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Practical Boat Building

for Amateurs: 73743

CONTAINING

FULL INSTRUCTIONS FOR DESIGNING AND BUILDING PUNTS,
SKIFFS, CANOES, SAILING BOATS, ETC.

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ILLUSTRATED WITH WORKING DIAGRAMs.

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NEW AND REVISED EDITION.

BY

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wear, and natural knees or forks cut from the woods to give it strength. Small boats are usually propelled with a single bladed paddle, and are exceedingly handy and manageable; larger boats are rowed and steered with a paddle, and under these conditions a Canadian boatman will run any rapid that it is possible for a canoe or boat to live through. As shooting boats they are exceedingly handy, as they are very steady, and draw little water, and in mud flats and marshes they may be wriggled over any ordinary banks with the help of a pole. In making them let the amateur follow the directions given for making a fishing punt, and using a little judgment for the bow and stern he will find a Canadian bateau the easier of the two to construct.

The next boat worth the amateur's attention is the canvas canoe, if it may be so called. A good well-made canvas canoe will, with a moderate amount of care and the exercise of a little ingenuity, last for a long time. It should be painted whenever it shows the grain of the canvas through the paint, and care must be taken to keep it dry; allowing drain water to accumulate in it soon rots out the canvas, for no paint, however good, can stand such treatment long. The following description is from a canoe which was built on the model of a Canadian birch bark canoe, and for handiness and practical use in the navigation of strange waters it cannot be surpassed. When once the canoeist has mastered the use of the paddle which is peculiar to it, he can do anything with it, and with two hands, one in the bow and the other in the stern, it may be taken down any rapid in Great Britain with perfect safety, the only stipulation being that there must not be any actual waterfall in the rapid greater than 2ft. Its dimensions are as follow: Length on water line, 10ft.; overall, 10ft. 6in.; beam on gunwale, 27in.; beam on water line, 30in.; depth at midship, 12in.; depth at ends, 15in.; camber, 1in.

The load on a 6in. displacement is 387lb., and on a 9in. displacement 580lb. It may be safely used on a 10in. displacement on smooth dead water. The materials used in its construction are $\frac{3}{16}$ in. by 1in. wide strips of rock elm for the stringers, and ditto $\frac{3}{4}$ in. wide for the ribs. The bow and stem and keel are made of red pine, or larch would do, 1in. thick, and the outside keel of the same, $\frac{1}{2}$ in. thick. The crossbars are also of pine, 1in. by 2in. For nails, $\frac{3}{8}$ in. copper tacks are wanted for fastening on the canvas, except on the keel ends, where $\frac{3}{4}$ in. are required; while $\frac{3}{8}$ in. nails and rooves, No. 17, are required for the fixing of the ribs to the stringers, and $1\frac{1}{4}$ in. ditto for fixing the stringers to the ends, and also for the outside keel and gunwale streak. All these should be of copper. The canvas should be by choice No. 6 navy unbleached, but other canvas will do if it is close and strong. Some $1\frac{1}{2}$ in. screws are also wanted to fasten the keel and posts.

In constructing this canoe a frame should be built in the same manner as was described for the skiff, and the keel and stem and stern posts duly fixed in position as there described. Then the stringers should be put in and rooved and riveted. To do this properly at least three frames are wanted, and five would be better. Now turn the boat upside down, stretch and secure the canvas, and where from the shape of the canoe it will not lay properly, gather it up in a pleat and sew it down on the inside. The canvas must be all properly tacked along the keel with tacks 1in. apart, and along the gunwale at $1\frac{1}{2}$ in. apart. Then turn the canoe right side up and put in the ribs inside, bending them into position by sheer strength. These ribs must be spaced 6in. apart. Commence ribbing from the midship frame, putting one in alternately on each side. This is best done by nailing it first on to the tree and bending it into place, putting in a nail as it crosses each stringer from the outside. When all

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the ribs are done and the width of the parts where the crossbars come are known, take out the frame. Now put in the inside and



Scale 1/2" to 1'

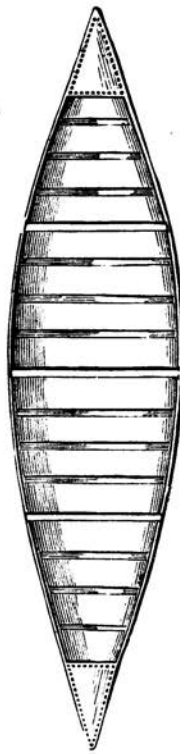


FIG. 63. PLAN AND ELEVATION OF CANVAS CANOE.

the outside gunwale streak. See if all the canvas is tight; and, if so, put in an auxiliary rib at each place where the canvas is gathered, and tack the canvas to it. If it is not all quite tight put on some temporary crossbars, expanding or contracting the width of the canoe half an inch or so till it is. If it is still not quite tight it can be gathered up more till it is. It can be made quite tight in all cases. When it is got properly tight put on the cross bars, of which there are five, with brass screws, two in each end, and cover in the ends with canvas. Now turn the canoe upside down, and put on the outside keel, driving the nails right through, and clinch-

ing them, after having given the parts which will be covered by it a good coat of thick paint. The whole canoe inside

and out may then receive three good coats of paint, and, when quite dry, one of copal boat varnish. If the entrance of the fore-foot and keel, and that portion of the gunwale strake when paddling, receive a nicely put on layer of sheet gutta percha, three-tenths of an inch thick, to prevent wear, so much the better. Vulcanised rubber is better than gutta percha, but harder to cement on. Fig. 63 illustrates this canoe in elevation and plan, and from this view and those given in Figs. 64, 65, 66,

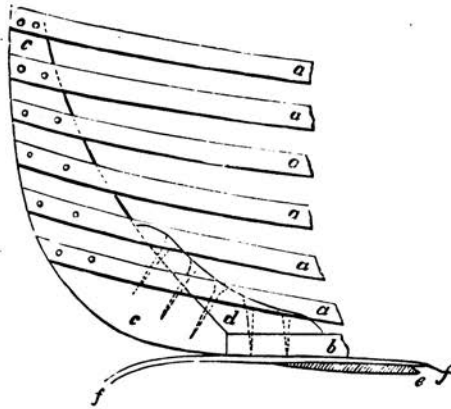


FIG. 64. LONGITUDINAL STRINGERS AT BOW OF CANVAS CANOE.

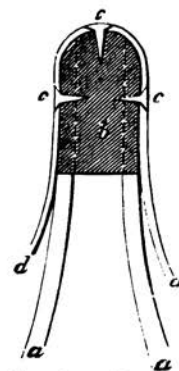


FIG. 65. TACKING CANVAS TO BOW AND STERN OF CANOE.

the amateur will be able to form a very fair idea of the craft. In Fig. 64 the position of the longitudinal stringers (*a a a a a*) on the midship frame is given, and in Fig. 65 they are shown where fastened to stem post. In Fig. 63, in the plan, the positions of the ribs are shown as well as the five crossbars. The mode of tacking on the canvas to the bow and stern—the most troublesome places—is also shown in Fig. 65 (*a a*, the stringers; *b*, stem or stern post; *c*, tacks; *d*, canvas), while in the elevation of Fig. 63 the dotted lines show where the gathering in is necessary, but

the line *a a a* shows the position of the joint if only narrow canvas is used. One of the paddles by which it is propelled is

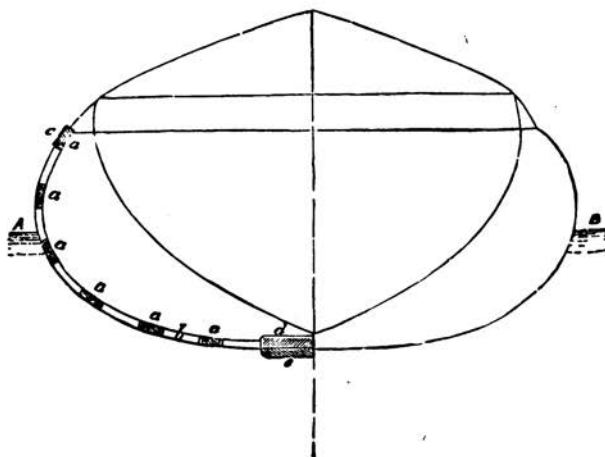


FIG. 66. CROSS SECTION OF CANVAS CANOE, SHOWING LONGITUDINAL STRINGERS.

shown in Fig. 67. Two of these paddles are required, one for the bow and one for the stern, the stern alone being used if there



FIG. 67. PADDLE FOR CANVAS CANOE.

is only one occupant of the boat. The stern paddle is much larger than the bow paddle. The following table gives the dimensions of each :

Stern.	Bow.	Stern.	Bow.
<i>a</i> 1½ in.	1½ in.	<i>f</i> 6 in.	5 in.
<i>b</i> 1 in.	1 in.	<i>g</i> 4½ in.	4 in.
<i>c</i> 2 in.	2 in.	<i>h</i> 24 in.	24 in.
<i>d</i> ¾ in.	¾ in.	<i>i</i> 4½ in.	4 in.
<i>e</i> 4 in.	4 in.	<i>k</i> 4 ft. 9 in.	4 ft.

The last boat I would draw attention to is the American canvas shooting punt, which for portability is perhaps unequalled. This punt is made of waterproof canvas stretched over a frame which is so constructed as to fold up into a very compact space. They are chiefly used for flats and marshes, and are therefore made to pole, though they can be rowed. In shape they are very similar to an ordinary English fishing punt, except that the sides flare out. In length they are generally from 12ft. to 15ft. by 3ft. wide, and 1ft. deep. Figs. 68, 69, and 70 illustrate one,

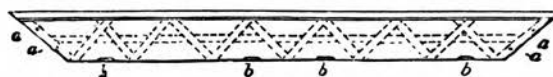


FIG. 68. ELEVATION OF AMERICAN SHOOTING PUNT.

and from these, with the exercise of a little ingenuity, the amateur should be able to make it. They are bolted together with 3-16ths of an inch brass bolts with winged nuts, the hinges

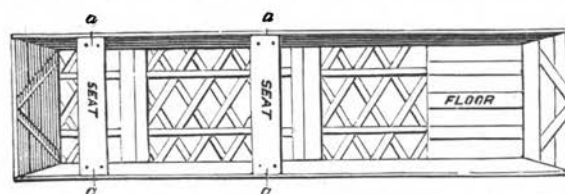


FIG. 69. PLAN OF AMERICAN SHOOTING PUNT.

used being ordinary bar cut hinges. Pine or rock elm is used for the frame, and indiarubber draft excluder is used to make the joints tight. Referring to these figures, *a a a* are winged bolts; *b b b*, the position of the hinges; and *c c*, in Fig. 70, the loose canvas fold round the hinged joints. The frame of the boat is laid diagonally, and there is no floor proper except a small portion for the punter to stand on, and under each seat there is a narrow piece for the shooter's feet. The sides all fold in on the

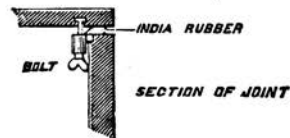
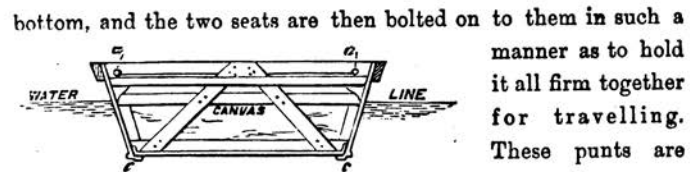


FIG. 70. CROSS SECTION AND JOINT OF AMERICAN SHOOTING PUNT.

bottom, and the two seats are then bolted on to them in such a manner as to hold it all firm together for travelling. These punts are very light and portable, and easily opened out or closed, so that in shooting over uncertain ground they are very handy, as a man can close one up and carry it for a mile or more on his head without any great inconvenience or waste of time.