Chapter 9

Safety on Steep Ground

Every leader of a walking party should be familiar with elementary rock climbing techniques and procedures on steep ground. The skills described in this chapter require no specialised equipment and rely on the use of the rope alone. The techniques described are not necessarily suitable for rock climbing, but are intended to be applicable to situations in which the non-climber may find himself and which may call for the use of elementary rock techniques. Should you wish to learn more about the sport of rock climbing, you should join a climbing club and read some of the many excellent books on the sport.

With regard to steep ground, your main concern as leader should be to avoid routes that require the use of a rope, particularly if there are novices in your group. Try in advance to recognise and avoid potentially dangerous terrain. If necessary, a detour should be made. However, a number of situations could arise in which it may become necessary to ascend or descend steep ground, and in such situations a rope and the skill to use it may be required for a variety of reasons. You may, for example, have to use a rope to reassure a nervous person; to rescue someone; to assist an injured person; to escape from a rocky ridge when an electrical storm threatens; or to put up a hand line past a difficult point.

Do not overestimate your own abilities. As important as it is for you to familiarise yourself with elementary rock climbing and rope skills, it is equally important to appreciate the limits of what should, and should not, be attempted by a hiking party without rock climbing experience or the proper equipment. You need to have a realistic appreciation of your own abilities and limitations, plus the good sense to operate within the range of those abilities.

Novices, in particular, require close, individual attention. Try to see things through their eyes: what might be a trifling move for an experienced climber could be a terrifying and insurmountable obstacle to a person new to the vertical world. To most people a steep rock face is an unfamiliar and stressful environment. No amount of patient explanation, demonstration, cajoling or encouragement by the leader is likely to alter this fact once a frightened beginner loses his nerve and begins to cling to the rock face like a barnacle to the side of a boat. If the use of a safety rope can reassure a beginner or nervous person sufficiently to move confidently on a steep slope, you should decide to use the rope before a disaster can occur or the person lose his nerve completely.

The leader should be able:

- To select a safe line up a rocky hillside and know when to put on the rope.
- To lead both ascents and descents on easy, ungraded rock.
- To find and use suitable belay anchors quickly.
- To abseil.
- To hold a falling climber.
- To use the standard calls and signals for communication.

The rope

A rope is used in mountaineering situations to provide an increased measure of security and safety in potentially dangerous situations. A hiking group seldom carries climbing harnesses: in this section it is therefore assumed that the hiking party has only one rope and no harnesses or other equipment at its disposal. (Bear in mind, however, the value of carying a single sling and carabiner in addition to the rope — this simplifies belaying immensely.)

It must be stressed again that the techniques described here are not those necessarily used by modern rock climbers and are intended only for the protection of inexperienced party members under unavoidable circumstances.

Nylon rope

A rope should be sufficiently elastic to absorb most of the energy generated by a fall, without imposing an unacceptable strain on the falling climber or the person belaying him. At the same time it should not stretch so much that it allows the climber to hit the ground after a fall has been arrested. Modern nylon climbing ropes meet these requirements.

The most suitable type of rope to carry is a 9-mm or 8,5-mm diameter 30-metre or perhaps even 45-metre kernmantle rope. A 'core and sheath', or kernmantle, nylon/perlon rope is very strong and has a great capacity to absorb the shock energy generated by a fall. It consists of many thousands of endless perlon threads (the load-bearing centre, or 'kern') combined in various braided units. The outer sheath, or mantle, surrounds the innner, load-bearing centre and protects it from damage.

Hawser-laid (left) and Kernmantle rope

Care of the rope

- Check the rope regularly for wear; discard it if in doubt.
- Never use the rope for caving or for any purpose other than mountaineering.
- Dry a wet rope in loose loops in a well ventilated place. Never dry it near fire.
- Do not store a rope wet or in a damp or hot place.
- Never stand on the rope.
- Do not allow one rope to run across another, since nylon rope has a comparatively low melting point.

Discard a rope:

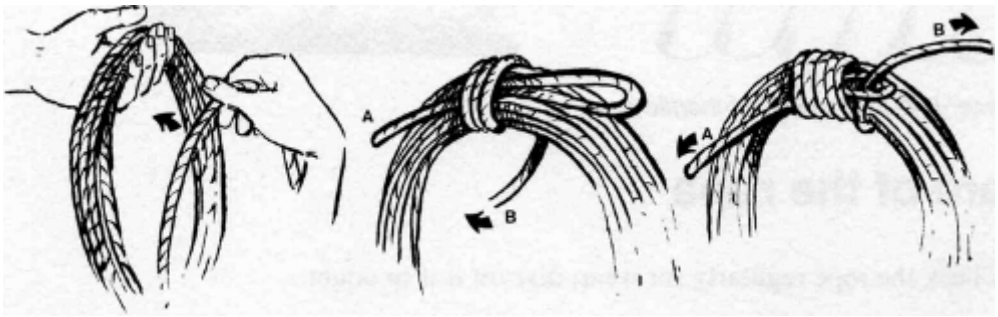
- When it has been damaged mechanically by stonefall or rock edges.

- When the mantle is badly worn through abrasion.
- When it has come into contact with chemicals (gasoline, grease or battery acid).
- When it has held a severe fall.
- When it is older than five years.

Coiling the rope

Method 1

Take one end of the rope in your left hand, approximately 30 cm from the end. Allow the rope to slip through your right hand as you extend both arms; the length of rope between your two hands (approximately 1 m) now forms a loop when you bring your right hand towards the left, placing the top of the loop into your left hand. Repeat this process, always forming loops clockwise. Take care to measure off the same length of rope for each coil by extending your arms the same distance each time. When you are left with a length of rope roughly equal to one loop, take the initial short length of rope with which you started and double it back on itself on top of the coils you are gripping in your left hand.



The ordinary method of coiling a rope

Begin to wind the final length of rope tightly around the coils towards the loop formed by the doubled-back short length of rope. Approximately five windings should suffice (too many, and it takes a long time to uncoil; too few, and the whole lot will soon come undone). Stick the end of the rope through the loop and pull on the doubled-back end of the rope to tighten the loop holding the end.

Before a rope coiled in this way can be used, you must uncoil it in exactly the reverse order in which you coiled it. This means that you must uncoil the individual coils one by one, until you have reached the end of the rope. If you become impatient and neglect to uncoil the rope fully before using it, you can rest assured that a snarl-up of the rope will ensue.

Method2 (the 'daisy chain' method)

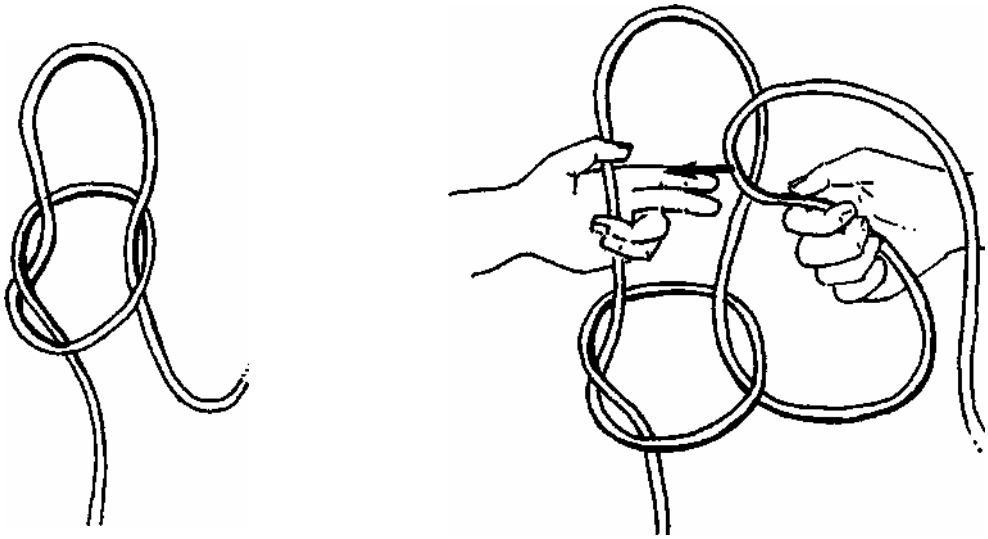
Again starting with one end of the rope in your left hand and the rope loosely gripped in your right hand, extend both arms fully. At this point (which is approximately a double arm's length from the end of the rope), tie a slip knot so that if you pull on the long end of the rope the knot will come undone. Take the top of the slip knot in your left hand. Extend your left arm, allowing a short length of rope to slip through your right hand (a bight, or loop). While your right hand grips the rope at that point, bring the two hands together and pass the bight in your right hand through the loop in your left hand.

As you pass the bight through the loop, the left hand should let go of the slip knot, which will now slide down the bight of rope passed through it, so that your left hand can grip the loop formed by the top of the bight passed to it by the right hand. Repeat this process, each time using the right hand to pass a bight through the loop held in the left hand, to be gripped by the left hand.

To prevent the rope from kinking, the left hand can give the loop a half twist, now clockwise, the next time anti-clockwise, each time before the bight is passed through it. When you reach the end of the rope, tie an overhand knot on the last loop, leaving a short final length of rope. Starting with this end,

the rope is then coiled and secured in the same way as for the first method.

While the second method is more difficult to learn and has to be practised, it has the advantage that the rope does not have to be uncoiled before you can use it. Simply untie the overhand knot at the end and the coils will come undone as you pull on that end of the rope.



The Daisy Chain method

When to use a rope

Timely and effective use of the rope can mean the difference between an orderly retreat and a disaster. There are no hard-and-fast rules regarding when to rope up. However, in addition to being useful in potentially dangerous situations, the rope has great psychological value, particularly where beginners are involved.

Factors to consider

The following factors might make the use of the rope desirable and sometimes essential:

- Exposure — would a slip result in serious injury?
- Difficulty — is the terrain so difficult that a slip is possible or even likely?
- Ability — how do individual members of the party react to exposure and how do they perform on steep ground?
- Safety — will the situation be made safe through the use of the rope?
- Time — is it more important under the circumstances to save time than to gain additional security through roping up (speed can be an important safety factor on its own account)?

Typical situations in which the rope will be used

- To reassure and protect a nervous person or beginner on a steep slope.
- To ensure safety in exposed places.
- To assist a person suffering from a minor injury.
- When going to someone's assistance.
- In an emergency, when the party quickly has to move up or down from an exposed position.

If, having weighed these factors, you decide to rope up, you must ensure that the rope is used properly. The leader should also be operating well within his experience and capabilities when using rope techniques.

To rope up merely to boost your own confidence, without making proper use of the rope, could lead to disaster: this practice is likely to ensure that an overconfident climber will not fall alone.

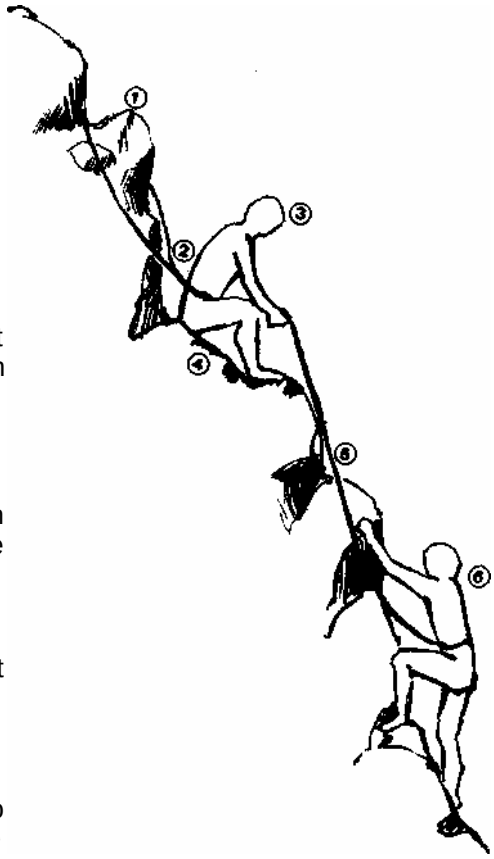
Moving on dangerous ground

When you have to cross a dangerous spot where a fall could result in serious injury, the members of the group should be brought across one by one. Inexperienced hikers, particularly, should be tied on and should not to expected to be able to hold on to a rope to save themselves in an exposed position.

This is a brief description of the standard climbing sequence:

1. The leader (the person who will go first) and the second (the person to go second) tie onto the rope.
2. The second ties the rope to a secure point (the belay anchor) on the mountain and ensures that he is securely tied to the anchor.
3. The leader climbs while the second belays him, gradually letting out rope (the belay sequence is described below). Should the leader fall, the belayer must arrest the fall.

1. Belay anchor
2. Tied-off rope
3. Belayer
4. Secure stance
5. Rope
6. Climber



4. Once the leader has climbed past the difficult point and arrives at a safe place from where he can belay the rest of the party, he prepares to belay the others by tying himself to a secure belay anchor on the mountain.
5. After the leader has taken up the slack between himself and the second, the second climbs up to the leader's position while his rope is gradually taken in by the leader. Should he fall, the leader must arrest his fall. Once he reaches safe ground, he can untie and throw down his end of the rope to the next person to climb.

On multi-pitch climbs (a section of a climb between two stances is referred to as a pitch), climbers repeat the above climbing sequence as often as necessary to allow them to reach the top. However, with only a rope at your disposal, you should not try anything more than to safeguard a single short section of climbing for the members of your party — and then only if there is no easier way and you are sufficiently experienced in the techniques required.

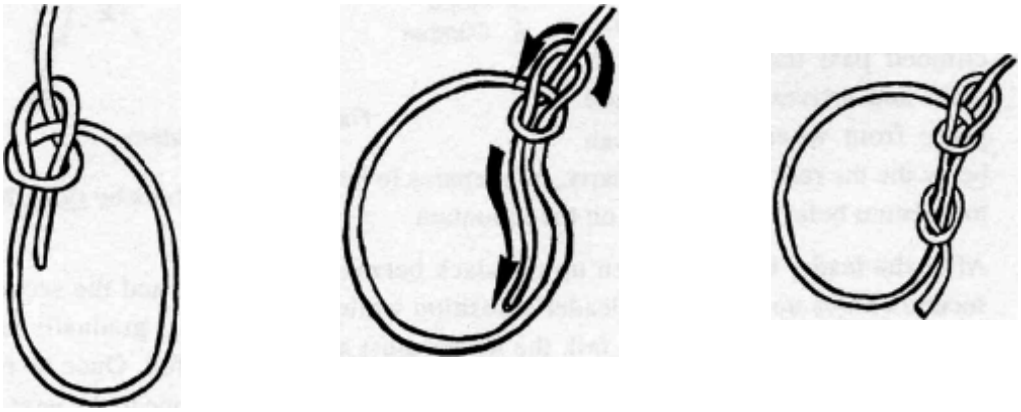
The belay system

Tying on

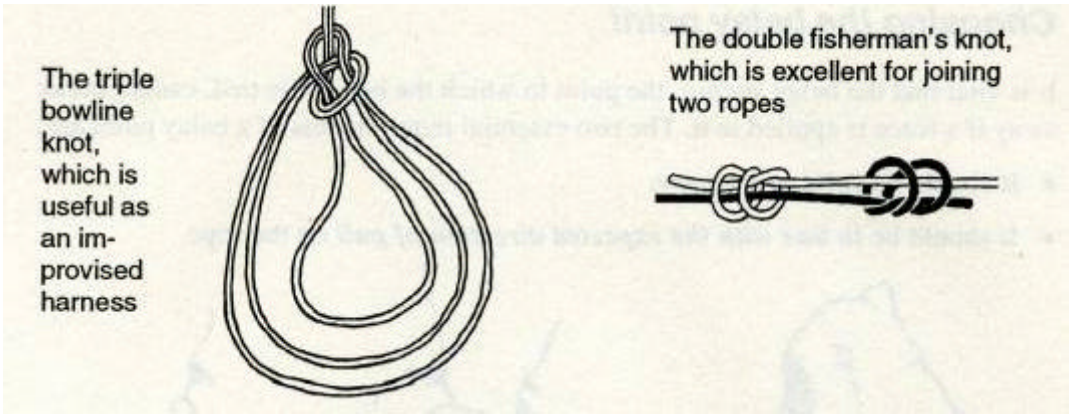
The rope can be used to make an effective improvised 'harness' that will hold a person in case of a fall. A number of other knots, such as the figure-of-eight knot, are also suitable for tying on.

Correct tying-on procedure is critical and must be practised under competent supervision. Any mistake in tying on is likely to be made only once, since there is a very high probability that the person who made the mistake will not live to repeat it.

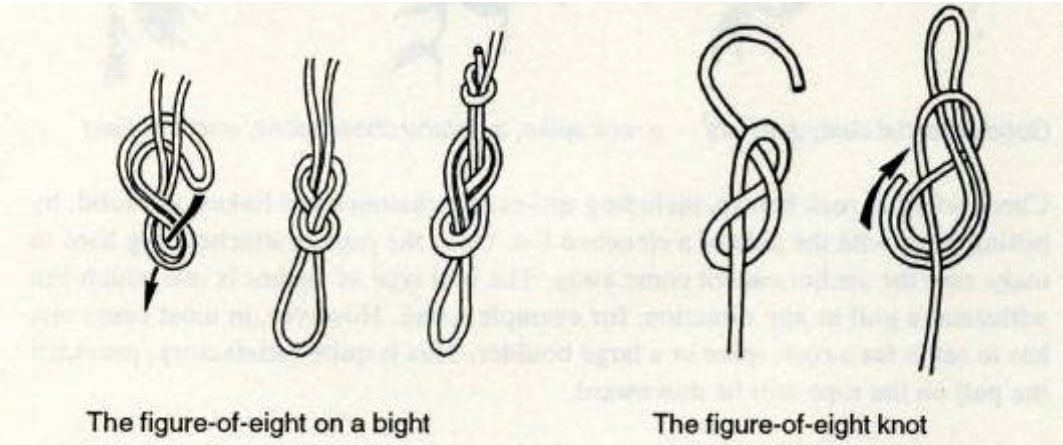
The bowline knot is the most customary tying-on knot for climbing without a harness. It is simple to adjust and relatively easy to undo after the load is removed. If no harness is used, the rope should first be looped around the climber's waist a number of times. It should always be secured by an additional knot.



The Bowline is a good knot to tie on with



The figure-of-eight knot is a knot of medium strength and easy to undo after unloading



Belay points

A belay point is an anchor point to which the rope is firmly tied. Examples of good belay points are a tree, a rock bollard or spike, or a rock wedged in a crack.

Only one person, securely tied on, climbs at any one time. He is secured by the rope which is held in turn by the belayer, himself secured by the rope to a belay anchor in the form of a rock or a tree. Should the person who is climbing fall, he will be held by the person belaying him.

The situation most likely to occur would require the leader of a party to safeguard its members as they cross a short exposed section on a rocky ridge or slope.

The leader should be able to provide a tight rope to the climber, i.e. to support the climber's entire weight, and also, if necessary, to lower him to where he can stand.

Choosing the belay point

It is vital that the belay anchor, the point to which the belayer is tied, cannot break away if a force is applied to it. The two essential requirements of a belay point are:

- It should be solid and secure.
- It should be in line with the expected direction of pull on the rope.

Good potential belay anchors — a rock spike, a natural chock stone, and a bollard

Check whether rock belays, including spikes, chockstones and flakes, are solid, by hitting them with the side of a clenched fist. Once the rope is attached, tug hard to make sure the anchor cannot come away. The best type of anchor is one which can withstand a pull in any direction, for example a tree.

However, in most cases one has to settle for a rock spike or a large boulder. This is quite satisfactory, provided the pull on the rope will be downward.

Since the belayer himself will be tied to the anchor point, it is pointless for him to tie on to a spike of rock that is lower than the loop or rope around his waist. In short, the belayer himself should be able to hang from his belay before he can consider belaying someone else. Choose the best position (or stance) you can, keeping in mind the following points:

- With beginners it is important to be able to see the start of the climb in order to ensure that they follow the correct tying-on procedure.
- The rope should not be able to dislodge loose rocks and debris.
- The rope should not run over sharp edges.
- You must have sufficient room to adopt a good belaying position, sitting or standing, with a firm brace for the feet and legs.
- The belayer, the anchor point and the climber should all be in a straight line. If the person climbing should fall, the rope between the climber and the anchor will pull taught, and if the belayer has chosen a position off to one side he will be jerked off his feet until he is in line with the belay and the fallen climber.

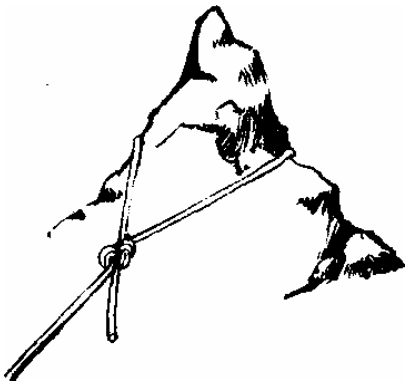
Correct position of anchor, belayer, and climber—all three are in the same vertical plane

Attachment of belayer to anchor

From the loop tied round the waist of the belayer the rope is passed round the anchor and tied to the waist loop of the belayer again (e.g. spike belay tied off at waist). The length of rope between the belayer and the belay anchor must be kept taut — this will prevent him from being pulled over the edge if the other climber falls. On the other hand, the belayer should not be positioned so close to the belay point that his movements are hampered or he cannot see the person he is belaying.

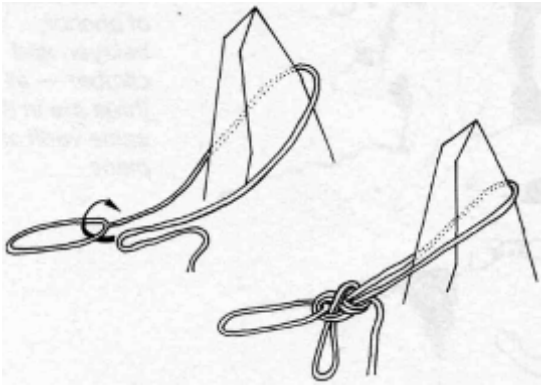
An alternative method of tying oneself into the belay is to tie a figure-of-eight knot in a loop of rope taken from the waist and to place the loop over a projecting rock or spike. The length of the belay rope is more difficult to adjust, but this method does have the advantage of allowing the belayer to untie himself from the rope if necessary, while leaving the climber still secured directly to the belay.

"Spike belay tied off at the anchor (figure-of-eight)



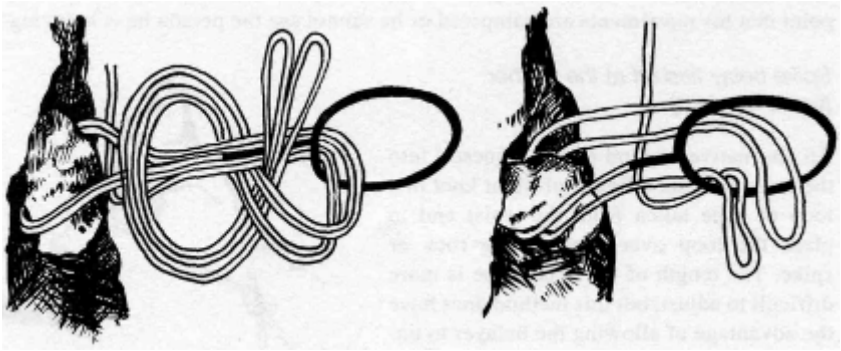
Spike belay tied off at waist

The rope from the waist is placed round the spike. A bight is taken through the waist loop to about arms length and the loop so formed is used to tie off all the ropes with a figure-of-eight knot.



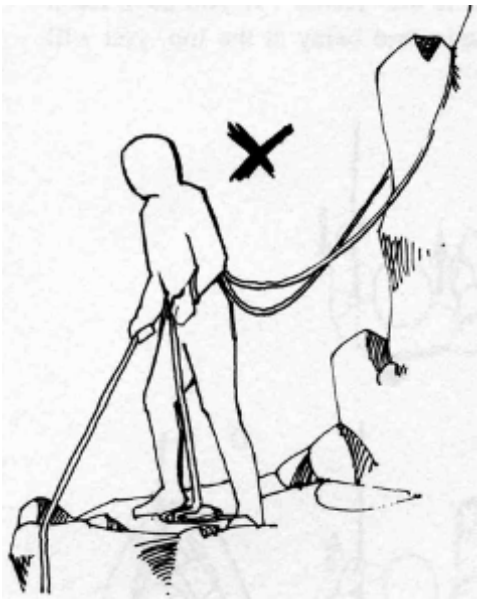
Thread belay

A good type of belay, since it can resist a pull from any direction. However, it is a bulky knot and can use up a lot of rope. It is tied like the spike belay, except that a loop of rope is passed through the thread and back to the waist. A loop in the rope from the thread, together with a loop from the active rope, is passed through the waist tie. Both are then tied off round all the ropes from the waist, either in a single knot or independently.



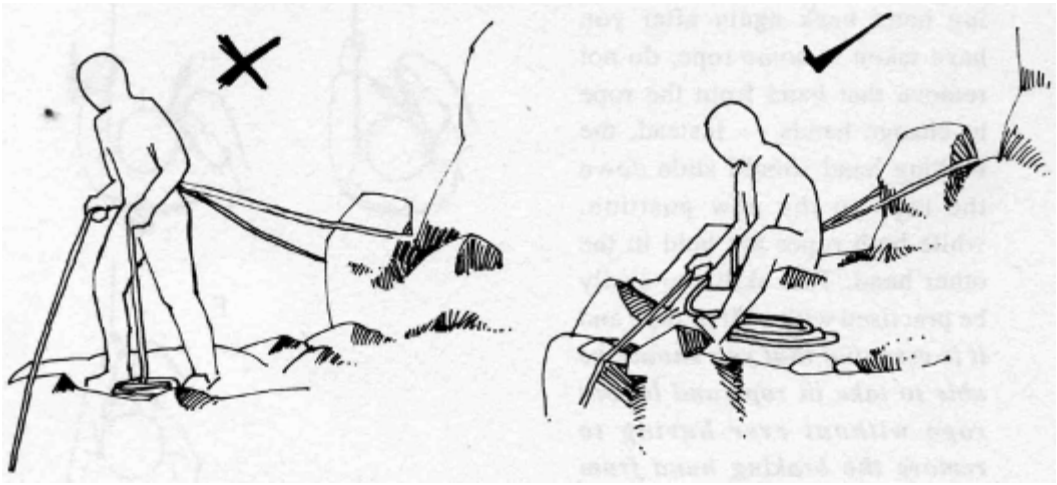
The belayer

The final link in the belay chain is the belayer himself. It is his responsibility to ensure that the rope is taken in or paid out as required and to provide assistance when needed.



The rope tied to the belay anchor must be tight

When using a spike or bollard as belay anchor, the body of the belayer should be lower than the anchor.



The correct belay position

The body hip belay is the most reliable belay method which does not involve special equipment. It depends on achieving the maximum amount of friction between the rope and the hips in the event of a fall. It is important to use the hips, which have a bony framework, rather than the waist, which is soft and vulnerable. If available, gloves should be worn.

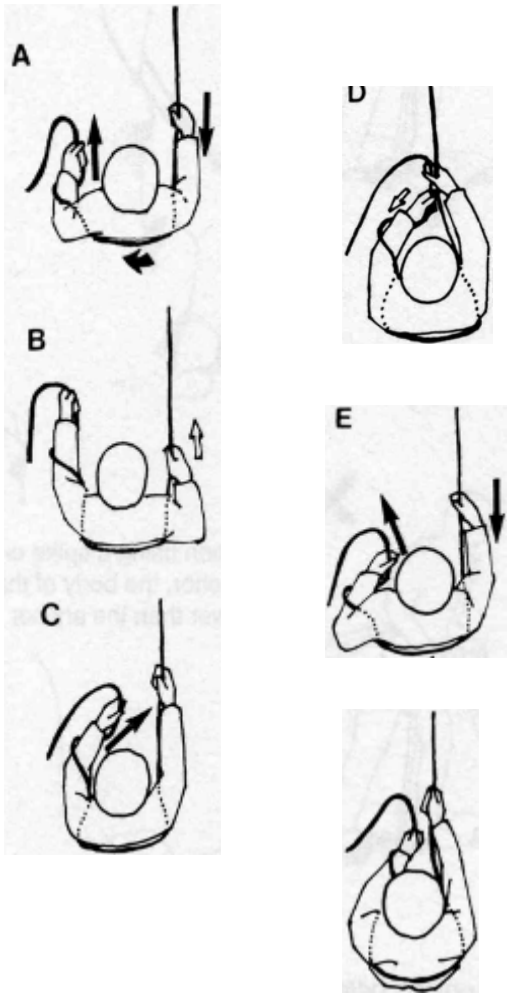
In climbing terms, the person who climbs first is the 'leader'. If,you have led a section of a climb (a pitch) and taken up a stance and belay at the top, you will belay the second man up the pitch as follows:

1. Bring the slack in the rope in quickly hand-over-hand until it tightens on the second man.

2. Pass the rope over your head and down to your hips. The inactive rope is held firmly in the braking hand.

3. As the second man climbs, you need to take in the rope. There is only one golden rule to remember: ***THE BRAKING HAND MAY NEVER, NOT EVEN FOR A SPLIT SECOND, BE REMOVED FROM THE ROPE.***

4. When you need to bring the braking hand back again after you have taken in some rope, do not remove that hand from the rope to change hands — instead, the braking hand should slide down the rope to the new position, while both ropes are held in the other hand. This skill can easily be practised with a bit of rope and it is essential that you should be able to take in rope and let out rope without ever having to remove the braking hand from the rope.



While belaying:

- Always keep the slack to a minimum between you and the second man.
- Stay alert — you may not get any warning of a fall.
- Ask yourself: 'What direction will the pull come from if the person who is climbing falls?' and 'Am I in the best position to resist his pull on the rope?'

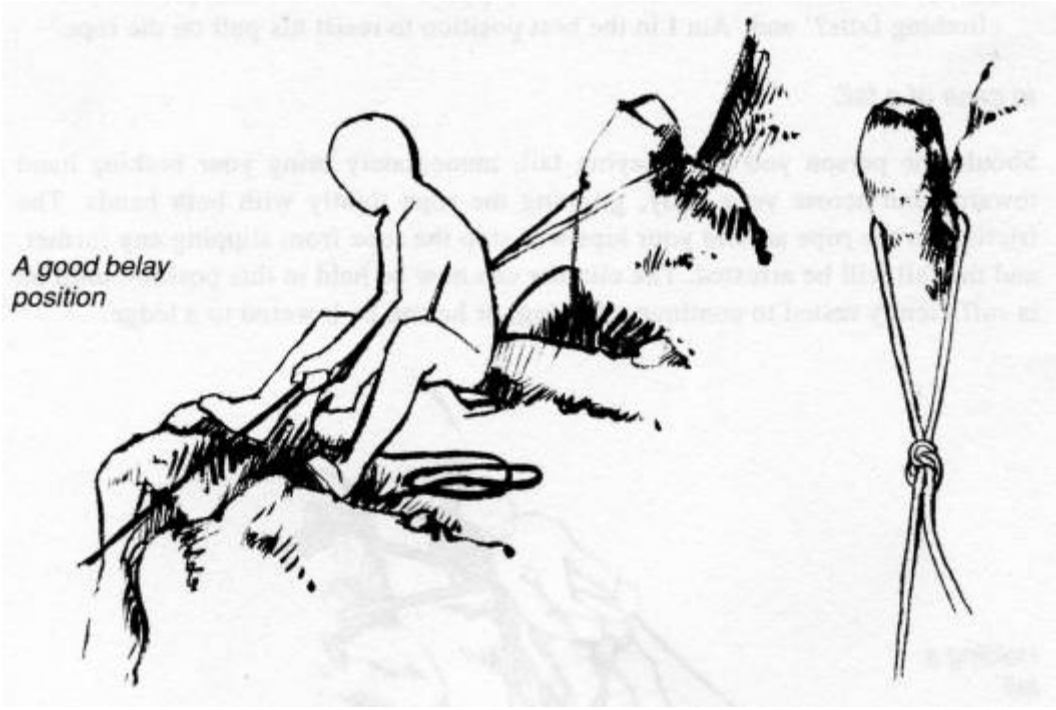
In case of a fall:

Should the person you are belaying fall, immediately bring your braking hand towards and across your body, gripping the rope tightly with both hands. The friction on the rope around your hips will stop the rope from slipping any further, and the fall will be arrested. The climber can now be held in this position until he is sufficiently rested to continue climbing, or he can be lowered to a ledge.

The procedures and techniques for belaying the leader are exactly the same as for the second man; of course, instead of taking in rope as the leader climbs, the belayer will be letting out rope. Bear in mind that the force imposed on the belayer and the rope if the leader should fall is much greater than if the person climbing second should fall. For this reason, a leader should never, except in an emergency, lead a rock pitch while being given a body belay. To lead a rock pitch requires specialised rock climbing and belaying equipment and a good deal of climbing experience — it should not be attempted by ill equipped or inexperienced parties.

Holding a fall

There should always be a second person in the group who is experienced at belaying and who can belay you if you should need to lead a rock pitch in an emergency. It is recommended that the person belaying you on a body belay should wear gloves to prevent him from suffering rope burns in case you should fall.



Communications

It is essential to have a well-understood system of communication between the members of a climbing party and particularly between the belayer and the person climbing. This is very important where the

second man cannot see the belayer. If he cannot hear the belayer, for example next to a noisy waterfall, a system of rope tugs can be devised.

Over the years, certain standard calls have come to be almost universally used, and you should know what each means. All calls are replied to, indicating that the person has heard and understood the call.

A leader in charge of an inexperienced group should ensure that all the members of the party understand and use the correct calls. Do not combine calls as this can cause confusion.

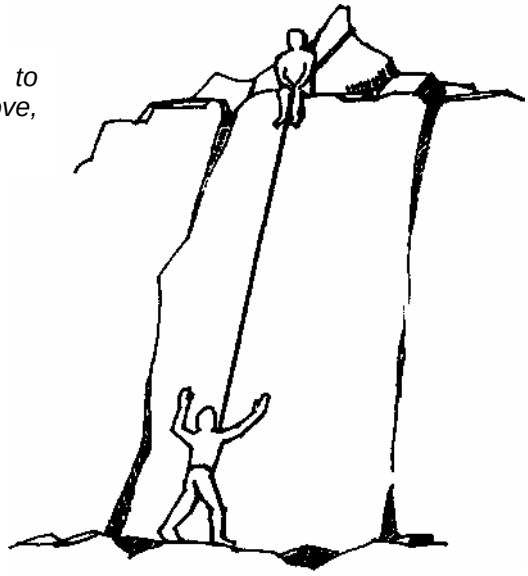
Call	Given by	Meaning
That's me	Second	The rope is taut between leader and second.
Climb when you're ready	Leader	The leader is ready for the second to start climbing.
Climbing	Second	The second is ready to climb.
Climb	Leader	Final confirmation by the leader that he is ready to belay the second. Second starts to climb.
Belay off	Leader	Shouted by the leader when he has reached a stance.
Off belay	Second	The second acknowledges the leader's 'belay off' call and takes him off belay.
Slack	Climber	The climber requires a little rope, perhaps to step down a little.
Rope up	Climber	The belayer needs to take in some rope.
Tight	Climber	The climber needs help from the rope — he may be about to fall off.

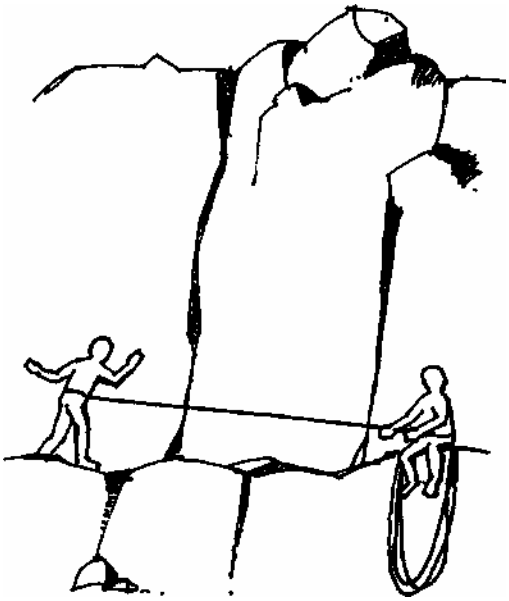
The traverse

To traverse means to move horizontally. Safeguarding a traverse presents a problem for the belayer, since the falling climber could easily injure himself if he swings into the rock face. The best position from which to belay someone doing a traverse is from directly above the traverse. Often, however, you may not be able to reach a point above the traverse line.

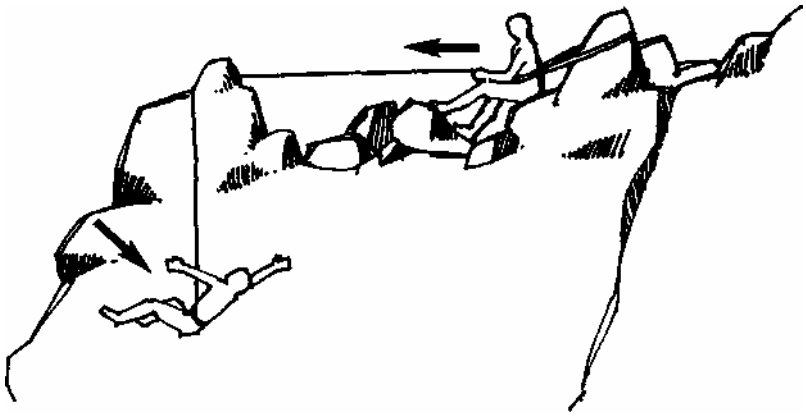
If the leader of the group has do a traverse which is difficult or exposed enough to require a belay, the traverse should be made as short as possible. You can even make your stance in the middle of the traverse if a good anchor and sufficient space for the whole group and their equipment is available. In this manner you can ensure that the distance that the person who is climbing would fall can never be more than half the length of the traverse.

The best position from which to safeguard a traverse is from above, half-way along the traverse





An unprotected traverse is not pleasant to lead nor to second, because of the danger of a pendulum fall



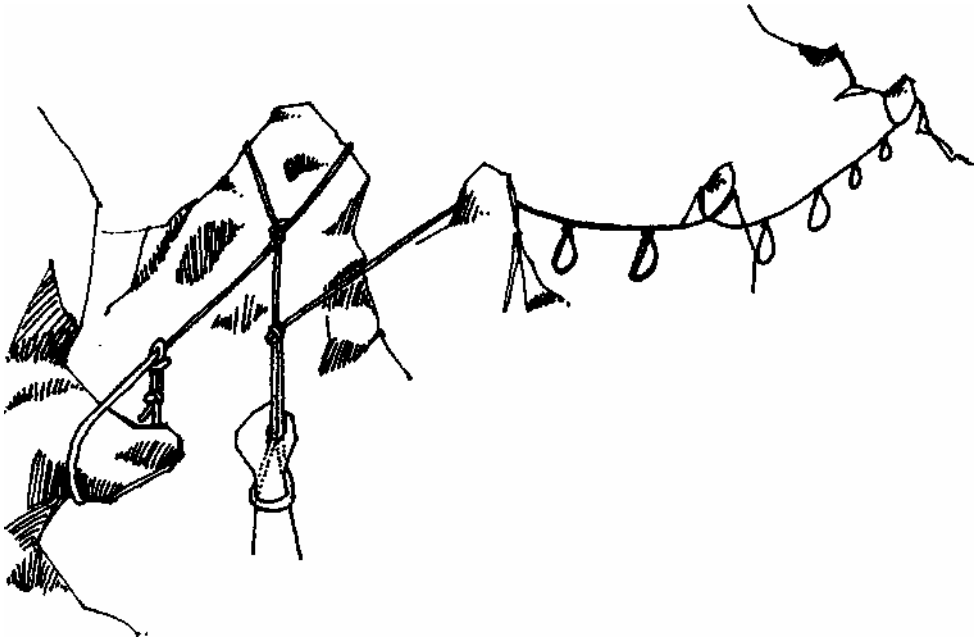
An intermediate projection can often be used to make the traverse safer for the second

When belaying a climber who is following you on a traverse:

- Be prepared to hold a pendulum fall which may exert a considerable force that may vary in direction.
- Take special care when selecting your belay point and the position you take up.

Using a fixed rope

A fixed rope can be a useful aid on difficult ground or to get past a difficult spot. However, a fixed rope is not tied onto the climber, and any sense of confidence it inspires is false. A fixed rope should therefore never be used in places where a slip could lead to a serious fall.



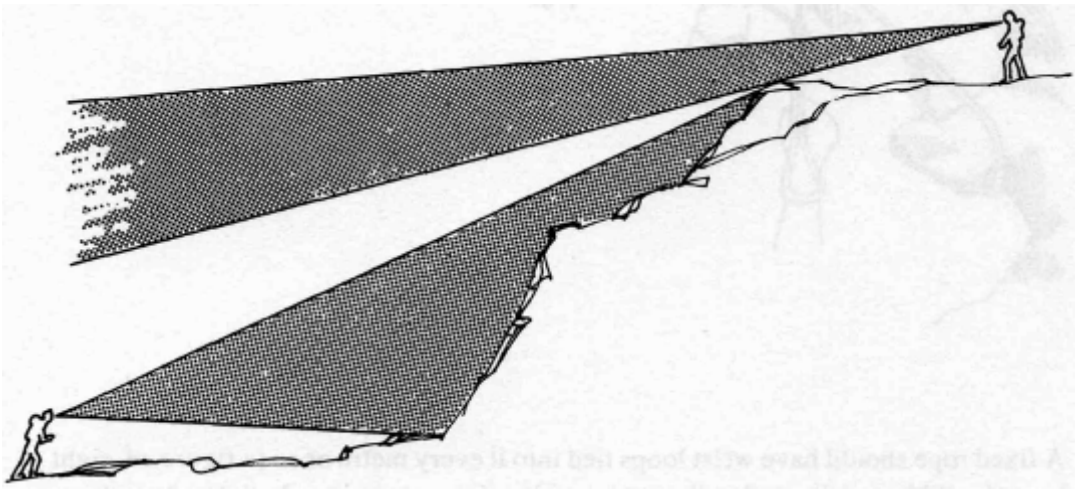
A fixed rope should have wrist loops tied into it every metre or so (a figure-of-eight knot should be used), so that the person using the rope can use both hands and can hang on to the rope even when tired. The rope should be firmly secured at top and bottom and at any place where there is a change of direction.

Another place where the correct use of a fixed rope might prevent injury, is where the rope is tied across a slab of wet rock. Where a stream runs over rock, algae frequently grows on the rock, making for an extremely treacherous surface to walk on. At a lunch-spot where people will be moving back and forth, or where there is a tricky place where many people will cross, it may therefore be necessary to put up a rope, particularly if they are carrying rucksacks. This can be a simple rope handrail strung up between trees.

To safeguard a place where people walk, wash or fill water bottles at a lunch spot or camp site, a rope can be strung just above the rock downstream from an area of slippery wet rock, so that someone who slips and falls can grab hold of the rope. Of course, if a fall could have serious consequences, it is necessary to rope up properly.

Descent

Finding a safe route of descent down a rocky hillside is a skill that comes only with practice and many a false cast. Bear in mind that, after a long, tiring ascent to the top of a mountain or hill, the members of your group might not be as alert as they should be. A number of top climbers have been killed while descending from a summit because of carelessness or a momentary lapse of concentration.



Visibility for route finding: the steep section is visible on the way up, but not on the way down

General guidelines for safe descent

- On the way up, look back and take note of landmarks, boulders and trees that will allow you to find the route down — provided you intend to use the same route.

- In thick mist, heavy rain or in other conditions of poor visibility you need to exercise extreme caution. Many people have been killed trying to go down impossible places; it is one of those mistakes one frequently does not realise one is making until it is too late.

- Do not go down a place 'just to see if you can get down there' — you might not be able to climb back up, or you might slip. If you have to find a route down a steep slope in poor visibility, let someone belay you.

- Loose rock is probably the greatest hazard on any descent. The larger the party the greater the risk. Good discipline is absolutely essential: do not let the party get strung out and brief everyone carefully on the danger of standing about in the line of stonefall from those higher up. Anyone dislodging a rock should immediately warn those below, using a prearranged call, such as 'rock below!' If the rope is being used, take care not to dislodge stones lying on ledges; be particularly careful at the top of a rock pitch topped by a scree slope.

- As far as technique is concerned, it is best to face outwards as long as possible while descending, using downward pressure holds with the heel of the palms. The steeper the rock becomes, however, the more one should turn around to face the rock.

The classic method of abseiling

In emergencies, for example if you have to descend quickly to render assistance to an injured person, the classic method of abseiling can be used. This technique is meant for use on slopes of moderate steepness only — do not try to use it on vertical or overhanging rock. It is also a technique that must be practised before it is used in an emergency.

Whenever possible, let someone belay you on a safety rope tied around the waist (the belayer should be tied to a separate anchor point).

1. Ensure that your belay point is absolutely secure.

2. Tie a figure-of-eight knot in the middle of a doubled 9-mm rope and place it over the belay point. If the belay anchor has sharp edges, protect the rope with clothing or a rucksack to prevent it from being frayed.

3. After anchoring the rope securely, throw down the two ends of the rope so that they both reach

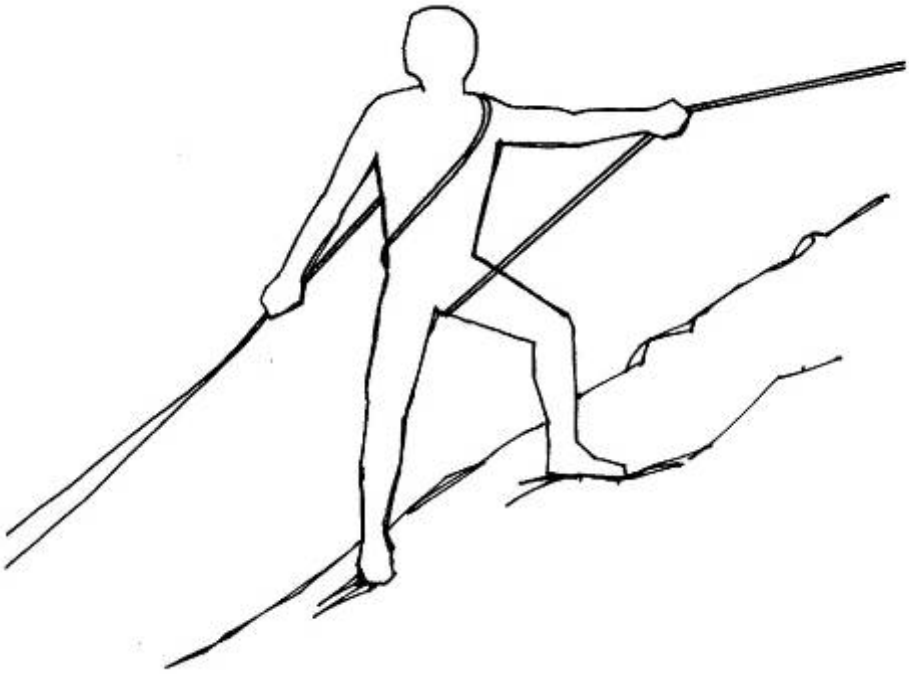
the point to which you want to descend.

4. Stand astride the rope and hold it as shown below. (If you are left handed the position of the rope and the use of the hands will be the opposite.)

5. The right hand controls the speed of descent. The more the rope is brought forward, the greater the friction on the rope and the slower the speed of descent.

6. Adopt a sitting position, with the body and legs fairly straight and your feet about 70 cm apart. Descend smoothly at a walking pace and do not jump or leap about.

If it will be necessary to retrieve the rope to make a further descent, the rope would not be tied to the belay point, but doubled and looped over it, so that by pulling on one end of the rope it can be pulled down and the abseil repeated. If necessary, the rope can be cut to form a sling for lowering, rope retrieval, etc.



Falls—a word of caution

As noted in the Chapter 8, Mountain Hazards, falls represent by far the most important cause of death in the mountains. However, a fall is not a specific mountain hazard such as snakes or flash floods, but often rather a preventable cause of accidents in which carelessness, foolhardiness, stupidity, inexperience or a combination of these factors plays a role.

Most of the guidelines provided in this chapter in fact constitute precautions aimed at preventing falls. Frequently, however, falls take place not to people who are roped up and belayed, but to inexperienced, unroped hikers who have strayed from the group or who are ignoring basic rules of mountain safety.

You should be aware of how easily a mere slip can turn into a fatal accident, and you should educate the members of your group regarding dangerous conditions that might cause someone to fall and injure himself. The following are some common, preventable causes of falls in the mountains.

Causes of falls

Slipping

Walking in the veld is an acquired skill. Beginners, used to walking on level pavements and streets, must be told that they need to concentrate on where they put their feet while walking in mountainous terrain and while boulderhopping. Even on fairly level ground a fall with a 15-kg rucksack on your back can be unpleasant, while falling with a heavy rucksack while you are boulderhopping could easily lead to a twisted ankle or a broken arm. Concentrate hard and be particularly careful on wet or loose rock.

Inadequate footwear or shoes with poor quality soles can also easily lead to a slip. Vibram-type soles provide excellent grip, even on slippery rock.

Trying to descend from a mountain in rain or mist

Unless you know where you are and the route down, you are better off seeking shelter and staying where you are until the weather clears. (This topic is also dealt with in Chapter 7, Mountain Weather, and Chapter 8, Mountain Hazards.)

Trying to find a shortcut into or out of a kloof

The golden rule is: Don't. Remember that it is easier to climb up than to climb down.

Incorrect use of the rope

Some people, possessing a rope and a false sense of security which is not based on sufficient experience of rope work and climbing skills, venture into dangerous places, unaware of the dangers they are courting.

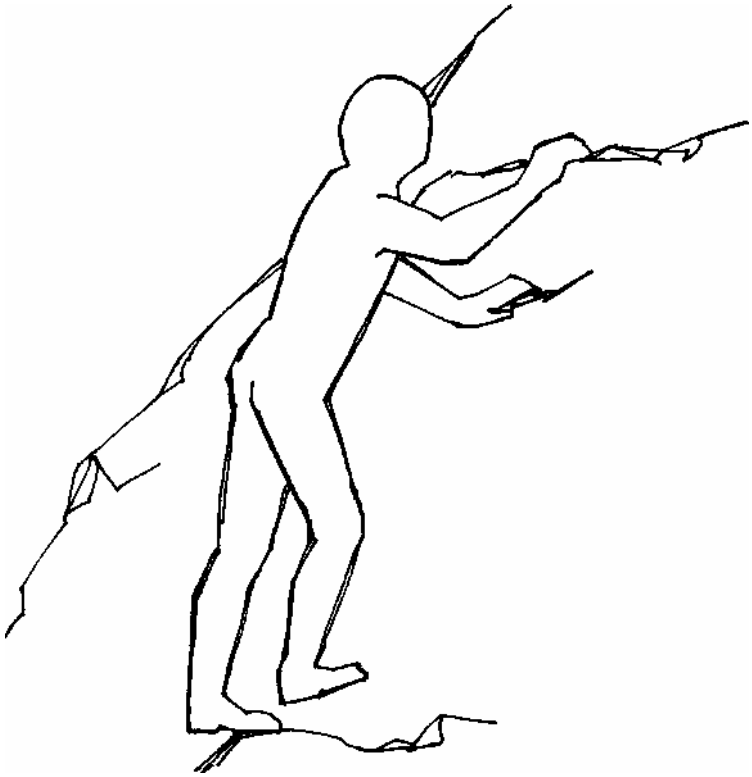
If your passion is climbing, as opposed to hiking, you must join a group of similarly inclined people until you have 'learnt the ropes'. Under no circumstances should a leader expose beginners to the possibly disastrous consequences of his own misguided enthusiasm for climbing.

Climbing technique

- Keep three points of contact with the rock — move only one hand or foot at a time.
- Concentrate on using your feet and legs and save your arms as much as possible. Instead of looking up for handholds you should look down for footholds and position your feet deliberately and precisely. Try to use your arms only for balance and the occasional power move — the rest of the time your legs should be doing almost all the work.
- Keep your body poised above, and in line, with your point of support (i.e. foothold). Stand upright, away from the rock, hands held comfortably low.
- Make a smooth transition from one point of support to the next. After each move return to a position of balance as quickly as possible, to allow your arms and hands to rest.
- Test each hold before using it and beware of loose rock.
- Before attempting a difficult sequence of moves work out the sequence of foot and handholds. Remember, it is usually very difficult, and often impossible, to reverse a hard move.
- Exercise particular care on wet rock. If all else fails, climb in stockinged feet.

A single long sling and carabiner are very useful while kloofing, for example for lowering rucksacks or for support.

Ensure that all members of the party are thoroughly familiar with the procedure to be followed and the system of calls and signals to be used.



Good climbing posture

Training notes

There is a big difference between rock scrambling and rock climbing. It should be stressed again that it is the leader's duty to avoid as far as possible terrain which will require the use of the rope.

Only parties with considerable experience of mountains and rope work can safely tackle precipitous terrain, and then only if each member of the group is secured and belayed individually and the techniques used have been practised beforehand.

In any training situation involving the use of rope work the leader must have one, and should preferably have two, competent assistents to help him. The use of the correct calls, doublechecking of knots and harnesses, and correct tying on procedures and sequences must become second nature to each person during training sessions. Everybody on a stance must be tied to a belay anchor at all times.

Any training situation on steep ground involves an element of risk to trainer and trainee alike. A leader who takes upon himself the responsibility of training people in climbing techniques and rope work should therefore be perfectly sure in his own mind that he is able to impart the correct information and to deal with any situation to which he might expose himself and his pupils.