

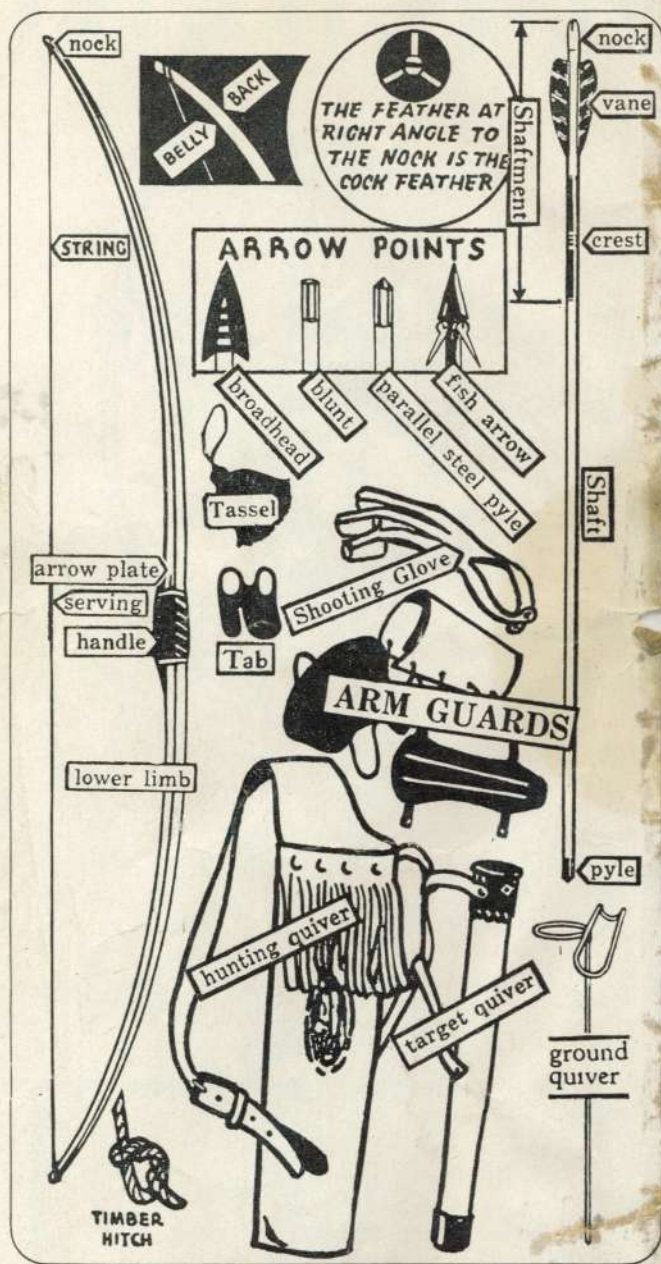
ARCHERY



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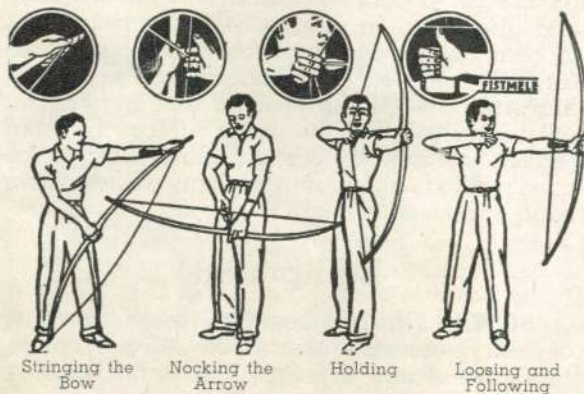
How to Shoot



Stand with the left side facing the target with the bow in the left hand. (Left handed archers would reverse these directions.) Hold the bow horizontally and grasp the arrows at the nock with the thumb and forefinger of the right hand and place it across the arrow plate of the bow. The arrow is then turned until the cock feather is perpendicular to the bow and the arrow is fitted to the bow string. Then, with the right hand palm up, hook the forefinger under the bowstring to the right of the nock. The middle finger and ring finger are hooked under the bowstring to the left of the nock. The bowstring should cut through the lower portion of the first joint about one-half inch from the tips of the three fingers hooked around the bowstring. The bow is then swung to a vertical position ready for drawing and drawn gently about two inches to tense the string on all three fingers.

The bow rests in the hand against the base of the thumb and is held in place by the tension of the draw. The fingers are allowed to curl loosely around the bow which is never held tightly. To get the left arm and hand in position for drawing, the left arm is raised with a very slight bend in the elbow. The bowstring is pulled back slowly and at this point of the draw it is important that the hand and forearm act only as a connecting link between the bowstring and the shoulder muscles which actually do the pulling. This enables the fingers and hand to remain relaxed so that the proper release can be acquired.

The arrow is drawn until the joint of the right thumb fits snugly under the right jawbone. In this position, the tip of the forefinger should be near the point of the chin. In the full draw position it is desirable to anchor the forefinger



face may be mounted. Targets, when stored, should be protected from rats and mice as they will destroy a target in a short time. Powdered sulphur sprinkled around the target offers good protection.

ACCESSORIES: An arm guard is worn to protect the bow arm from being bruised by the bowstring. There are several types on the market which serve the purpose very nicely. Some form of protection should be worn on the drawing hand to cover the tips of the fingers. Either a tab, finger tips or a shooting glove may be used, as preferred.

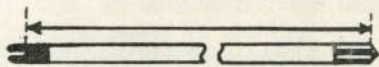
The arrows are ordinarily carried in a quiver. One that hangs from the belt is suitable for target shooting. Most archer-hunters, however prefer a shoulder quiver for hunting arrows. A ground quiver is quite often used at the target as it serves also as a rack for the bow when not in use.

An arrow case is a convenient part of the archer's equipment as it is usually designed to carry all accessories as well as the arrows. For protection of the bow, a bow case is well worth the small cost involved.

Fitting With Proper Equipment

It is important that the archer use an arrow of the correct length. The length of the bow used is dependent upon the arrow length. The following charts and diagrams will give a close approximation as to the proper length of equipment.

Spread Measurement



Drawing Length
Suggested ratio arrow length to target bow length

Spread - measurement to determine suitable arrow lgth.	Arrow Length	Arrow Length	Bow Length
57-59 in.	22-23 in.	22 inches	Not under 4 ft. 6 in.
60-62 in.	23-24 in.	25 inches	Not under 5 ft.
63-65 in.	24-25 in.	27 inches	Not under 5 ft. 6 in.
66-68 in.	25-26 in.	28 inches	Not under 5 ft. 8 in.
69-71 in.	26-27 in.	30 inches	Not under 6 ft.
72-74 in.	27-28 in.		
75-77 in.	28-29 in.		

Care of Equipment

BOWS

1. Never Overdraw Your Bow. Your bow will be more efficient for your arrow length if it is never drawn past it. Never draw the bow without an arrow on the string as you may overdraw and break the bow. A bow at full draw is sometimes considered to be 8/10th broken. Another inch draw may seriously damage it or break it.

2. Always Unstring Your Bow After Shooting. Otherwise it will take a permanent set and impair the cast. A bow is said to take a set when it does not straighten when unstrung. Never try to straighten a bow by bending it backwards as it is injurious to the fibres of the wood and may also break the bow at the handle tips.

3. In cold weather do not pull your bow to full draw position until it has been flexed gradually. Sudden strain on cold wood is liable to cause it to splinter. The bow should be laid flat or suspended when not in use rather than stood on end.

4. Replace worn strings before there is danger of breakage. Often a bow is broken at the handle when the string breaks. Strings that are not latexed should be waxed with bowyer's wax.

ARROWS

1. Keep your arrow shafts straight. To straighten, heat shafts over a hot plate—never over an open flame, and after the shaft is heated through, hold in left hand and straighten over the base of the left thumb. You can determine the straightness of your arrows by sighting down them and slowly turning them.

2. A little wax on the foreshaft will preserve the finish of the arrow. Steel pyles may be kept free of rust by rubbing with an oil soaked rag.

3. Protect the feathers of your arrow. Do not leave arrows in the quiver as feathers tend to become pressed out of shape, although they usually may be brought back to shape by steaming slightly and smoothing out.

An Archery Club

A group of archers wishing to organize an archery club should elect officers, write a constitution and a set of by-laws and form com-

mittees to carry on the activities of the club. The Constitution of the National Archery Association serves as a good pattern and a copy may be secured at no charge by writing to Louis C. Smith, Secretary and Treasurer, National Archery Association, 77 Franklin Street, Boston, Mass.

Information may, at the same time, be secured regarding affiliation of the club or its members with the national association. Such affiliation makes official the scores of its members when made at properly conducted tournaments as well as offering certain awards and serves to stimulate interest in the sport.

Suitable dues should be collected to finance the purchase and upkeep of sufficient targets and such items which may be required from time to time. Formal tournaments should be held at least twice a year together with such other shoots as will sustain interest and encourage the growth of archery in the community.

Most cities have public archery ranges in connection with their park systems. If there is not one in your town your club will find that most park officials will be glad to cooperate in this matter.

Conducting An Archery Tournament

In any tournament the rules and regulations as well as events specified by the National Archery Association should be followed as closely as time and conditions will permit.

The shooting field should be laid out so that the targets will be about ten yards apart in line and with sufficient open space behind the targets for stray arrows. If at all possible, all shooting should be to the north. The field may be marked out with lime or stakes at the various shooting positions. In rounds that are shot at more than one distance the line of targets may be moved or the shooting line may be moved, whichever is most convenient.

Target assignments are usually made in the order of the registration of the participants for the first round. The scores of this round are used to determine the assignments for following rounds. In this way the archers of equal skill are on a target together. No more than five participants should be assigned to one target. A scorer and an arrow puller are selected for each target from the archers shooting on the target.

At the beginning of each end the Field Captain blows a signal to commence shooting and at its conclusion as a signal to go to the targets for scoring. While it is customary in the National tournament to shoot split ends. (The archer shoots three of his six arrows, yields his place to his target mates and then, in his turn, shoots the other three.) In many tournaments all six arrows of an end are shot before stepping back and generally two archers shoot at one time.

Rounds and Events of the National Archery Association

The rounds and other events that may be used in annual tournaments shall be defined as follows, though the list need not restrain the tournament committee from adding events which are not included: York round—72 arrows at 100 yards, 48 at 80 yards, 24 at 60 yards. American round—30 arrows at 60 yards, 30 at 50 yards, 30 at 40 yards; National round—48 arrows at 60 yards, 24 at 50 yards; Columbia round—24 arrows at 50 yards, 24 at 40 yards, 24 at 30 yards; Junior American round—24 arrows at 40 yards, 24 at 30 yards, 24 at 20 yards.

Team shoot for men: 96 arrows at 60 yards.

Team shoot for women: 96 arrows at 50 yds.

Team shoot for boys: 96 arrows at 50 yards.

Team shoot for girls: 96 arrows at 40 yards.

Flight shoot in free style; six different arrows for the greatest distance, the winner to have three more shots if he wishes to improve his record.

Clout shoot: for men, 36 arrows at 180 yards at a clout target; for women and juniors, at a clout target; Class A at 140 yards—Class B at 120 yards.

Wand shoot: 36 arrows at 100 yards for men and at 60 yards for women and juniors, at a standard wand.

Tackle and Rules

1. Any kind of bow, except a cross-bow and any kind of arrow, except such as would unreasonably injure a target face, may be used in any event.

2. The field captain shall appoint at each target one of the archers to be target captain and another to be scorer.

3. The duty of the target captain shall be to order the shooting at his target and to settle all local questions. Appeals from his decisions may be made to the field captain whose word shall be final. He shall also draw the arrows from the target and announce their value to the scorer.

4. A scorer shall keep a strictly itemized account of the value of every arrow that hits the target. Unless arrows are separately itemized they shall not be counted.

5. Each archer shall shoot six arrows, called an end. Unless excused by his target captain, he shall shoot three, yield his place to his target mates and then, in his turn, shoot the other three.

6. Arrows must remain in the target until withdrawn by the target captain or his deputy in the presence of the scorer. Arrows withdrawn otherwise shall not be counted unless excused by the field captain.

7. The standard target shall be around a bast of spirally sewn straw, covered with a face divided into a central disc, $9 \frac{3}{5}$ inches in diameter, and four concentric rings, each $4 \frac{4}{5}$ inches in width; painted respectively from within out gold, red, pale blue, black, and white.

8. The target values shall be: gold, 9; red, 7; pale blue, 5; black, 3; white 1.

9. The targets shall be placed on easels, made of soft wood, the center of the gold being four feet from the ground.

10. If an arrow cuts two colors it shall count as having hit the inner one.

11. An arrow rebounding from, or passing through any part of the scoring face of the target shall count as a blue.

12. The arrows of each archer must bear a distinctive mark.

13. An arrow leaving the bow shall be deemed shot if the archer, while standing where he has been shooting can not reach it with his bow.

14. If any part of the archer's tackle breaks during the act of shooting, it shall not be an excuse for repeating the shot.

15. A hit or hits made by an archer on a target not assigned to him shall not be counted.

16. The clout target shall be a target face, marked on the ground by white lines, in which proportions of the standard target are reproduced in the ratio of a foot to the inch. The center of the gold shall be indicated by the straw bast of a standard target laid flat on the ground. The scoring values shall be the same as those of the standard target.

Modifications

In smaller tournaments it is often not possible to shoot all the events called for by the National Association rules in which case any events may be dropped from the program as desired.

Archery Golf

Closely related to roving is the sport of Archery Golf. It is often played on a regular golf course using a ball or target in place of the cup and counting the shots necessary to hit the target just as is done in golf. A very convenient target for this purpose is a four inch ball which rests on top of a light upright stand about 28 inches high. Dislodging the ball is equal to holing out in golf. A flight arrow is used to make the drive and to get as much distance as possible. All shots must be made with a full draw. The approach shots are made with an arrow having a long spiked tip to prevent skidding, and the target shots with a regular target arrow or with a blunt putting arrow. The blunt arrow is generally preferred when shooting at the ball type target as such an arrow is less apt to skid in case of a miss. The shot is conceded if the target can be touched with the point of the arrow held in the nocked position on the bow and while standing with the left foot on the position where the point of the arrow was lying.

Hunting With the Bow

Rapidly growing in popularity and of keen interest to many is the thrilling sport of taking game with the bow. Many states have recognized archery's just claims and have set aside special preserves for the use of bow and arrow hunters only or are giving the archers special seasonal advantages to encourage hunting in this manner.

The effectiveness of the bow and broadhead has been proven many times as a game getter. Specimens of every game animal on the North American continent have been taken in this way. Many experienced hunters attest that taking game with the bow is far more humane than with a gun. With game becoming less plentiful each year, more and more hunters are turning to using the bow as a really sporting method of hunting.

Many archers are finding endless thrills by taking fish with the bow and special arrows shot with a line attached. For large salt water fish a harpoon point is used. Inland game fish are protected in most states and before any shooting is done local fishing regulations should be consulted. Rough fish can generally be taken legally in this manner and much real sport derived from it.

Roving

Endless hours of carefree, invigorating enjoyment are derived from archery in wandering through the woods and fields shooting at natural targets as they are encountered. An old rotten stump, a clump of grass or small bushes, a leaf, they are all inviting. Some real competition can be worked up in the game of roving by everyone in the party shooting at the same mark with the one making the best shot being awarded one point on the target and allowed to select the next mark.

Many clubs have set up regular roving courses with established shooting stations and having animal silhouettes for targets. On such a course a system of scoring can be worked out to give a par count for the round. The targets are set up with a bank as a back stop or the targets are mounted on a bale of straw and located so as to simulate the natural hunting conditions. Roving is excellent practice for hunting. There has recently been formed the National Field Archery Association which is doing much to encourage archery along this line. More complete information regarding the laying out of any archery roving course together with rules for the game may be obtained by writing to Harry Glover, 3531 Mangle Avenue, Oakland, California.

Glossary of Archery Terms

- BACK:** The surface of the bow which is away from the archer when the bow is in the shooting position.
- BACKING:** A material which is glued to the back of the bow to protect the back or to improve the bow's cast. Common backings in use are: Fibre, silk and hickory.
- BARRELED ARROW:** An arrow that is thicker at or near the middle than it is at the ends.
- BILLET:** A piece of bow wood which is to be spliced to another piece to make a bow of two short pieces.
- BOSS:** The coiled straw back of a target. Also called a bast.
- BOW STAVE:** A piece of wood from which a bow is made.
- BOWYER:** A bow-maker.
- BRACE:** To place strings in nocks of bow.
- BROADHEAD:** An arrow point designed for hunting generally made of steel having sharp cutting edge.
- CAST:** The ability of a bow to propel an arrow.
- CRYSAL:** A compression fracture of fibres usually showing as a line across the belly of a bow. Occasionally seen also on arrows.
- CLOUT TARGET:** A 48-foot target laid out by circular lines on the ground and shot at from long range.
- COCK FEATHER:** The feather on an arrow which is placed at right angles to the nock.
- CREST:** The identification bands painted on an arrow.
- DRAW:** To pull the string of a bow to the full length of an arrow.
- DRAWING WEIGHT:** The force in pounds required to pull a bow to full draw.
- END:** A number of arrows shot consecutively as a unit. Usually six arrows.
- FIELD CAPTAIN:** The officer in charge of a tournament.
- FISTMELE:** The distance from the side of the hand to the end of the extended thumb. Used as a measure of how high to string a bow.

FLETCH: To apply the feathers to an arrow.

FOOTING: A hardwood spliced to the end of an arrow shaft to make it more durable at the pile end.

HEN FEATHERS: The two feathers on an arrow which are not at right angles to the nock.

HOLD: The pause at full draw before releasing the arrow.

LADY PARAMOUNT: The lady assistant to the field captain acting as the captain of the lady archers during a tournament.

LAMINATED BOW: A bow made of two or more layers of wood.

LIMB: Either half of the bow from the handle to the tip—Upper limb and lower limb.

LOOSE: The letting-go or releasing of the drawn bow string.

NOCK: The grooves in the ends of the bow or in the end of the arrow into which the string is fitted.

NOCKING-POINT: The place at which the arrow engages the string.

OVERDRAW: A draw greater than intended for the bow or for the archer.

PETTICOAT: The border outside the scoring face of the target.

PIN: A tiny knot in bow woods. Common in Yew and Osage Orange.

POINT OF AIM: An object used as a sighting point in the indirect system of aiming.

PYLE: The metal tip attached to the front end of the arrow.

RECURVED BOW: A bow bent back from a straight line at the tips.

REFLEXED BOW: A bow bent back from a straight line in unstrung position.

RELEASE: Same as loose.

ROUND: A given number of shots at a given distance or set of distances.

ROVING: The game of shooting at random targets in the field.

SELF: Used in reference to an arrow essentially of one piece of wood or a bow of one piece of wood without backing.

SERVING: The wrapping about the string at the nocking point to protect it from wear at this point.

SHAFT: The wooden part of an arrow. The main section of an arrow.

SHAFTMENT: The section of the arrow on which the feathers are mounted.

SPINE: The quality of stiffness and resiliency in an arrow.

STACKED BOW: A bow being nearly as thick as it is wide in cross section as differentiated from the flat type bows which are considerably wider than they are thick.

TAB: A flat piece of leather cut in such a way that it will stay on the hand in shooting and used as a finger protection.

TACKLE: An archer's shooting equipment.

TILLER: The process of bringing the bow to proper curvature.

TOXOPHILITE: An archery enthusiast.

VANE: The feathers used on arrow to guide its flight.

WAND: A stick stood upright in the ground as a shooting mark. It is usually two inches wide and six feet long.

Suggested Reading

"Archery" by Reichart & Keasey.

"Bows and Arrows" by James Duff.

"The Flat Bow" by Hunt and Metz.

"Archery" by Robert P. Elmer, M. D.

"Archery Today" by Harry McEvoy, Jr.

"Modern Archery" Arthur W. Lambert, Jr.

"The New Archery—Hobby—Sport—Craft" by Paul H. Gordon.

"The Spencer System of Shooting the Bow" by Stanley F. Spencer.

"Archery Shooting Technique" by Herber Butts, M. D.

"The Witchery of Archery" by J. Maurice Thompson.