

NOTES ON EQUIPMENT AND TECHNIQUE

[It is hoped to publish an annual feature under the above heading in which some aspects of the development of equipment or technique will be discussed.—EDITOR.]

I. THE FIRST RAPPEL: A STUDY IN VANITY

By DOUGLAS BUSK

THE appearance of a new feature in the JOURNAL—a section devoted to equipment—is welcome to keep us abreast of developments, not only in this country but elsewhere. This can be of really vital importance if a major expedition is contemplated, but much help can also be given by introducing novel, but tested, material to members who climb in the British Isles and elsewhere in Europe. We are also given cause to reflect for a moment on the origins of the devices we now use so familiarly. As an introduction it is of interest to recall what must be the first known illustration of a rappel brake.

Even a few years ago the friction of the rope on various surfaces of the clothing—sometimes also inconveniently on the underlying anatomy—was deemed sufficient. With more advanced technique braking devices have been invented and few will regret the discomforts of the past. The old abrasive practice will however be remembered by those who, because they knew no other way, had to endure it. Roping down was, for instance, much overdone at some centres, such as Chamonix, between the wars and beginners were apt to return not only externally ruffled, but intimately scorched after a long descent. We ourselves once used six (largely unnecessary) rappels on the ordinary route of the Little Dru in good conditions and one of the parties that followed us roped down no fewer than ten times, so that their bedraggled condition on returning to the hut has remained a permanent warning against over-indulgence.

In recalling the past we are reminded that the first rappel brake (cumbersome, but serving a dual purpose as an alpenstock) was used at least 170 years ago. We also note with no particular surprise that even the earliest mountaineers were not exempt from their own little conceits. It is heartwarming to feel that we still nowadays maintain ingenuity, individuality and a yearning to experiment and criticize. Mountaineering would be a very much duller sport, if we never invented new devices, if we ceased abusing the other fellow for misusing them and if we adopted a line of personal conduct so impeccably moral that the Alpine Club was cited as an example from every pulpit.

There is no doubt that an urge for controversy keeps the blood merrily coursing through the veins. Many of the older generation of climbers—and some not so old—seemed immune from frostbite, no matter what the condition of their gloves and boots, because of the rapid pulsation induced by harbouring a grievance against some other mountaineer all the way up and down again. The more outstanding exponents could no doubt have thus maintained a high temperature and excellent circulation throughout a Himalayan expedition lasting several months.

It is now, however, high time to abandon these nostalgic reflections and turn to artificial aids—a phrase happily less frowned on now than crampons were in my mountaineering youth, or, for all one knows, ropes and ice-axes in primordial times.

At the Centenary Exhibition in the Club Rooms there was displayed a print from the collection of the late Mr. R. W. Lloyd illustrating de Saussure's descent from Mont Blanc. The Club does not unfortunately possess a copy of this 'suppressed print', nor of its counterpart of the ascent. On the walls of the Committee Room, however, hang copies of the 'revised prints'. Both sets are by Chr. de Mechel, Basle, dated 1790, three years after the climb. (There are also two other prints by another artist.)

There are only small differences between the 'suppressed' and 'revised' prints of the ascent, but they are significant. In the former de Saussure is shown as distinctly corpulent with a white wig; in the latter he is represented as a fine athletic figure of a man with brown wig or hair. There are also trifling changes in the drawing of his son. (In all four prints de Saussure wears a long red coat and his son a yellow one.)

It is when we come to the prints of the descent that de Saussure's vanity is more apparent. The original print produced by the artist was immediately 'suppressed' by de Saussure because he considered it insufficiently flattering. A copy of the 'revised' version is in the Club collection.

The 'suppressed' print contains thirteen figures, the 'revised' eleven. In both de Saussure's son is the fourth figure from the left, standing on a little snow hummock and surveying the descent. In the 'revised' print the slim and youthful figure of de Saussure is shown approaching a ladder lying across a two-foot wide crevasse; to the right of him a guide stretches out a hand to assist him across (this guide is one of the two figures omitted in the 'suppressed' print).

The 'suppressed' print reveals a far less competent, an ageing and indeed a positively timorous de Saussure. The details are, however, clear and must have been obtained by the artist from eye-witnesses, so we can be confident that they represent what actually occurred—the first depiction of a braked rappel.

Above de Saussure a guide squatted on the ice, jamming a long-handled pickaxe into it, in a fashion that would have been extremely precarious, if the angle of the slope had not been so slight. To the axe was tied a rope, the lower end of which was held taut by a guide kneeling at the bottom end of the ladder which spanned the crevasse.

De Saussure sat down on the rope and held his alpenstock in both hands across his body at thigh level. The rope passed under his bottom, then over the alpenstock and down to the lower guide. By raising the alpenstock de Saussure could increase tension on the rope and thus reduce the speed of his sitting glissade; or the same result could have been attained, if the lower guide pulled harder on his end of the rope.

This was the first primitive artificial rappel brake, the modern development of which is described by Christian Bonington in the next section of this equipment report, but it is sad that no venomous comments by Bourrit have survived on the differences between the two prints—what a chance was there for his malicious pen.

II. THE MODERN RAPPEL; A STUDY IN SANITY

By C. J. S. BONINGTON

Douglas Busk in pre-war days used six (largely unnecessary) rappels on the ordinary route of the Little Dru, and returned to the Charpoua Hut in a bedraggled state as a result. In 1958 another party, after climbing the South-west pillar of the Dru, using every modern aid to help them, on the descent had just as many rappels, and experienced just as much discomfort. Although ingenious devices have been invented by Continental equipment manufacturers and enthusiastic amateurs, the majority of climbers seem content to use the old methods. There is a tendency amongst all climbers to concentrate on the ascent, and leave the return to chance.

In discussing the rappel in some detail, I cannot help feeling afraid of insulting the knowledge of the reader. However, having in mind the number of rappel accidents to experienced climbers, I feel that the subject deserves a thorough study. Personally, I dread rappelling. While actually climbing, one has control of one's fate, from move to move, with always three points of contact on the rock. Each hold can be tested. The rope, if the pitch is at all difficult, will run through several pitons or runners. When rappelling, however, the entire weight of the body is dependent on a single piton or sling over a rocky projection somewhere above. Once embarked, there is no means of checking its security. One feels unpleasantly defenceless.

The peace of mind and safety of the party can be greatly increased by

the use of a safety rope. A party undertaking a hard rock climb needs a sack-hauling rope anyway, which can also be used on the descent to safeguard the climbers. Most British climbers, undertaking hard routes use 300 ft. of three-quarter-weight nylon. On the way up it is doubled so that it can be used on artificial pitches, and on the descent, it gives a 150-ft. rappel, enough for most occasions. There is a certain amount of controversy whether two single 150-ft. ropes should be used, or just the single 300-ft. rope. Two single ropes are easier to handle and to unravel if they get into a tangle. Also, on easy ground, one rope can be coiled and carried out of the way in the sack. There is, however, a slight danger of the rope jamming in a crack or behind a flake, when the rope is pulled down. The knot, joining the ropes, is important. I know of at least one fatal accident when the knot, a double sheet-bend, came loose. Two sound knots are the fisherman's and the double over-hand knot.

The search for a safe anchor for the doubled ropes can often be difficult, and failure to find one is the cause of most rappel accidents. A good solid block of rock is undoubtedly the most satisfactory. If a piton is used, it pays to observe carefully the line of pull of the rope when selecting a crack. It is surprising how many people are prepared to use the mass of rotting slings found on popular descents. Another short cut to eternity can be made by placing a line sling over a sharp flake. This happened on the descent from the South-west pillar of the Dru, when the sling was cut through, and one of the party, without a safety rope, landed in a pile of soft snow 30 ft. below. A few blows with a piton hammer, on the edge of the block, would have blunted the sharp edge.

It is sometimes necessary to rappel from a doubtful piton or block. With care, very little strain need be placed on the anchor, if every foothold on the way down is used, and the rope is only used to keep in balance. Even when abseiling from an apparently sound piton or block, it is wiser to go down cautiously. The uneven pull on the anchor, caused by airy leaps, imposes a tremendous strain, and can easily end with a long plunge to the *rimaye* below. So many things can happen. The piton can be worked loose, or the sling sawn through on a rough edge. In one accident the metal ring on a peg opened out.

While dropping the doubled rope, and during the actual rappel, it pays to think the whole time of how one is eventually going to pull them down. There are few things more unpleasant than climbing back to rescue a jammed rope. I shall never forget an incident on the Aiguille de Lépiney, when Hamish MacInnes and I were retreating after an abortive attempt to climb the South-east Eperon. We had started to rappel down a rock water-swept couloir. After a couple of rope lengths, we found ourselves hanging on a piton, sharing the same foothold, with

the icy water pounding our heads. The rope was firmly jammed. I spent an hour in this position, while Hamish tried to climb to one side to get a better pull. Quick oblivion seemed the only release as I submitted to this water torture. Finally, I ended up by prussiking up the rope for a hundred feet to free it. Since that time I have always taken great pains to ensure that the two strands have not become entwined in each other or snagged.

Another important, but oft ignored, precaution is to ensure that there is a ledge to land on at the end of a rappel. Two climbers, who can remain nameless, were forced to retreat by bad weather on the Comici route, on the North face of the Cima Grande. The route up this vertical, often overhanging, face trends diagonally from right to left, thus making retreat awkward. X started down on his rappel, and soon found himself swinging free from the rock. Hopefully, he continued down to the end of the rope, where he was still several feet clear from the face. In his efforts to swing back on to some holds, he slipped upside down, and was unable to pull himself back. The position was now desperate. His companion now showed considerable courage. Abandoning the comparative safety of his stance, he also trusted his weight to the rappel piton, and prussiked all the way down to X. He pulled him upright, gave him some slings, and they both prussiked back up. They eventually managed to get back to ground level, much shaken by their experience.

The diagonal rappel, at the best of times, is a nerve-racking business. It is necessary to do this on several routes in Chamonix, where the route comes to a dead-end, and there is a line to one side across a hold-less slab or wall. It is then necessary to rappel across the face, as close to the horizontal as the friction of one's boots will allow. If there is a safety rope, it is possible to get some protection by attaching a small sling by a prussik knot to the doubled rope, and to run this along, with the hand. If one slips or wants to use both hands on the rock, the knot will hold tight.

Everything I have described so far, has been in use for a good many years and cannot really be improved upon. Sliding down the rope, simply passed between the legs and over the shoulder, can be a painful business, as we all know to our cost. In this direction, therefore, a great deal of ingenuity has been directed. Not only is the classic rappel uncomfortable if the rope is at all wet, it can be extremely difficult to make any downward progress at all. This must have been particularly so in the day of hemp ropes. The addition of a figure-of-eight sling through the legs to act as a cradle, with the doubled rope going through a karabiner, attached to it, and over the shoulder, reduces the friction, allowing easy progress down the rope. It is advisable to wear plenty of layers of clothing across the shoulders, and a pair of gloves. This

method is simple and perfectly adequate for almost all descents, except when a series of long, partly free, rappels are contemplated. When S. Clark and M. Gravina descended the North ridge of the Aiguille Noire de Peuterey, the former using the above method, burnt his hands slightly in spite of thick gloves, while the latter, using a *descendeur*, experienced no discomfort.

A more elaborate harness can easily be made by slipping the figure-of-eight sling into the waist loop. This prevents the sling dropping around one's legs, between rappels, and can be useful on artificial pitches in the ascent, taking the strain of the rope from around the waist. An elaboration of this system is recommended by K. Tarbuck. This requires two karabiners and three rope parts:

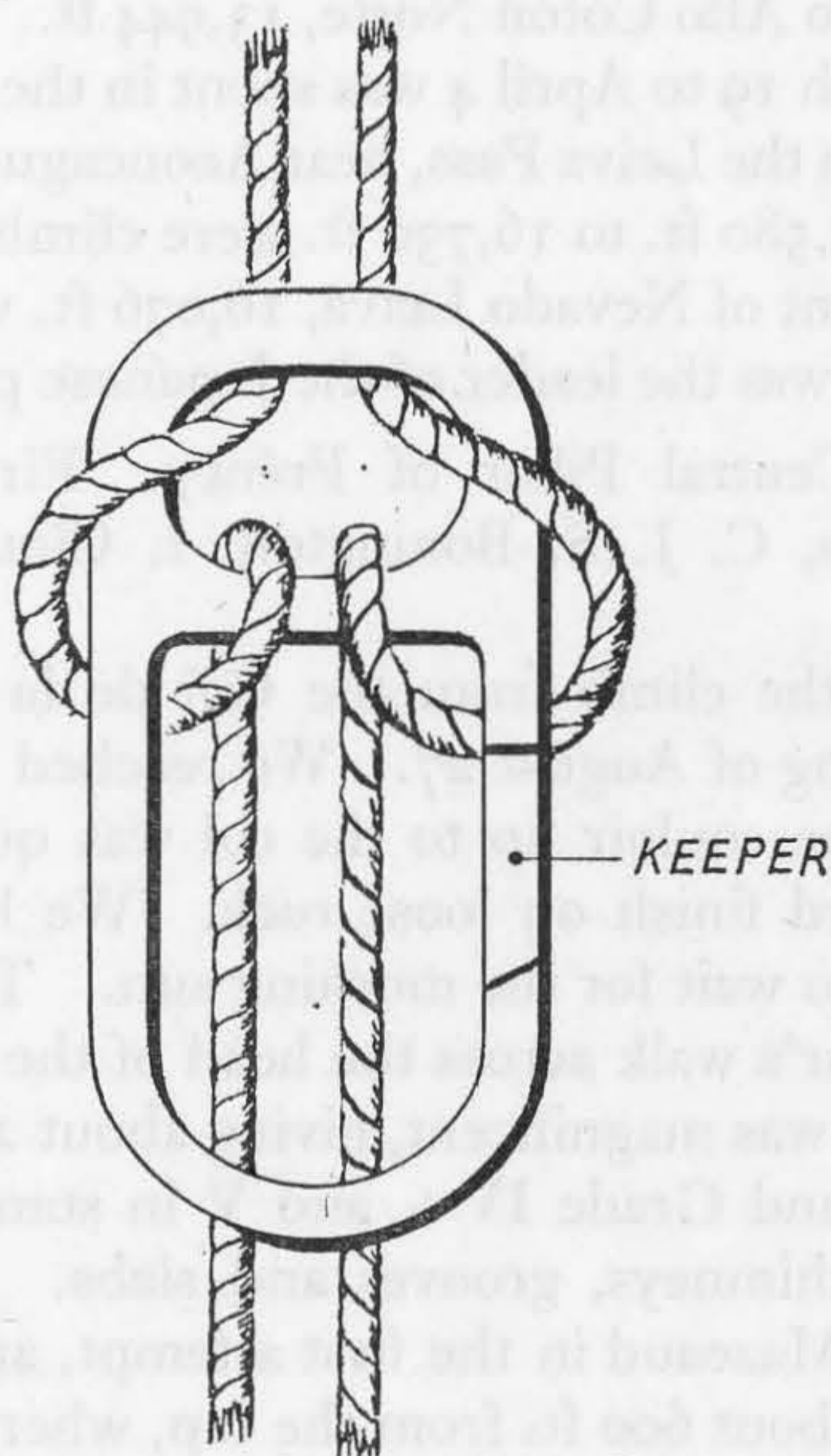
1. A multiple waistband made from 20 ft. of best quality Italian hemp cordage $\frac{11}{16}$ inch circumference, or thereabouts.
2. A doubled thigh loop made from 5 ft. 6 in. of nylon medium rope.
3. A single shoulder sling also made from 5 ft. 6 in. of nylon medium rope.

The waist loop is wrapped several times round the body and tied by a reef knot. The karabiner, when climbing, is clipped into the waist loop so that it can run freely round the body. The thigh loop, joined with a fisherman's knot, is doubled through the other karabiner and is drawn up the left leg as far as possible. The shoulder sling, similarly knotted, is slung diagonally across the body over the left shoulder and under the right arm, and is clipped into the karabiner holding the thigh loop, under the waist sling. When rappelling, the two karabiners should be clipped into each other. If the harness is fitted well, it is possible to climb in it without inconvenience. It gives plenty of support and freedom of movement. In the event of a fall into a crevasse or over an overhang, it is possible to rest in it without undue discomfort.

To avoid taking the doubled rope over the shoulder and the ensuing discomfort, several devices have been invented to increase the friction on the rappel rope. The simplest method is to double the rope round the karabiner several times. This is definitely not recommended. It imposes a damaging strain on the rope. Another method is to interlock two karabiners and wind the rope through these. This seems unpleasantly complicated however. A mistake when tired or cold could easily cause an uncontrolled descent. A karabiner, with a bar across it, is made in Germany and Austria, which can be used for rappelling. The most elaborate design is the *descendeur*, manufactured by Pierre Allain. This resembles a short trident, with one of the outer prongs, bent inwards. There is a hole on the end of the handle to clip into one's harness. The rope, ideally three-quarter weight, is wound round

the prongs, and gives a steady, easy run down. If the climber is hit unconscious by a stone on the way down, he will still maintain a controlled descent to the end of the rope.

K. Tarbuck has also invented a special karabiner which can be used both for rappelling and for belaying. It is not available for sale, but seems quite a simple and effective method. It has two separate compartments. The doubled rope is folded and pushed through the top compartment, giving two protruding loops. These are clipped into the lower compartment by the keeper, then divided one to each limb of the karabiner (see sketch). The bottom compartment is then clipped into the karabiner holding the harness. Both the *descendeur* and Tarbuck's method avoid the danger of catching one's anorak in the rope as it goes through the karabiner. This can be extremely unpleasant, jamming the rope completely.



I have never used any of these complicated devices. A karabiner and sling are simple and foolproof to use, avoiding the danger of making mistakes owing to extreme fatigue or cold fingers. The rope need simply be clipped into the karabiner and taken over the shoulder. This method might burn one's hands and shoulders slightly, but this is a small price to pay for a safe descent. After the elation and excitement of a climb, the descent is an unfortunate, and somewhat depressing necessity. It is worth abandoning one's vanity to edge cautiously and gracelessly down the doubled rope. Many an airy leap has ended at the bottom of the face, some hundreds of feet below.