CHAPTER VIII

THE BARNEGAT BAY BOAT

Complete Instructions for Building a Type of Craft Representing the Highest Form of Hunting Boat

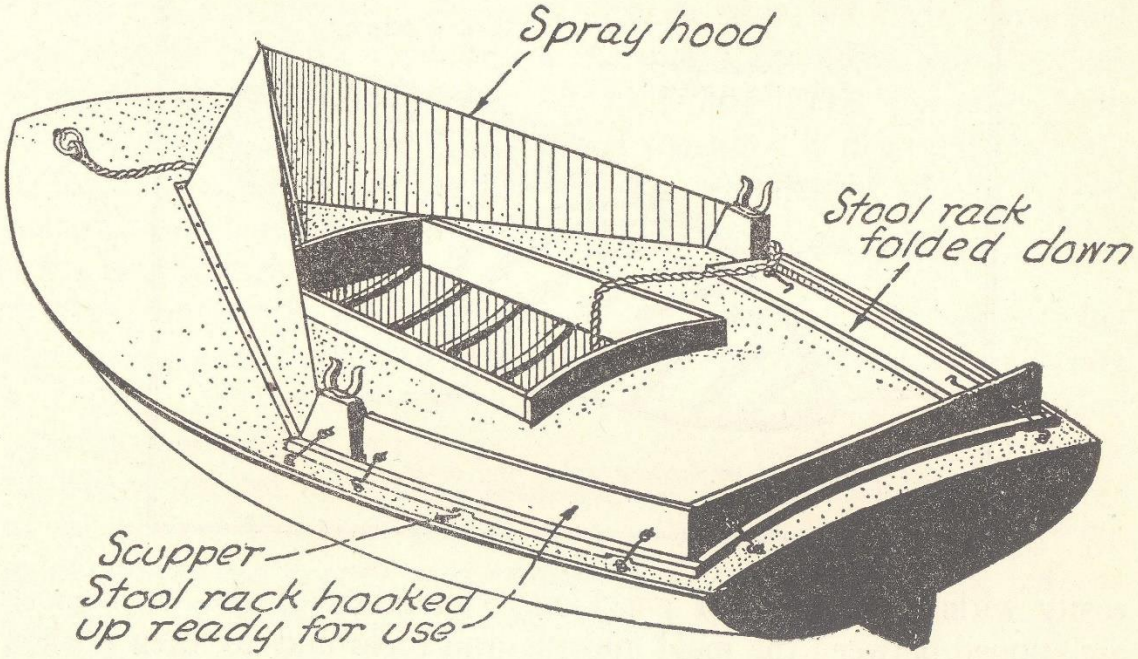
The Barnegat Bay boat or sneak box is probably the best known duck boat in the United States and justly so because it incorporates all of the features of the other types and in addition it has other advantages almost too numerous to mention, writes Mr. William F. Crosby, the naval expert, who has drawn the plans which follow for building the most useful duck boats in both inland and coastal waters. From the standpoint of naval architecture it is far ahead of most types and it is a fine sea boat, being capable of riding out heavy blows with the "crew" well protected by a canvas spray hood. In addition, there is a center-board for those who desire to sail and mighty sporty sailing these little boats make. The sneak box is well adapted for use with an ordinary sprit-sail, one of the simplest rigs and one which is highly successful. The small hatchway amidships is covered with a wooden hatch that may be locked in place if the hunter wishes to leave his duffle aboard for a day or so. The interior of these boats is snug and warm and many a man has used them for a night's lodging. For such work the hatch may be left partly on, thus giving protection, but at the same time allowing for a little fresh air.

The sneak box is 12 feet long and 4 feet wide. It is round bottomed and round decked, the bottom being laid over steam bent frames, all of which are bent to the same radius, 4 feet. The deck beams are sawn to shape from boards and have slightly less bow to them than the frames.

The requirements are simple and consist of 2 pieces of oak or pine, each about 13 feet long and an inch and a half square. These are the chine logs and represent the greatest amount of work. One of the detail drawings shows how these pieces are planed and chiseled down to a wedge-shaped section. Rabbets are cut, top and bottom, to take the decking and the bottom planks and the frames and deck

beams butt up against these chine logs, being securely fastened together by galvanized iron nails or brass screws. The rabbets for decking and the bottom planking should be cut to the proper bevel and of just the right depth to let the deck and bottom boards lie in flush with the chine logs. This is shown in the detail drawings, together with the fastenings which, of necessity, are shown one over the other. Actually, they will come at separate parts of the chine log.

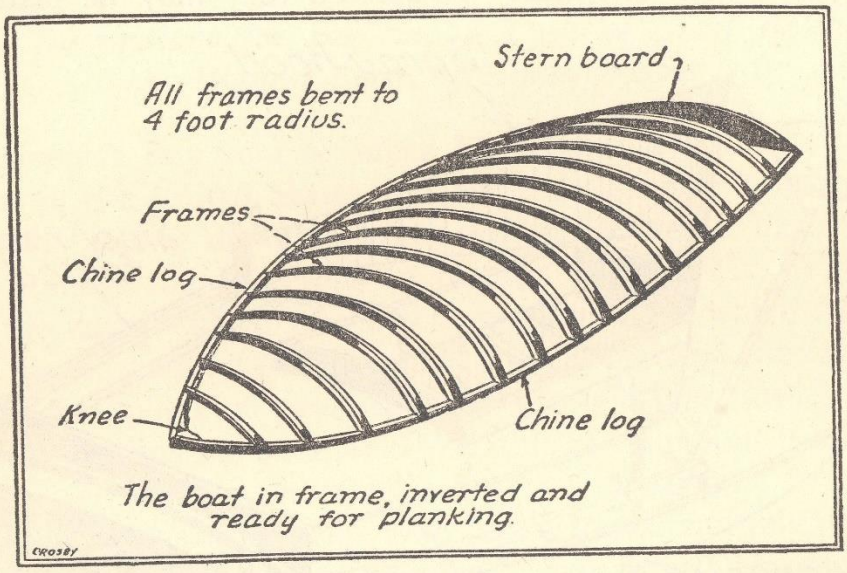
When these logs are nearly completed they may be fastened together at the bow end by means of a hackmatack knee and brass screws. Then fasten a temporary piece across, 6 feet back from the bow, so that the outside edges of the chine logs are exactly 4 feet apart. Now nail another piece across the stern so that the chine logs are a total of 2 feet 9 inches apart. It may be necessary to nail another temporary piece across, halfway between the bow and amidships, in order to make the line approximate the one shown in the larger drawing.



The next step is to secure the material for the frames. This should be of oak one half an inch by 1 inch or thereabouts. These frames are to be bent flat, that is, with the thinnest section up and down. In order that all the frames may be of the same shape, it is necessary to make some kind of a bending mold, something like the one shown in the drawing. This mold may be made up of 1 inch material and the radius should be exactly 4 feet to the top edge of the boards. If

these boards are an inch thick, the radius will be 1 inch less for the end pieces.

The entire structure should be strong and rigid. Pieces of 2 by 4 may be nailed across each end and a piece of three quarters inch iron pipe fitted as shown at each end. Steaming timbers has already been taken up in some detail but the builder should again be cautioned to make sure that the wood is left a sufficient length of time in the steam box. This will make it soft and pliable and it will bend



easily without splitting or checking. The ends of the hot frames are slipped between the mold and the iron pipes and are then pushed down until they rest snugly up against the mold. It is best to leave them there for several days until they are thoroughly dry and set. Some builders will tell you to make the mold a little more rounded than the actual frames as they may straighten out a little when removed. If they are properly steamed and left on the mold this will not be necessary, but in any event it is not a bad plan to nail a light, temporary strip across their ends when removed from the mold.

The ends of the frames should be beveled to fit up against the inside edge of the chine log and secured in place, exactly 8 inches apart throughout the length of the boat. There are 17 frames in all with an additional one butting up against the stern board or transom to reinforce it and make the planking stronger at that point. If the mold is made large enough, most of these frames may be steamed and bent at once.

When all the frames are in place, evenly spaced and square to the chine logs, the next step will be to plank the bottom of the boat. This

material will be 5/8 of an inch thick and should be of cedar although other material will do if cedar is too hard to secure. The boards may be around 2½ to 3 inches wide and run straight fore and aft, tapering out in the rabbet which has been cut in the chine log. It is a good plan to fill this rabbet with marine glue or some similar material before the planks are placed as this will make an absolutely watertight joint. Marine glue should also be used in the seams between planks, but in addition, each seam should be Veed out a little and caulked lightly with one or two threads of cotton caulking or oakum. A brush full of old paint in each seam before it is caulked will tend to hold the caulking in place and the same thing applies when the caulking is smoothed off with putty. Do not, above all, caulk the seams too tightly because, if the wood is dry or if the boat is built in a warm room, there will be real danger of the planks buckling and coming off when they begin to swell in the water. This point is extremely important.

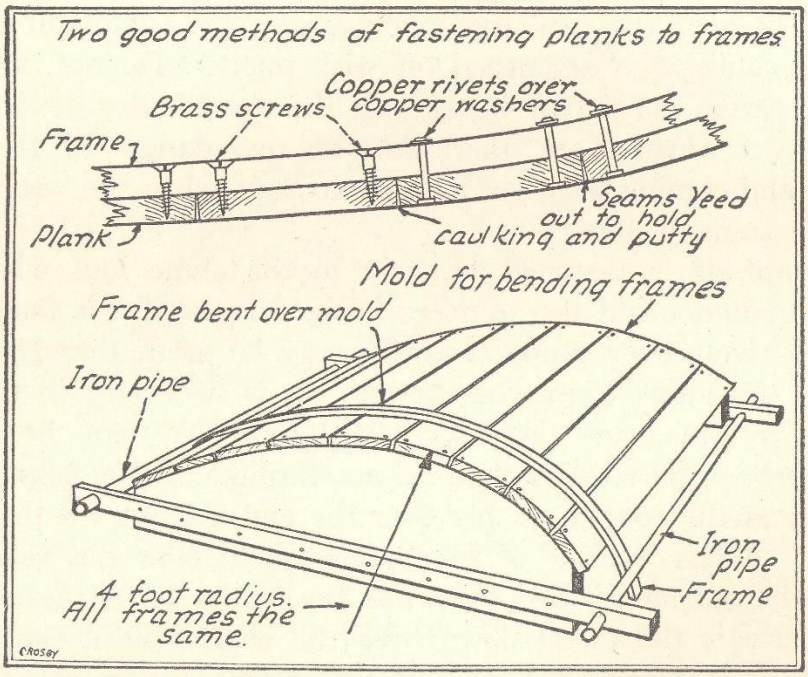
The planking is fastened securely to the chine logs where they come into contact and also to every frame. Either brass wood screws or copper rivets over copper washers may be used, the rivets being generally considered somewhat better. It is necessary in this work to drill a hole for every fastening, slightly smaller than the diameter of the rivet. The rivet is then driven through and a helper on the inside places the copper washer over the end, cutting off the surplus material. A heavy piece of iron is then held over the head of the rivet on the outside of the boat while the helper inside, using a light hammer, rivets the metal down over the washer until the plank is held tightly in place. Be sure of this work because a loose rivet will cause a mighty troublesome leak. Each rivet should fit its hole tightly for the same reason.

More and more small boats are being screw fastened from the inside of the frames through to the planking. This is a strong and good way to do the job and it has the great advantage that no fastenings are exposed on the outside of the hull. This type of fastening will also make it considerably easier if there is ever the necessity for changing a plank due to breakage.

The planking should be smoothed off and sanded down when complete and it should present a flush surface to the edge of the chine log.

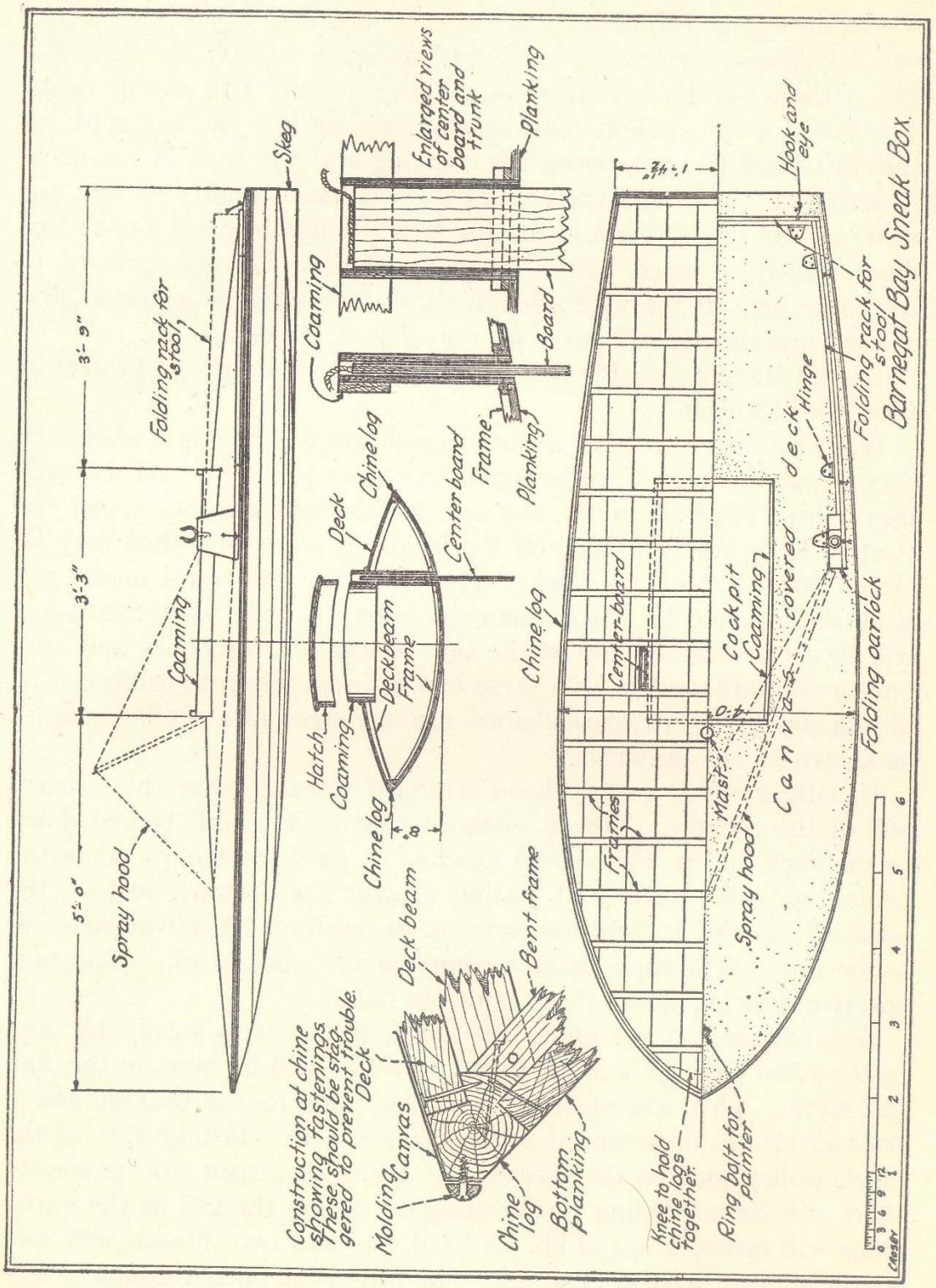
The deck comes next but perhaps it would be a better plan to put in the centerboard trunk before this work is started. This comprises

forcing piece all the way around the bottom and securely put together with marine glue and wood screws so that it will be watertight. The centerboard itself consists of a piece of wood just large enough to slip through the trunk easily and long enough to come about 18 inches below the bottom of the boat when it is down. It may be weighted with lead so that it will stay down. A piece of cotton rope may be stapled to the top of the board and arranged with loops in it that may be hung on a small hook when the board is hoisted or when it is all the way down. The board may be taken



completely out of the well and stowed away inside the hull when not in use.

The deck beams will have to be somewhat deeper in section than the frames and will be made of spruce 7/8 of an inch by 1 inch. A master frame should be made, wide enough to go clear across with some to spare, and all the others are made to this curve. The radius for this will be 5 feet instead of 4, thus giving a somewhat flatter crown. Each beam should be sawn to shape and planed a little to make it smooth. It is then nailed in place on the chine logs. The beams may be the same spacing as the frames but usually 1 foot will be enough for this work. The decking comes on top of the beams and is put on the same as the bottom, but it is slightly lighter, one-half-inch tongue and groove material will be about right so long as it will present a flat surface on the top.


Barnegat Bay Sneak Box.
Skeg
Folding rack for stool
Coaming
Spray hood
5'-0"
3'-9"
3'-3"
Enlarged views of center board and trunk
Planking
Board
Coaming
Planking
Frame
Center board
Chine log
Deck
Deck beam
Frame
Hatch Coaming
Chine log
Chine log
Center-board
Cockpit Coaming
Canvas covered
Deck
Hinge
Hook and eye
Folding rack for stool
Folding oarlock
Mast
Spray hood
Frames
Construction of chine showing fastenings. These should be staggered to prevent trouble.
Deck beam
Bent frame
Deck
Molding
Canvas
Chine log
Bottom planking
Knee to hold chine logs together
Ring bolt for painter
0 3 6 9 12
1 2 3 4 5 6
INCHES

The deck, when complete and smooth, should be covered with canvas. This may be laid in old paint, to make it stick to the wood, and it should be tacked down all the way around with copper tacks. The hole for the cockpit may be cut later on and the edges of the canvas tacked down between the coaming and the ends of the deck. A better way is to run the canvas up over the coaming so that the water cannot possibly get inside the boat. When in place and tacked down tightly, a small half round oak molding may be screwed to the chine log, all the way around. This will serve as a fender and at the same time it will cover up the edge of the canvas.

The entire boat, inside and out, should be painted to protect it from the elements.

It is customary to have a rack rigged around the stern where the decoys may be kept when being taken out or in. This rack is made up of three pieces of wood, one on each side and another across the stern. They are all hinged on the inside in order that they may be closed down flat on the deck. The hinge for the board across the stern deck should be higher than the others in order that this board will lie down flush on top of the side boards. Brass hooks and eyes on the deck are used to hold these boards in an upright position. The blocks supporting the oarlocks are also arranged in a similar manner as shown in the drawings.

Usually there is a spray hood arranged so as to cover the forward end of the cockpit. This is made of canvas or khaki, tacked down to the deck and to the oarlock blocks. A light piece of wood in the center, with its lower end resting against the forward end of the coaming, is used to hold the peak up in position. A galvanized iron screw eye and a rope painter complete the deck work. The perspective drawing shows these things in detail.

A small skeg, down under the stern, will help to steady her and in the event that she is to be sailed, a rudder will be hung to this and the stern. This will steer with a long tiller to the cockpit and a traveler should be arranged across the stern deck to take care of the single pulley used on the sheet rope. By using a sprit sail, as shown, there will be no rigging for lowering or raising the sail as the entire thing will unstep and roll up. A head stay and two shrouds will hold the mast in a vertical position. The butt is stepped through a hole in the deck and a block of wood inside the bottom boards. When properly balanced, she will make a fine little sailer, but remember that if the center of effort of the sail is too far forward of the center of lateral plane, she will tend to blow off to one side, while if this is

reversed, she will always swing up into the wind. The latter condition is more desirable and it makes a safer boat. By cutting out a cardboard pattern of the underwater portion of the boat, including the center board and the rudder, it is possible to secure the location of the center of lateral plane. This is done by balancing the cardboard on a pin. Where it balances is the exact center. Remember, this is only for the underwater portion of the boat.

A cardboard pattern of the sail may be worked in the same way and where the point of balance comes, is the center of effort of the sail.

CHAPTER IX

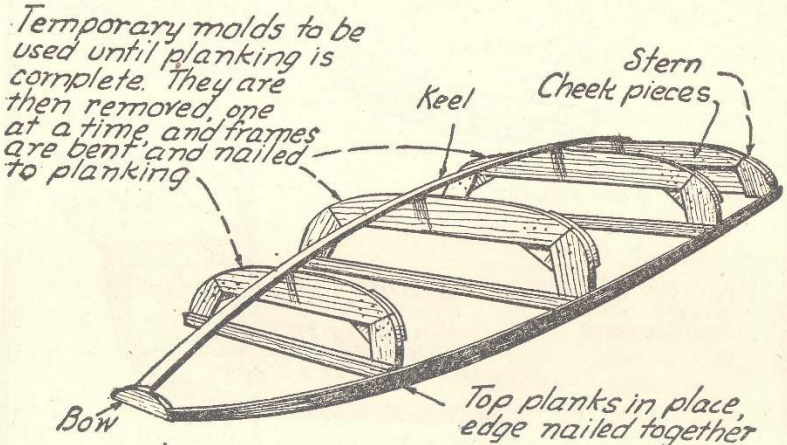
HOW TO BUILD A SNEAK BOAT

Sportsmen in each section of the country have different means of accomplishing the same ends. The duck shooter of the upper reaches of the Mississippi may use one type of boat while his brother, shooting on Barnegat Bay, may use a craft of entirely different design, but the results are much the same. In the matter of a sneak boat, the best features of several different types have been incorporated in this design and the stern has been broadened out somewhat to permit the use of an outboard motor of low power. In the ordinary, double ender, the propeller would simply dig a hole and the stern of the boat would settle into it. The motor, too, will take away a lot of that long job of rowing and it will make the trip to and from the shooting grounds a lot pleasanter.

The boat in question is some twelve feet six inches in length by four feet wide and is suitable for one or two gunners. The hull is eleven inches deep and a coaming on top of this adds another four inches, giving a boat that will be extremely seaworthy. The shape is round bottomed with a long, sloping bow and stern which will permit her to dip through the water with the least amount of fuss. There is four feet of deck forward and an eight-inch washboard along the sides of the coaming. A sort of outrigger is provided for rowing and there is a hole in the stern which is to be used for sculling when approaching the ducks. Unlike many boats, this one is planked with narrow strips of material, nailed through the edges to each other and to the frames. This makes an extremely strong and tight job.

Steam bending is always considered an extremely hard job by those who have not tried to do it or by those who have gone about the job improperly. Actually, there is nothing to it and the experienced boat builder would much sooner use steam bent frames than build a boat of the V-bottom type. The entire secret is to allow the wood to remain in the steam box until it is thoroughly saturated. It must then be bent with the utmost speed in order that the wood shall retain its heat and moisture.

The simplest form of steam box is to cut out one half of the end of an old galvanized iron hot water boiler, such as is used in the kitchen. This boiler is propped up at a slight angle on some kind of a foundation within which a wood fire is built. A few buckets of water in the boiler will be sufficient, the water settling down in the end farthest away from the cut away end. The wood, to be steamed, is then pushed in through the opening and a piece of canvas or old carpet is thrown over the opening. Keep a good, brisk fire going and replenish the water as it is depleted. The wood should be left in for at least an hour and in the meantime, the molds, around which the wood is to be bent, should be arranged and made ready for instant work. Be sure to use good gloves when you remove the



The sneak boat should be built upsidedown in this manner.

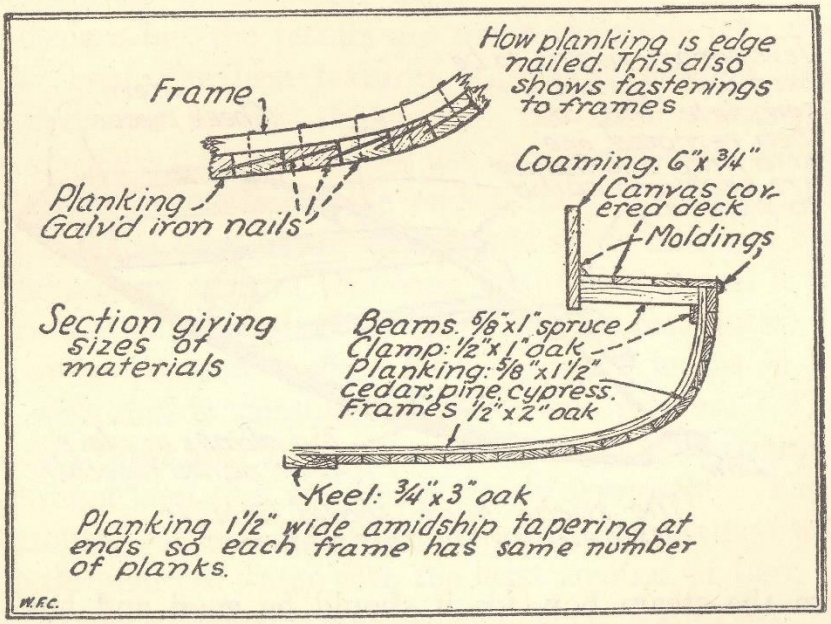
wood from the steam box, for it should be good and hot. If the wood is not hot and steaming, it will be impossible to make it take a good bend. Incidentally, such a steam box as this is fine for steaming up the ends of skis.

As for the boat itself, it is necessary to make a set of four molds and a bow piece. These molds are set up on the floor at the proper distance, 3′-1½″, being securely braced fore and aft and sideways to prevent movement. The molds are made by making full sized patterns in paper to the dimensions as shown in one of the drawings. The molds for frames 1, 2 and 3 are temporary and are made from straight pieces, fastened together as shown in the upside down view of the framework. The stern is a solid piece of wood, but in order that the fastenings from the planking may have a good hold upon it, additional pieces are fitted on the forward side. These are called the cheek-pieces. The bow is also a solid piece of wood,

rounded as shown. Both the stern and bow will have a slight bevel on the under side, that is the side nearest the planking, so that the planking will fit up flush.

With all of these pieces set up on a solid, level floor, the keel, a piece of oak or yellow pine ¾″ by 3″, is secured in place down the exact center. It may be screw fastened in place using brass or galvanized screws preferably.

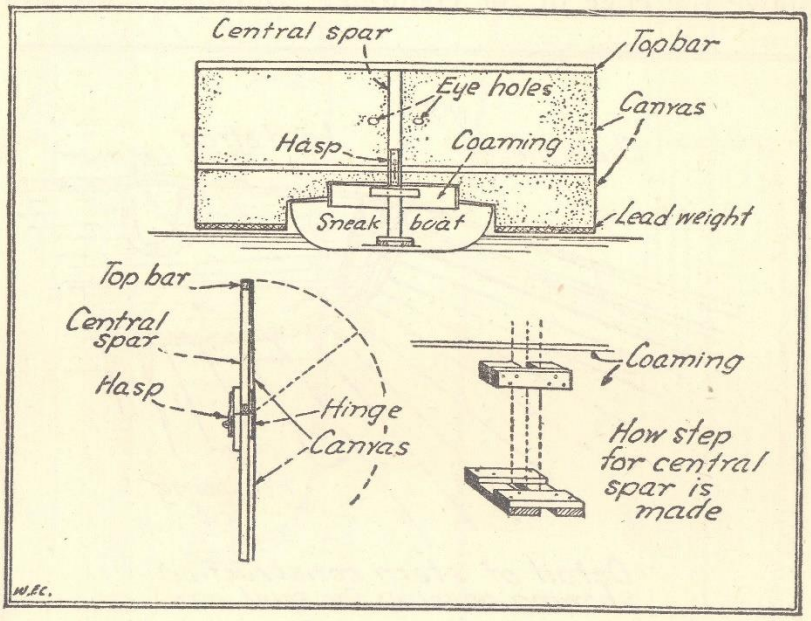
In order that the planking will fit properly, it is necessary to divide off each section into an equal number of spaces, each space representing the width of a plank. Thus, if there are nineteen spaces on frame number 2, there should be an equal number for



the stern and also the bow. By making these divisions equal on each mold, as well as the bow and stern, the planks will fit well and there will be no feather edges. Of course, the planks for one side should be made in duplicate for the other, and in the drawing, the planking is shown as being 1½″ wide amidships. This may be varied slightly to suit local conditions, but if the wood is too wide, it will not lie up flush against the frames or molds.

When the divisions are all marked in, the plank next to the floor should be cut out, the edges planed smooth and then fitted in place. It is screw fastened to the stem and stern, but not to the molds, except by temporary nails which are driven in part way only. A similar plank is then secured in place on the opposite side of the boat. Then follow with the second plank and the third. It is now advisable to start with the planks nearest the keel, the garboards,

one on each side. Follow this with the next planks above the garboard, in each case securely nailing the new plank, through the edge to the next plank in place. It is a good plan to smear the edges of each plank with marine glue or similar compound in order to prevent leaks. Thus each plank is fitted in place until we come to the last one, which is called the shutter. This is fitted by taking a pattern of the edges of the adjoining planks and cutting out the shutter to an exact fit. This plank, like the others, is temporarily nailed to the molds, and is nailed to the adjoining planks by toeing the nails in on a slant, using brads set into the wood on the outside.

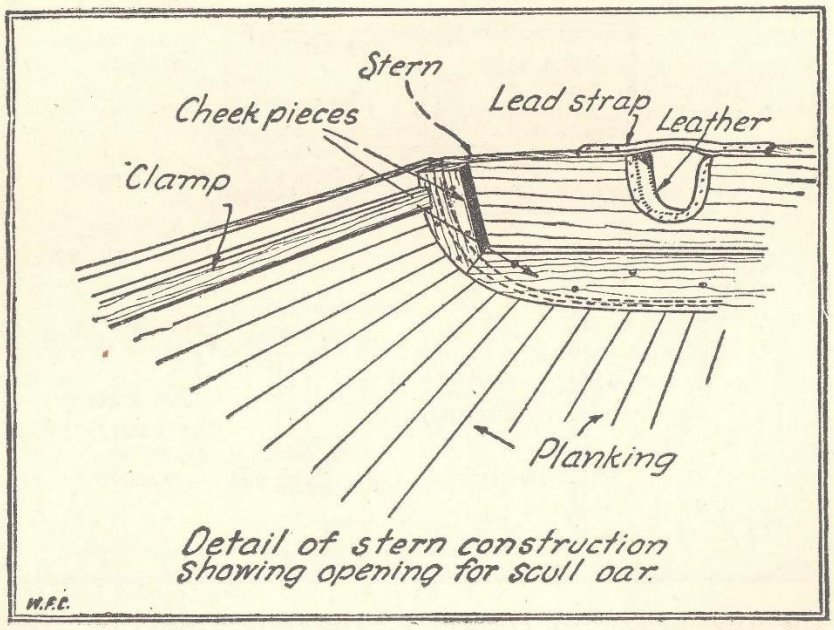


With the planking job complete, the boat may be turned over and the material for the frames, when it is hot enough, may be bent into place at each of the molds, removing one mold at a time. The wood for the frames must be hot and pliable and while one man holds the frame down into the turn of the bilge, the other should secure it in place with a few wood screws from the inside of the boat. Before the next mold is removed, this frame should be screw fastened to every plank. The frames run in a continuous piece from one side to the other. Of course, as each mold is removed, it is necessary to take out the temporary nail fastenings and care should be taken to see that each nail hole is properly filled, either with a soft pine plug or by some waterproof cement.

Two light pieces may be bent an inch down from the inner edge of the planking forming what are called clamps upon which the deck beams will rest. These pieces run from bow to stern. Next

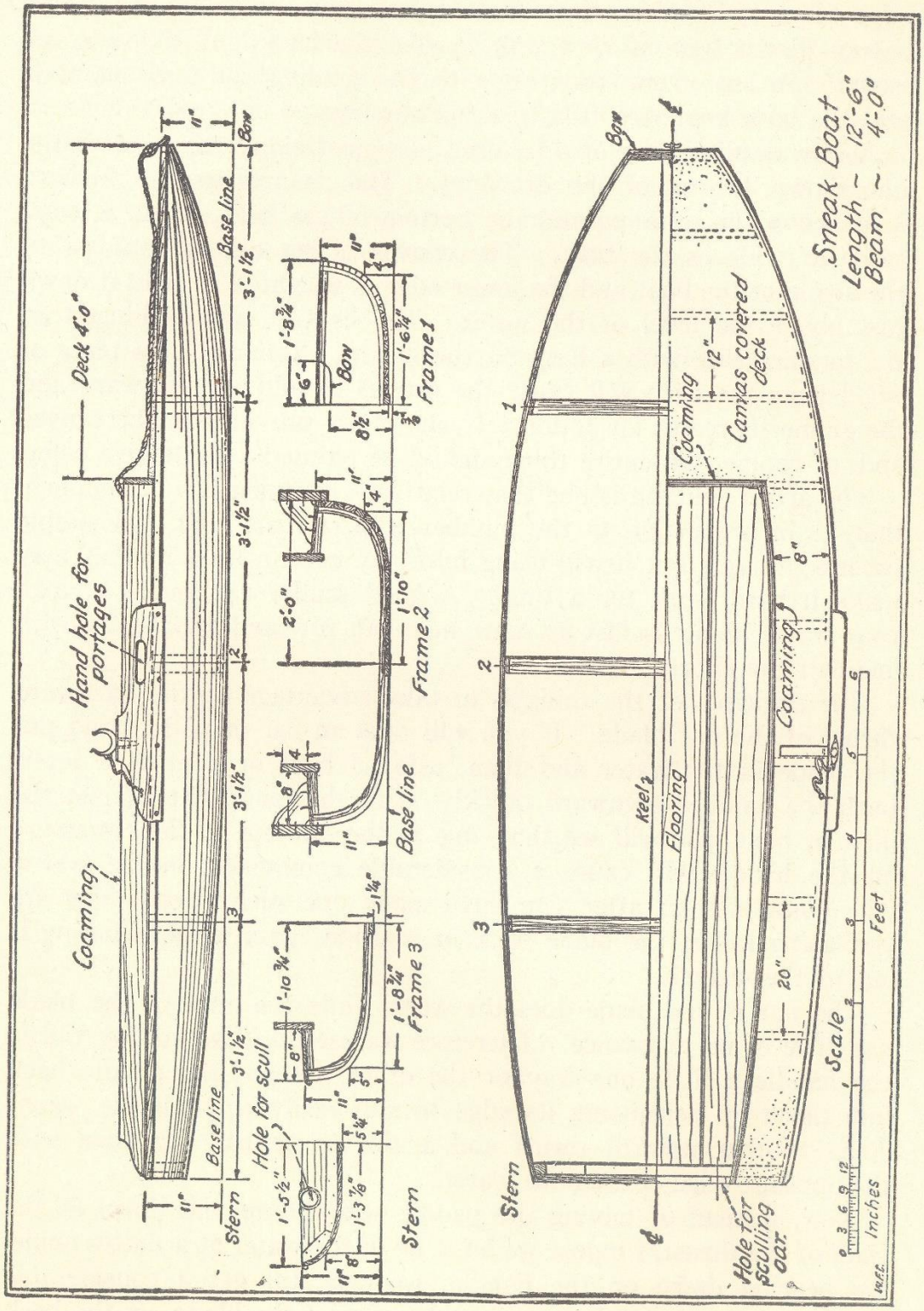
get the deck beams for the forward deck in place and then the coamings at the sides and the short beams that support the side deck. The deck may be made from any light material, covered with canvas, which should be laid in marine glue or old, sticky paint. Floor boards may be made for the inside and a screw-eye attached to the bow for a rope painter. A compass saw is used to cut a hole in the stern for the sculling oar and this hole should be well lined with leather with a lead strap over the top. The sculling oar should also have leather on it where it passes through this hole.

Oarlocks are provided on the side pieces, the oarlock coming just a little above the edge of the coaming. Handholes are provided in



the piece supporting the oarlock, these holes coming in exactly the center of the boat in such a way that one man on each side may pick her up when she is brought ashore. A light, protective molding is carried around the entire edge of the deck. The oarlock pieces may be backed up with a small knee in order to make them somewhat stronger and where this knee meets the oarlock piece, the corner should be cut away in order to permit any water that might accumulate, to run through and overboard.

The most common way of using a sneak boat is to pile brushwood on the forward deck so that the men aboard are completely concealed as the boat advances. The man doing the sculling may lie on his back or side, while the other man directs him. In some waters, a piece of wood is clamped across the forward coaming, this piece being considerably wider than the boat and with the upper


Sneak Boat
Length ~ 12'-6"
Beam ~ 4'-0"
Deck 4'-0"
Hand hole for portages
Coaming
Base line
Stern
Hole for scull
Bow
Frame 1
Frame 2
Frame 3
Keel
Flooring
Canvas covered deck
Hole for sculling oar
Scale
Feet
Inches

edge filled with holes. Into these holes, rushes are placed in such a way that a bow-on view would make the boat look like a small island. In any event, progress with the sculling oar must be slow and the boat kept free from making ripples.

A canvas blind may also be used, designed along the lines of the one shown in one of the drawings. This is arranged to fit into a socket in the coaming and the bottom of the boat and is at least twice as wide as the boat. The canvas is cut out to conform to the shape of the boat and the lower edge is weighted to hold it down just above the level of the water. The central spar is hinged on the forward side with a hasp on the inside. Removal of a piece of wood from the hasp will cause the canvas to fold over forward and the gunner is ready for action. Eyeholes are provided in the canvas and, of course, the entire thing should be painted a protective color.

The art of sculling is one that relatively few men can accomplish, that is, in proportion to the number who can row. It is a simple process, though, but it will bring into play certain muscles that may make it hard work for a time. A good sculler can make a small boat travel along as fast as some men can row and apparently with one-half the effort.

The principle of the thing is to take advantage of the backward thrust of the flat blade. If you will take an oar or paddle and put the blade in the water and then, using a boat or float as a lever, push the handle downward quickly, with the blade flat against the float or boat, you will see that, due to the leverage, a little pressure on the handle will cause a considerable commotion in the water. The point is this: after you have made one such stroke, how are you going to get the blade back in position again without taking it out of the water?

The flat of the blade does the work while the edge of the blade has little or no resistance. Therefore we use the edge and by tilting the handle a little one way or the other, we cut the paddle back into place by permitting its edge to slip easily through the water. Then another upward thrust and again the return, this time with the opposite edge cutting the water.

Now, instead of having the paddle straight up and down at the start of the thrust, suppose we let it lie in the water at a flatter angle. By bearing down on the handle, we can still get a considerable amount of thrust and by working the edge of the blade, on the back stroke, first one way and then the other on alternate strokes, we get a sort of rotary motion at the handle. It takes practice to do

it, but after a time you will find that one-hand sculling is as simple as rolling off a log—and that's supposed to be very simple indeed. Start with a light, flat bladed oar or a narrow bladed paddle and remember that the larger the surface of the blade, the more slow the strokes will have to be. Don't think that you can start right out sculling like an expert, but try a little at a time until you finally have it down. Sculling takes practice in order to make a good job of it and to accustom the muscles to the unusual exercise.