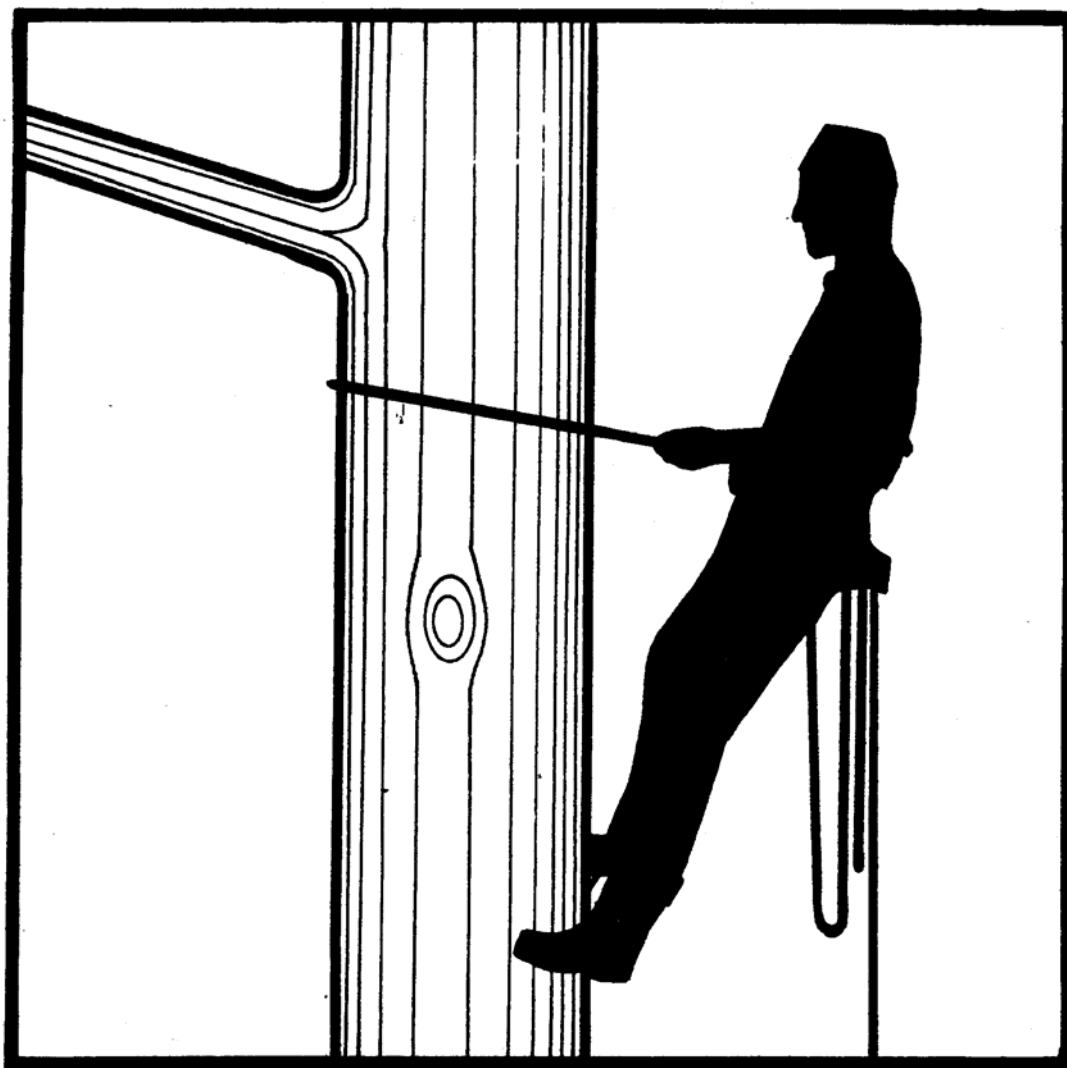


NR Study-Note F121 **TREE CLIMBING WITH SPURS**



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Tree Climbing With Spurs:
An Illustrated Manual for Seed Collectors.
Robbins, A.M.J., Shrestha, N.B., Baadsgaard, J. and Ochsner, P.
1987.
HMG/EEC/ODA National Tree Seed Project and
HMG/UNDP/FAO Community Forestry Development Project.
NEP/80/030 Field Document No.14.

Revised July 2004

PREFACE to the original manual

In order to assist in collecting high quality, healthy seeds for the Community Forestry Project, the Field Document No. 11 titled TREE SEED HANDLING MANUAL was published by this project during last year. As a follow up, the same authors have brought out this companion manual on Tree climbing.

In their search for fire wood and fodder, Nepali countryfolk are often excellent tree climbers. With one hand on the stem, and the other wielding a sickle or khukri, leaves and branches are quickly cut. However, a more sophisticated approach is usually required for seed harvest, if the tree is not to be damaged and continue to produce seed thereafter.

Good seed producers are often very large trees, with wide crowns quite out of reach of the most expert barefoot climber. In such trees, to ensure that all the fruits are harvested with little damage to the tree and maximum safety to the climber, a certain amount of climbing equipment must be used for which the climber must receive adequate training.

It is hoped, this manual will stimulate projects and district staff to obtain required equipment, arrange training courses in its use (with the assistance from the National Tree Seed Project) and thus have several properly trained seed collectors who can make fullest use of the available seed supplies in each district.

As the authors mention, this manual should only be used in conjunction with demonstrations by a climber already trained in the techniques. There are several now available through the NTSP) and under proper supervision.

Mr. M.S. Ranatunga, Chief Technical Adviser Mr. B. P. Kayastha, Chief: NEP/80/030CFAD

INTRODUCTION to the original manual.

This manual was produced as part of a series of training courses held in Nepal, and organised by the HMG/EEC/ODA National Tree Seed Project, assisted by the HMG/SATA Integrated Hill Development Project, the HMGN US Aid Rapti Integrated Rural Development Project, and the DANIDA Forest Seed Centre, Denmark. During the courses, the techniques described were successfully introduced into Nepal with a view to improving seed collection. The manual has been written as an aide-memoire for trainees, once they have finished training. The notes next to each illustration are written for the use of the literate trainee to remind him or her of the main points. The manual is not intended as an exhaustive treatise for someone wishing to climb by him/herself, and it is emphasised that it should be used only as a support to proper personal instruction and demonstration by an experienced climber. The authors are very grateful to the HMG/UNDP/FAO Community Forestry Development Project for the opportunity to publish the manual as one of the project's Field Documents.

NOTE on the current publication

The original publication has been reformatted here, in electronic form, with some modifications, as a follow-up to a study commissioned by FAO, to make tree seed extension literature more widely available. I am very grateful to Pierre Sigaud at FAO for his original initiative and support in doing this. The current version is one in a series of NR Study-notes produced by the author, for use in training courses.

The document may be freely edited, provided acknowledgement of the source is made. The graphics are available in TIFF format for editing, if required. A version of the original publication is available in Arabic from FAO.

Please send any comments or requests to: marcus.robbs@virgin.net

A.M.J.Robbins

Oxford

July 2004

VERSION July 2004

1 BASIC EQUIPMENT

If you use all the techniques described in this manual, you will need the following equipment.

- One pair of climbing spurs and pads
- One safety belt and saddle
- Three clips (karabinas) with screwgates
- Two short ropes (strops), 3 metres long each
- One Prussic loop
- One long rope (safety rope) 40 metres long
- One cutter with long handle (4 metres long). The type of cutter will depend on the species.
- Basket, sack, string, labels as appropriate
- Strong and comfortable clothes that will protect the body and not snag on branches.
- Strong boots which protect the ankle and which have a deep heel.
- A hat, without a brim, to protect the head.



2 EQUIPMENT - PART NAMES

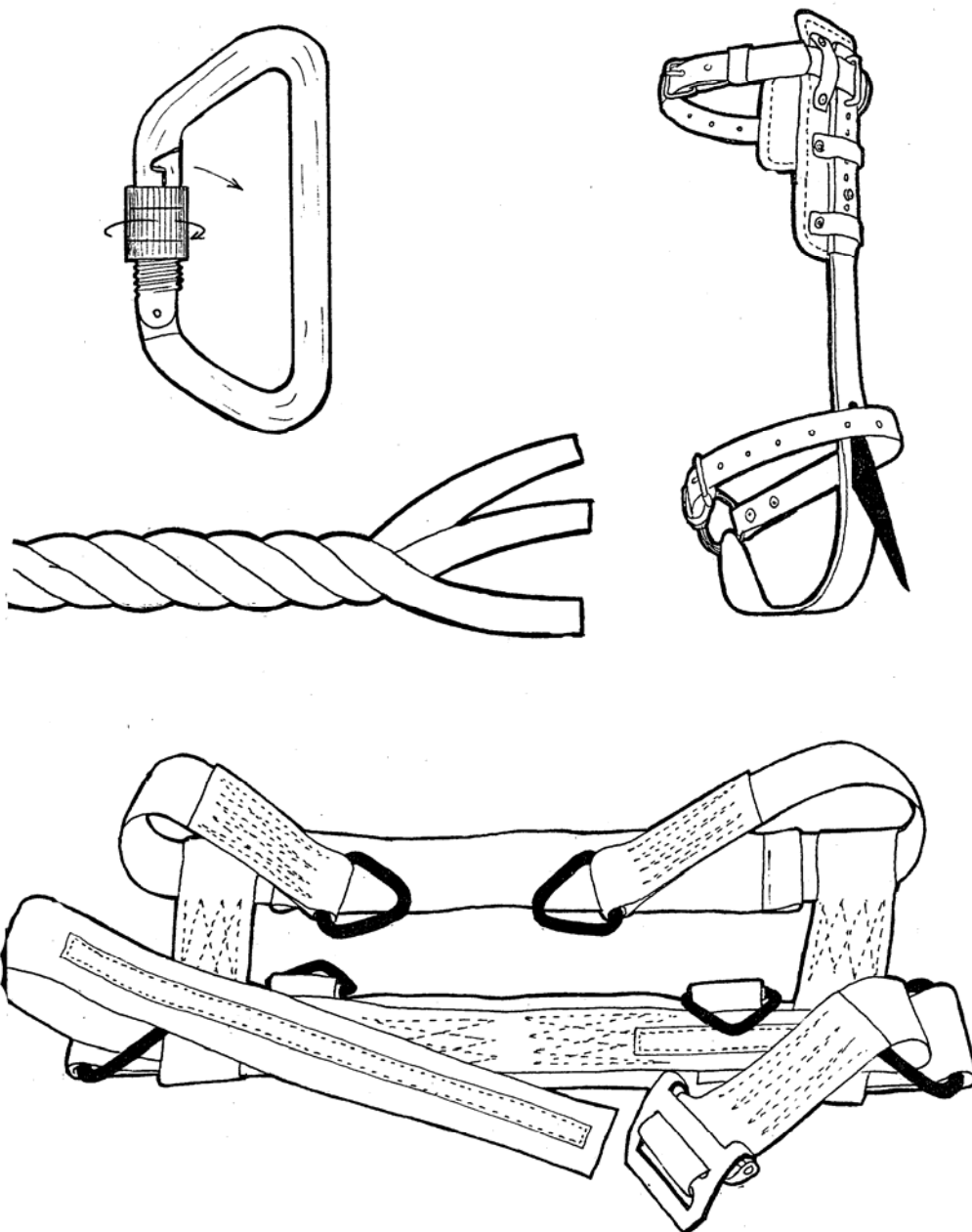
You should know the special names of parts of the equipment, and how they are used.

CLIP (or karabina). When you use the clip, insert the rope or ring by pushing the GATE inwards. When in use, the GATE should be locked by turning the screw towards the mouth of the GATE.

ROPE. This is made of 10-12 mm diameter nylon, with 3 STRANDS. The ends of all ropes should be sealed over a flame to stop the strands unravelling.

SPURS. The PADS of the spur should be tightened so that they are a comfortable and tight fit around the leg. If the spur is adjustable, make the height as long as possible, but without causing discomfort under the knee when the leg is bent. Keep the GAFFS properly sharpened and tightened during use. Always put protectors over the gaffs when walking on the ground or transporting the spurs.

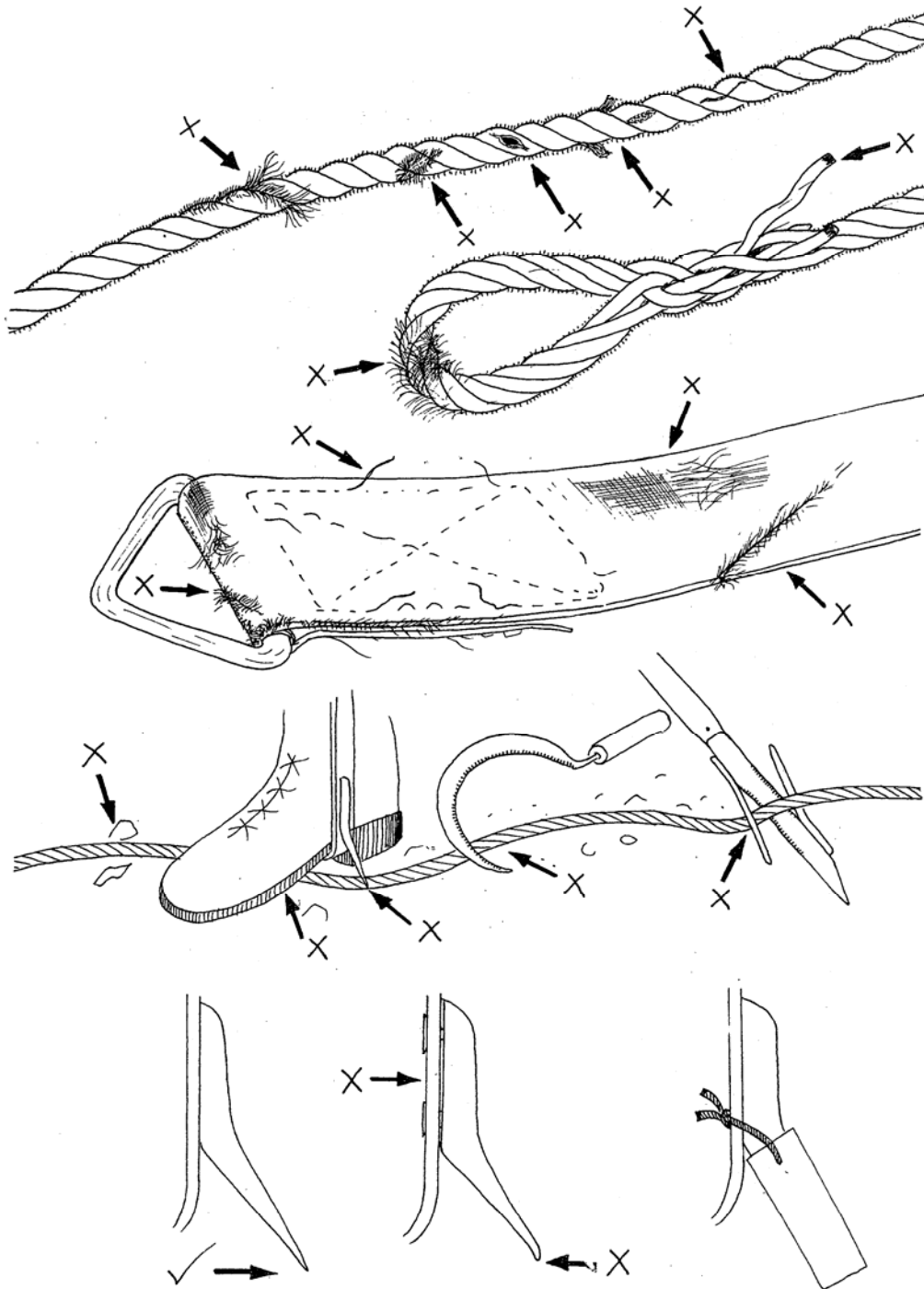
SAFETY BELT. This should be fastened around the body at waist height, and adequately tightened. In the illustration the belt is shown twisted the reverse way to normal. The SADDLE is used during descent with the long rope.



3 CHECKING AND CARE OF EQUIPMENT

Examine the whole length of each rope, and do not use if any part shows a cut, burning, or excessive fraying. Do not use a safety belt that has loose stitching, cuts or excessive wear. Ensure that the gaffs are kept properly sharp, and tightly fixed to the spur. While using the equipment, take care not to drag ropes along the ground, and do not tread on them. In particular, keep your gaffs and cutter well away from the rope. This needs special attention while climbing. When you have finished with the equipment, examine it before storing. Try to clean as much dirt off as possible, and if the equipment is wet, make sure it is properly dried. Keep ropes and safety belts out of the sun and in a dry and well aerated place when not in use.

CHECK ALL EQUIPMENT CAREFULLY BEFORE USING IT



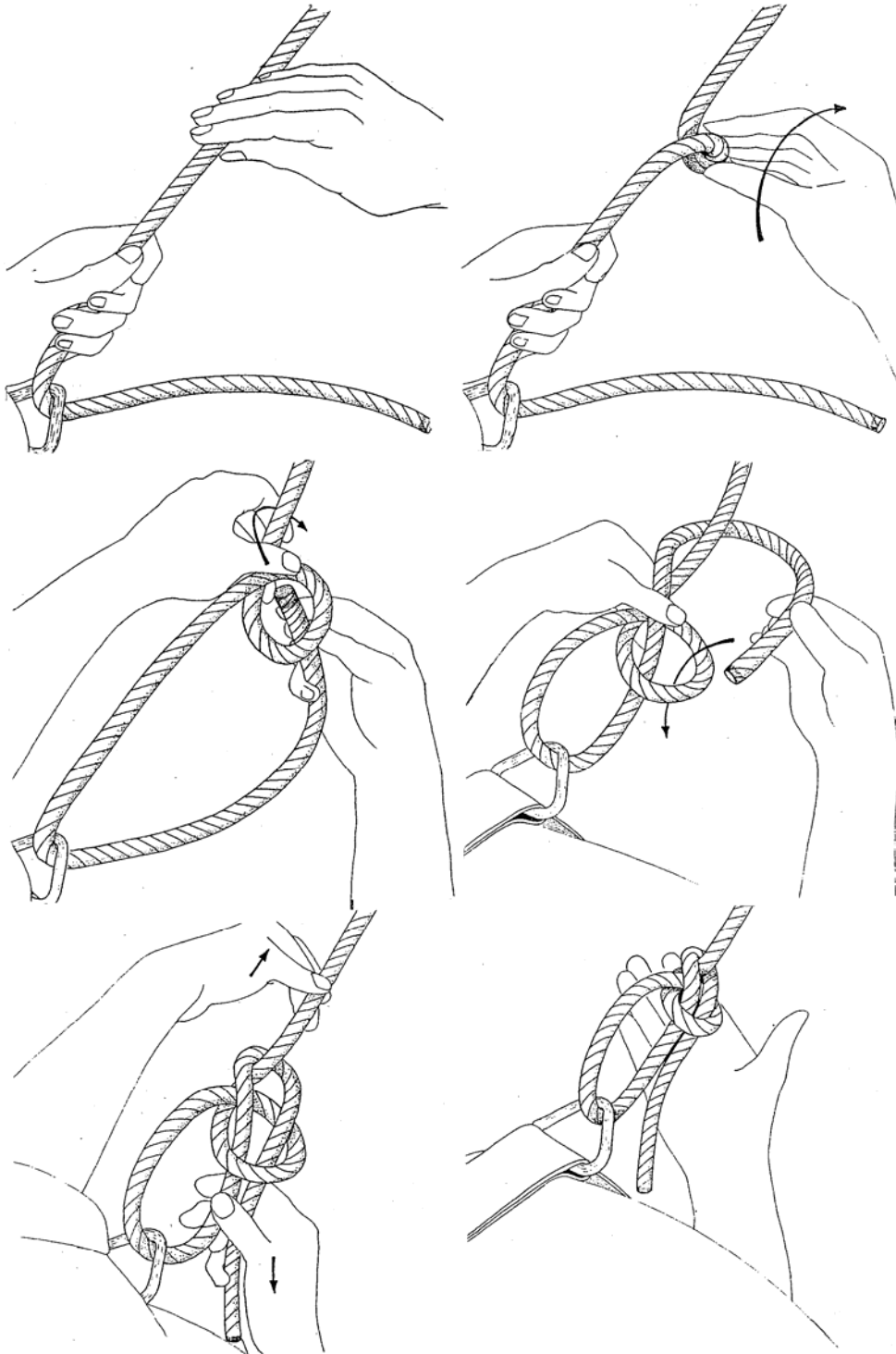
4 BOWLINE KNOT

The bowline knot is used for attaching the short strops to the D-rings. It is easy to tie and untie, and safe in use. You must know how to tie the knot quickly and effectively in any position.

Make sure that the free end of the knot extends by at least 25 cm.

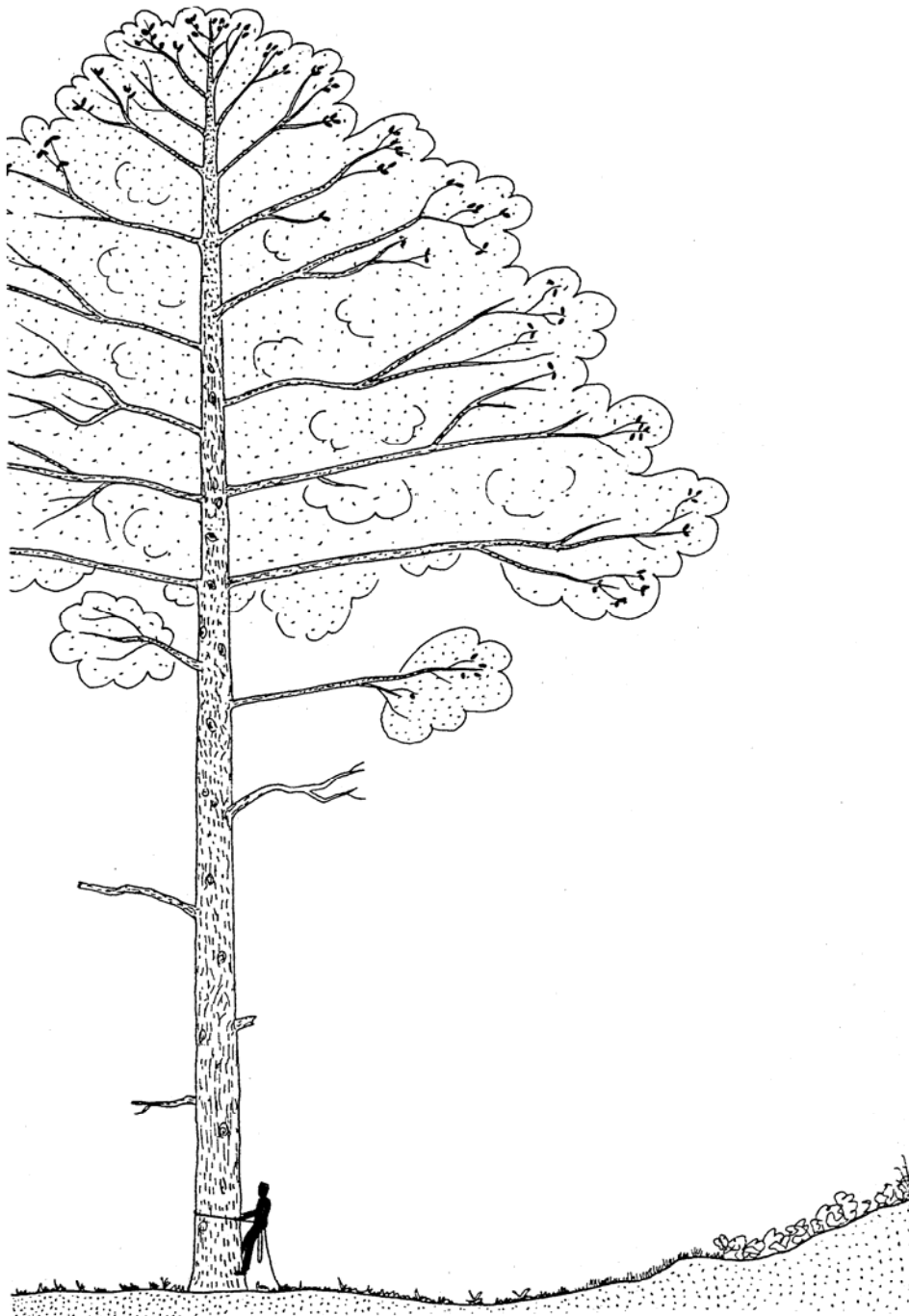
To remind yourself of the procedure, remember that: "the rabbit comes out of his burrow, round the tree, and then back down the burrow"!

The bowline is also used for attaching the short and long ropes to the clips, if the eye-splice (which is more convenient) cannot be used.



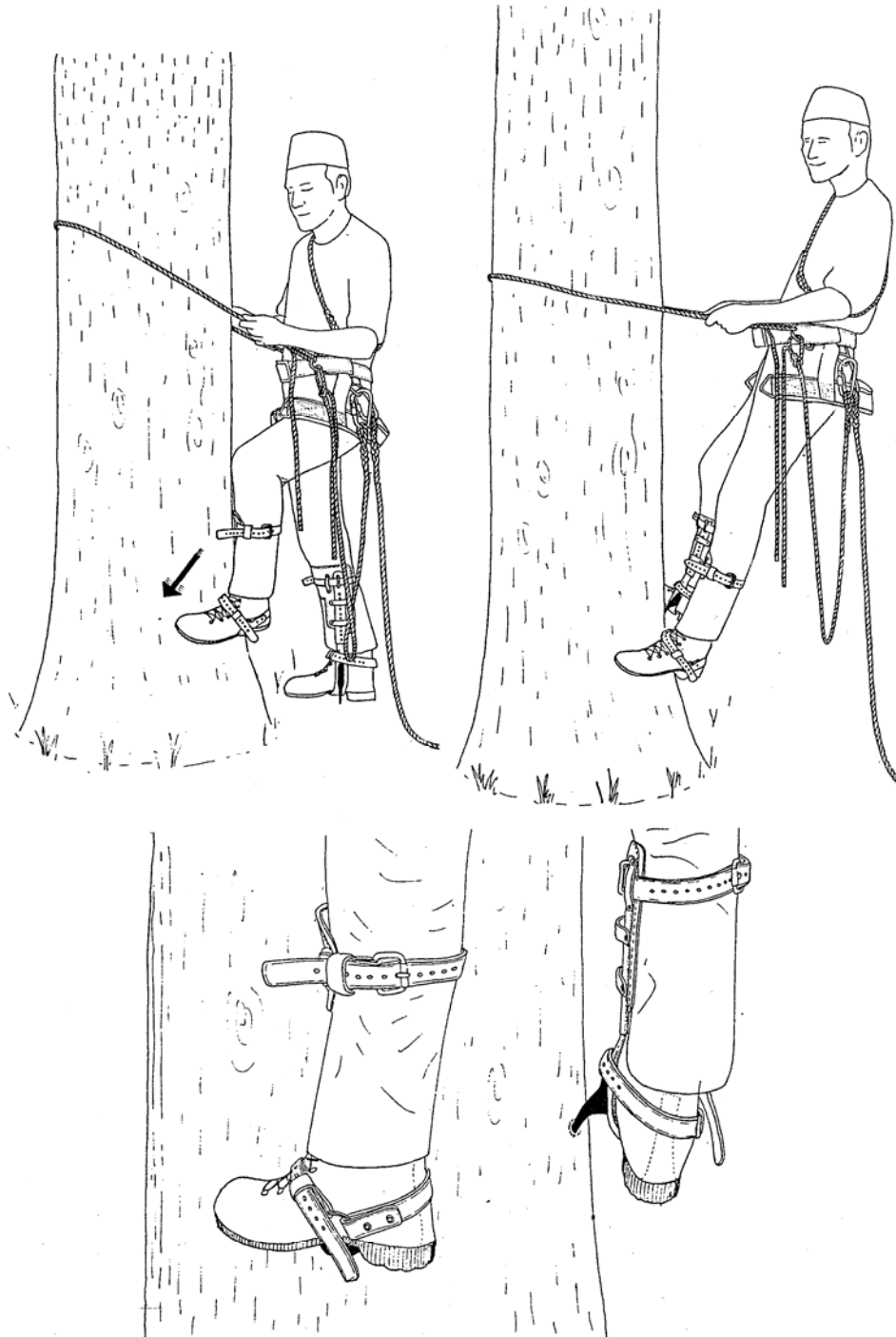
5 CLIMBING THE BOLE

When you start to climb the tree, the first stage is to climb the bole, using the spurs, safety belt, and short strops.



6 USING THE GAFFS

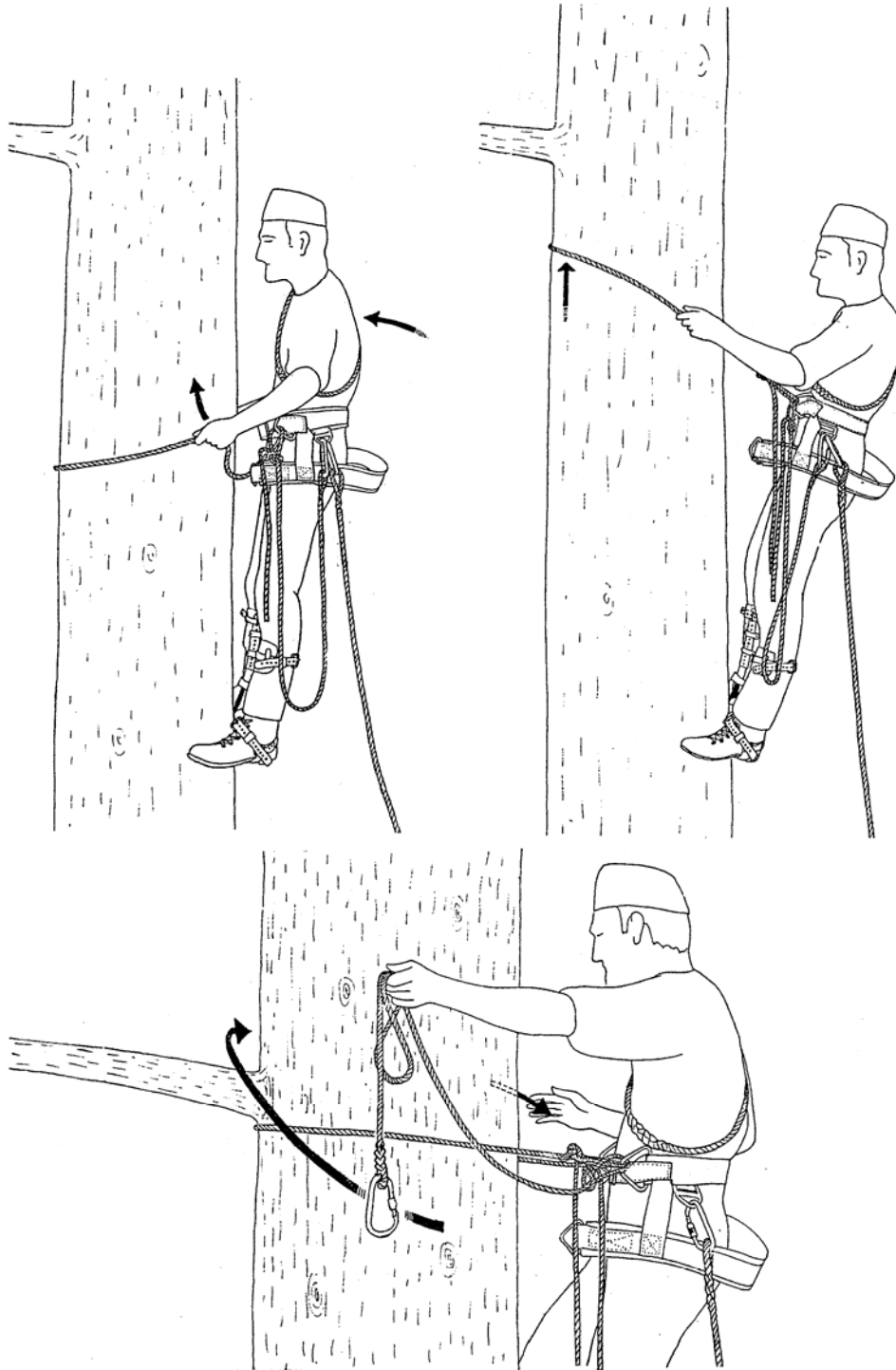
1. First of all, throw a short strop around the stem, and attach it with the clip. Then, lift a spur and jab it firmly into the bark. Do not make each step too high. About 35-45 cm is sufficient.
2. After placing the second spur at the same level, check that the short strop is the right length, and adjust if necessary. There should be about 35-45cm between the chest and the bole.
3. Keep the feet well apart (about 35-45 cm) to support you and so that if one slips, it will not injure the other leg. As you ascend, you can either place each spur higher than the last., or bring both spurs to the same level at every second step.



7 EQUIPMENT - HANDLING THE STROPS:

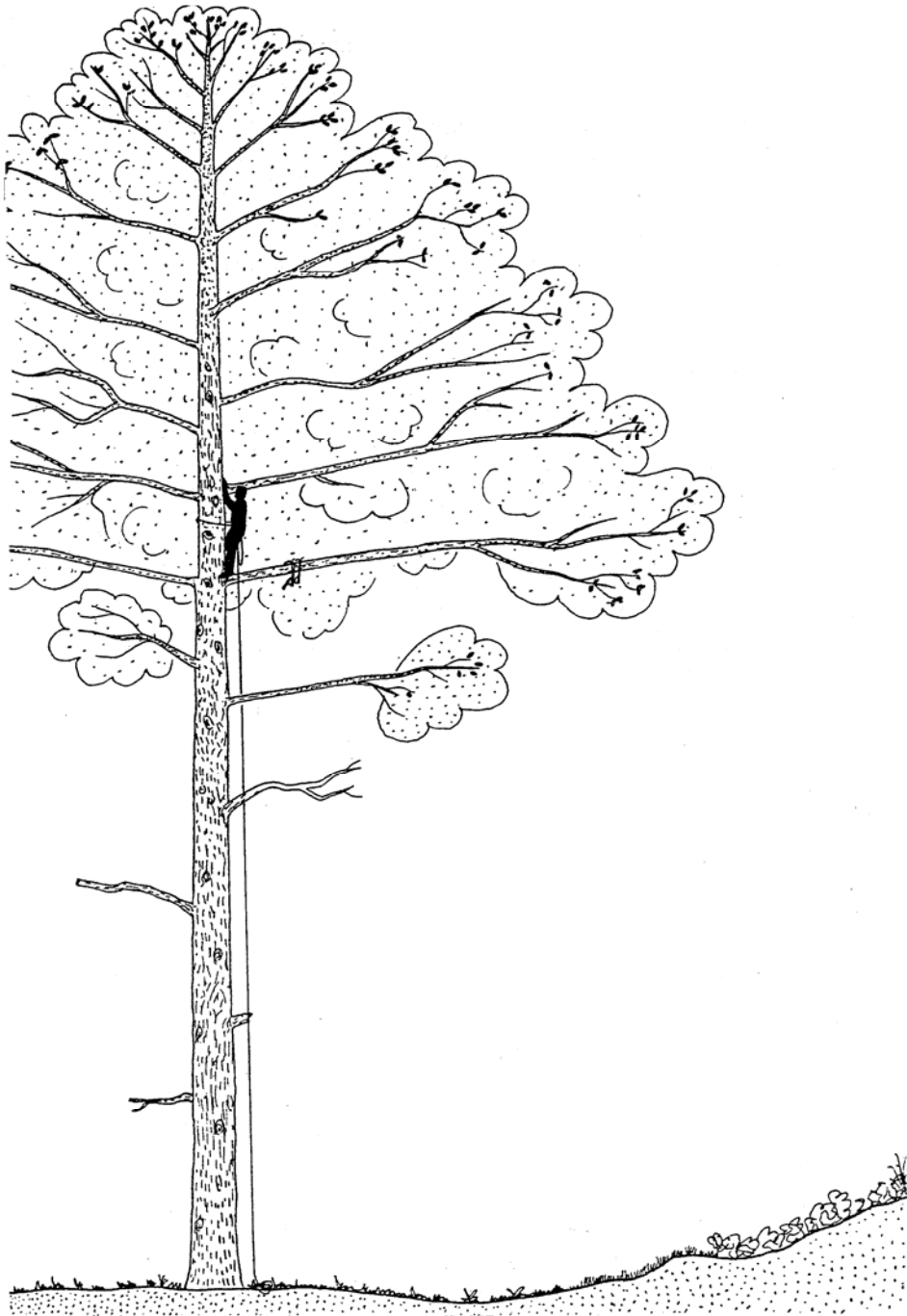
The strop is moved up after each pair of steps as follows:

1. Using the strop, pull in the body until you are balanced next to the stem.
2. Now flick the strop upwards and at the same time lean outwards again. The strop will then stay up as it takes the weight of your body.
3. When a branch has to be passed, the second strop is thrown around the stem and over the branch, and adjusted to the correct length. The first strop is then removed. If a strop becomes too long, the same procedure is used. Do not adjust a strop that is supporting you.



8 CLIMBING IN THE CROWN

Once the lower part of the crown is reached, a new technique of climbing will be required to ascend through the branches, using the branches and if necessary, the spurs for support.



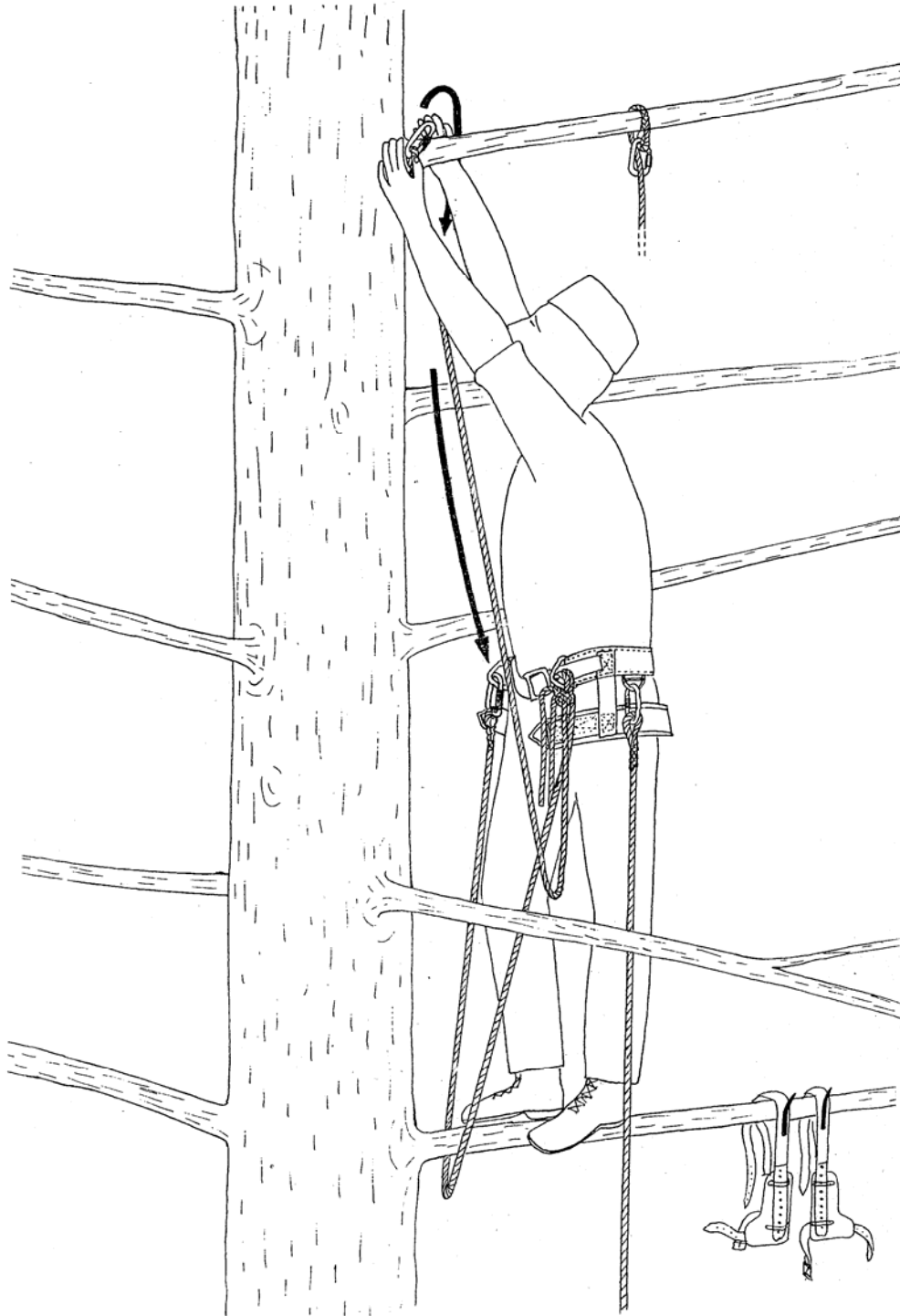
9 USING STROPS AS SAFETY LINES

If there are many branches in the crown, it will be impractical to use the short strop around the stem as a safety line. If so, use the strops as shown. Make sure the branches are strong enough. Only remove the lower strop once the upper has been placed.

Reach as high as possible to minimise the times you must change strops.

If the branches are far apart in some parts of the crown, the spurs can be used to help climb the empty spaces, while holding onto the branches.

If the spurs are unnecessary, then you can remove them and hook them over a branch. When you descend, do not forget to take them with you.

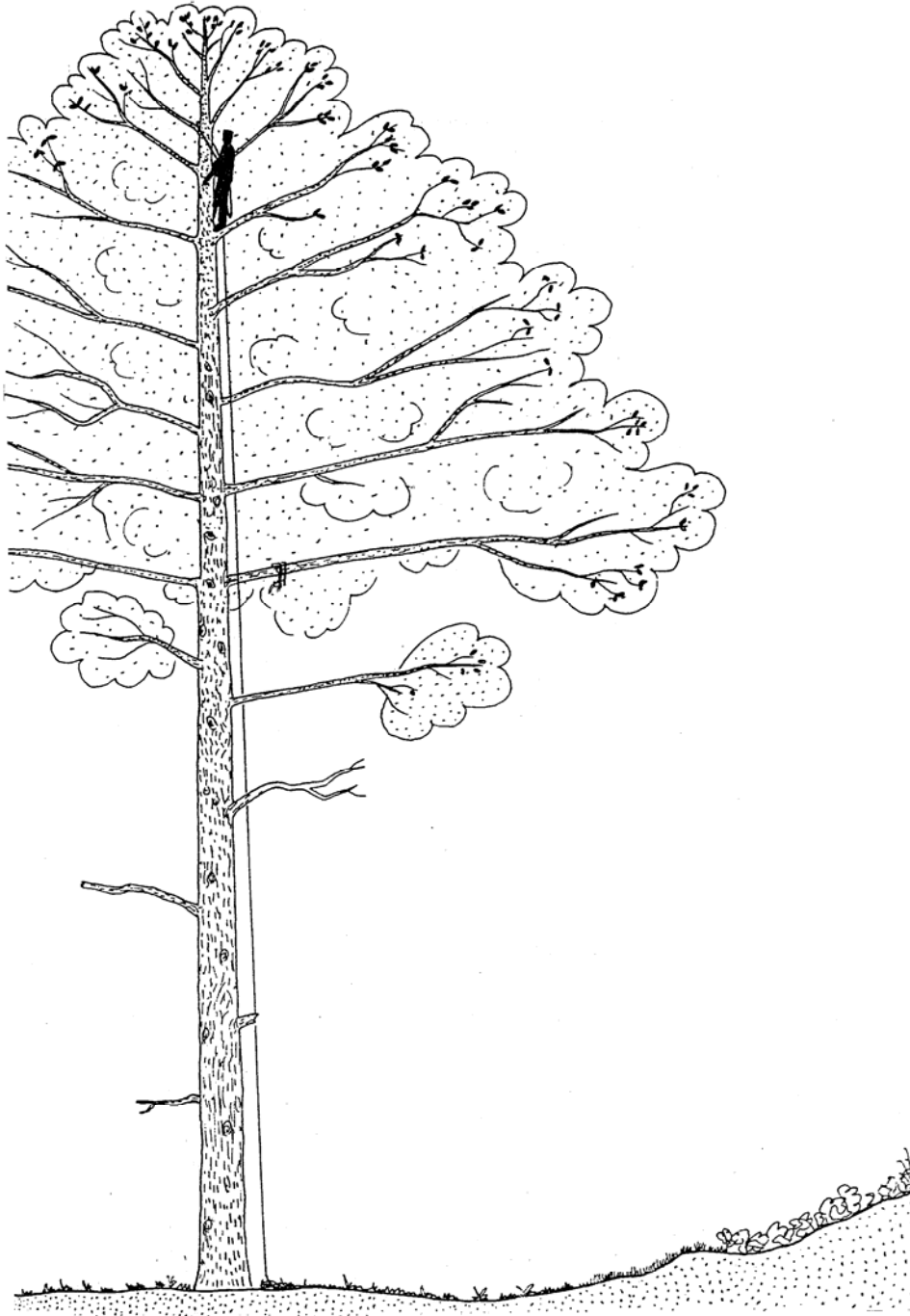


10 TOP ANCHOR POINT

Climb up the crown far enough so that the highest fruits will be within reach of the cutter, provided that it is safe to do so.

You will now be in a position to select an anchor point and attach your long rope.

This will be used to support you while cutting fruits, and during descent.

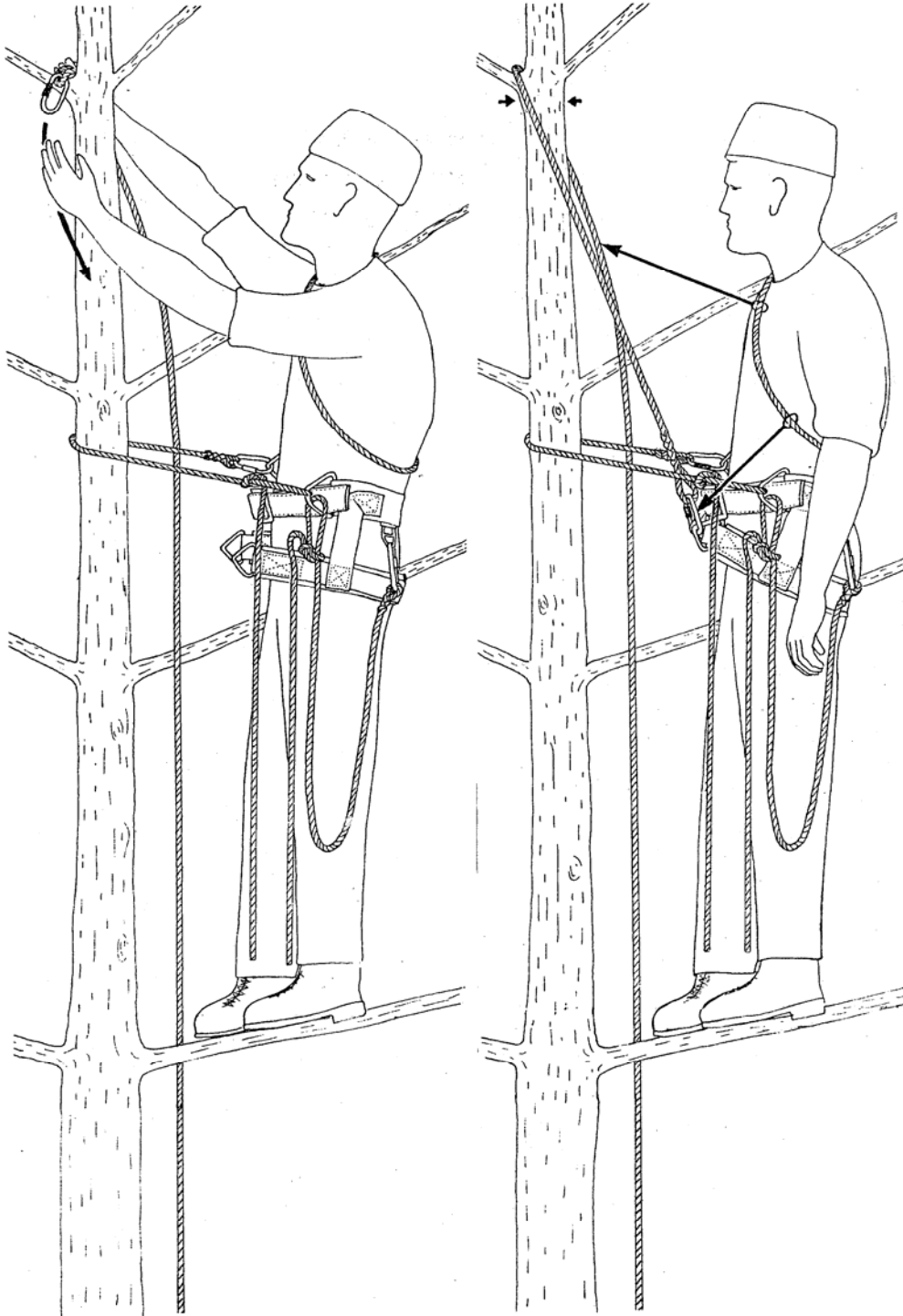


11 ANCHORING LONG SAFETY LINE

Select a strong branch at head height, making sure that the stem where it is attached is at least 10cm diameter and healthy.

Detach the long rope, and pass it around the stem and over the branch.

Pull the rope back down and attach it, using the clip, to both D-rings of the saddle.



12 PRUSSIC LOOP

(read drawings left-right, top-bottom)

Attach the prussic loop to the long rope as shown .

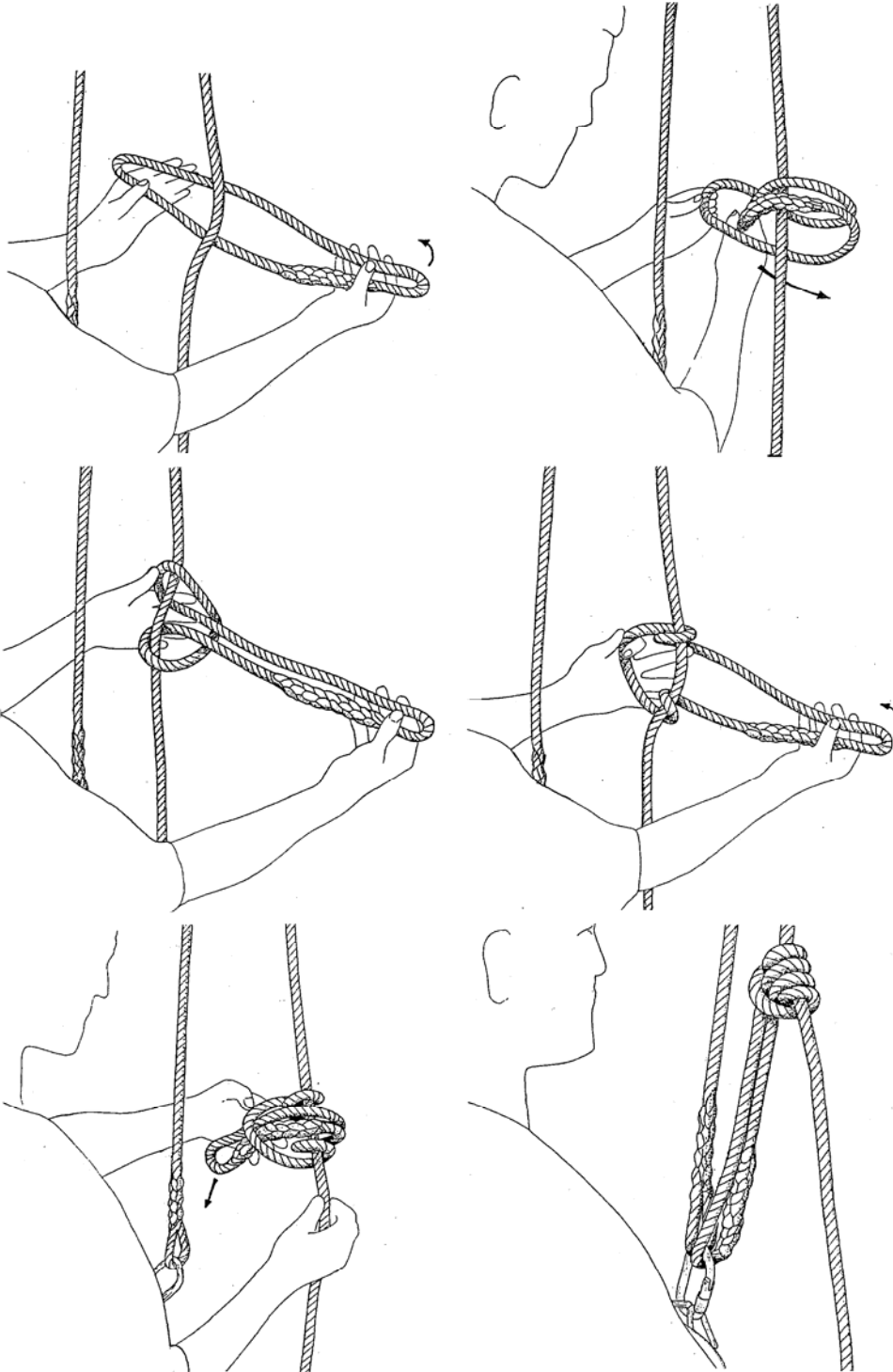
Make sure that the splice is free of the knot.

Tighten the knot by pulling the turns together, and twisting them.

Attach the free end of the prussic loop to the same clip used to attach the long rope to the saddle.

Test the knot to make sure it will hold when your weight is on it.

Now remove the short stop.



13 RAISING THE CUTTER

It may be difficult to carry the cutter and handle while you climb the tree.

If so, leave it at the bottom and tie it to the end of the long rope.

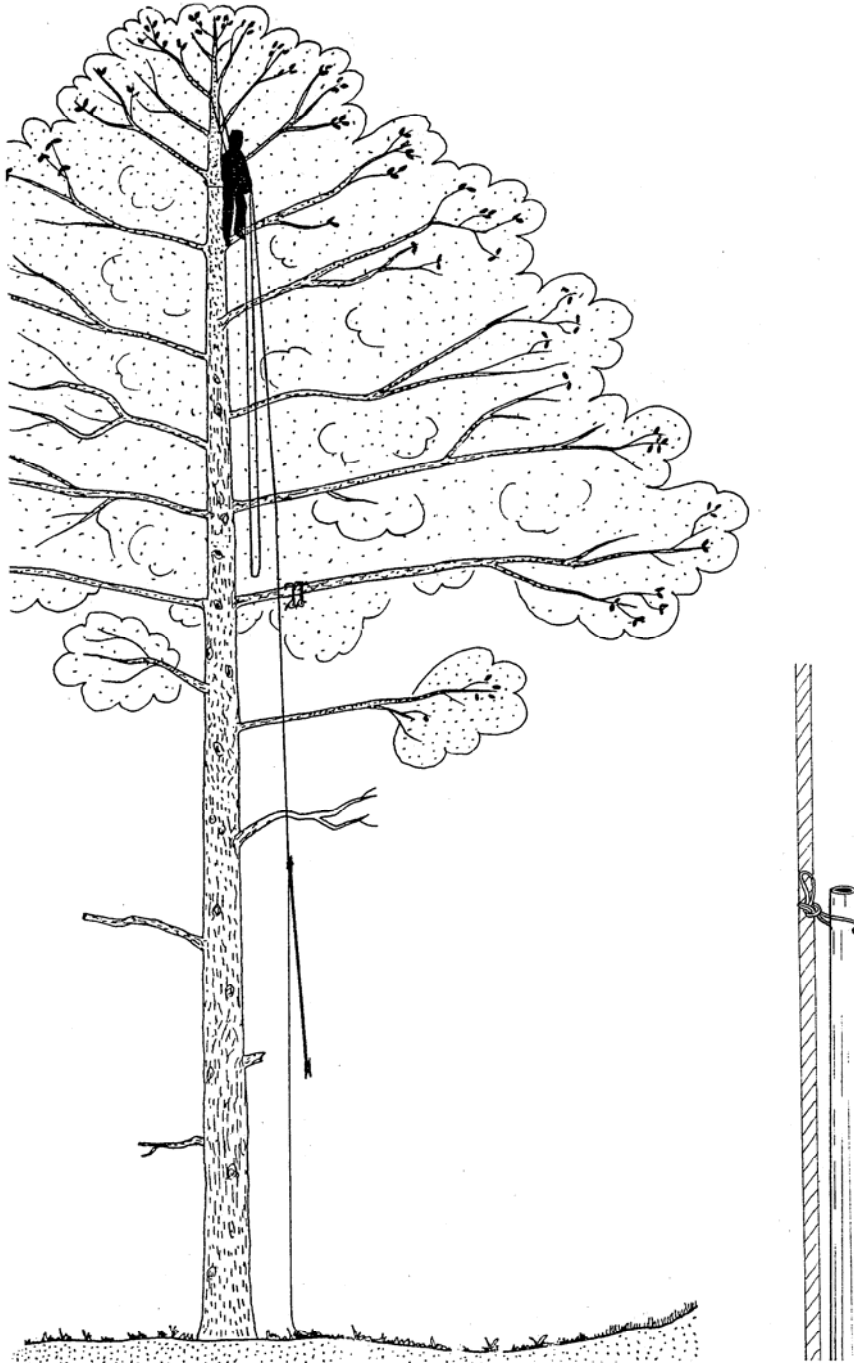
Pull it up to you when you have reached the top of the tree.

Before climbing, coil the rope carefully to avoid it catching in roots etc.

Try to climb straight up so that the cutter can be pulled up without catching on the branches.

If available, the cutter should be covered with a bag to prevent catching.

Once you have removed the cutter, make sure that the free end of the long rope falls back to the ground in the direction you wish to descend.



14 SEQUENCE OF CUTTING FRUITS

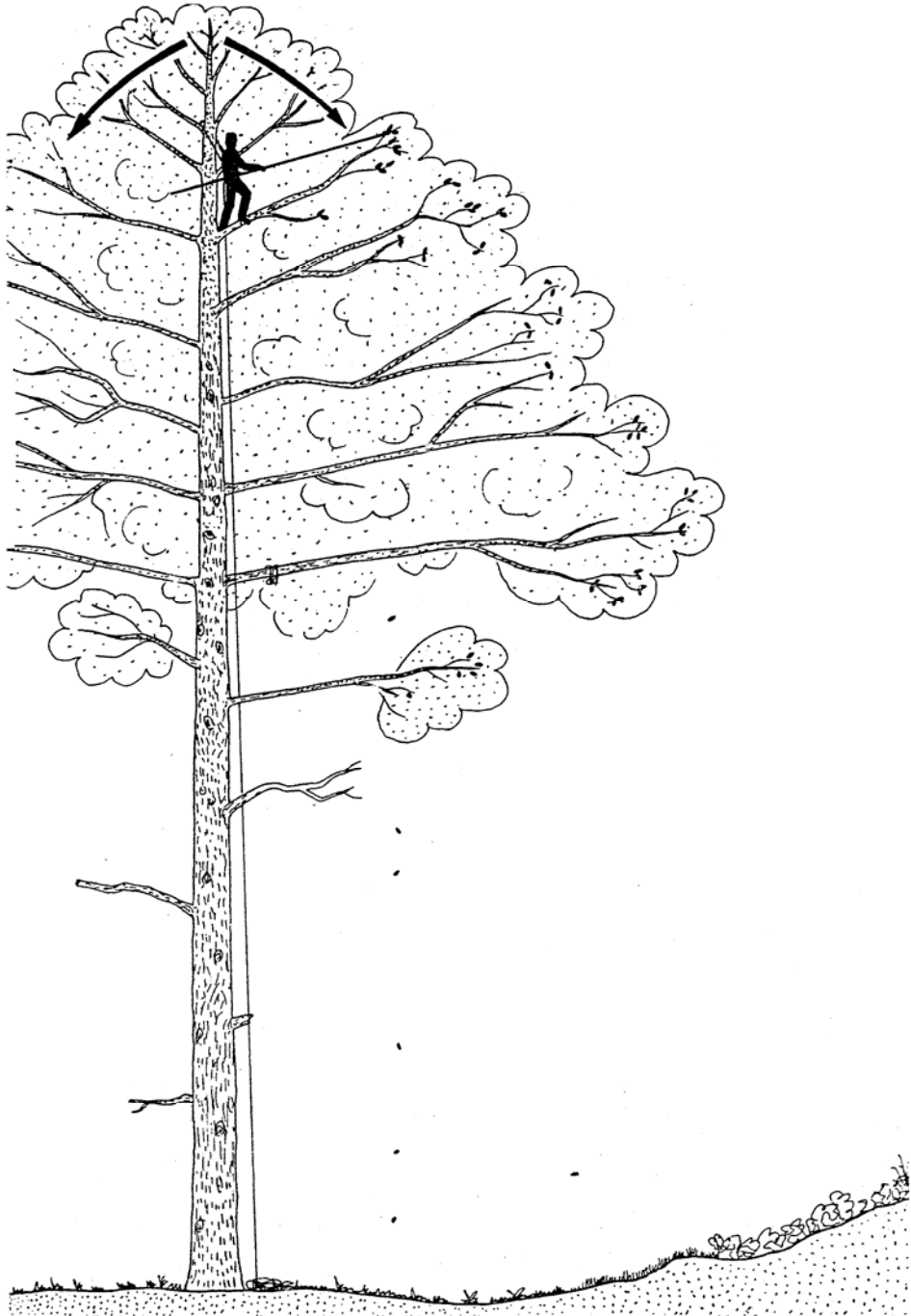
You can now start to cut the fruits.

The highest fruits are cut first, followed by the lower ones.

Make sure that you look carefully around branches and leaves so that you do not miss fruits.

It is tiring and time-consuming to climb back for them.

Always try to cut the fruits only, and do as little damage to the branches as possible.



15 USING THE SAFETY LINE: SUPPORT AND DESCENT

1. The long rope and saddle enable you to reach out and cut fruits, using both hands to hold the cutter.

Always support yourself by sitting in the saddle, and brace yourself with the body against a branch if you tend to swing about.

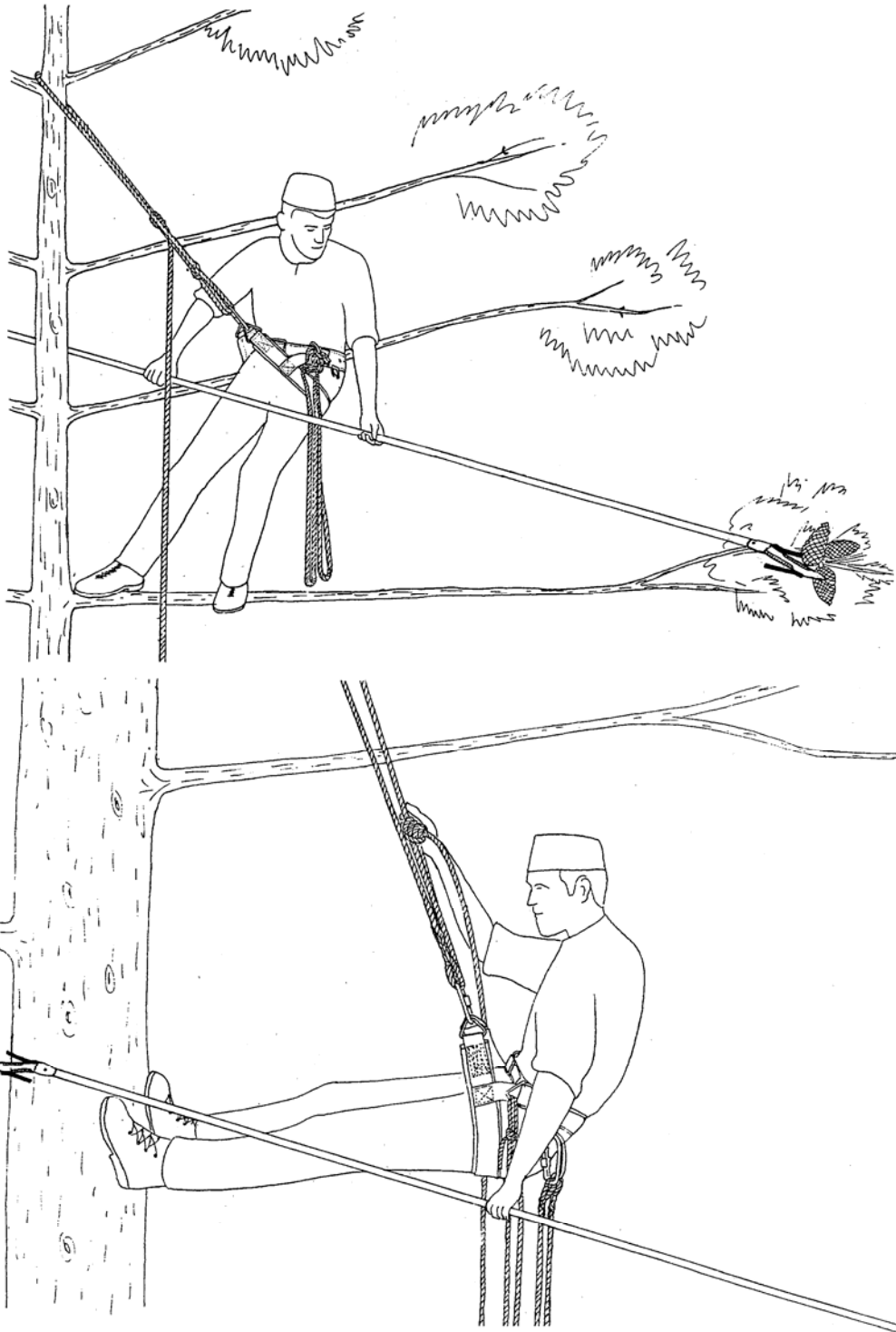
2. When you need to descend, sit in the saddle and push away from the stem as shown.

Pull down on the prussic knot, and the rope will slip through.

This will enable you to 'walk' down the stem.

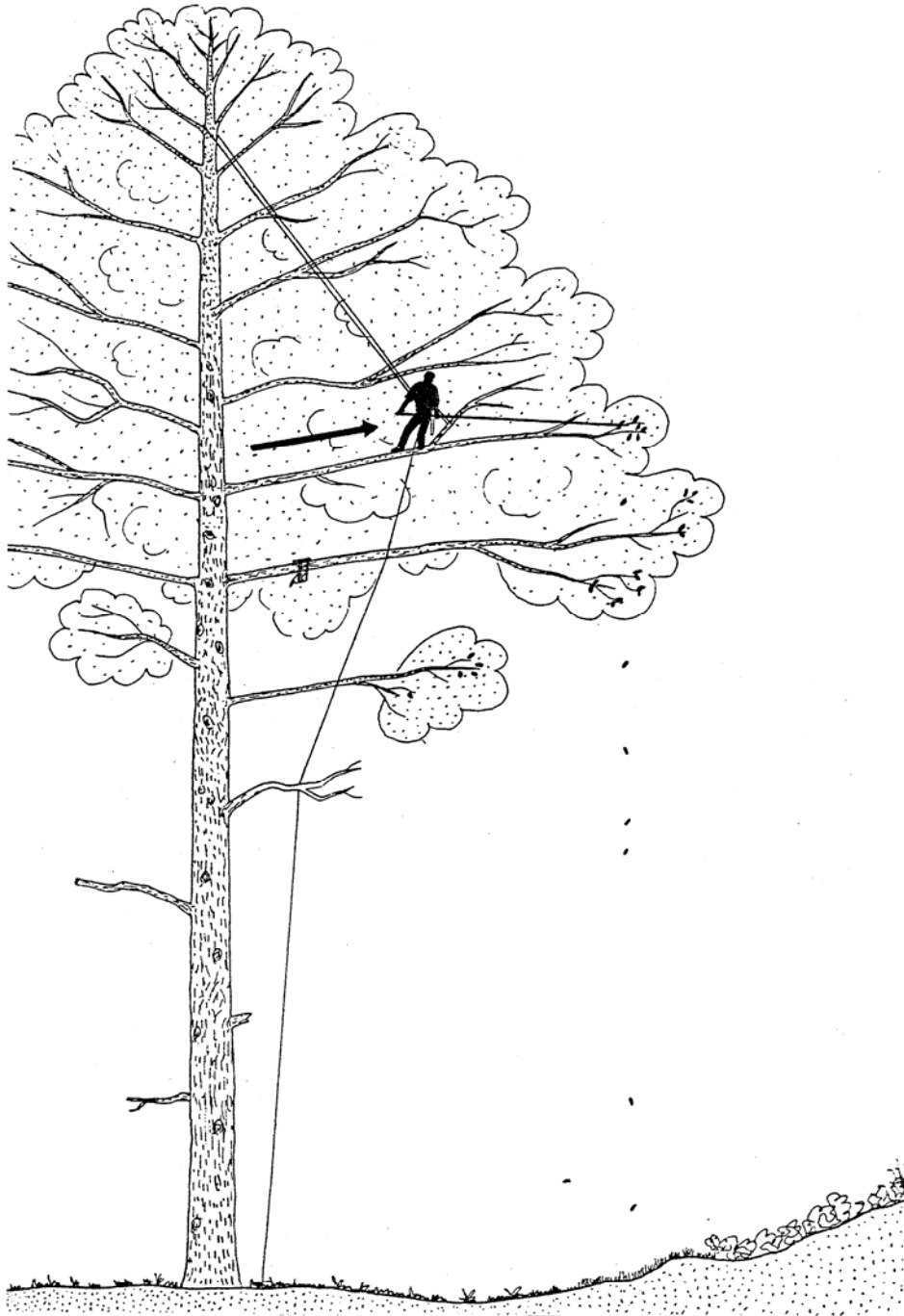
Do not descend holding onto branches as this is awkward and tiring - the rope and saddle will hold you safely.

When you let go of the prussic knot, it will stop your descent.



16 CUTTING FRUITS FROM LONG BRANCHES

When you have descended further down the crown, the branches will be much longer. The long rope and safety belt will be very useful to reach the ends of these branches.



17 USING THE SAFETY LINE FOR MOVING OUT ON BRANCH

(drawings numbered 1 (top-left), 2 (bottom), 3 (top-right))

1. You can reach the end of a long branch safely in the following way:

Stand upright on the branch and brace your body by keeping the long rope taut.

Then walk out backwards, and look behind you to see where you are going.

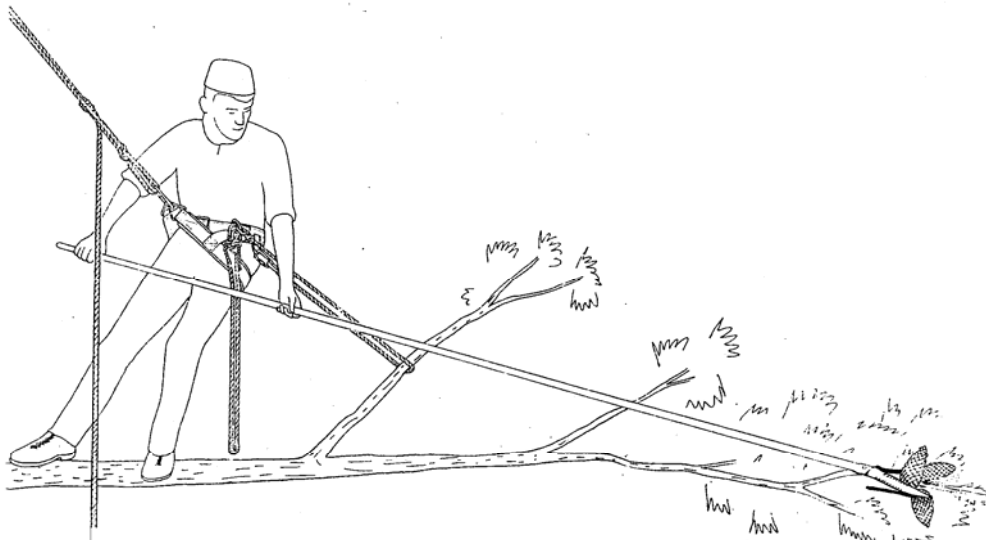
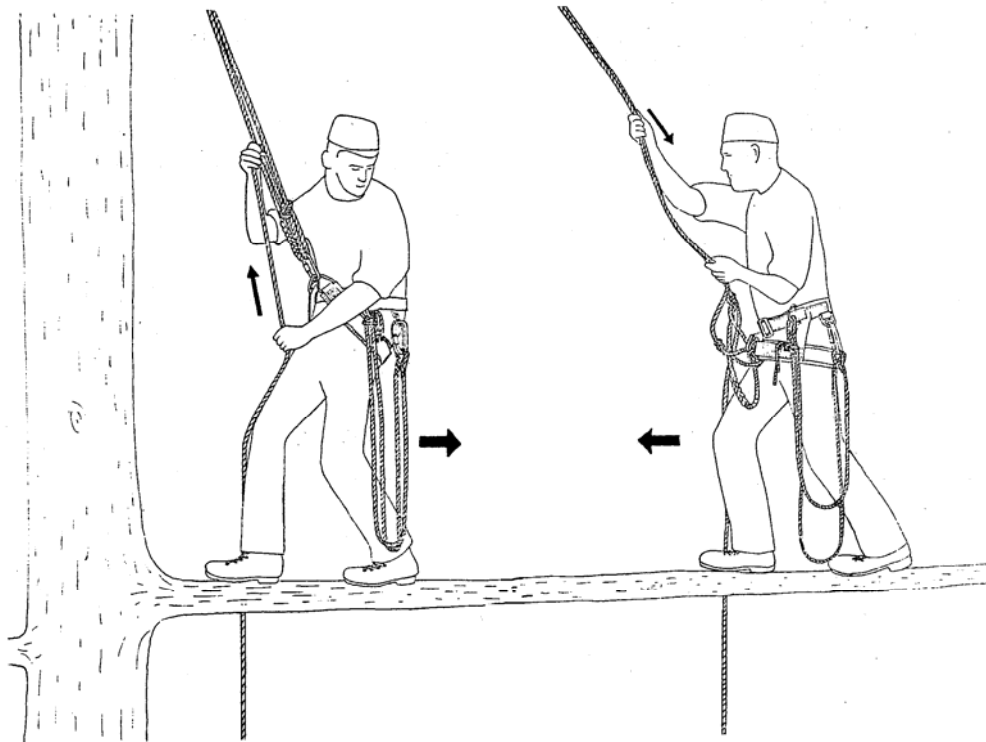
As you move along the branch, lengthen the rope little by little, by pulling on the prussic knot.

2. When you have walked out far enough, and can reach the fruits with the cutter, use a short strop to act as another brace for the body.

The two ropes will then stop you swinging about, and allow you to use both hands to control the cutter. This will require some practice.

3. You can return quickly along the branch by pulling the long rope directly towards you to keep it taut.

Once you are next to the stem, push the prussic knot back up the rope as far as it will go.



18 CHECKING THE LENGTH OF THE SAFETY ROPE

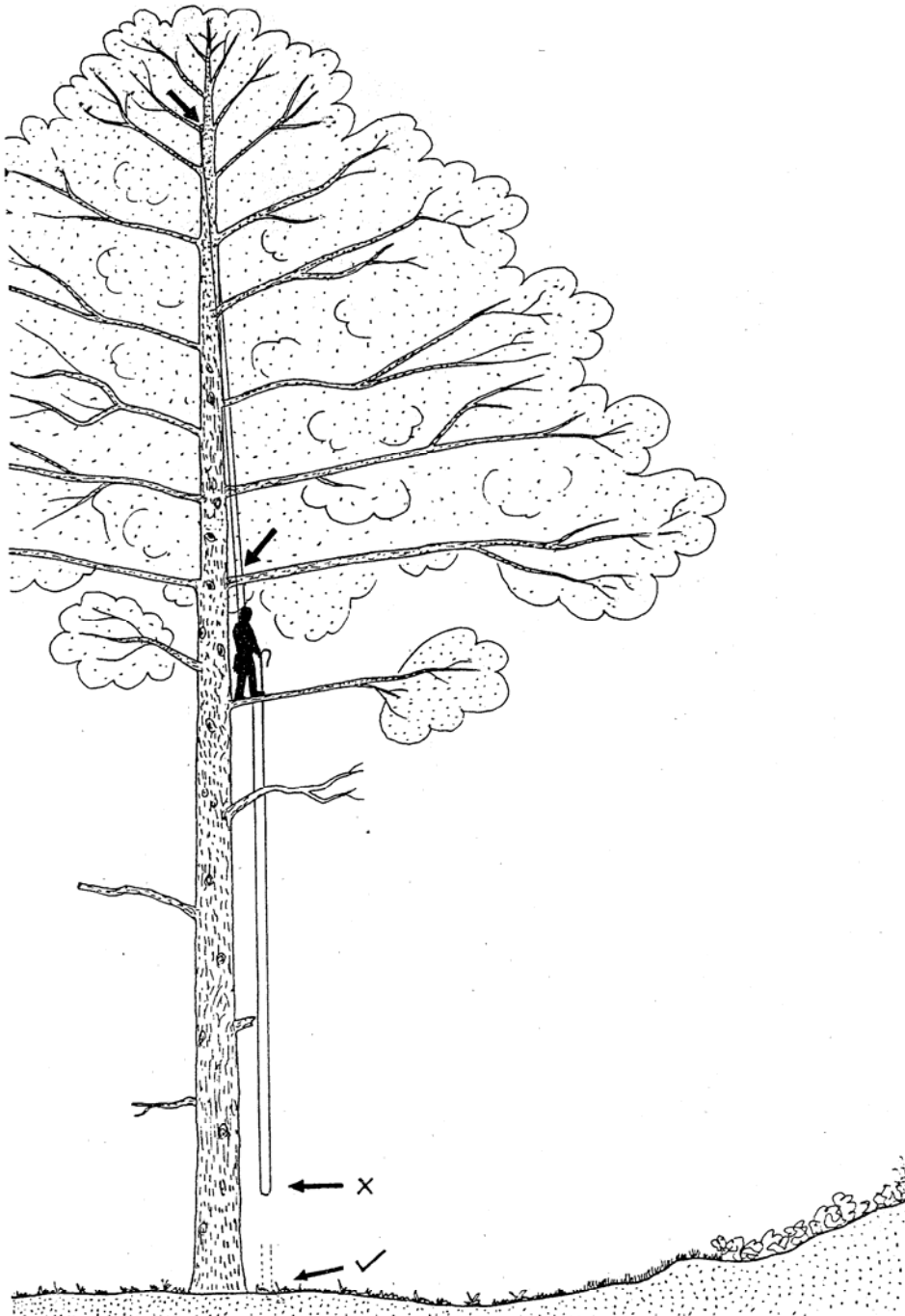
When you have finished cutting all the fruits and reached the bottom of the crown, you will be ready to descend straight to the ground.

Before you do this, you must make sure that the rope is sufficiently long.

To check this, pull up the free end and hold it, allowing the rope in between to fall down in a loop.

If the end of the loop touches the ground, the rope is long enough.

If it does not, then you must pull down the rope from the upper branches and place it over a lower branch



19 FINAL DESCENT

If you need to change the position of the long rope, first of all fasten yourself with a short strop.

Then pull down the long rope, and put it over a branch near to you.

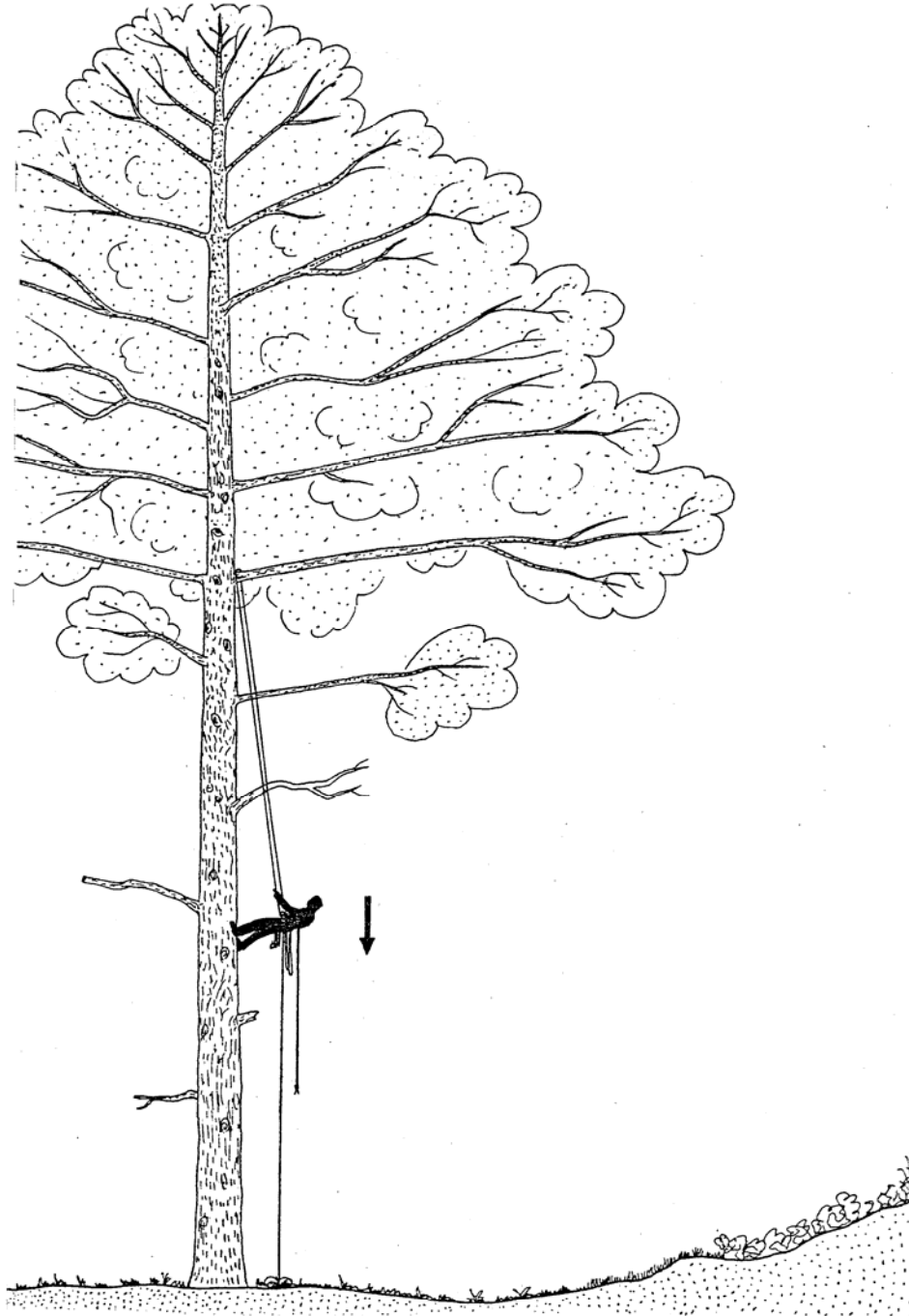
If the branches are thick and strong, it will not be necessary to put the long rope around the stem as well.

You can now walk down the stem quickly and easily using the rope and saddle.

Keep your body pushed well out from the tree.

Spread your feet as far apart as possible, so that you do not swing about.

Pull down on the prussic knot a little at a time, so that the rope does not slip too quickly.

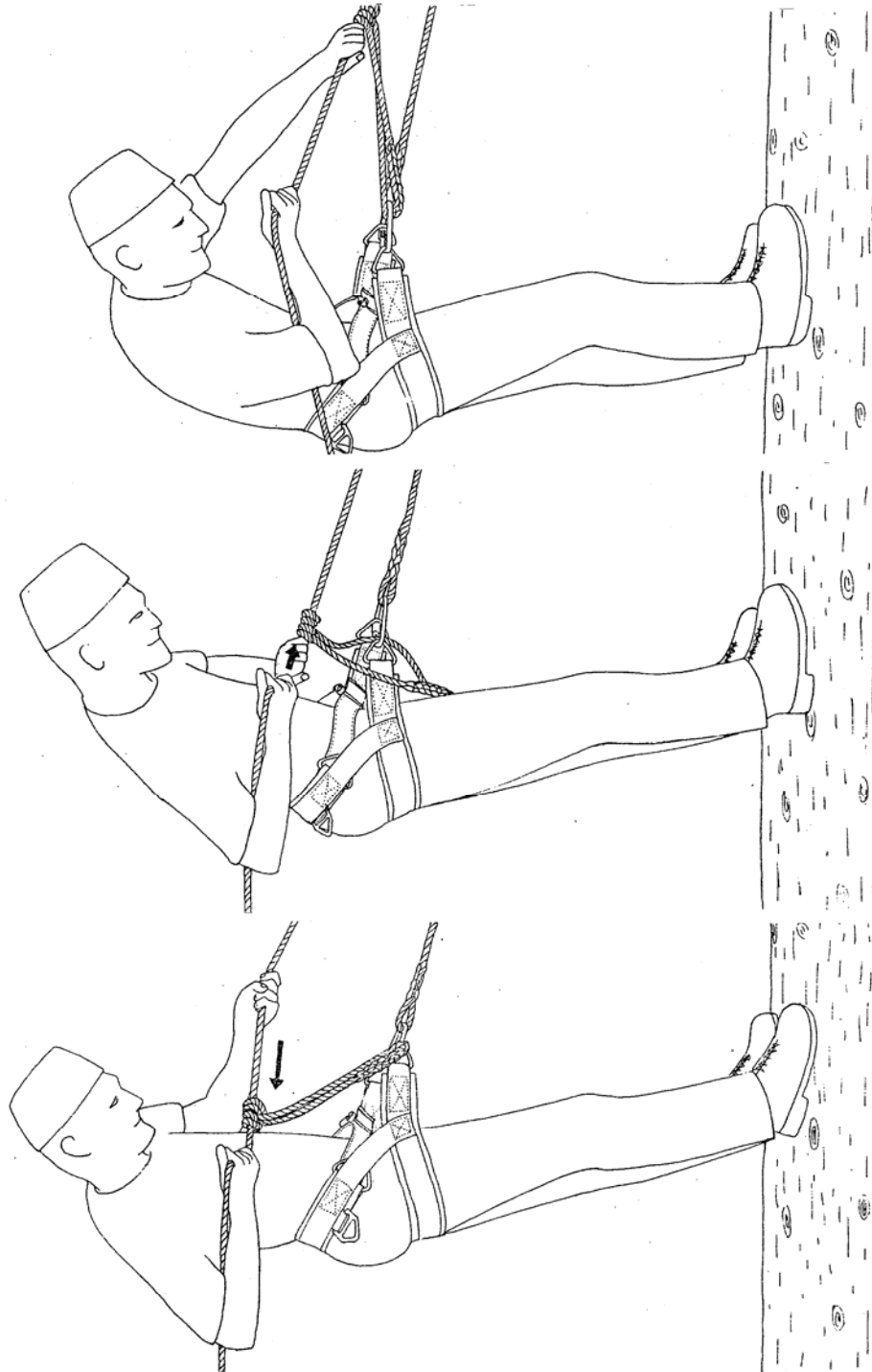


20 USING PRUSSIC LOOP TO ASCEND

(Note! drawing sequence is from bottom to top)

Some times it is necessary to move upwards while you are supported by the saddle and rope. This can be done without hauling on the stem or branches.

1. Hold the long tope either side of the prussic knot, and pull down hard, and as far as possible. At the same time push the stomach upwards.
2. Then remove the upper hand and use it to push the prussic knot quickly upwards.
3. Repeat this and gradually walk up the stem.



21 EYE SPLICE

Splicing is a very neat and strong way of attaching rope to a clip, but can only be used on rope with three strands.

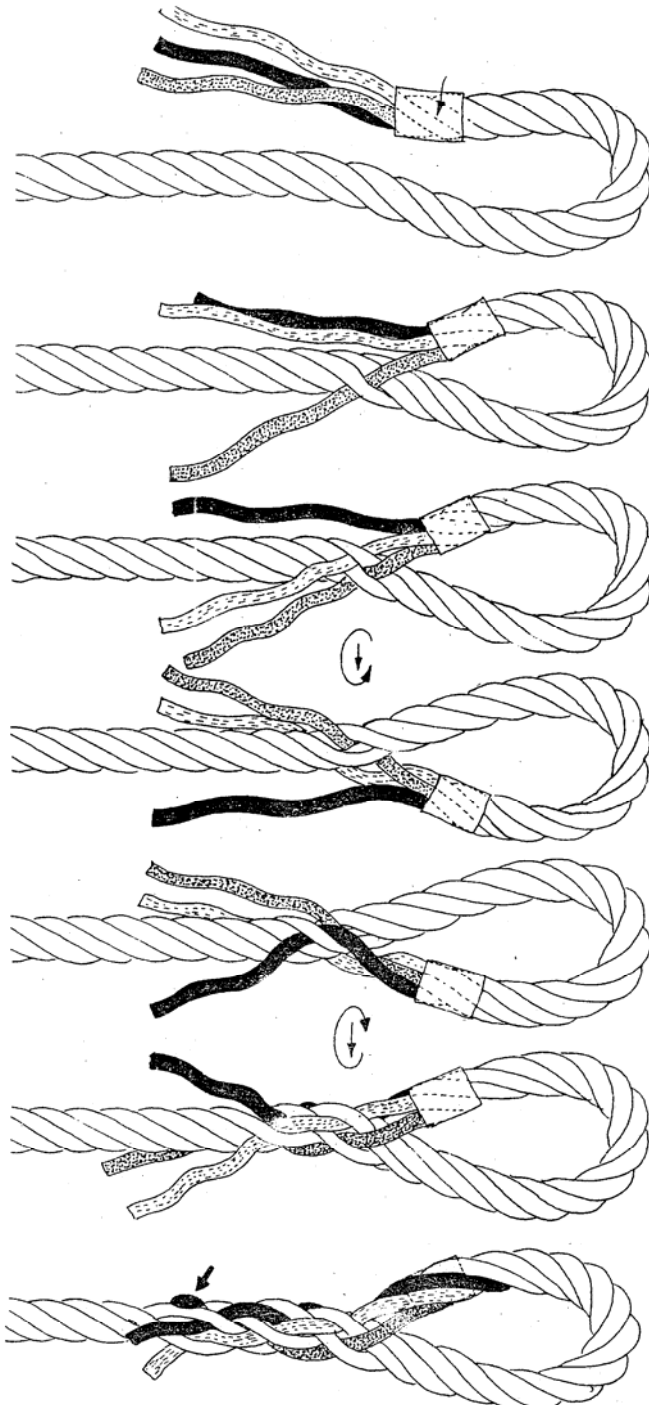
Unravel the strands for about 25 cm, and secure with sticky tape.

Open up the strands further back with a spike; and push the strands through as shown.

Keep them pulled tight. Insert each strand at least three times.

Cut off the excess and carefully seal with a flame to finish off the strands. Don't burn the main rope! The eye splice should be made in the end of both short and long ropes, and use to attach the ropes to the clips.

If the rope is of a type that cannot be spliced, then bowline knots can be used.



22 PRUSSIC SPLICE

(Drawing sequence: left column downwards, then right column downwards)

The prussic loop must be made of 3 stranded nylon rope, and joined with a splice as shown.

You should overlap each side of the splice by 3 insertions at least.

Do not use this splice for joining a long rope.

It may catch in branches and will not run through the prussic knot properly.

Pull the strands through tightly and seal with a flame in the same way as the eye-splice.

