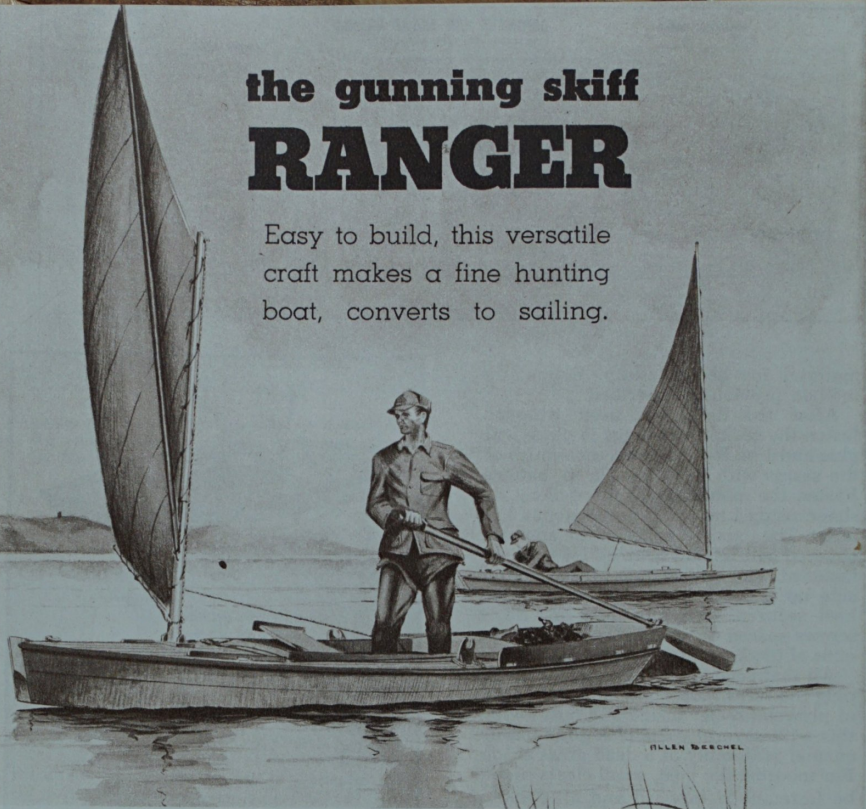


the gunning skiff **RANGER**

Easy to build, this versatile craft makes a fine hunting boat, converts to sailing.



By H. I. Chapelle

THE gunning skiffs are often highly specialized craft, suitable only for hunting purposes. There are some, however, that are more versatile; the famed Barnegat Sneakbox, for example. This style of skiff is not only a very fine hunting boat but also a popular model for pleasure sailing. The Sneakbox, in its best model at least, is not an extremely easy boat to build. Fortunately there are gunning skiffs having much the same qualities as the Sneakbox and that are more easily built. One of these, the subject of this discussion, is the Long Island gunning sharpie.

The Long Island gunning sharpie developed away back, so far back in fact that we do not know when it came into use. But the model reached its height of development soon after the Civil War and has remained almost unchanged since then.

The sharpie gunning skiff is still used, for it is a very handy boat for setting out decoys and for picking up birds. There are

some gunners who use sail nowadays to reach their blinds, for they think the noise of an outboard is objectionable in this. Because of its decked hull, strongly flaring sides and rather light weight, the sharpie gunning skiff is often preferable for pleasure sailing, out of the gunning season, as compared to sailing dinghies and prams of roughly the same dimensions. Because of its design, which gives the skiff many of the same qualities as the old-time wooden, decked "cruising canoe," the gunning sharpie has been used by some hardy souls for rather long single-handed cruises; just as in the case of the better-known Sneakbox.

The plans show two modes of construction, one plywood and one plank built. The choice depends largely upon the owner and upon availability of the necessary materials. The plywood construction is best if the boat is to be out of the water a good deal and is to be handled with a trailer,

for practical reasons. On the other hand, if the boat is to be left afloat for long periods and is to suffer the usual spells of neglect that such craft receive, then the plank construction is recommended. In most cases a plywood boat of this type will take more time and work to build than a plank boat.

Fig. 1 shows the lines and offsets of our gunning sharpie. The boat will be a rather easy one to loft and requires very little explanation here.

First, do not let the very simplicity of the lines lead to any "short-cuts" in lofting, for that will lead to either trouble and extra work in building or to a boat that is not like the design. Next, the offsets and the notes call for straight lines in chine profile—take care to lay down the chines as instructed even if the offset measurements require small adjustments. The chine profile has a great deal to do with the ease of rowing and the speed of sailing in this skiff and do not let anyone argue you into "cambering" the bottom, where it is supposed to be straight. Next, it is usual to call for a single crown mold to form the deck beams. But strict adherence to this practice gives a very unpleasant line to the profile of the deck as bow and stern are approached. I have, therefore, given offsets for the centerline of the deck and also for a buttock on deck one foot out. This will be of some assistance in showing where the single beam mold will have to be altered.

Finally, in lofting the lines, take thought of how you are going to set up the frames or molds, depending upon the chosen construction, and loft the "stocks" so that the heights and positions of molds and bow and stern, or the frames, are established with accuracy. This boat should be set up upside down on a strong "horse" or beam to form the stocks. It is a good plan to loft the stock-construction full-size too as this saves a good deal of "cut-and-try" later. One word about the stocks and setting up the frames or molds—make the whole as strong and rigid as you can for there is nothing that will cause more trouble to a builder than weak, insecure stocks.

Here is a good place to explain the unusual position of the centerboard—or, more correctly speaking, the daggerboard. It is placed just outside the coaming to starboard. This gives an unobstructed cockpit as far as the mast and will allow a tall man to stretch out in the boat, with some chance of comfort, and will also allow clear stowage space under the fore-deck (for hatch-covers or a cockpit cover) when underway. The position of the daggerboard will not affect the sailing qualities of the boat on one tack more than on the other, regard-

less of what may be imagined. A useful cockpit is far more important, in so small a boat as this one, than is symmetry in arrangement. By the way, the dimensions for lofting the daggerboard will be found in Fig. 4; a straight board may be used if desired but the curved board as shown is the better for sailing.

The decision must be made as to what style of construction is to be used, in the lofting stage, so that the proper thicknesses of sides, bottom and decking can be deducted to obtain shape of frames or molds. If you are going to use plywood skin, then your frames must be beveled; consult Fig. 2 (showing this construction) to locate each frame in regard to its station line, so as to know which way to bevel. Likewise with the molds, if plank construction is intended; the molds in the forebody have their forward face on the station lines and those in the afterbody have their after face on the stations, to avoid the necessity of cutting bevels in the molds. The mold at Station 7 may be centered on the station line.

Fig. 2 shows the plywood construction. The Specifications and Building Instructions should be used in conjunction with the drawing to understand what is required. It should be noticed that the position of deck beams in relation to frames is not constant. The ends of the deck beams are halved into the sheer clamp and the side frames stand flush with the floor timbers or futtocks.

Fig. 3 shows the plank construction of this boat, with a few details that are applicable to both plank and plywood construction. Attention is called to the sketch of the stem construction; the latter is made of an inner and outer member, bolted together to avoid cutting a rabbet. The inner piece or stem liner is set up on the stocks and after the boat is planked and the sides trimmed off along the forward edge of the stem liner, the outer piece or cut-water is fitted. I have also drawn a rough sketch showing the centerboard case and its fitting to coaming and carlin. In general, the construction is the common one in flat-bottom skiffs—a mold should be made for each station and the clamps and chines fitted, then the sides. The keelson should be run in to steady the molds of course and the bottom planked before the hull is righted with molds still in place. Do not remove molds until deck beams are in; cutting the molds where necessary to fit the beams as you go. The sketch of the folding wooden oarlocks apply to either construction; this is a Jersey gadget which is very practical. The amount the locks fall outboard is con-

trolled by the beveled bottom of the lock-piece which is pivoted so that it comes to deck when at the required angle. The height of the lock-piece should be decided by the owner—to fit his height and rowing preferences. When not in use, the lock-pieces fold down on deck out of the way. There is only one constructional detail in the plank construction plan that is a departure from the usual practices; this is the carlin of the cockpit coaming. A flat-bottom cross-planked boat of the skiff type requires some method of stiffening the sides to hold the flare and in this, the sheer and rocker. In some boats this can be done by a thwart or two but in a gunning skiff these are undesirable. Nor is the deck to be relied upon in these skiffs for it is quite light. I have, therefore, made the carlin in such a way as to permit its use as a support to the sides. The carlin is made of plank, on the flat; it is nailed along the bottom of the cockpit coaming and so both form a stiff L-shaped strength member. By joining these to the sides with the short deck beams the flare will be maintained along the cockpit where, otherwise, there would be no rigid support. It would be another useful idea to tongue and groove the bottom plank for 2 ft. 0 in., from bow and stern.

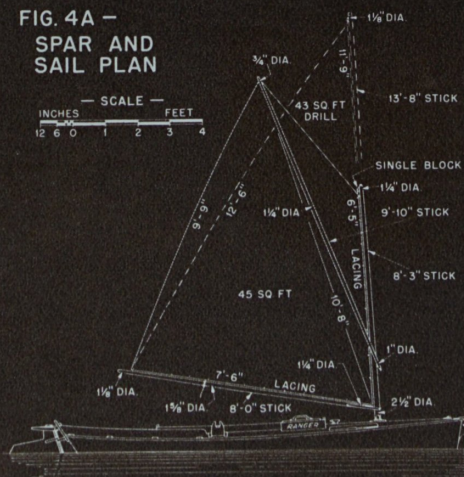
Say you are ready to get out the side panels of the skiff. You take some $\frac{3}{8}$ -in. pattern stock, which does not have to be clear, good timber, and spring one piece along the sheer, tacking it in place temporarily. Spring another length along the chine. Join the two with short pieces of pattern stock to hold them together. Then mark the chine and sheer on the pattern stock and remove from the boat. All you

have to do is to add to the sheer the allowance for bevel which you can measure accurately from your loft drawing. Next, saw the pattern out and with it you are ready to mark and cut the plywood sheet or the side planks, as the case may be. In either, you can shift the pattern around on the stock to obtain the most economical use of the material in hand. Usually professional builders buy a low grade material and have it sawed to $\frac{1}{2}$ -in. thickness and about 6-in. widths—then have it planed so that it is scant $\frac{3}{8}$ in. thick, for pattern stock. They prefer this to using the more cumbersome fiber or pressed-board panels which have to be rough-cut before patterns can be made, as a rule. Hence the pattern timber is usually the cheaper. The pattern stock is also useful in getting out shapes of pieces of timber from mold-loft drawings, of course, and the use of such patterns permits the best use of available building material.

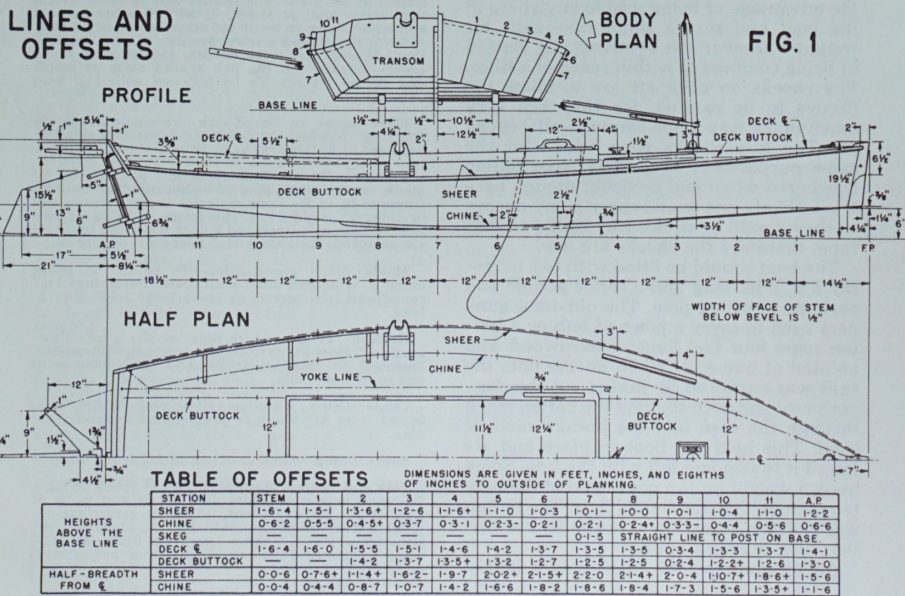
Fig. 4 shows a detail of the daggerboard, the seat and chest used by the old market-gunners and sail plans that can be used for the skiff. The daggerboard should be carefully fitted to the case after the latter is built so that the daggerboard will jamb slightly when forced into place. But if it is too loose to do this, all is not lost. A couple of copper tacks and a rubber-band will do the trick. Place the two tacks opposite one another on top of the case and stretch the band between them, over the cap of the daggerboard, which will hold it down until it strikes bottom. Then it will lift the band off the tacks and free itself before the board, or the sailor's dignity, is damaged in running aground.

There are two sail plans shown. One is the old standard rig of the gunning skiffs, whether Sneakbox or sharpie, the spritsail. This rig can be reduced in sail area in a squall by simply unshipping the sprit and tying the peak of the sail to the boom-jaws or to the lower lacing of the sail. This is much quicker than tying in reef points and so the spritsail is strongly recommended if the boat is to be used for gunning where strong winds may be met. The lacing of the sail to the mast is done thus. A short piece of line is spliced into the uppermost grommet in the sail; the line is long enough to pass spirally around the mast to the next grommet below, where it is tied with a figure-eight knot, or fitted with a small toggle to pass through the grommet. Thus, there will be a lacing lanyard in every other sail grommet on the luff of the sail. The boom lacing should be one long piece of line passed spirally around the boom and through the grommets on the foot of the sail; the clew and tack lashing should be

FIG. 4A —
SPAR AND
SAIL PLAN



DAGGER BOARD



TOP OF STERN POST INTERSECTS A.P. 15 1/4" ABOVE BASE LINE. TOP OF FACE OF STEM INTERSECTS F.P. 19 1/4" ABOVE BASE LINE. CHINE TO BE STRAIGHT IN PROFILE FROM STEM TO STA. NO.3 AND FROM STA. NO.10 TO TRANSOM. LENGTH OF HULL BETWEEN A.P. AND F.P. IS 12'-9" 23

separate and of a number of turns of yacht marlin; the clew lashing through a hole in the boom end and the tack either through a pair of holes in the jaws or through a staple driven into the top of the boom. To hold the boom down when hoisting sail a staple is driven into the mast and a piece of small line is used as a tack-line; this is passed through a hole in the boom between the jaws and held with a stop-knot on top of the boom. The tail is passed through the staple and tied. The halyard is a single part reeving through a small block secured around the mast-head by a strop. The sheave of the small block should stand athwartships to reeve freely. The fall of the halyard may be lead through a lead block on deck and belayed to a cleat on the fore deck or to one secured to the outside face of the cockpit coaming at the side. The main sheet is a single line and should be held in the hand when sailing so small a boat in a fresh breeze and when not made fast to anything.

The leg-of-mutton sail has the same rigging as described and is shown, as many prefer this form of sail to any other. It is least suited for gunning as the long mast would be a nuisance but it would make a very satisfactory rig for pleasure-sailing. A single sail is sufficient for such a boat as this as a jib would be a troublesome sail to furl.

The steering of the boat is done by yoke lines, as seen in the plans. This method has the advantage of being usable anywhere in the boat and so the sailor may shift his weight wherever it is of advantage, instead of being confined to within reach of a tiller. The checks on deck aft are to allow the decoys to be carried, for they are very much in the way when carried in the cockpit. The fore-checks were added for the same purpose—to keep stuff from falling overboard when laid on deck; though here it is unlikely one would carry many decoys as they would be in the way of the anchor rope; therefore the checks are low.

The boat should be fitted with two oars—say 8 ft. 0 in. long and a canoe paddle and perhaps a setting pole. The old-time gunners used to carry a piece of lath or a batten some four feet long, of hardwood, and pointed at one end. When on the flats the skiff was anchored by taking out the daggerboard and then shoving the batten down through the case into the bottom mud or sand. This held the boat in place and allowed it to rise and fall with the tide. Some hung a weight on the upper end of the batten to hold it down on tidal flats. The batten was called a "spud" by some as its use was that of a dredge's spuds.

An air-mattress or cushion is a handy

thing in these skiffs. You can fit a plank on the transom as shown for a sculling lock—or this can be fitted to take a small outboard engine; take your choice.

In this boat you will have a practical gunning skiff, a useful row-boat, a smart sailing sharpie and a good craft for training kids in sailing; if they can get the boat away from pop, that is. •

SPECIFICATIONS AND BUILDING INSTRUCTIONS

Lofting and the Stocks—The hull is to be built upside down and the loft work completed accordingly. In plank construction, a mold will be made for every station. In plywood construction a frame will be made for each station. The bow piece or stem-liner will be made from the loft work and so will the transom, in either case. The stocks shall consist of a 14'-0" backbone properly set up on the floor or ground of the building site and rigidly secured in place at the desired height. This timber shall be 2"x6" pine, fir or other suitable timber and it shall be set on edge; the top to be trimmed and planed straight, square and smooth. On this a centerline for the hull shall be marked as well as the location of the stations and the molds or frames as well as the stem-liner and transom. The frames or molds shall then be fastened to the backbone at the proper heights as ascertained from the loft work and the stem-liner and transom shall be likewise fastened into place. Care is to be taken that the molds stand square in all directions as required and established in the mold-loft work. Each member shall be properly braced so that it cannot move during construction of the hull.

Frames, plywood construction—Side and bottom frames or futtocks are to be of oak, yellow pine or larch; the side frames to side $\frac{3}{4}$ " and to mold 2" at heel and $1\frac{1}{2}$ " at head and are to be notched for chine, sheer and middle battens. The floor futtock to side $\frac{3}{4}$ " and mold $1\frac{1}{2}$ " and is also to be notched for bottom battens and the keelson and skid batten, as shown in the plans. The frames will be fitted with a temporary spall at sheer, $\frac{3}{4}$ "x4". The brackets at chine and sheer to be of $\frac{1}{4}$ " plywood, fastened with $\frac{3}{4}$ " No. 13 flathead screws. **Frames, plank construction**—Side frames to be of oak, yellow pine, fir or cedar— $\frac{3}{4}$ "x $1\frac{1}{4}$ " on the flat, spaced clear of molds and 12" on centers. To be fastened with $1\frac{1}{4}$ " boat nails.

Stem—Liner to be of oak, yellow pine or fir $1\frac{3}{4}$ "x2 $\frac{1}{2}$ " finished molded as in plans and sided as required in Loft-work, as to bevels.

Transom—To be made from loft patterns of $\frac{3}{4}$ " plank—cedar, white pine or mahogany. The transom frame to be of the same material as the transom and to side $\frac{3}{4}$ ", mold $1\frac{1}{2}$ ". The frame is to be of two sides, a bottom futtock and a deck beam. No brackets are required. Fastenings $1\frac{1}{4}$ " boat nails or screws.

Molds, plank construction—To be of $\frac{3}{4}$ " plank about 3' wide and fitted with spalls. Fastenings $1\frac{1}{2}$ " roundhead iron screws or stove bolts $\frac{3}{16}$ " dia., 2" long.

Keelson—Yellow, white pine, or fir $\frac{1}{2}$ "x3". Fastened to frames in plywood construction with screws. Fastened to transom frame and stem-liner with screws or boat nails.

Chine—Cedar, white or yellow pine, or fir. To be sawed from $\frac{3}{4}$ " plank to profile, and to finish $1\frac{3}{4}$ " deep.

Sheer Clamp—Same as chine, to finish $1\frac{3}{8}$ " deep.

Side and Bottom Battens, plywood construction—To be of yellow or white pine, or fir and to be of $\frac{5}{16}$ "x $1\frac{1}{4}$ ". **Deck Battens, plywood construction**— $\frac{1}{4}$ "x1", same materials. **Skid Batten, plywood construction**— $\frac{1}{2}$ "x $1\frac{3}{4}$ ", same materials. Space as indicated on plans. Fasten to frames and beams with screws.

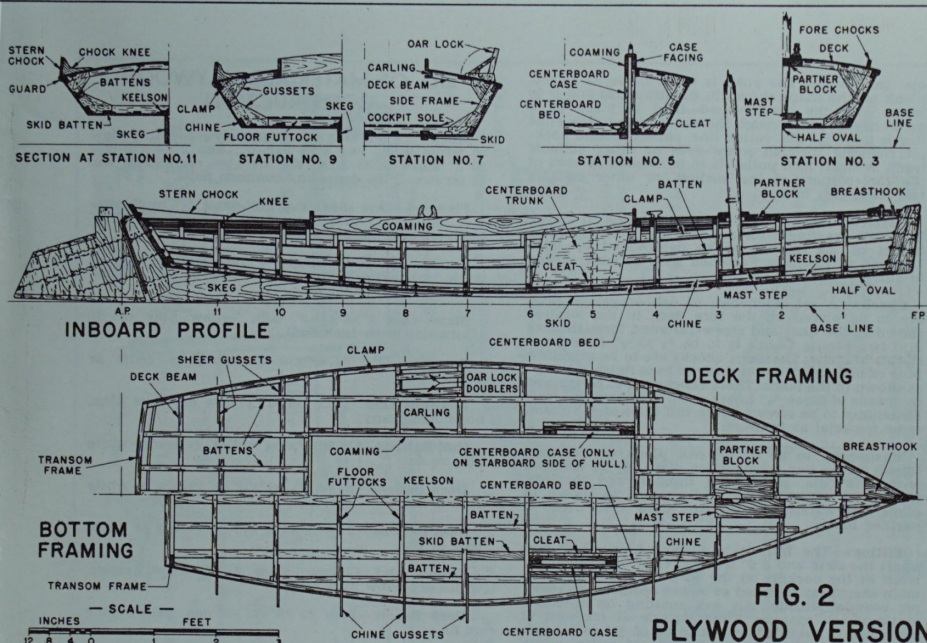


FIG. 2
PLYWOOD VERSION

Deck Beams—Oak, yellow pine or fir, to side $\frac{3}{4}$ " and mold $1\frac{1}{4}$ ". The ends at sheer to halve into the sheer clamp and into the carlins in plywood construction but here, in plank construction, the beam ends to stop $1/16$ " short of the coamings and to have a shallow notch at outboard edge of plank carlins. Fastenings to be $1\frac{1}{4}$ " and $1\frac{1}{4}$ " flathead screws. Plywood brackets are not required in plank construction.

Plywood Skin, plywood construction—Bottom to be of $\frac{3}{8}$ " plywood, sides and deck to be of $\frac{1}{4}$ " plywood. Plywood to be birch surface, marine quality. Fastenings to be $\frac{7}{8}$ " and $\frac{5}{8}$ " screws, flathead. Deck to be covered with drill laid in thick paint. Edges of plywood along chines to be covered with linen tape or other protective material of a waterproof nature as recommended by plywood manufacturers.

Carlins—Yellow or white pine, fir or oak. Plywood construction—Carlins side $\frac{3}{4}$ " mold $1\frac{1}{4}$ ". To stand on edge. Plank construction—Carlins $\frac{3}{8}$ "x3" nailed to underside coamings—to stand on flat as shown in plans.

Coamings— $\frac{1}{2}$ " plank, white pine, mahogany or fir. Sawed to sheer from 4" plank, screw- or nail-fastened.

Planking, plank construction—Bottom plank $\frac{3}{4}$ "x-5" cedar or white pine. Fastenings $1\frac{1}{2}$ " boat nails. Side plank $\frac{5}{8}$ " cedar or white pine in two strakes. Fastenings 1" boat nails. Deck $5/16$ " cedar or white pine, random widths, canvas-covered (drill laid in thick paint); fastenings $\frac{3}{4}$ " galv. finish nails or $\frac{7}{8}$ " screws. Plywood deck can be used with plank construction.

Deck Blocking—White pine, cedar, fir or spruce, to finish 1" thick and shaped as shown in plans.

Centerboard Case—To be built with $\frac{3}{4}$ " plank sides, of cedar, white pine or mahogany. End blocks $\frac{3}{4}$ "x2" oak or yellow pine. Case bed $1\frac{1}{4}$ "x5" cedar, white pine or mahogany. Cleats on bed $\frac{3}{4}$ "x1 $\frac{1}{4}$ " cedar, white pine or mahogany. The end blocks to halve into the bed. The sides and end blocks to rest on a flannel gasket saturated with paint of marine glue in lieu of caulking along top of bed. Bed to rest on

similar gasket. The sides to be fastened with screws to end-blocks. Cleats to be similarly fastened. The fastenings of cleats to bed to be 2" screws spaced 3". The bed to be fastened to bottom plank after careful fitting with $3/16$ " dia. carriage or stove bolts—spaced not more than 4" apart or so as to place two in each bottom plank on each side of the case in way of slot. The outside side of case to reach to deck level, above which a facing piece about 1"x3" is to be neatly fitted to come flush with top of coaming; the ends of the piece to be rounded in to meet face of coaming. The inside side of case to reach to the underside of the coaming; the latter will form the inside face of the case here.

Centerboard—To be made as shown in plans, of oak or yellow pine, of $\frac{3}{4}$ " plank and fitted with a $\frac{1}{2}$ "x2 $\frac{1}{2}$ " mahogany cap and a wooden lift-handle.

Cutwater—Oak or yellow pine, shaped as shown in plans and bolted to stem-liner with $3/16$ " stove bolts.

Skeg—Oak or yellow pine, to be cut to shape from 1" plank and fastened with $3/16$ " dia. stove bolts through all.

Post—Same material and siding as skeg. Same fastenings with one $3/16$ " dia. wire spike 6" long and one 3" long into skeg.

Skids—Oak or ash, $\frac{3}{4}$ "x1 $\frac{1}{2}$ " laid on the flat and screw-fastened through bottom into skid batten in plywood bottom or into bottom in plank construction.

Guards— $\frac{1}{2}$ "x1" oak, tapered fore and aft to $\frac{1}{2}$ "x- $\frac{3}{4}$ "—secured with $1\frac{1}{4}$ " galv. finish nails or brass escutcheon pins.

Rudder and Yoke—Oak or yellow pine. Stock is made of 1"x6" plank, as is the plank adjoining. The next is $\frac{3}{4}$ " thick as is the trail piece; the cleats are of 1"x1" oak. Fastenings are $\frac{1}{4}$ " and $3/16$ " dia. rod, $3/16$ " galv. wire spikes 8" long and 3" boat nails. The pintles and gudgeons may be purchased to take $\frac{1}{4}$ " dia. rod or may be made of $\frac{3}{4}$ " strap, $3/16$ " thick, welded to bushings which will take $\frac{1}{4}$ " dia. rod. The gudgeons and pintles are to be fastened with $3/16$ "

dia. iron rivets. The yoke is to be made of 1" oak plank on the shape shown in the drawings and is to tenon over the rudder-head—held in place by a metal or oak pin through the rudder-head. The yoke line is to be $\frac{1}{4}$ " dia. cotton line, passed around cockpit coaming through screw-eyes or other suitable leads. A small iron pulley is to be located at each of the fore-corners of the cockpit, or other suitable fair-leads may be used.

Oarlocks—To be made of 1" oak plank as shown in detail drawing with a $\frac{3}{16}$ " dia. pivot pin; the height of the oarlock to be determined by trial. Lanyard of rawhide. Fastened with suitable screws or stove bolts.

Chocks—A set of chocks, of oak or yellow pine, are to be placed on the fore deck in the location shown in the lines and screw-fastened through deck into two beams. Chock is to be $\frac{3}{4}$ "x $1\frac{1}{2}$ " finished as shown in plans. The stern chocks are to be of yellow pine or mahogany cut to sheer so as to finish $\frac{3}{8}$ "x $\frac{3}{8}$ " as shown in the plans. These chocks are to be secured by means of three $\frac{3}{4}$ " knees each, as shown in Lines. Fastenings to be screws. Stern rail to be of $\frac{3}{4}$ " plank, same material as transom.

Mast—Step to be of $\frac{3}{4}$ " oak plank of the sizes shown in the two construction plans; to be fastened with $\frac{3}{16}$ " dia. stove bolts through and through. Mast plate of $\frac{1}{2}$ " oak or yellow pine as shown in plans, screw-fastened through deck into deck or partner block.

Fittings—The hull is to have a 3" ringbolt just abaft the stern and a 6" wooden cleat fitted just forward of the cockpit on the fore deck. 4" cleats for main sheet may be fitted as owner requires, on cockpit coaming inside. An oak sculling or outboard motor chock may be fitted outside of transom to starboard as required; chock to be of $\frac{3}{8}$ " to $\frac{3}{4}$ " oak plank. Seat and chest to be made of cedar, white pine or mahogany, the ends $\frac{7}{8}$ " and the rest $\frac{3}{4}$ " plank, fitted with two strap hinges and a hasp and with $\frac{3}{8}$ " dia. rope handles as shown in detail.

Mast—To be of the length specified for the selected sail plan, and is to be preferably spruce or cedar. A suitable metal block will be slung at the masthead for the halyard. The diameter of the mast shall be as shown in the plan, with a heel diameter at tenon of 2". Metal deck lead block fitted to mast plate.

Sprit shall be of spruce or cedar, of the dimensions shown in the plan, shouldered for 2" at each end.

Boom shall be of spruce, fir or cedar, of the dimensions shown in the plan, fitted with oak jaws.

Sail to be of drill. Rigging to be of $\frac{1}{4}$ " cotton line.

Painter to be 20 feet of $\frac{3}{8}$ " dia. manila. Anchor line, if required, to be 30 feet of $\frac{3}{8}$ " dia. manila with 4 lb. grapple.

Two 8'-0" oars and a 6' canoe paddle; a setting pole 1" dia. of desired length and canvas cockpit cover.

Note—Cockpit hatches may be used instead of canvas cover; hatch should be framed of $\frac{1}{2}$ " plank with canvas-covered veneer or plywood top. The hatch should be in at least three sections each, with canvas flaps to cover joints and fitted to stow under deck.

Paint—To have one thin prime coat and two finish coats, color as selected by owner to meet requirements of use.

Triangular windbreak of drill may be made to lash to mast and to fore chocks for gunning. This should be 30" high along mast.

If boat is to be worked on beaches a $\frac{3}{8}$ " half-oval galv. iron or bronze band should be fitted on the stem and extending aft about 3'-4", along the bottom. Fastenings, countersunk screws.

Cockpit sole in plywood construction may be $\frac{5}{16}$ "x $\frac{3}{8}$ " oak or yellow pine—or a panel of $\frac{1}{4}$ " plywood screw fastened to the frames.

BILL OF MATERIALS—PLYWOOD CONSTRUCTION

Stocks—One 2"x6"x14'-0" common grade fir, yellow or white pine; two 2"x6"x12'-0"; two 1"x4"x10'-0"; 50 2" stove bolts $\frac{3}{16}$ " dia. or $1\frac{1}{2}$ " roundhead No. 12 screws; 2 lbs. tennypenny common nails.

Plywood—One sheet 4'-0"x16'-0" of $\frac{3}{8}$ " birch surface marine plywood; two sheets 4'-0"x16'-0" of $\frac{1}{4}$ " birch surface marine plywood.

Frames—Three $\frac{3}{4}$ "x2"x10'-0" oak, yellow pine or larch (mahogany); three $\frac{3}{4}$ "x4"x10'-0" oak, yellow pine or larch (mahogany).

Stem—One 2"x4"x3'-0" oak, yellow pine or fir (Cutwater piece included).

Transom—One $\frac{3}{4}$ "x6"x10'-0" mahogany, cedar or white pine.

Keelson—One $\frac{1}{2}$ "x3"x14'-0" yellow or white pine, fir or mahogany.

Hull Battens—Six $\frac{5}{16}$ "x1 $\frac{1}{4}$ "x14'-0" yellow or white pine or fir.

Deck Battens—Seven $\frac{1}{4}$ "x1"x12'-0" yellow or white pine or fir.

Skid Battens—Two $\frac{1}{2}$ "x1 $\frac{3}{4}$ "x10'-0" yellow or white pine or fir.

Chines and Clamps—Four $\frac{3}{4}$ "x8"x14'-0" cedar, white or yellow pine or fir.

Deck Beams—Four $\frac{3}{4}$ "x6"x12'-0" oak, yellow pine or fir.

Carlins—Two $\frac{3}{4}$ "x2"x6'-0" yellow or white pine, fir or oak.

Coamings—Two $\frac{1}{2}$ "x6"x8'-0" white pine, mahogany or fir.

Deck and other Blocking—One 1"x8"x3'-0" white pine, spruce, cedar or fir.

Centerboard Case—One $\frac{3}{4}$ "x12"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x2"x3'-0" oak or yellow pine; one $\frac{1}{4}$ "x6"x3'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x1 $\frac{1}{2}$ "x3'-0" cedar, white pine or mahogany; one yard heavy flannel.

Centerboard—One $\frac{3}{4}$ "x12"x4'-0" oak, yellow pine or mahogany.

Skeg and Post—One 1"x8"x12'-0" oak or yellow pine.

Rudder Blade—One $\frac{3}{4}$ "x6"x4'-0" oak or yellow pine; one 1"x1"x5'-0" oak or yellow pine.

Skids—Two $\frac{3}{4}$ "x1 $\frac{1}{2}$ "x6'-0" oak or ash.

Guards—Two $\frac{1}{2}$ "x1"x14'-0" oak.

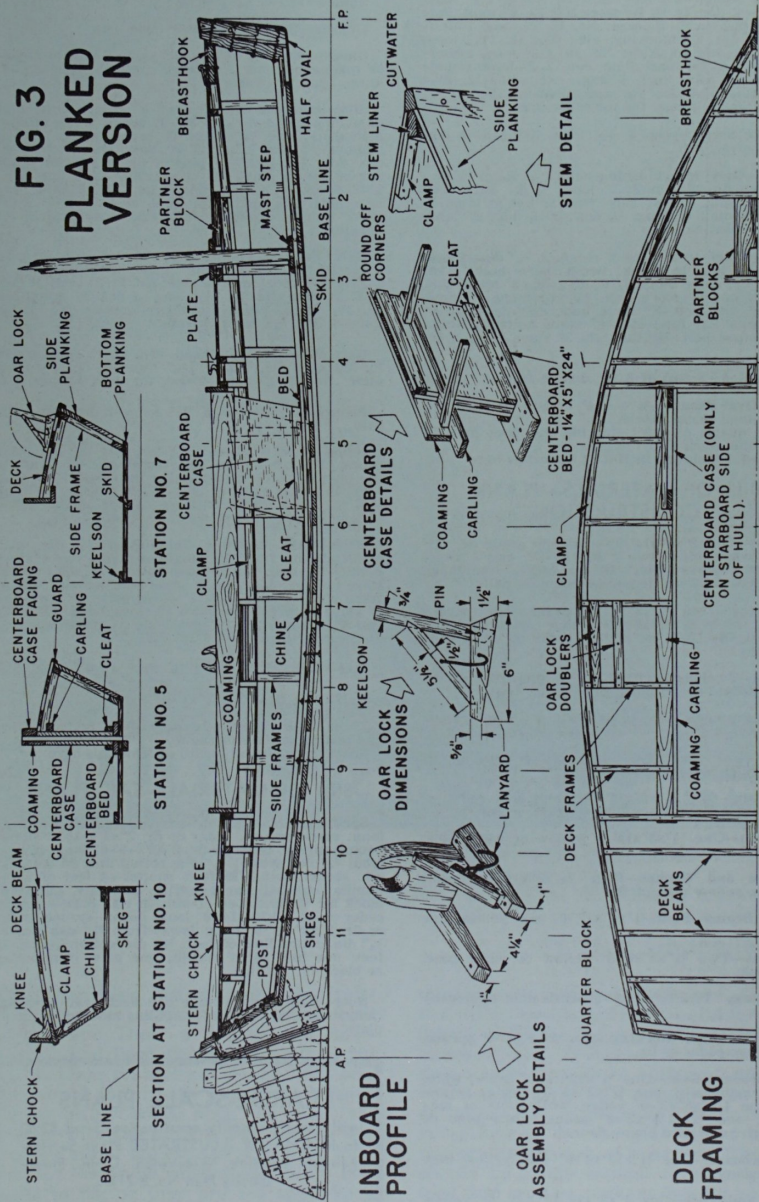
Chocks—One $\frac{3}{8}$ "x6"x12'-0" yellow or white pine or mahogany; one 1"x2"x4'-0" yellow pine or oak; knees from $\frac{3}{4}$ " waste.

Miscellaneous—One 1"x6"x3'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x6"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x12"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x6"x3'-0" oak; one 1"x2"x5'-0" oak; four $\frac{3}{4}$ "x4"x12'-0" pine or fir; one $\frac{3}{4}$ "x6"x4'-0" oak or yellow pine; one $\frac{3}{4}$ "x8"x3'-0" oak; one $\frac{1}{2}$ "x8"x2'-0" oak or yellow pine; four $\frac{5}{16}$ "x3"x6'-6" oak or yellow pine for cockpit sole; or 4'-0"x6'-0" sheet of marine plywood.

Eight square yards drill for decking.

Galv. Screws—No. 8, $\frac{3}{4}$ " length, flathead—2 gross in brackets; No. 8, $\frac{3}{4}$ " length, flathead—3 gross in bottom; No. 5, $\frac{3}{8}$ " long, flathead—2 gross in sides; No. 5, $\frac{3}{8}$ " long, flathead—3 gross in deck; No. 12, $\frac{1}{4}$ "

FIG. 3 PLANKED VERSION



long, flathead—3 doz. in beams; No. 10, $1\frac{1}{4}$ " long, flathead—1 doz. in beams; No. 6, $\frac{5}{8}$ " long, flathead—4 doz. in deck battens; No. 6, $\frac{5}{8}$ " long, flathead—1 gross in bottom and side battens; No. 8, $1\frac{1}{4}$ " long, flathead—3 doz. in C. B. case; No. 12, 2" long, flathead—1 doz. in C. B. case; No. 12, 2" long, roundheads—1 doz. in blocking, etc.; No. 10, $1\frac{1}{2}$ " long, flathead—1 doz. in skids; No. 10, $1\frac{1}{4}$ " long, roundhead— $\frac{1}{2}$ doz. for mast plate; No. 12, 3" long, roundhead—2 doz. for deck fittings, etc.; No. 12, $2\frac{1}{2}$ " long, flathead—1 doz. for miscellaneous; No. 8, $\frac{1}{2}$ " long, flathead—2 doz. for miscellaneous.

Bronze Screws—No. 5, $\frac{5}{8}$ " long, flathead—2 doz. for half-oval, etc.

Nails—Galv. iron finishing nails $1\frac{1}{4}$ " long, $\frac{1}{4}$ " lb.; galv. iron finishing nails 2" long, $\frac{1}{4}$ " lb.; galv. iron tacks $1\frac{1}{2}$ " long, $\frac{1}{4}$ " lb.; galv. wire spikes 8" long, $\frac{1}{2}$ doz., $3/16$ dia.; 6" long, $\frac{1}{2}$ doz., $3/16$ dia.; 3" long, 2 doz. or boat nails.

Bolts—Galv. iron—One 3" ringbolt, $\frac{1}{4}$ " dia., shouldered $1\frac{1}{2}$ " long in shank; two 4" stove bolts, $3/16$ " dia.; two 5" stove bolts, $3/16$ " dia.; one 3" stove bolt, $\frac{1}{4}$ " dia.; one 4" stove bolt, $\frac{1}{4}$ " dia.; one 5" stove bolt, $\frac{1}{4}$ " dia.; one 6" stove bolt, $\frac{1}{4}$ " dia.; two 8" stove bolts, $\frac{1}{4}$ " dia.; two 4" stove bolts, $\frac{1}{4}$ " dia.; one 5" stove bolt, $\frac{1}{4}$ " dia.; six 3" stove bolts, $3/16$ " dia.

Galv. Rod—8 feet of $3/16$ " dia.; 4 feet of $\frac{1}{4}$ " dia.

Half-Oval Bronze— $\frac{3}{8}$ "—4'-6" long.

Two small metal blocks.

Three quarts of paint—topside and deck and interior; one quart anti-fouling.

Spars not included in Bill of Materials here.

BILL OF MATERIALS—PLANK CONSTRUCTION

Stocks—One 2"x6"x14'-0"—common grade fir, yellow or white pine; two 2"x6"x12'-0"; two 1"x4"x10'-0"; 50 2" stove bolts, $3/16$ " dia. or $1\frac{1}{2}$ " roundhead No. 12 screws; 2 lbs. tennepny common nails.

Planking—Four $\frac{5}{8}$ "x8"x14'-0" cedar or white pine (bottom); nine $\frac{3}{4}$ "x5"x10'-0" cedar or white pine (sides); five $5/16$ "x6"x12'-0" cedar or white pine (decking).

Molds—Twelve $\frac{3}{4}$ "x4"x12'-0" common pine or fir; two $\frac{3}{4}$ "x6"x12'-0" common pine or fir.

Side Frames—Two $\frac{3}{4}$ "x14"x12'-0" oak, yellow pine, cedar or fir.

Stem—One 2"x4"x3'-0" oak, yellow pine or fir (includes cutwater piece).

Transom—One $\frac{3}{4}$ "x6"x10'-0" mahogany, cedar or white pine.

Keelson—One $\frac{1}{2}$ "x3"x14'-0" yellow or white pine, fir or mahogany.

Chines and Clamps—Four $\frac{3}{4}$ "x8"x14'-0" cedar, white or yellow pine or fir.

Deck Beams—Four $\frac{3}{4}$ "x6"x12'-0" oak, yellow pine or fir.

Carlins—Two $\frac{5}{8}$ "x3"x6'-0" yellow or white pine, fir or oak.

Coomings—Two $\frac{1}{2}$ "x6"x8'-0" white pine, mahogany or fir.

Block and other Blocking—One 1"x8"x6'-0" spruce, white pine, cedar or fir.

Centerboard Case—One $\frac{3}{4}$ "x12"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x2"x3'-0" oak or yellow pine; one $1\frac{1}{4}$ "x6"x3'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x11 $\frac{1}{2}$ "x3'-0" cedar, white pine or mahogany; one yard heavy flannel.

Centerboard—One $\frac{3}{4}$ "x12"x4'-0" oak, yellow pine or mahogany.

Skeg and Post—One 1"x8"x12'-0" oak or yellow pine.

Rudder Blade—One $\frac{3}{4}$ "x6"x4'-0" oak or yellow pine; one 1"x1"x5'-0" oak or yellow pine.

Skids—Two $\frac{3}{4}$ "x1 $\frac{1}{2}$ "x6'-0" oak or ash.

Guards—Two $\frac{1}{2}$ "x1"x14'-0" oak.

Checks—One $\frac{3}{8}$ "x6"x12'-0" yellow or white pine or mahogany; one 1"x2"x4'-0" yellow pine or oak; knees from $\frac{3}{4}$ " waste.

Miscellaneous—One 1"x6"x3'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x6"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x12"x4'-0" cedar, white pine or mahogany; one $\frac{3}{4}$ "x6"x3'-0" oak; one 1"x2"x5'-0" oak; four $\frac{3}{4}$ "x4"x12'-0" pine or fir; one $\frac{3}{4}$ "x6"x4'-0" oak or yellow pine; one $\frac{3}{4}$ "x8"x3'-0" oak; one $\frac{1}{2}$ "x8"x2'-0" oak or yellow pine; four $5/16$ "x3"x6'-6" oak or yellow pine for cockpit sole; or 4'-0"x6'-0" sheet of $\frac{1}{4}$ " marine plywood; eight square yards drill for decking.

Galv. Screws—Flathead—No. 5, $\frac{7}{8}$ " long—2 gross in deck; No. 12, $1\frac{3}{4}$ " long—3 doz. in beams; No. 8, $1\frac{1}{4}$ " long—3 doz. in C. B. case; No. 12, 2" long—1 doz. in C. B. case; No. 10, $1\frac{1}{2}$ " long—1 doz. in skids; No. 12, $2\frac{1}{2}$ " long—1 doz. for miscellaneous; No. 8, $\frac{1}{2}$ " long—2 doz. for miscellaneous.

Galv. Screws—Roundhead—No. 12, 2" long—1 doz. for blocking, etc.; No. 10, $1\frac{1}{4}$ " long— $\frac{1}{2}$ doz. for mast plate; No. 12, 3" long—2 doz. for deck fittings, etc.

Bronze Screws—No. 5, $\frac{5}{8}$ " long—2 doz. for half-oval.

Nails—Galv. finishing, $1\frac{1}{4}$ " long— $\frac{1}{4}$ lb.; galv. finishing, 2" long— $\frac{1}{4}$ lb.; galv. finishing, $\frac{3}{4}$ " long— $\frac{1}{4}$ lb.; boat nails, $1\frac{1}{4}$ " long—1 lb.; boat nails, $1\frac{1}{2}$ " long— $\frac{1}{4}$ lb.; boat nails, 3" long— $\frac{1}{4}$ lb.; tacks, $\frac{1}{2}$ " long— $\frac{1}{4}$ lb.; wire spikes, 8" long— $\frac{1}{2}$ doz. ($3/16$ " dia.); 6" long— $\frac{1}{2}$ doz. ($3/16$ " dia.).

Bolts, Galv. Ringbolt—Shouldered— $\frac{1}{4}$ " dia. with about a 3" dia. ring, $1\frac{1}{2}$ " length of shank; two 4" stove bolts, $3/16$ " dia.; two 5" stove bolts, $3/16$ " dia.; one 3" stove bolt, $\frac{1}{4}$ " dia.; one 4" stove bolt, $\frac{1}{4}$ " dia.; one 5" stove bolt, $\frac{1}{4}$ " dia.; one 6" stove bolt, $\frac{1}{4}$ " dia.; two 8" stove bolts, $\frac{1}{4}$ " dia.; two 4" stove bolts, $\frac{1}{4}$ " dia.; one 5" stove bolt, $\frac{1}{4}$ " dia.; six 3" stove bolts, $3/16$ " dia.

Rod—Galv.—8 feet of $3/16$ " dia.; 4 feet of $\frac{1}{4}$ " dia.

Half-Oval Bronze— $\frac{3}{8}$ "x4'-6" long.

Two small metal blocks.

Three quarts paint—topside, deck and interior; one quart anti-fouling paint.

Spars not included in Bill of Materials here.

BILL OF MATERIAL—SAIL PLANS

Sprit Rig—Mast—spruce, cedar or fir, 3"x3"x8'-6" long; sprit—spruce, cedar or fir, 2"x2"—10'-6" long; boom—spruce, cedar or fir, 2"x2"—8'-6" long; jaws—from $\frac{3}{4}$ " oak waste; $\frac{1}{4}$ " dia. cotton line, 50 feet, $\frac{1}{4}$ " dia. cotton lacing, 25 feet; snoter—4 feet of $5/16$ " manila; one ball yacht marlin; one galv. pulley or block for $\frac{1}{4}$ " line. **Leg-of-mutton rig**—mast—spruce, cedar or fir, 3"x3"—14'-6" long; boom—spruce, cedar or fir, 2"x2"—8'-6" long; jaws—from $\frac{3}{4}$ " oak waste; $\frac{1}{4}$ " dia. cotton line, 65 feet; $\frac{1}{8}$ " dia. cotton lacing, 40 feet; one ball yacht marlin; one galv. iron pulley or block for $\frac{1}{4}$ " line.

Note—Both rigs to have one deck lead-block or centerboard type block for $\frac{1}{4}$ " line mounted on mast plate.

LARGE-SCALE PLANS

will greatly simplify construction. Send \$2.50 to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Conn. Please specify Plan No. B-216.