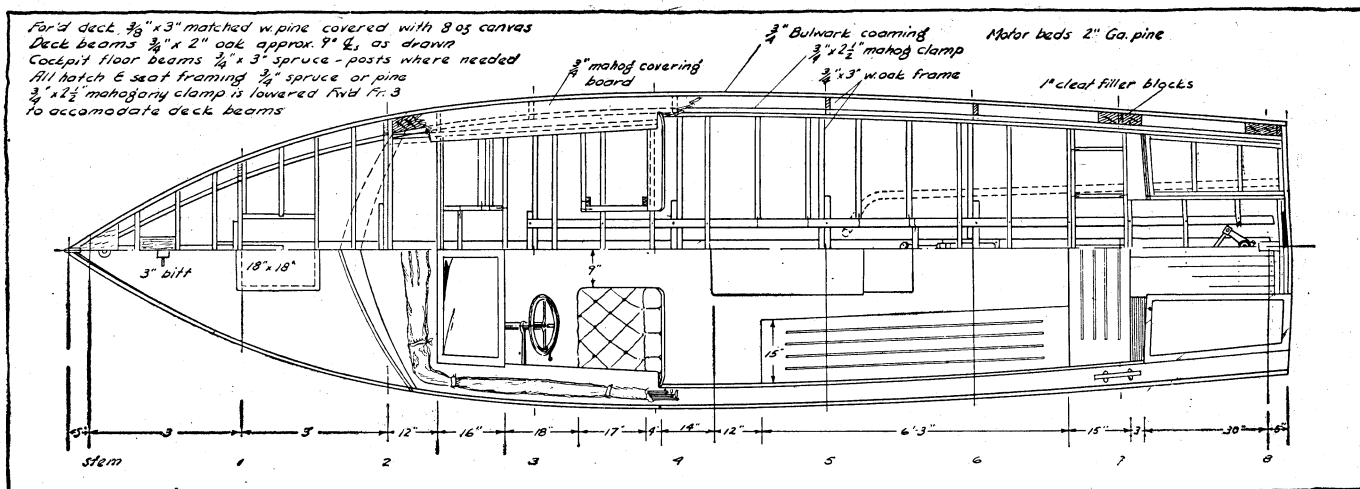
It seems to me that the prettiest boat always results from being supremely functional. Let the hull shape result from the bulk needed—let the looks result from the way good honest lumber wants to stream when it is applied to that bulk, and you've got something beautiful in the sense that the boat's bulk is beautiful. The shape of the bulk alone can be beautiful—not lines or profiles or sections. They are two-dimensional, and are only outlines.

Access to the hull side, inboard, is necessary in "working ship." We provide this by putting the break in the seating arrangement just abaft the steering position. Not only does this provide side-of-hull access, but this break also supplies floor space for tools, oils and so on when the box is off the motor.

Instead of running the side seats to the transom, I've saved about three feet for a catch-all lazarette. This is in the form of full-depth hatched lockers, port and starboard, with a rope and gear floor between. Under the seat sits a seamless galvanized or copper fuel tank, holding about 30 gallons, or enough for 125 miles of going on 20 to 25 hp at 1,000 to 1,200 rpm. In one of the lazarette lockers one can stow a Primus stove, pots, pans, dishes. The other can be the ship's larder.

So much for arrangement, except to explain the windshield forward: this folds back flat when you don't





The upper half of drawing above shows framing at deck and flooring level. Scantling sizes for all members are shown. Lower half of plan shows fore-and-aft placement of seats, visor, and fittings.

need it, and is protected by plywood flats rabbeted into the glass frames. When folded back flat this becomes a chart table and helps protect the cockpit.

Now for building the boat, and her specs: as with all boats, you must lay her down full size. This will require a floor to work on. I have seen boats of this length lofted in a room half her length (24 feet-10 inches O.A.) by lofting the fore half, then the aft half. It can be done if you're mechanic enough. And since this is hardly a beginner's boat, and since anyone who has done his first job of building will find *Piute* easy to build, I'll skip the step by step stuff and go to a general outline.

She is best built *bottom up*. To do this, run a line at a convenient height above the base line and above the sheer line so that, if the plan were turned over, this line would become the floor line. Loft out the boat to the outside of planking as the offset table shows, paying attention to the waterlines and getting the frames curved as shown. This is not hard to do.

Frames (topside) from one to six have shape to them. Bottom frames from one to four have shape, and frames five, six, seven and eight are straight, keel to chine. The boat will plank easier if the modeling shown is kept. Beware the advice of friend, neighbor or Mr. Expert who says straight sections all over are best. He has never, with his own hands, streamed planking on a hull. Lumber wants to shape when bent. Let's go with it!

The usual getting out of frames and keel follow, taking special pains to diminish the frames by the planking thickness, to expand the transom to its true face along the raked angle, and to get the transom bevels correct.

Here's a good dodge on the frames: The seam battens are not put in until after the frames have been erected on the floor, or on the sills, if you build that way. So it is easiest to get out the frames, diminished to planking thickness, but leaving an eighth of an inch or so of material still to be shaved. With the proper line for the inboard face of the planking marked on the frame, sink the battens to proper depth. This will leave the extra material between gains, or batten pockets, so that you can take a wood-block plane and face the whole frame down to batten level. The bevel will then come automatically.

Piute must be built where no rain will hit her. Better allow neither rain nor strong, direct sunlight. Such things make the lumber walk, and you can't preserve either measurements, or tightness.

After you've erected the frame, stream the battens in, spacing the pockets or gains on each frame equally. These battens are 3/4-inch x 1 7/8-inch (neat) spruce or yellow pine, in one length. If an occasional butt must be made, stagger the joints so they are in far ends of the boat. Use one 1 1/2-inch No. 12 brass screw per batten per frame.

It will be better to have the local mill bandsaw your keel for you.

They have the power and the tools. All you'll need is an accurate plywood or latticed template for them to work to. This keel should be of oak, and is sided 2 5/8-inch (neat, not commercial). This dimension can be readily effected on the mill's planer.

As shown on the scantling section, the keel is held to the apron and floor by a galvanized bolt 1/2-inch diameter, blind plugged on each frame. The apron will be 1 1/4-inch Georgia pine, which you can easily get one length, as this stuff grows to nice heights without knots. The floors are 1 1/4-inch white oak except in way of the motor, where they should be sided 1 1/2-inch and molded to tie the frame heels together. The frames are of 3/4-inch white oak, 3-inch molded and at the sheer ends are 2 1/4-inch molded.

There is no need for gussets or cheekpieces. The frames, if of oak and of this face width, are well held by three 3/8-inch galvanized bolts at the chine corner. The chines are of two pieces, inner and outer, of Georgia pine in single lengths. The inner, or flat piece, is 7/8-inch by 3-inch. The outer piece is 1 1/2-inch by 1 1/2-inch. Two screws per frame, of 2-inch No. 12 brass, will hold the inner chine to the frame. The outer member forms the chine corner, and should be planed off to a hard, sharp edge to make the water clean off quickly. It is a mistake to round the chine. Fasten the outer chine to the inner chine with 1 1/2-inch No. 10 brass screws, deeply sunk and banded, on 4-inch to 6-inch centers.

The clamp, covering board and bulwark scantlings are covered in

the construction, or scantling section. Note that the forward clamp is lowered. On this land the deck beams.

The planking should be white cedar, Maine white pine, or some equally light, tough, workable wood to finish $\frac{5}{8}$ -inch. Put on so as to space the strakes evenly at each frame, with battens under. The fastenings should be $\frac{1}{8}$ -inch No. 8 brass screws on 4-inch centers, bunged with pine bungs (obtainable at all marine hardware outlets upon advance order) set in varnish and lightly tapped into the bung hole. Special bits are available that will pre-drill to proper screw size and countersink for bungs in one operation. Bungs are trimmed off with a chisel later.

In connection with fastening, a portable electric drill is the clearer, but there is no law against the "Armstrong" method, one at a time. Thousands of boats have been built by sheer elbow grease.

This covers the specs of the hull, and since it is hull we are primarily concerned with, and since the construction is the simple seam-batten type with which nearly every one who knows boats is familiar, not much need be said as to method.

Obviously, you have to arrive at the size and location of the parts. This you do by laying the job down. Obviously, too, these parts have to be fastened, and erected so they can be planked. As to fastenings, where I have not been specific, use a screw which, when sunk home, will come within an $\frac{1}{8}$ or $\frac{1}{4}$ -inch of piercing the member. The coarser the thread, generally, the greater the holding power. Fine threaded screws are for hardwood.

When the hull is planked, of course, it must be planed, sanded, the seams payed with white lead primer and string caulked, and the seams puttied and glazed. Old stuff, and no need to repeat it here, except to caution about the caulking. Roll in each seam only a light string. Wood swells, and if the joints are between $\frac{1}{32}$ -inch and $\frac{1}{16}$ -inch apart inboard on the batten, the job will swell tight. Caulking is only a deterrent for launching leaks—leaks induced by hull working. *Don't pound caulking cotton into a seam.* Wood to wood fits are the tightest: if possible, work to tight wood inboard, leaving $\frac{1}{16}$ -inch outgate for the string caulk which is rolled in with a caulking wheel, and you'll have things ideal.

The rudder and strut deserve special mention. The rudder can be made of a bronze plate shaped as shown, but it would be a higher grade job to get out your own pattern and have the local foundry cast one up. Columbia Bronze, Freeport, L. I., has many rudder patterns, and they should be able to get you one

of about the area shown. You *must* make a pattern for the strut. It need not be a split pattern. But it should be cast bronze, naval bronze.

The stern bearing is a Willis Akerite, obtainable from the E. J. Willis Co., 85 Chambers St., New York City. This is the smoothest of rubber bearings, I think, and the shaft never wears hex-shaped.

All details of inboard construction are straightforward carpentry, and will be obvious from the sectional views and from the arrangement plan. In this department, as to personal latitude, I say, "God bless ye." Done as shown, she'll be fine. But if you want something else, so long as weights of motor, crew and fuel are kept where they are on the lines plan, you'll get a good boat.

Don't, however, go loading up the interior with house lumber or use any scantlings above what are called for: i.e., $\frac{3}{4}$ -inch cockpit sole, $\frac{3}{4}$ -inch x $1\frac{1}{4}$ -inch white oak seat risers, main cockpit floor beams $\frac{3}{4}$ -inch x 3-inch spruce, etc. Lumber in a boat gets wet, and wet lumber gets heavy. Heft kills performance.

Now I can hear some letters winging my way asking the all-important question, "What speed will I get with my *Piute* if I put in the motor you say?"

I hesitate on this. Speed of amateur-built boats depends upon two things: how closely the plans are followed, and the degree of hull finish achieved. If you follow the plans right out the window, and if you do a good sanding and a fine paint job, you should get 16 to 18 miles an hour.

A contract job out of a shipyard would go 18 to 20. William H. Hand, Jr., a famous designer of this type of boat, consistently got 20 to 21 miles an hour on hulls of similar weight and displacement. It was a matter of fairness and finish. But suppose you find a good mill of the Fig. 2 variety, around 4-inch x 4-inch on 650 pounds and turning 1,000 rpm, then a three-bladed wheel 16-inch diameter by 22-inch pitch will give you 16 real land miles per hour, on nominal slip. Since this is equal to the usual called speed of 20 mph, it is good going. Any boat that fast is really wiggling, and I should say honestly you can expect that speed.

So there you have *Piute*, so named after the old prairie Indian who could go all day on the lope without tiring himself or his mount.

Scantling section for *Piute*. The sizes of major structural elements of the hull are shown in correct relation to each other and the kinds of wood to use are stated. If woods are substituted, use wood equal in weight.

