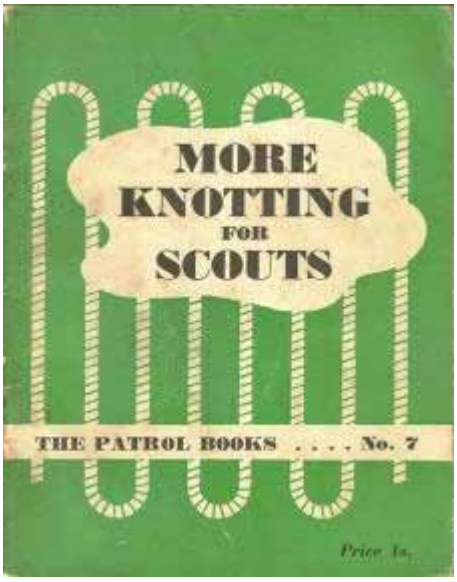

The Patrol Books . . . No. 7

MORE KNOTTING FOR SCOUTS

by
W. J. GENESE

and illustrated by the author

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Editor's Note:

The reader is reminded that these texts have been written a long time ago. Consequently, they may use some terms or express sentiments which were current at the time, regardless of what we may think of them at the beginning of the 21st century. For reasons of historical accuracy they have been preserved in their original form.

If you find them offensive, we ask you to please delete this file from your system.

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CONTENTS

TYPES OF ROPES

BEFORE we make a start on the knots in the Second and First Class Tests let us take another look at the materials we are going to use, cord or rope, and some idea of how they are made up.

Rope is made of vegetable or mineral, but we are not going to bother now about the latter kind of rope, although some time we may come across wire rope when we do pioneering with heavy materials. For our present purpose, we will consider rope made from vegetable fibres, and five of the most common used are hemp, manila, coir, sisal and cotton.

Hemp is one of the best materials for rope making, as it is strong for its size, smooth to handle, with care it lasts well, and when treated with tarred oil during manufacture, it is rendered waterproof, so prolonging its life.

Manila, sometimes called manila hemp, is the name given to the fibres of the wild banana, grown in the Philippine Islands, the capital of which is Manila. It is not quite the quality of hemp, but strong and durable rope is made from it.

Sisal comes from the sisal plant, grown in America, and is easily recognised, because it is whiter in colour than the first two we have considered, but is hard and stiff to handle compared with them. We frequently use sisal cord, two or three strand, for making our gadgets at camp.

Coir is the fibre of the coconut husk, brown in colour, coarse in appearance, and rough to handle. It does not have the strength or durability of hemp or manila, but has the advantage of being light in weight, and will float in water, at any rate when it is new and clean.

Cotton makes up into a strong rope, pliable, and smooth to handle; and of good appearance, so it is used a good deal in yachts and pleasure craft, where appearance is important but it is very absorbent, and becomes hard and stiff after immersion in water.

Rope making. Fibres are made into rope in two ways, either laid up, that is twisted together, or braided, which is what we would call plaited.

Fibres are first combed to make them all straight, and then a certain number are twisted together into what is called yarn, which is wound on bobbins.

Braided rope is made by plaiting a number of yarns, usually eight, with a central core to make it keep its round shape. We see this kind of rope at home as picture cord. Because it does not twist easily when a strain is put on it, we frequently use it for flag halyards, and when used outdoors, it is sometimes waxed, so as to prevent it from rotting. A good quality cotton braided rope is used for making our spinning ropes and lariats.

Laid rope is made by twisting a number of yarns together into a strand. Three or four of these strands twisted together make a rope. This last process is usually done in what is called a ropeway or rope walk, where the strands are laid out on a machine, the length of the rope to be made, and may be over a hundred yards in length.

Hawser laid is the name given to rope made with three strands, and if it is twisted in the way shown in the pictures in this book, is said to be laid up right-handed. This is the usual way of making up rope, but sometimes you will come across rope made up left handed, or the opposite way.

Shroud laid is made of four strands, and in the middle is a heart or core, a thinner strand, to make it keep its shape. If you want to see the reason for the core, put four coins in the form of a square on the table, and you will see you can push the opposite ones together, and make a diamond shape. You can do the same with a four strand rope if it has no core.

You frequently find this kind of rope used for the long guy lines of your large tents, so look out for it the next time you are in camp, and have to erect the tents.

Cable laid is a nine strand rope, usually rather large in size, and is made by laying together three three-stranded ropes. This makes a very pliable rope, but is not as strong as a hawser laid rope of the same size.

All rope is expensive now, so we must take great care of any we have of our own, or which belongs to the Patrol or Troop. It may get wet in use, through being used in the rain or in the river when we put up a bridge, but we should always see that it is properly dried, not in front of a fire, but slowly, and then neatly coiled, and, if possible, stored in a cupboard, where it will be kept cool and dry. If we let it get damp, it will soon become mildewed, and it will rot as a result.

When we use our rope, we must see that we do not put more strain on it than it should have, or it will soon become weak and so be useless for our purpose. As an example, if we so weakened the main rope of an aerial runway, that it had to be spliced in the middle, it could not be used again for that job because the pulley would not be able to pass freely over the splice. Here is an easy way to find out the safe load for any size of rope of good quality, like hemp or manila, when it is new. Old rope or rope of a poorer quality is not so strong, and we should make allowances for this.

The rule to remember is this "THE SQUARE OF THE CIRCUMFERENCE IN INCHES, IS THE SAFE LOAD IN HUNDREDWEIGHTS." Here are a few examples, and you can easily work out any others for yourself.

Circumference		Safe load
1 inch	1 squared is 1 X 1 equals 1	1 cwt.
1½ inches	1½ squared, 1½ X 1½ is 2 ¼	2 ¼ cwt.
2 inches	2 squared is 2 X 2 is 4	4 cwt.
2½ inches	2½ squared, 2½ X 2½ is 6¼	6¼ cwt.
3 inches	3 squared is 3 X 3 is 9	9 cwt.

When you put a great strain on a rope, if you have any doubt about it being able to stand up to it, the best thing is to watch for any signs of damage or fracture. You can lessen the risk of damage to your ropes if you avoid using them over rough edges, which may cut through them or some of the strands, and where possible, protect them where they may get rubbed, by putting sacking or some other material between the rope and the rough surface.

Remember that we always give the size of rope by its circumference and not its thickness, so a 3 inch rope is 1 inch across, and a 1 inch is one third of an inch across or diameter, that is about the thickness of a clothes line. And length is usually given in fathoms, a fathom being 6 feet in length.

THE SECOND CLASS

PIONEERING TEST

Before you can pass your Second Class Badge you must be able to re-pass your Tenderfoot Tests; so you must keep up your practice of all you have done up to now, especially your knots. In addition you must tie the following and know their uses –

Timber Hitch
Fisherman's Knot

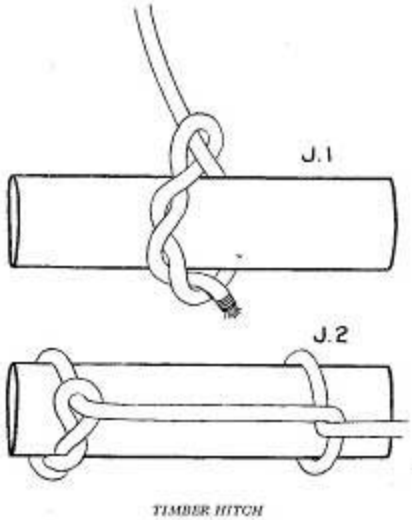
Demonstrate square and diagonal lashings by constructing a trestle of Scout Staffs.

TIMBER HITCH

This hitch is to draw two spars together when starting a diagonal lashing.

J.1 shows how to make the hitch, by taking a turn round a spar, bending round the standing part, and then twisting the rope two or three times round itself and pulling on the standing part to tighten.

It is also a quick and easy method of fastening a rope to a spar for a short time, to haul it up or along. It will hold only if a steady tension is kept on the rope; if the spar is to be hauled along pointing in one direction it is better to put a half hitch on the spar first – in the direction we want it to point. J.2 shows this method of using.



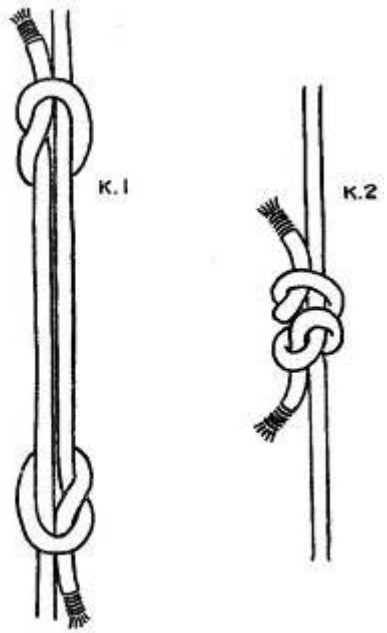
TIMBER HITCH

FISHERMAN'S KNOT

As the name shows it is a knot used by fishermen and is for joining two pieces of gut, which would not hold if we used a reef knot or sheet bend.

It can be used for joining thin twine, if you think the normal method would slip, but remember it tends to jamb and so is difficult to undo.

To make it, lay the two pieces to be joined alongside one another with the ends in opposite directions, make thumb or overhand knot in each end round the standing part of the other, K.1, pull the standing parts in opposite directions and draw the two thumb knots together, K.2.



FISHERMAN'S KNOT

LASHINGS

As soon as we start making lashings, we begin, if we have not already done so, to realise why we have to make some of our knots, because we see these knots used as part of the lashing.

Unless we can make two or three of the simpler types of lashing, we will not get very far with pioneering, and will find it very difficult to make strong serviceable gadgets at camp.

For this part of the test we have to know only two kinds of lashings, and to be able to make a good trestle from Scout staffs.

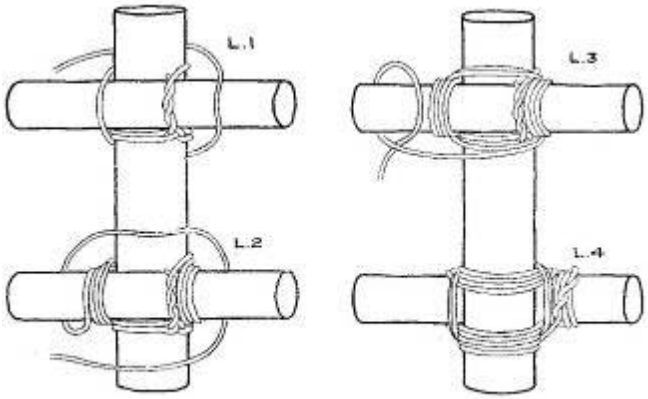
Like whipping, a good lashing should be tight and tidy, and to get them we have to be careful where we put each turn of the rope and we must see each turn is tight as we put it on and that it does not slip back at all.

SQUARE LASHING

So called because the turns of the rope make a square and it is used to fasten any two spars crossing one another, whether they are at right angles or not, so long as they are in contact with one another.

Start with a clove hitch round one spar at the place where the other spar will be crossing it and on the side which the strain will come when the spars are in use.

As an example, when making a trestle the transome or upper horizontal part will press downwards in use, so we start the lashing on this leg or upright spar, but below the point where the transom will meet it. You will see the reason for this quite clearly when you make your trestle.



SQUARE LASHING

Twist the end of your lashing rope or cord round the standing part to prevent the clove hitch slipping and to avoid having a loose end hanging down.

Start binding the two spars by winding the lashing round as in L.1, being sure each turn is tight. Continue until you have completed three or four turns, L.2. Then you bind these together by making two or three complete turns BETWEEN the spars.

These are called frapping turns and must be very tight, and then finish off with a clove hitch on a convenient spar, L.3. If you still have some cord over do not cut it off, but "lose it" by continuing to make half hitches round the same spar until it is all used up. L.4 is looking at the back of the lashing.

DIAGONAL LASHING

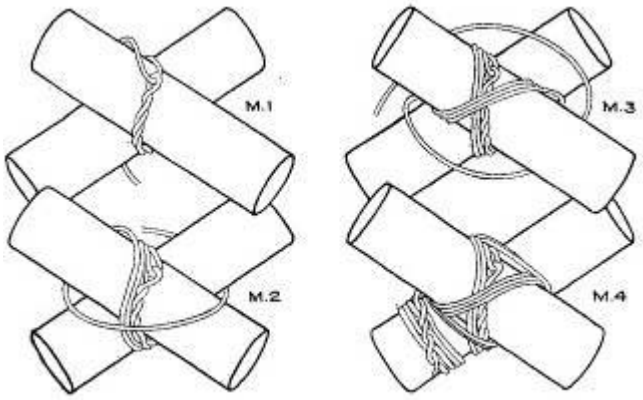
This lashing gets its name because the first turns of the lashing make diagonals across the intersection of the spars they are fixing. It is used where the spars to be fastened are not touching, and have to be pulled together. Do this by making a timber hitch round BOTH spars, pull with the standing part against the loop, and the two spars will be pulled together, M.1. Make two or three complete turns round both spars, M.2, then the same across the other diagonal, M.3, pulling each turn as tightly as possible. Finish with frapping turns and clove hitch or several half hitches exactly as you did with the square lashing, M.4.

It is not easy to keep this lashing as tidy as the last one, but you should try and get each turn of the lashing to lay neatly alongside the last, and, if possible, avoid letting it ride over the top.

TRESTLE

The most important thing to remember about lashings is that they must hold tight and not slacken off in use, so it is better to take a little longer in making if by doing so we are sure they will hold. When using heavy timber it will be necessary to use some form of lever to pull each

turn tight and to have a special kind of mallet to use on the frapping turns, but we will not have to use these tools for a light trestle such as we are now going to make.



DIAGONAL LASHING

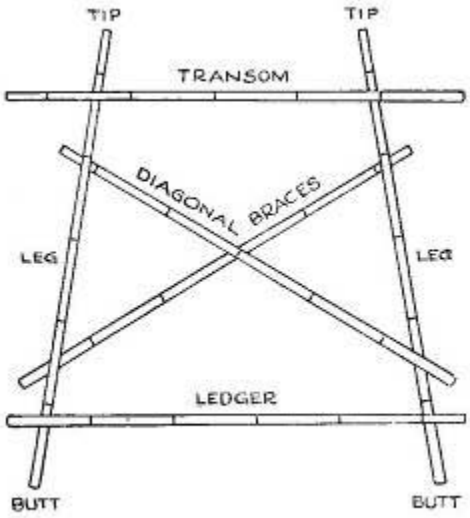
Gear required is six Scout staffs and nine light lashings, one-and-a-quarter to one-and-a-half fathoms in length. The latter are better too long than too short.

It is worth while spending a little time in marking the trestles before we start lashing, so that it will be a good shape when it is done.

Take the two stoutest for the legs and make the thicker ends the butts or bottoms.

Decide on the positions for the transom and ledgers and make both legs. The sketch shows the transom 9” down from the tips and the ledgers 9” from the butts.

Then mark the transom and ledgers so that when they are lashed each leg will slope inwards 1 in 6, that is 2” for every foot of its length.



TRESTLE

The length of the staffs in the sketch is 5’ 6” so they each slope inwards 11”.

Use the next strongest staff for the transom as it would have to take most of the weight if it were used in constructing a bridge.

These can now be lashed together, using square lashings, then add the diagonal braces fastening them to the legs, exactly as shown in the sketch with the lower end of one above the leg and the other lower end and both the other ends underneath the legs. All these are fastened with square lashings and finally the diagonal braces are lashed together using a diagonal lashing.

THE FIRST CLASS

PIONEERING TEST

Before you can pass your First Class you must be able to re-pass your Second Class tests which, of course, include the knots and lashings you have already learned – and constantly practised.

In addition you must demonstrate the following: –

Sheer lashing
Back and eye splice
Fireman's chair knot
Man harness knot
Rolling hitch

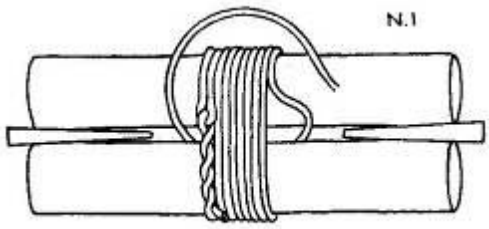
SHEER LASHING

Having done two kinds of lashing for second class you will find this one quite simple, but it is a very useful one as it is used whenever you want to make sheer legs for building a monkey bridge or aerial runway.

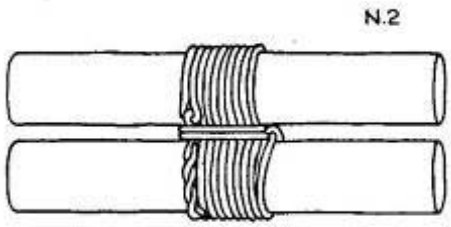
First line up the two spars to be joined, so that the butts are level, then put a piece of packing between the tips. This packing can be any piece of wood or a wedge, but it must be thick enough to allow you to pass the rope between the spars without difficulty.

Now make a clove hitch round one spar, its position depending on the purpose for which you are making the sheer legs. Assume it is for an aerial runway so we will make it near the tips of the spars.

Twist the end and the standing part of the rope together, as we did in the square lashing, make six or eight turns round both spars, make them tidy, N.I, but you need not pull them too tightly.



SHEER LASHING (incomplete)



SHEER LASHING (complete)

A couple of flapping turns; now you can see the reason for the wedges – finish with a clove hitch on the other spar, and, as usual, use up any spare rope with half hitches round the same spar, N.2.

You cannot see this clove hitch m the sketch as it is behind the spar.

To finish, pull the butts apart to the required distance, about one third of the distance of the lashing from the butts is about the maximum; and unless the butts are to be let in the ground to fix them, you may have to fasten a ledger with square lashing near to the butts to keep them apart.

BACK SPLICE

Instead of whipping a rope to prevent it from unlaying, it can be back spliced.

A short length of the rope is first unlayed, the amount depending on size of rope – for a 1" rope (½" diameter) 3" is ample.

Some kinds of rope need a temporary whipping to prevent it unlaying more than is necessary and so avoiding wastage, O.1.

Crown the strands as in the sketches O.2, 3 and 4, making quite sure that each strand is pulled up evenly so that the end of the rope is symmetrical, 0.5.

A good tip for a beginner is to put a short temporary whipping on each strand, it makes them much easier to tuck and so you can make a much tidier job in this way.

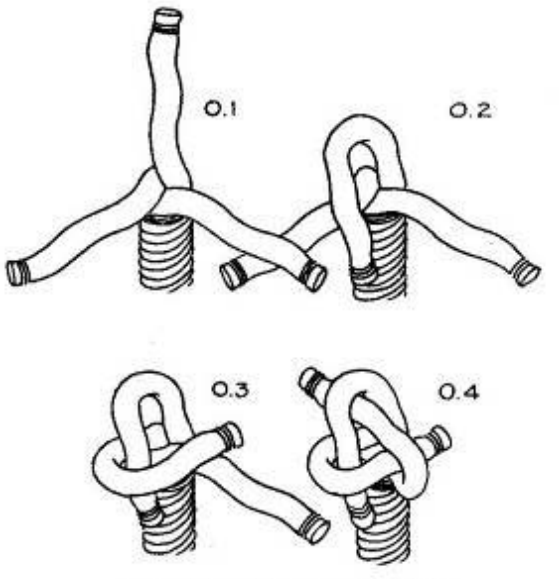
If you have done this correctly the rest is not difficult. Each strand must be tucked so that it passes over one strand and under one strand, O.6, working against the lay of the rope, that is, if you are using a rope laid up right handed and you look at the end of the rope the strands you are tucking are going round anti-clockwise.

To be certain that you are making your first tucks correctly, if you follow each strand back from the end, you will find that you tuck it under itself.

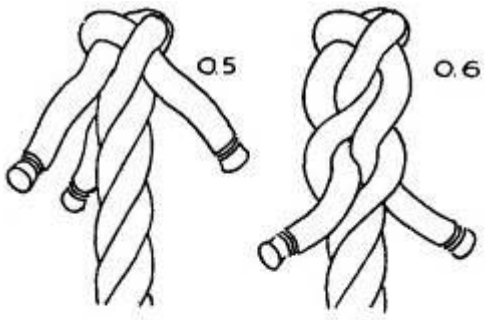
After you have made your first tuck with each strand, pull each tightly, giving it a twist to keep the strand in good shape and at the same time pull it towards the crown knot so as to make the splice as short as possible, O.7.

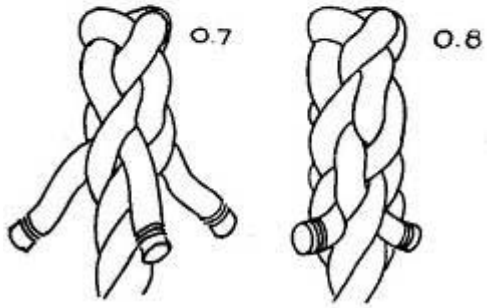
When you have tucked each strand twice in addition to the crown knot, cut off the surplus end of each strand, but leaving a short end protruding, O,8, or the last tuck will pull out when the rope is in use.

When you have had some practice at this you will find you can make a tidy job with ropes of different kinds and sizes without taking too long. Then is the time to find someone who can show you how to finish off a splice by what is called halving and quartering, but this is a refinement and the method described above is all you need for normal use and will be sufficient to pass your test.



BACK SPLICE (First Stage—The Crown)





BACK SPLICE (completion)

EYE SPLICE

Unlay a length of the rope about the same amount as for a back splice and if the rope is sisal and appears to unlay easily, put temporary whipping on the rope where you want the unlaying to stop and on the end of each strand.

Bend the rope so that the end touches the standing part to make a loop of the required size, making sure there is no kink or unnatural twist in that part of the rope forming the loop.

See that the three strands are placed exactly as shown in P.1. It may help if you fasten this loop with whipping twine to hold it in the correct position until the splice is started.

Tuck the first strand, number 1, under a convenient strand, and number 2 enters the rope at the point at which number 1 comes out. P.2 shows these two tucks clearly.

Turn the loop over and put number 3 into the place where number 2 leaves and it should come out where number 1 entered.

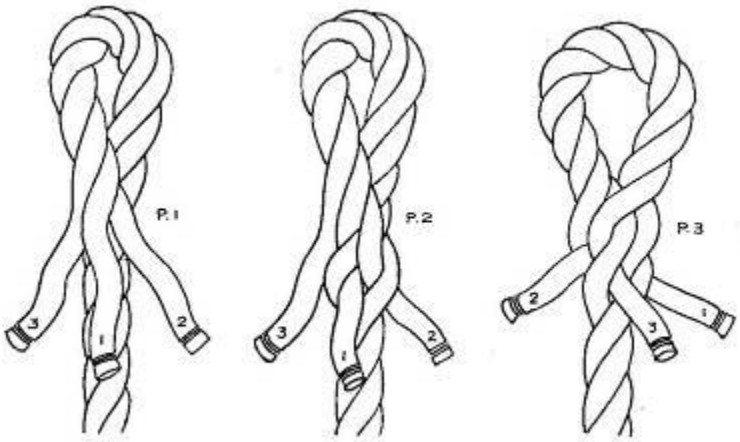
If you have followed this and done it correctly, each of your three strands will be tucked under different strands of the rope.

Pull each strand up carefully and evenly, giving each a twist to help it to keep its shape and it should then look something like P.3.

From now on you follow the directions as for a back splice and sketches O.6, 7 and 8 – that is, tucking each strand twice more keeping it tidy and symmetrical and trimming off as before.

You may not make much of a job of your first one, but when you have done it a few times you will be surprised how quickly and neatly you can do the job.

Then, having found the halyard at your Headquarters has been nicely done already, you will do the same thing on your mother's clothes line, or a neighbour's, or perhaps on the end of the rope which secures your case or box which you take to school with you each term.

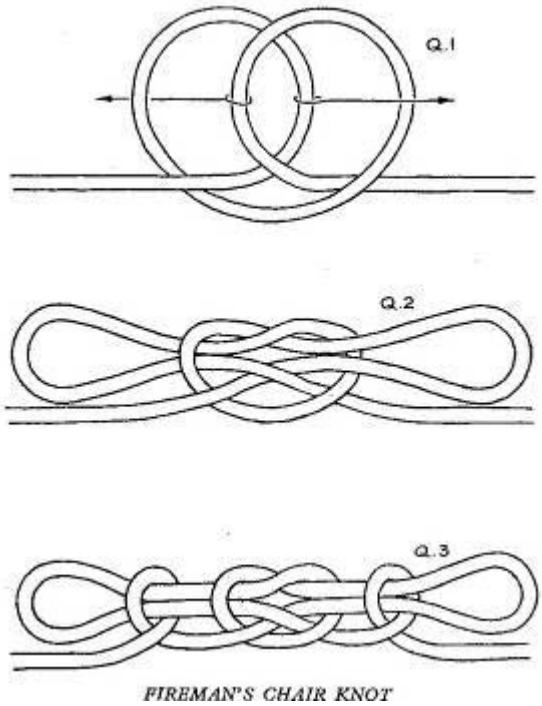


EYE SPLICE

FIREMAN'S CHAIR KNOT

The name tells you the use of this knot and as it is one for rescue purposes you will not have to use it often, but when you do, it will be in an emergency, so "Be prepared." Be certain you can make it quickly and correctly in the kind of rope strong enough to hold the weight of a human being.

Throw the two loops in the standing part of a LONG rope (remember this knot should be made without using the ends). This, of course, is a clove hitch, Q.1.



FIREMAN'S CHAIR KNOT

Pull the overlapping portion of each loop through the other loop as indicated by the arrows in Q.1 and you will get Q.2.

The two new loops you have formed must now be adjusted and made large enough to pass round a body. One, the smaller, will allow it to pass over the head and shoulders and rest under the arms, with the knot near the chest – the other long enough to go under the knees.

You can get the correct sizes for these two loops only by practice and the sizes vary according to the size of the person to be rescued, so practice on your Scouter or Father, as well as a Tenderfoot.

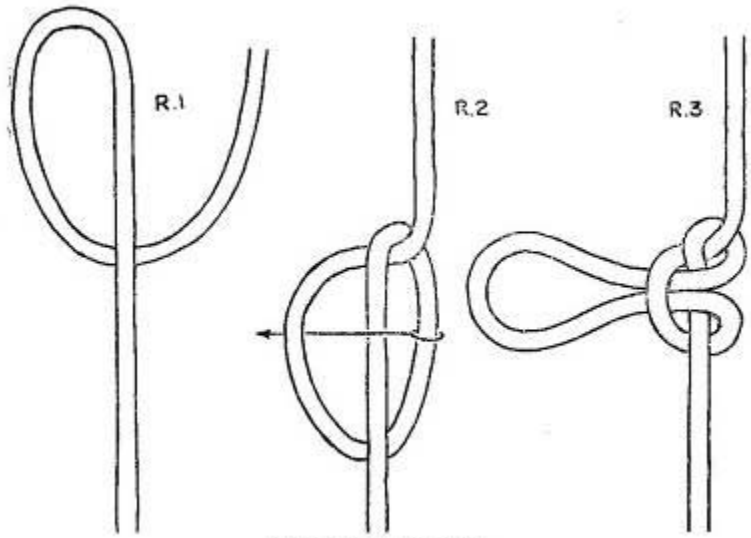
When you know the loops are correct, pull the knot tight and throw a half hitch on each loop, Q.3, as you did for a sheepshank, but make them snug up to the centre knot and tighten.

If you have done it correctly you can put it on your victim, who is lying on the floor insensible, and with the help of another person, lift them off the ground and they will be supported fairly comfortably in a sitting posture.

If the loops are too big the victim will fall out and be killed while you are saving his life, and if the loop round the chest is too tight, he will be dead by the time you have saved him. So you see how important it is to know, by constant practice, the correct sizes of loops for anybody.

MAN-HARNESS KNOT

Again the name of the knot gives you one of its uses, that of hauling, as the harness of a horse is for the purpose of hauling a cart. In this knot we make a loop in the standing part of a towing rope through which an arm can be put, or to have across the chest for helping to pull the trek cart or similar vehicle.



MAN-HARNESS KNOT

To make this knot put your foot on the rope, with your left hand, hold the top of the loop shoulder high, with the right grasp the place where the ropes cross, R.1. Let the loop drop, so that it falls across the rope, R.2. With the left hand, pull the right hand part of the loop as shown by the arrow in R,2, but not letting the rope held by the right hand move, and it will look like R.3.

To tighten keep your foot on the rope, pull up with the right hand, and horizontally with the left.

It takes a long time to explain, but it is an easy and quick knot to make, about 6-8 seconds.

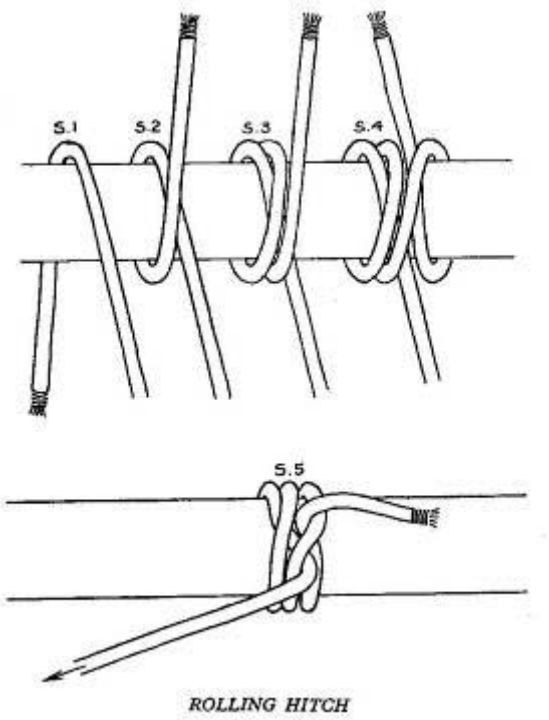
ROLLING HITCH

Used for making a rope fast to a pole, spar or hawser, especially if the strain on the rope is to be in the direction the spar is pointing.

If the pull is to be to the left, start as in the diagrams. Make a round turn, S.1 and 2, take a further complete turn over the standing part, S.3, and be sure these turns are quite tight. Another turn, passing the end under this turn as you would to complete a clove hitch, S.4.

To finish, move all the turns close to one another and for safety, make the end fast to the spar.

Tension can then be applied in the direction of the arrow, S.5, with complete safety.



ROLLING HITCH

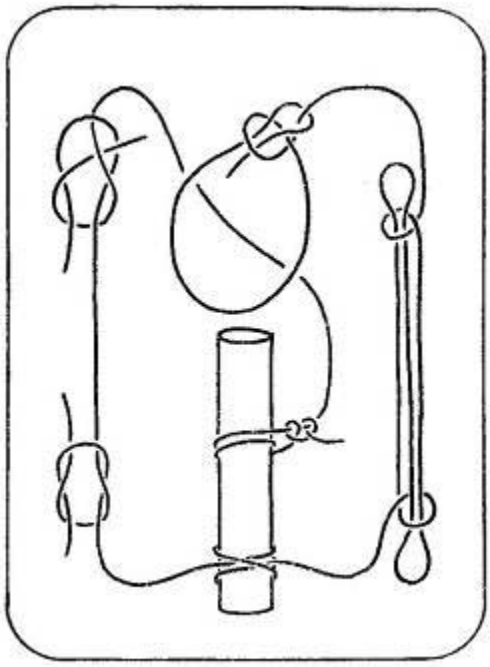
SPARE TIME ACTIVITIES

POCKET KNOTTING BOARD

Some patrols do not have the use of their own Patrol Den, and cannot have a knotting board hung up to show the various knots, etc. in the tests, but any Scout can make a pocket knotting board from a 2 oz. tobacco tin, a postcard and a yard of thin cord or plastic string.

Cut the post card so that it fits into the tin, make the knots and arrange them to suit yourself. Stitch them to the card, put them in the tin and the job is done. A piece of stick about the thickness of a lead pencil will do for the model spar to make the clove hitch and round turn and two half hitches.

Similar tins full of knots, etc. can be made up for Second and First Class.



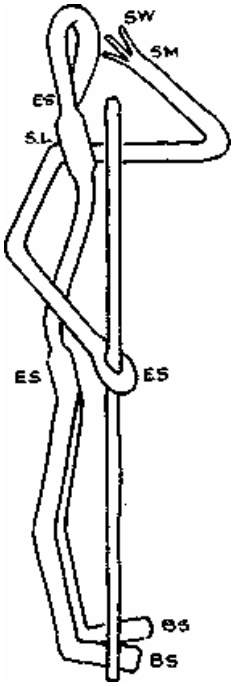
LAYOUT OF KNOTTING BOARD

"SCORE"

This is a useful spare time activity to give you practice in splicing and whipping, the tide means SCOUT CONSTRUCTED OF ROPE ENDS, and it will help you to use up the short pieces of rope which would otherwise be thrown away. They can be made for competition in the Patrol, or inter-Patrol; a large one will make a good trophy, and will cost nothing.

The staff will help to make it stand, but it can be stiffened by pushing wire into the centre of the rope.

The sketch shows "Score" at the salute, but he can be made to sit down, crawl in a stalking attitude, or almost any other position.



Here is the key to the letters on the sketch.

SW. Simple whipping, for each finger.

SM. Sailmaker's, for the hand.

ES. Eye splice, for head, right hand, and to join legs.

SL. Square lashing, to fasten arms to body.

BS. Back splice for the feet.

If you can make one in an hour to an hour and a quarter you are doing pretty well.