

steady us or the rocks to cling to, although these had mostly been very rotten, it must be admitted. But now we were advancing on the uppermost crest of our mountain, a crest sharp as a knife-edge and offering no support to our eyes but the slim undulating line running almost evenly towards the summit and the few yards of glittering snow on each side, and then nothing more between us and the crevassed Eismeer on one side and the green pastures of the Scheidegg on the other ! I could not help leading myself up and along this lofty path, just for pleasure's sake, in spite of the remonstrances of my companions. But while we were slowly approaching the summit clouds came up and we could get only occasional glimpses of the fine view which the Eiger affords on a clear day towards the Schreckhorn, Fieschergrat, Mönch, and Jungfrau.

Presently we descended on the S. side for a few steps on to a ledge of rocks which brought us in a few minutes to the actual top of the Eiger, at 12.50 P.M.

The rest is soon told : We spent nearly 2 hours on the top waiting for the clouds to lift. But when these showed no disposition to do so, we descended towards the Eigergletscher. The snow arête just beneath the top was quite icy (as was to be expected so late in the season). Soon after we had safely reached the rocks, the fog crowded in on us, it became quite dark, and progress was, of course, very slow for a while. Fortunately it cleared up again, and from then on it was all plain sailing. At nightfall we arrived at the inn at Eigergletscher, where we met Fritz Amatter. He seemed to be very pleased when he learnt whence we had come and that we thought 'Mittellegi' to be one of the finest climbs of the Oberland.

[We must express our grateful thanks to Dr. Lauper for this most interesting paper and account.—*Editor, 'A.J.'*]

TECHNICALITIES.

By W. N. LING.

(Read before the Alpine Club, May 7, 1929.)

I HAD barely returned to my northern retreat after you paid me the honour of electing me Vice-President in December, when I was pursued by a peremptory demand from the

Honorary Secretary that I should read a paper to the Club on 'Technicalities.'

Any of you who have had anything to do with the Honorary Secretary will know that it is quite useless to argue with him, and it was in vain that I pointed out that everything which could be said had already been said most admirably by our President in 'Mountaineering' and by Harold Raeburn and Geoffrey Young in their standard books 'Mountaineering Art' and 'Mountain Craft.' What I can tell you now are only my own opinions gleaned in thirty years' experience of mountains.

Let us begin with equipment, feet first. Every man has his own views about BOOTS and NAILS. I have found a narrow-welted boot with fairly light uppers, nailed with ordinary clinkers and good hobnails, renewed sufficiently often to keep them sharp, to be the most satisfactory for general use.

For a preponderance of glacier work possibly Tricouni nails are better. I have noticed that guides often have Tricounis in the heels and clinkers for the soles. For severe ice-climbs such as have been described to us lately by Smythe and Graham Brown, and by Porter in New Zealand, Eckenstein crampons are essential and for a party climbing from a centre they are a useful adjunct, but for ordinary work across country where weight has to be considered by an amateur party, I have found Mummery spikes for the heels and a couple of ice-nails for the soles sufficient in most cases.

In certain conditions of the snow, where balling occurs, crampons can be a danger and sometimes parties are apt to rely on them where steps should be cut. The accident on the Paradiso when four climbers were lost was attributed to this cause, and in spite of what has been said by authorities on crampons I am of opinion that a slip would be more easily checked when standing in an ice step than when holding to the slope by the points of the crampons.

Care should be taken that the bindings are not too tight, as this leads to frostbite. I had an experience of this in the Caucasus, fortunately without serious results.

As regards CLOTHING, Everest cloth,¹ Bedford cord or similar smooth-faced closely woven cloth is best.

Knickerbockers, cut fairly narrow at the knee, with a strap and buckle are the most suitable. The coat should be cut so

¹ For the *Alps*, when little underclothing is necessary, we venture to suggest that a thicker and more durable variety of this cloth might with advantage be manufactured.—*Editor.*

that the arms can be stretched easily upwards and made to button up close to the neck. The pockets should not project as the corners are apt to be rubbed off when climbing rocks.

I wear a waistcoat with six pockets for carrying goggles (top pocket), flask, aneroid, compass, watch, knife, Sechehaye for the face, etc., where they are immediately available, and an inside pocket for carrying money.

A wide-brimmed single Terai hat, secured at the back by a hunting cord, protects the eyes and the back of the neck from the sun's rays. Helmet, muffler, two Shetland sweaters, two pairs of Shetland socks, in case of an involuntary bivouac, will be found useful.

One sweater should be put on next the skin under the shirt, and with two pairs of Shetland socks and the feet in the rucksack, as comfortable a night as can be expected will be spent. Long woollen gloves of hard wool coming well up the arm, with a piece of felt sewn in the back of the hand; Jaeger, or the gloves used by bottle-washers, are most suitable, and for rock climbing leather gloves protect the hands from cuts, although the fingers soon get worn out. They can, of course, only be used when the rocks are dry.

A thin sock under the stocking prevents rubbing, and an ankle puttee keeps out the snow. The full-length puttee is apt to be too tight or too loose, and I have found the ankle puttee quite sufficient. A hook sewn on the puttee to fix on the lace of the boot prevents the puttee sliding up in crusty snow.²

For RUCKSACKS I have a bag made of Burberry or similar waterproof with eyelet holes and fit it up myself with straps, a pair of braces, avoiding any metal rings or any unnecessary weight. Inside this I use a bag of jaconet or light waterproof to keep special articles dry.

Some climbers speak well of the Bergan sacks with frame, holding that the extra weight is compensated for by the increased comfort. I have not tried them; perhaps some of those who have will give their views.³

My friend Unna, to whom weight is no object, carries an enormous sack with a frame and when it is full and with his boots tied on the top, for he prefers to walk up to a hut in tennis shoes, it presents a formidable appearance; so much so

² By far the best puttees are those supplied to the Everest expeditions as ordered by General Bruce. They are made in Nepal, are of full-length and can be worn with or without a 'twist.'—*Editor*.

³ Useless in a chimney or on difficult rocks.—*Editor*.

that it prompted a foreign climber last summer to inquire 'Have you not a donkey?' He was rather taken aback when I invited him to accompany the party in that capacity.

For a guideless party, who have to do their own step-cutting, a Swiss guide's ICE AXE is best. For a *beginner*, with guides, the guide's axe may be too short and cause him to lean in too much to the slope. The leather band which is sometimes nailed on the axe to prevent the hand slipping down the shaft should not be used. It weakens the axe, as was proved in the accident on the Aiguille Verte last year, where the axe used for a hitch was found to have snapped at the band; the wood was weakened by the nails and the damp under the band, thus causing the wood to perish. It also makes probing in snow and withdrawing the axe more difficult. When putting the axe away at the end of the season, it is well to rub the shaft with linseed oil and the metal with vaseline.

AXE-SLINGS are rather troublesome, and if left on the axe are apt to get cut through when cutting steps. They are sometimes necessary on rocks, but even then can often be dispensed with if care is taken in handling the axe, or if the latter is put through the rope round the waist.⁴

As regards ROPE, Beale's rope and Alpine 'line' cannot be beaten.⁵ It should always be examined before use for cuts,

⁴ While agreeing with Mr. Ling, we should like to add that the 'Wilson' sling, invented by the President, is the best we have seen. It can be slipped on or off the axe in a moment.

If a *short* axe be used and strong *leather* straps on the rucksack, loops can be made, one on each side, to fit into the *front* straps of the latter, secured by a brass rivet. Into the loop the axe is then passed, the head coming up near the armpit and the spike being carried well clear of the ground. Some care and practice is needed at first. Many Oberland guides use these loops.

No description need be given here of the 'Fynn' sling invented by the late Mr. V. A. Fynn and used largely by the late Captain Farrar. Although effective for its primary purpose—cutting steps down hill with no risk of letting go of the axe—it proved useless in bad weather owing to ice forming on the shaft and was a positive danger in probing. This sling will be noticed in the portrait of Mr. Fynn in the present number.—*Editor*.

⁵ The 'Frost' Alpine 'line,' as supplied to the Everest expeditions, proved invaluable. One such was used in the Alps, unknown to its owner, in hauling up a motor car fallen some 50 ft. into a ravine. Although twenty men were employed in hauling up the car, the rope refused to break, and the owner continued, innocently, to use the same rope for the remainder of the season!—*Editor*.

and care should be taken that it is not packed or put away damp. I remember a case in Scotland when a rope had been packed immediately after use and the baggage went astray for a week. On being tested it at once broke in pieces. It is better to have too much rope than too little.

Of the making of knots there is no end and an exhaustive treatise on this subject has appeared in the last two numbers of the JOURNAL; many of the knots are most useful and ingenious and I am told can be practised with a piece of string. In practice, the bowline, the middleman noose, and the knot joining two ropes together will be found all that is necessary.

It is essential that every climber should be able to make his own knots, as it may happen that, if more rope is required, he may have to unrope in an awkward position and tie on again when his leader has reached safety. For sending up sacks a loop of the rope can be knotted through the ring at the top. For axes, a clove hitch under the head and another near the bottom are used. There is an excellent illustration of this in the President's book.

The question of FOOD and COOKING has been much simplified by the improvement in the aluminium vessels designed for the purpose and by the discovery of Meta; and every guideless party should be provided with the means of making hot soup or tea in case of a bivouac, or of any of the party becoming incapacitated through accident or fatigue. It is surprising how a tired party will recover its energy and morale after a seasonable halt and hot drink, especially tea. Sugar is a necessity and in the form of jam will often help the swallowing of the somewhat unpalatable bread which is often all that can be got in out-of-the-way places. Rusks are good but bulky and brittle. Eggs wrapped in paper can be carried in the cooker.

For a party which may have to BIVOAC, and this is always a possibility for a guideless party, especially on an unknown mountain, eiderdown quilts will be found very comforting. They are bulky, but light, and can be strapped on the top of the rucksack. I remember sleeping out between 13,000 and 14,000 ft. in an attempt on Ushba with one such quilt for two of us and we passed a not uncomfortable night.⁶

As regards LANTERNS, the old-fashioned 'Excelsior' folding lantern is still the best. A smaller pattern is also made, but this gets too hot and melts the candle. Electric torches are

⁶ There is also the now well-known Zdarsky tent-sack, *A.J.* 38, 146-7.

heavy and *each* member of the party requires one for himself, whereas one of the folding lanterns suffices for a party of three.

ALCOHOL should not be taken on a mountain, though a small flask of brandy should be carried for emergencies. I remember a very cold night out when we had to stand on a ledge for nine hours in a storm, with chattering teeth and shivering bodies, when it was a great temptation to use the flask, but we resisted until it was time to move on, when we had a small sip each to start the engine. So much for equipment.

As for the actual CLIMBING itself: like everything else worth while it has to have a beginning, and two or three seasons at least, behind good guides, observing their methods and actions in dealing with ice and rock conditions, are necessary. Men vary much in natural aptitude and balance as well as in their physical characteristics of length and breadth, but by observation they learn how to use their bodies to the best advantage. A man who is strong in the arms and hands is apt to jump at his holds, but he must remember that they may come away with him; the slow upward drag, not leaving one hold till he is sure that the other is safe, is the correct method. The fly-catcher is not a safe climber, and he must remember that the arms give out before the legs, which are the progressive members. Strict attention must be paid to the rope, to see that there is no slack which may catch, or dislodge loose stones to the danger of the rest of the party.

The rope should be kept taut but not jerked or hauled. There is nothing more annoying or dangerous than a jerk when the next man is descending a difficult step or about to cross a crevasse. One should remember that one has just descended or crossed it oneself, and not run on until the other man is down. It is better to put on the rope too soon rather than too late, and as soon as one is no longer comfortable, the rope should be called for; false pride is out of place here.

These, of course, are commonplace to the experienced climber, but are worthy of the attention of the beginner.

A great deal of the technique of rock-climbing can be learnt at home, in Wales, in the Lake District and in the Highlands, and snowcraft also, more particularly in the Highlands in the early spring months. Ben Nevis, in March or April, in wind and cold, can be as severe a test as is generally found in the Alps, and the gullies are not innocent of the danger of avalanches, as I know from personal experience, where with two members of this Club I was carried down 600 ft. and only stopped just in time before a drop of 200 ft. sheer. The possibility had been

present in my mind, and I had been testing the snow and misjudged it safe.

This training is all to the good, but the beginner has no opportunity of learning about glaciers and ice and snow conditions as they obtain in the Alps, and this is why I am an advocate for two or three seasons with guides, and another two or three with experienced amateurs, before undertaking the leadership of a party. It is well to have some training walks and easy expeditions before tackling a really difficult climb, especially if one leads a sedentary life. The improvement in balance and the confidence that arises therefrom are very marked.

The number of the members of a party has always been a fruitful source of debate; the real point is the *nature* of the work to be undertaken. If it is largely glacier, three or four is a good party. For a difficult rock or ice climb I favour two. Speed is often vital and tends to safety, where a larger number would incur grave risk. An avalanche track may have to be crossed at speed, or rotten rocks climbed where the climbers must keep close together.

I have climbed a great deal in a party of two, and if proper precautions of a doubled rope, or a spare rope carried by the last man, with an organized programme of procedure, in case of a fall into a crevasse, are taken, even glacier work is comparatively safe. The only time I remember having a man in a schrund was when we were a party of three descending the Schreckhorn.

A short time ago I had occasion to look up some point in the first volume of the Scottish Mountaineering Club Journal and the Editor heads his preface in capital letters :

‘LET THY WORDS BE FEW.’

It is an admirable motto, and as the intention of the Honorary Secretary in imposing on me the duty of writing, and of inflicting on you the penalty of hearing this paper, was to initiate a discussion on what he calls ‘Technicalities,’ I think I may now be permitted to draw these random and somewhat egotistical remarks to a conclusion and allow you to hear the views of the many experienced and distinguished mountaineers who are present to-night.