

# SURVIVAL PAPER

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## **Using Ropes and Lines,**

**By Ken**

### USING ROPES AND LINES

Ropes can be made from any pliable, fibrous material producing strands of sufficient length & strength.

Nylon rope have the advantage of great inherent strength, lightness, resistance to water, insects and rot.

However nylon rope should not be the automatic choice if choosing equipment. Nylon has the disadvantage that it can melt if subjected to heat and friction on a rope produces heat. It is also slippery when wet. While its tensile strength is good, nylon also tends to snap if subjected to tension over an edge - it does not have to be a very sharp edge either, so BE CAREFUL of this.

### CHOOSING ROPE:

Match type, thickness and length of rope you carry to the demands you expect to make on it. Nylon will have advantages in very damp climates and when weight is critical but REMEMBER its drawbacks. Thickness of 7mm (5/16in) and below are difficult to handle. Rope about 9-10mm (3/8in) is usually recommended for Lashing & Throwing. It is not thick enough for a hand over hand and foot grip. A length of 30-40m (100-125ft) would then be as much as can be carried without encumbrance.

### TAKING CARE OF ROPE:

Rope MUST BE protected from unnecessary exposure to damp or strong sunlight and in case of natural fibers from attack by rodent and insects. If it does get wet do not force-dry it in front of a fire. Do not unnecessarily drag it along or leave it on the ground. Dirt can penetrate and particles of grit work away at the fibers from inside the rope. If weather conditions will make drying possible, it is worth to wash a very dirty rope in clean water. Whipping the end of the rope will prevent fraying. To prevent a rope becoming tangled, store and carry it in a coil or skein. It will be easier to handle and to pay out when needed. Rope is a valuable

equipment kept in good condition.

#### SIMPLE COIL:

Make a coil of rope 14-18in in diameter, keeping each circle of the rope alongside the next without twisting or tangling. Leave a length at each end ready for fastening.

1) Bend one end back along the coil and wrap it with the other end .

2) Feed the "wrapping" end through the loop and pull to secure, tie off with a reef knot shown later.

#### FOR LONGER ROPES:

If you wish to carry long ropes over your shoulder or suspended from a belt or from a pack, form a skein.

Loop the rope backward and forward over your arm, letting it hang down about 18-24in long. Leave the ends free Take both ends together and wrap them several times around the skein . Make a loop and take this through the top part of the #skein# and finally pass the ends through this loop Now tie off on to your pack with a reef knot.

#### THROWING A ROPE:

It is easier to throw a coil of rope than to attempt to sling a loose end - whether you are throwing upwards or outward - and it helps to split the coil so that it does not tangle. Have a large knot or weight on the throwing end. MAKE SURE that you keep hold of the other end! Think about the anchored end and what will happen to it when the other end reaches target. If throwing a line on water anchor the end to a tree or weight.

ALWAYS over-throw a line so that the recipient stands a good chance of catching part of the rope. Coil half the rope on to the fingers and the palm of the right hand, then raise the index finger and coil the remainder on the other fingers only. Pass the second coil back to the left hand. As you throw release the right-hand coil a split second before the left. Anchor your end if you think there will be sudden strain on it and your position is precarious.

#### FOR A LONG THROW:

Tie a suitable missile to the end of the rope. Coil the rope carefully on the ground or loop it loosely over the other hand so that it will pay out freely as you throw the missile. Don't risk losing your end of the rope. Tie that to an anchor, a heavy stone for instance. If throwing a weighted rope over a branch keep out of its path as it swings back towards the throwing point

#### TO GET A ROPE ACROSS A NARROW DEEP RIVER:

Fasten a stout stick to the end of the rope. The rope MUST BE in the middle of the stick. Select a forked tree on the opposite bank. Throw the free end of the coiled line with the stick across the river to the tree. After many cast when it has caught; test it with 2 or 3 people to MAKE SURE the line is secured. Fasten the near end of the rope to a convenient anchor and then the person crossing the line, the lightest of the party hangs onto the line lifts his legs and hooks them over the rope with his feet toward the opposite bank. By this means he can work himself across the river and do all the work which has to be done on that riverside.

#### SAFETY LINE FOR RIVER CROSSING:

A bush rope can be spun to serve as safety line for crossing flooded or fast rivers. The rope is taken across by a team member and fastened to an anchor on the opposite bank. As a safety line it should be above the water level.

The person crossing should stand on the downstream side of the rope and face upstream, he crosses by moving his feet sideways. One step at a time and holding all the time to the rope which helps him keep his balance if by chance the current is so strong that it sweeps him off his feet his grip on the line will save him from being washed downstream then he can regain

his footing and proceed.

#### FISHING KNOTS:

##### HOOK ON TO GUT = TURTLE KNOT:

Soak the gut, Thread it through eye of a hook. Make an overhand loop and pass a bight through it to form a simple slip knot. Pass hook through slip knot and pull tight around shank.

##### HOOK ON TO NYLON #1 = HALF LOOP KNOT:

Tread end through eye. Make 4 turns around standing part. Pass live end through the loop formed next to the hook. Pull taut and sniff off fairly close to end.

##### HOOK ON NYLON #2 = TWO TURN TURTLE KNOT:

Thread the hook. Pass the live end around the standing part to form a loop and through it. Twist live end around side of loop. Hold the loop and pull the twist tight. Pass the hook through the loop. Pull on standing part to tighten loop on hook.

#### JAM KNOTS:

For securing improvised hook to guitar or cord.

##### WITH AN EYE:

Thread gut, make 2 turns around hook and bring live end up through turns. Ease tight and test for strength.

##### WITHOUT AN EYE:

Make a loop around lower part of shaft. Make 2 half-hitches from upper end downward and pass live end through lower loop. Pull on standing part to tighten.

##### LOOP IN NYLON #1 OR DOUBLE OVERHAND LOOP:

Double the line to make a bight. Tie an overhand in it. (A). Twist the end through again (B) Pull tight (C) and snip off end.

##### LOOP IN NYLON # 2 = BLOOD BIGHT:

Form a bight. Twist the end of it back around the standing part (D) Bring end back through new loop (E) Pull tight and snip off the loose end.

#### JOINING LOOPS:

Can be used in nylon line but will work for different strong material.

A fishermen's knot is recommended for gut, which probably could not stand the strain of this method.

##### WITH FREE ENDS:

Pass each line through the other loop and pull tight.

##### WITH ONLY ONE FREE:

Make loop on one line. Take the live end of the other line through the loop, around it, and back through and then tie off with either of the knots for hooks on to nylon.

##### JOINING NYLON = DOUBLE 3 FOLD BLOOD KNOTS:

Place ends alongside and twist one 3 times around the other. Bring live end back and pass it through the space where the 2 lines cross over the other line and under its own standing end. Do the same in the opposite direction with the other line. The live ends end up pointing in opposite direction Ease tight

#### NETTING

USES: Confection of nets, hammocks, snares. Knot 2 different size of ropes. #Fold the strand the small one under the big one Grab the fine cord and coiffer# its end. Then pass the big strand in the loop thus formed. Pull taut by pulling.

##### NETTING TIP 2:

Hammocks and nets are made by the use of netting needle and a mesh stick. Either of the 2

types of netting needle shown in fig 1 are suitable and easily made from a thin piece of hardwood or bamboo. The netting needles may be about 8 to 9 inches long and from 3/4 to 1 inch wide. The mesh stick may be about 5 inches long oval 3/4 X 1/4 the netting cord is put on to the netting needles as for an ordinary shuttle with needle B & with needle A the cord is looped round the pin in the centre of the eye. At one end of the string tie a loop and place the knot on a conveniently high nail or hook. The mesh stick is put under the loop and the needle with cord passed through. The needle and cord are passed in front of the loop formed and under the original loop while at the same time the other end of the cord is held on to the mesh stick with the thumb of the left hand. The knot is pulled taut. A succession of these loops are formed until the requisite width is reached then this first series of loops are placed through a rod or cord and the loops are netted on to them until the requisite length is reached.

#### NET & SNARE MAKING

Net can be made either by making knots along a pre-cut lengths of line or by knitting mesh row by row. They are not only USEFUL for fishing. A gill net can also be hung between trees to catch bird and purse net, made from twine can be placed over animals burrows. Use the same technique to make a hammock from strong twine.

#### GIL NET:

Make this from parachute cords or from two thickness of twine. Parachute cord consist of inner core of fine line within an outer core. Pull the fine inner line out and cut it into manageable and equal lengths or cut lengths of thinner strings. Their length will determine the dept of your net, which will be about 3/8" that of the length of the line. Decide how wide you want your net and set the 2 poles that distance apart. Tie a length of parachute cord outer or thicker twine between the 2. Cut a piece of wood about 3-5cm (1 1/4in) across. Use this as a gauge to space out the thinner vertical threads (inner core). Fold each length double and use the bight to make a Prusik knot over the top cord and repeat across its length. Slide the Prusik knots along to space them out equally using your gauge. For the first row, working from left to right, ignore the very first individual strand, but take the second of the pair. Hold it with the first strand of the next pair and tie both together in an overhand knot. Take the remaining strand with the first of the next pair and knot. Continue along the line, using your gauge to control spacing. Proceed to the next row in the same way but this time include the outside lines to produce a row of diamonds. Continue until the line is used up. To finish off the bottom, stretch another thicker line across between the supports and tie off all the inners (or thinner strings) in pairs around it. Carry each pair around it twice, Separate the pair and tie off around the pair. Complete the pair by securing the top and the bottom lines at each corner of the net so that the net will not slip off the ends. Any surplus can be used for attaching the net to supports and weights to keep it in position when in use.

#### KNITTING A NET:

A method suitable for nylon fishing line or any other fine line. you need a horizontal string between posts, a main gauge, and a needle.

Make the needle (A) about 15cm long by 2.5cm wide (6 X 1in) from hardwood or bamboo. Make a notch at either end and wind line around the whole needle; or try something more traditional like the lower drawing.

The needle MUST BE smooth. The line is gradually unwound as you make the net.

To make the net, tie a top of required length between uprights. Begin by tying a clove hitch thinner line take the needle behind the top line and bring it forward to make another clove

hitch. Repeat along the line, spacing the knots out with your gauge. When the rope row is complete go to the other side of the post (easier than working backward) and make the next row. Make each new loop large enough to form a square of mesh (half square at each side). Take the needle through the loop of the row above from behind, round the back of the loop and then through the front of the loop it makes. Adjust the depth with your gauge before you tighten. Switch sides again and work back in the opposite direction for the next row and continue until the nest is the required length. Tie off the bottom line with another thicker twine using the make knot but keeping the line straight without loops.

Leave some free line at both ends. Tie in the ends at the top corners and the net is completed.

#### NET HAMMOCK:

Make a net about 2 1/2 ft across and wider than your height. Use a good strong twine or rope for the loop and bottom lines- double twine would be a good idea. The ends have to carry your weight. Leave those ends long enough to suspend the hammock by. Cut two spacer bars to keep the hammock open. Notch the ends and slip the cords into the notches. To simplify hanging the hammock you could tie each pair of end lines to a fixed loop such as a Bowline. Then fix one end with a round turn and two half-hitches, the other with a quick release knot in case you ever need to leave the hammock in a hurry.

#### FOOT LOCK:

By means of the foot lock you can climb to any height on the ropes, stopping to rest when your arms tire. The foot lock is made by holding onto the rope with both hands lifting the knees and kicking the rope to the outside of one foot. The foot on the opposite side to the rope is pointed so that the toe picks up the rope which is pulled over the foot which was against the rope and under the instep of the foot which picked it up. The 2 feet are brought together and the rope is now over the instep of one foot & under the ball of the other. Then to secure the grip and lock the rope the feet are placed one on top of the other so that the rope is clamped down by the foot on top. By straightening the knees and rising the hands the body is lifted and a fresh grab taken for the next rise.

In descending the body is bent the hands lowered and the foot lock released and a fresh grip taken with the feet at a lower level on the rope. It is advisable to wear boots or shoes when climbing bush made ropes.

This method of descending is much SAFER than sliding. In sliding there is grave risk of bad rope burns to hands or legs.

#### SETTING A ROPEWALK:

When spinning ropes of 10 yards or longer it IS NECESSARY to set crossbars every 2 or 3 yards to carry the strands as they are spun. If cross bars are not set up the strands or rope will sag to the ground and some of the fibers will tangle up with grass, twigs or dirt on the ground. Also the twisting of the free end may either be stopped or interrupted and the strand will be unevenly twisted. The easiest way to set up crossbars for the rope walk is to drive pairs of forked stakes into the ground about 6 feet apart and at intervals of about 6 to 10 feet. The crossbars MUST BE smooth and free from twigs and loose portions of bark that might twist in with the spinning strands. The crossbar is supported by 2 uprights and pierced to take the cranks. These cranks can be made out of natural sticks, mortised slab and peg or bent wire. The connecting rod enables one man to turn all cranks clockwise simultaneously.

Crossbars supporting the strands as they are spun. A similar crank handle to is supported on a fork stick at the end of the rope walk. This handle is turned in reverse(anti-clockwise) to the

cranks to twist the connected strands together. These are laid up by one or more of the feeders.

ALWAYS MAKE IT A RULE TO TURN THE FIRST STRAND CLOCKWISE; then the laying up of the strands will be done anti-clockwise and the next laying will again be clockwise. Proof that your rope is well made will be if the individual fibers lie lengthways along the rope. In the process of laying up the strands, the actual twisting together or laying will take some of the original twist out of the strands which has not yet been laid. Therefore it IS NECESSARY to keep twisting the strands whilst laying together. When making a rope too long to be spun and laid in one piece, a section is laid up and coiled on the ground at the end of the rope walk farthest from the cranks. Strands for a second length are spun and these strands are married or spliced into the strands of the first section and then the laying up of the second section continues the rope. The actual marrying of the strands is done only in the last lay which when completed makes the rope. The ends where the strands are married should be staggered in different places. By this means rope can be made and extended in section of great length. After your complete length of rope is laid up. Pass it through fire to burn off the loose ends and fibers. This will make your rope smooth and most professional looking.

#### LAYING THE STRANDS:

The strands lie on the crossbars as they are spun. When the strands have been spun to the required length which should be more than about a 100 feet they are joined together by being held at the far end. They are then ready for laying together. The turner who is facing the cranks twists the ends together anti-clockwise at the same time keeping his full weight on the rope end which is being laid up. The layer advances placing the strands side by side as they turn. Laying up is very fast when the layer is experienced. He quickly gets the feeling of the work. It is important to learn to feed the material evenly, and lay up slowly thereby getting a smooth even rope. Do not try to rush the rope making. If you do you will have uneven, badly spun strands and ugly lays and poor rope. Speed in rope making only comes with practice. At first it will take a team of 3 or 4 up to 2 or more hours to make a 50 yard length of rope of 3 lays, each of 3 strands. That is 9 strands for a rope with a finished diameter of about 1 inch. With practice the same 3 or 4 people will make the same rope in 15 to 20 minutes. These times do not include the time for gathering the material. In feeding the free ends of the strands twist in the loose material fed in by the feeder. The feeder MUST move backwards at a speed governed by the rate at which he feeds. As the feeder moves backwards he MUST keep a slight tension on the strands.

#### MAKING ROPE WITH A SINGLE SPINNER:

2 people can make a rope using a single crank. A portion of the material is fastened to the eye of the crank as with the multiple crank and the feeder holding the free end of this trend against the bundle of loose material under his arm feeds in, walking backwards. Supporting crossbars as used in ropewalk are required when a length of more than 20 or 30 feet is being spun.