

KNOTS AND LASHINGS.

(Grade X)

Well-illustrated pamphlets on knots and splices have been prepared by both the Army and Air Force authorities. This section is not planned to provide duplicate material, but to assist both Instructors and Students in making their course on Knots and Lashings as practical and efficient as possible under classroom conditions.

Apparatus.—1. Use rope, and not string. A piece of clothes line not less than 6 feet in length is excellent. The rope should always be dry.

2. Have the ends of the rope dipped, giving each end a different color.

3. The two colors, for example, red and blue, aid in elementary instruction until the class can handle the new terminology.

Terminology.—To designate the parts of the rope hold the rope with one end on the ground, and make the end in your hand resemble a walking stick. If the part in your hand has been dipped in blue ink, and the end of the part of the rope on the ground is dipped in red ink, the parts can be designated as follows:

1. The rope from the ground to your hand is called the Standing Part.

2. The rope which loops over your hand going towards the blue end is called the Bend or Bend Bight.

3. The blue end of the rope is the Free End.

This can be used in instruction: If we are to tie a Bowline we state and illustrate that the Free End (blue is passed over the Standing Part. Make a loop on the hand, at the same time grasping the Free End (blue) and placing it under the Standing Part, and then through the loop just made. Hold the Free End (blue) and the Bend in your hand and tighten the knot by pulling on the Standing Part. With the rope in your hand this is not at all complicated. This illustrates also that it is better to learn from practical observation and manipulation than from the book. The less theory taught the better the class will enjoy the work. However, they are definitely required to become very familiar with the proper names, and should be able to assimilate illustrations as above.

Procedure.—1. Teach the uses of knots first, and then follow with the practical part of the lesson.

2. Allow plenty of time for practice and develop competitions.

3. Final competitions should be conducted in the dark on a time basis.

4. The sequence of the teaching of knots should be based on their simplicity. The following knots should be tied first: Reef or Double Sheet Bend, Clove Hitch, Quick Release, Fisherman's Bend, Marline Spike Hitch.

5. Become so proficient in tying these knots that you can do it with your hands behind your back or above your head. This aids the class in keeping the correct sequence and using the correct hand in tying as they see it done without mentally transferring the right for left hand or vice versa.

Splices.—Joining two ends of a rope together is splicing. The strength of a splice is never that of the whole part of the rope. The Back Splice, Short Splice, and Eye Splice are the important ones to be taught. The percentage of weakness due to splicing or knotting is roughly:

Eye Splice, 10%.

Short Splice, 20%.

Timber Hitch, 35%.

Clove Hitch, 40%.

Reef Knot or Sheet Bend, 50%.

REFERENCES

Cadet Training Pamphlet, 1942: "Knots & Lashings".

Air Cadet Pamphlet No. 8: "Knots & Splices".

Boy Scout Knot Book—Gilcraft.

SMALL ARMS TRAINING

THEORY OF RIFLE FIRE.

(Unless otherwise stated the information given is for a long rifle cartridge and a .22 B.S.A. Rifle).

The cartridge used in .22 rifles has a case made of brass. This case has a rim at the base by which the cartridge is positioned in the chamber and extracted by the extractor. The propellant charge consists of smokeless powder. The charge is ignited by a non-corrosive non-mercuric primer which is forced into the recess of the rim of the case and ignited when the firing pin strikes the cartridge case and crushes the primer. When the charge is ignited, its expansion causes the walls of the case to expand, thus sealing the chamber.

The bullet is pointed, made of lead, and weighs 40 grains. The advantage of the elongated bullet is that it has greater weight in proportion to the surface directly opposed to the air and is, therefore, better able to overcome the resistance of the air. Retardation of its velocity is lessened, and greater range and striking power are obtained.

The barrel of the rifle is rifled,—spiral grooves (Fig. 1) cut down the bore.

When a rifle is fired, certain factors at once begin to act on the bullet:

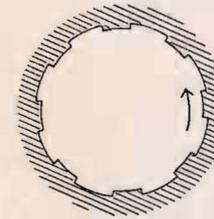


Fig. 1.

Before the bullet leaves the rifle.

(a) *Force of the explosion.* When a cartridge is fired, the gasses formed by the burning of the charge push the