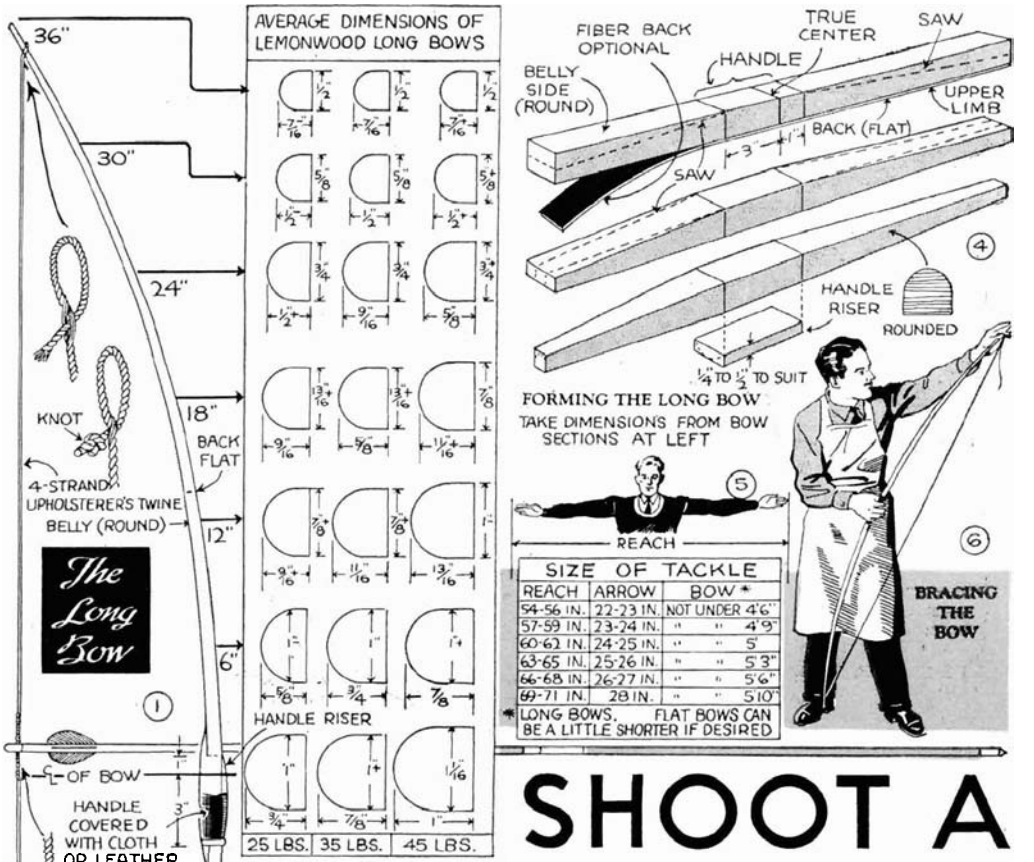


SHOOT A

WHETHER you try to land six in the gold for a perfect fifty-four or take your archery with a dash of small game hunting, you will find keen enjoyment in this ancient sport. Making the tackle is simple.

Size of tackle: The first thing to know is what size of bow and length of arrow to use. This depends entirely on your physique, and particularly your reach. If your reach is 64 in., you can use an arrow 25 to 26 in. long, with a bow not less than 5 ft. 3 in. from tip to tip, Fig. 5. The weight of the bow, that is, the number of pounds pull required to draw it, depends on your muscular development. Most men can draw a 50 to 60-lb. bow, but a 35 to 40-lb. bow is the best weight for general shooting, and good scores can be made with the 25 and 30-pounders.

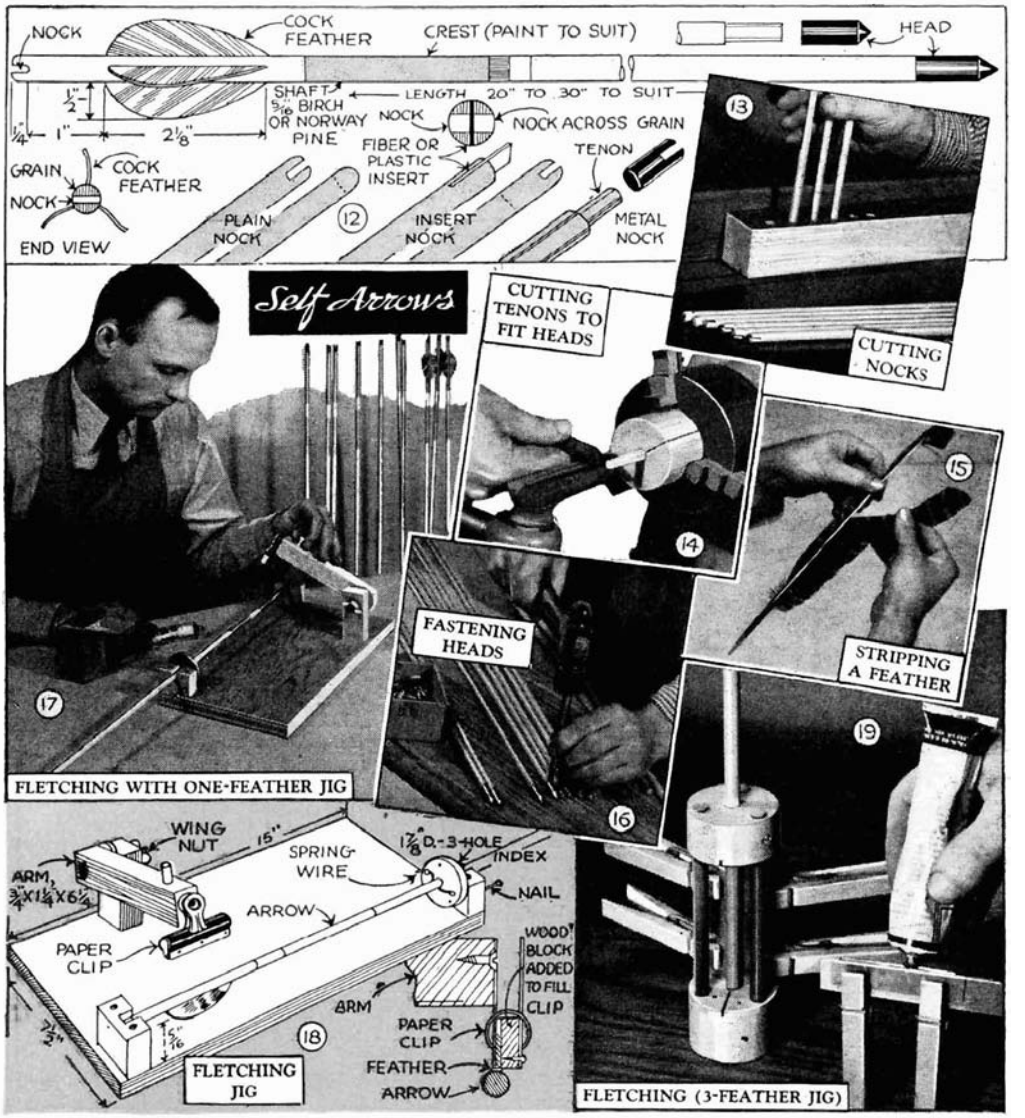
The long bow: The long bow has a deep or "stacked" body, which is generally recognized as the best type of bow shape. A stave of lemonwood for a long bow will cost you about one dollar. Square up the stave to a little over the dimensions at the handle of the weight bow you intend to make. Bandsaw the wood, Fig. 4, and then round off the belly side with a plane or wood rasp. Cut

BOW FOR FUN

the nocks 1 in. from each end, Fig. 3, using a round file, Fig. 2. Make a bowstring from upholsterer's twine, as shown in Fig. 1, and brace the bow as in Fig. 6. When the bow is braced the height of the string from the center of the bow should be about equal to the width of the hand and thumb with the latter stuck out as in Fig. 28. You can now "tiller" it to check the bend of both limbs, at the same time measuring the weight with a spring scale, as shown in Fig. 10. Bend the bow gradually. Take off a shaving here and there to equalize the bend. Take your time. You can always take off more wood, but you can't put it back on again. The bow should be quite stiff for a distance of about 6 in. at the center, and should then curve evenly to the tips. The beginner's most common fault is to make the bow "whip ended," Fig. 9. Besides checking the curvature, sight down the bow as you work and note if the string cuts the center of the belly, as in Fig. 7. If it throws off to the side, your bow has a turn in it. This can be corrected by taking off wood opposite the turn.

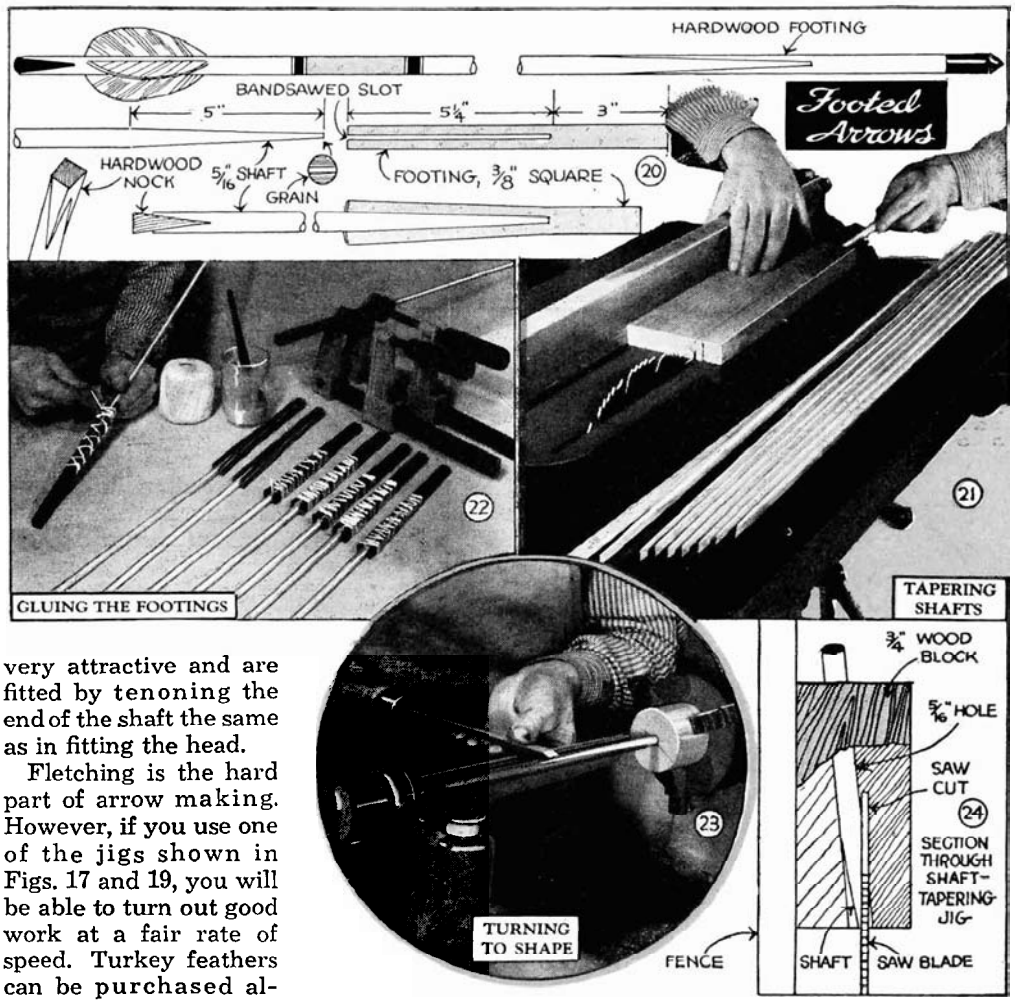
If desired, you can back your bow with red or black fiber attached with waterproof glue before the shaping is started. Instead of cutting plain nocks, you may decide to purchase and fit a set of cow-horn tips, or, you may want to turn them from colorful plastic. It will be noted, Fig. 3, that plain nocks are not cut across the back of the bow as this would weaken the wood. The groove in horn or plastic tips, however, is let into the back.

The flat bow: The flat bow is easier to make than the long one



and can be 3 or 4 in. shorter for the same length arrow. The same general method of bandsawing is used, Fig. 8, but the belly side is only lightly rounded off. Typical sections of a 40-lb. flat bow are given in Fig. 11. The handle riser can be the same or of a contrasting wood to the bow itself. The narrow plate, which prevents wear, is inlaid, using a 5/16-in. disk of 1/8-in. plastic.

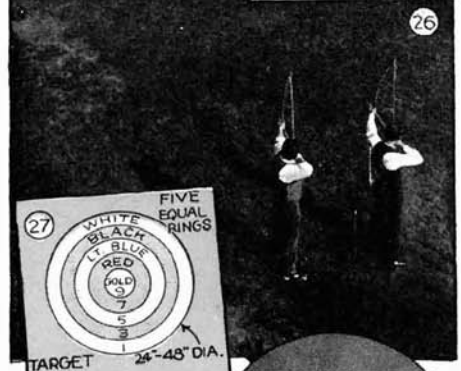
Self arrows: A "self" arrow is one made from a single piece of wood. The simplest way to make self arrows is to buy a construction kit, which includes the 5/16-in. dowel sticks, feathers and heads. Birch is the best wood to use. The various parts and dimensions of the arrow are shown in Fig. 12. First put on the head. A number of different ones can be purchased, but for average target work the brass parallel pile head is most satisfactory. Cut the tenon on the end of the shaft by turning on a lathe, Fig. 14. If you are careful, the head will be a drive fit and will hold securely. If the head is a bit loose, anchor it with a few punch taps as shown in Fig. 16. Cut the arrows to the required length and then cut the nocks. Plain nocks can be cut easily by running the shafts over a circular saw, as in Fig. 13. The nock should be across the grain. If you want more strength at the nock, insert a thin slip of fiber or plastic. Aluminum or molded-plastic nocks are

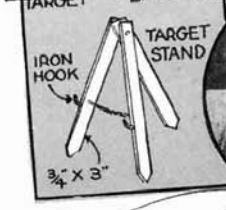


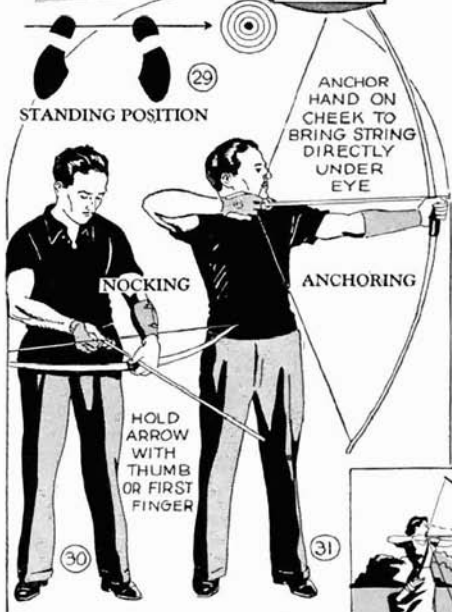
very attractive and are fitted by tenoning the end of the shaft the same as in fitting the head.

Fletching is the hard part of arrow making. However, if you use one of the jigs shown in Figs. 17 and 19, you will be able to turn out good work at a fair rate of speed. Turkey feathers can be purchased already cut, or you can strip your own feathers by grasping the vane at the tip and pulling outward, as shown in Fig. 15, afterward cutting the vane to the required shape. The one-feather fletching jig shown in Figs. 17 and 18 is built around a paper clip. A disk of plywood, which slips over the shaft, is drilled with three small holes to supply an indexing head, and is prevented from slipping by means of a piece of spring wire. One feather at a time is clamped by the paper clip and pressed into position. Any type of adhesive can be used. Celluloid cement has the advantage of quick drying and the ability to anchor on lacquer, thus allowing the shafts to be painted previous to fletching. Waterproof glue on bare wood is the most durable. In the three-feather jig, the feathers are held between metal plates, one plate of each set fitting into grooves in the top and bottom members. The upper ring is removable, being a press fit over the three spacing dowels.

Footed arrows: Footed arrows are more decorative and more durable than self arrows. The footing is made from any tough hardwood, and is slotted for a distance of 5¼ in., Fig. 20. Shafts are usually Port Orford cedar or Norway pine, and are tapered to fit the slot in the footing. Perfect tapering of the shafts can be done by the circular-saw method shown in Figs. 21 and 24. The taper should be made with the flat of the grain. The shaft is assembled to the footing with waterproof glue and the assembly is then clamped or wrapped with twine or rubber strips as in Fig. 22. Other than a special tenoning jig, the best method of rounding the footing to match the rest of the shaft is by turning, Fig. 23. Nocks







for footed arrows are usually of the same wood as used for the footing. The insert is let into the end of the shaft, and is later rounded off and grooved in the usual manner.

Accessories: If you want to be comfortable while shooting, you will need an arm guard and a finger protector. Any kind of leather band around the wrist and forearm will do for the guard, its purpose being to take the lash of the bowstring as the arrow is let loose. A simple finger tab of soft leather shaped as shown in Fig. 25 will provide protection for your fingers, or you may prefer to make or buy a three-finger shooting glove. An excellent target can be made by cementing four or five layers of corrugated cardboard together, painting the rings directly on the cardboard or on a piece of oilcloth. A simple target stand is made from ¾-in. lumber, as shown in Fig. 27.

How to shoot: Stand with your feet well apart, left side facing the target, as shown in Figs. 26 and 29. Hold the bow horizontal and fit an arrow across the arrow plate. Grasp the arrow with the thumb or first finger of the left hand, Fig. 30, and with the right hand twirl the arrow until the cock feather is perpendicular to the bowstring. Adjust your grip on the string, as shown at the right in Fig. 25, and start the draw. Pull back slowly until your right hand comes to a fixed "anchor" point on your jawbone, Fig. 31. In this position, the string should be under and in line with the right eye. Aiming is done by sighting over the tip of the arrow to some fixed point previously determined as the correct point of aim at the distance being shot. Fig. 32 illustrates this method of aiming.