ment entirely, the writer would say that Alpine average weather, from the point of view of the High Alps, is at least 25 per cent. bad. Probably this is an advantage. It introduces a much greater element of 'sport' into the matter—else the collection of the Four-Thousanders might seem to be too much of a business, and too little of a sport. There are indeed two conflicting sides to this game—the sporting side given to it by the great element of chance, and the quite proper desire to exercise even a sport in an efficient way, and not merely muddle through.

A word of explanation is perhaps desirable in regard to any quick 'times' quoted. Deliberate racing on the mountains would be rightly condemned as unjustifiable. Any fast times mentioned should be taken rather as showing excellent conditions and that the members of the party were fit and eager. Ascents were commonly a mixture of rapid movement with prolonged loitering at fine view-points. Thus we often ascended or descended rapidly, but took quite a long time over the whole expedition.

The Spare Rope in Theory and Practice.

By E. R. BLANCHET.

(Translated.)

'MANY British climbers and sailors surely have had a much wider experience in this matter than the writer.'

I should like to borrow for my own, this sentence taken from Monsieur Paul Montandon's paper entitled 'Abseilen,' published in 'A.J.' **33,** 209–14. My principal object in the present article is not a search for novelty, but rather a plain effort to *assemble* observations or isolated remarks already published in various accounts. If one or more of these have not already been formulated, the paper will thus, I trust, find justification. Although I do not wish to borrow from M. Montandon's article, I must nevertheless quote the following conclusions :—

The best method of descending on a doubled rope is that which :—

(1) Requires a minimum of exertion.
(2) Gives the maximum of security.

(3) Allows the feet to hang free.
(4) Allows the climber to make prolonged stops while descending and to hold on for a moment with one hand only on the rope.
(5) Does not wear out the rope.

The only method fulfilling these conditions is that of *sitting* on the rope, the latter thus exerting friction on at least two portions of the human frame. There are a number of these methods [1]; from all of these I will quote that of Herr Bernet, mentioned by M. Montandon, and another method which I have seen practised often at Chamonix [2]:—

Take the rope (which, from above, falls in front of you) and pass it under the uppermost part of the left thigh in such a way as to be sitting on it. Now raise the rope diagonally in front of the body across to the right shoulder, then pass it behind the neck; bring it back in front over the left shoulder, finally letting it fall straight down in front of you. To avoid rubbing your neck, raise the coat-collar. [Fig. 1.]

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[1] See *Alpinisme*, by M. Casella (Paris, Pierre Lafitte).

[2] If the Chamonix men are in general superior to the Swiss in the use of the spare rope, this is explained by the characteristics of their peaks. Every guide intending to climb in the Mont Blanc Aiguilles should know how to descend *en rappel*, not as a weight controlled by mere physical force, but as a graceful climber, expert through practice, in an effective method. Search-parties, attempts at getting a man out of a crevasse, enforced retreats on new expeditions, would all benefit greatly by practice. In Switzerland and not only in that country, the examination for a guide's certificate does not include knowledge of this branch. The following are a few of the lengths of *rappels* required:—

Drus: The 'Z,' 15 m.

Requin: 'Cheminée Fontaine,' 17 m. and 20 m. (*Vallot*), but 17 m. and 17 m., according to Armand Charlet.

Aiguille Médiane du Diable: 30 m.

Grépon 'Cheminée Knubel': 15 m.; 'Grand Diable,' 15 m.

Sixte Massif: Corne Sud du Chamois de Tenneverge: 35 m.

Dolomites: Campanile di Val Montanaia: 40 m., of which according to 'Tita' Piaz 36 m. overhang, but only the lower two-thirds according to Signor Ugo de Amicis.

Descent from the Winklerthurm on to the Forcella Winkler—when traversing the six teeth: 40 m., all overhanging.

Descent of the Guglia di Brenta on to the *Albergo del Sole*—the terrace preceding the last step in the ascent: 37 m., all overhanging.

I. Braking on the Rope.

When descending *en rappel*, there is no need to employ great strength of fingers. But the grip on the rope must increase

Fig. 1.

the farther you descend. The brake, very powerful at first, acts less and less as you descend. If M. Montandon rightly warns us against the ' nuisance ' of too great friction, I would point out the *danger* of a brake acting less and less and finally failing altogether. We must remember also that many people's hands are weak and that a beginner, naturally impressed at his position, makes at the commencement of the

rappel, a much exaggerated muscular effort; he is quickly tired and probably gets cramp just at the moment when an effort is really needed. People, like Signor Ugo de Amicis, sliding down a rope, with the minimum of friction, over a precipice of 40 m., of which two-thirds are overhanging, are experts whom it is dangerous to copy, unless you are of equal muscular strength! In conclusion: the climber, *last man on the rope*, is wiser to risk the *nuisance* of an over-braked descent than to expose himself to the *dangers of a diminishing friction*.[3]

II. A Remedy for Insufficient Braking.

This question is easily solved as regards everyone in the party save the last man. As regards the latter, holding the two ends of the doubled rope tightly from below is a most efficient brake. Even a slight holding of the rope is effective.

The climber, however, *without assistance*, either from above or below, has nevertheless a means of increasing friction by a method which he should have studied previously. First, he should be able to free his left hand while in full 'flight.' Then he should grip the two ends of the rope beneath him and should give an extra turn of the rope round his left thigh. [Fig. 2.]

I have succeeded in descending 8 m. on a doubled rope down a vertical step, keeping the left hand *continually* free. Moreover, it is possible to pass the rope over the small of the arm (elbow-joint).

By means of this doubly reinforced brake, one can stop and free *both hands*, the feet being at right angles against a perpendicular and smooth face. [Fig. 3.]

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[3] *N.B.*—If the brake depends partly on the number and extent of the points of friction of the rope, it depends also on the weight of this latter, that is to say, on its length and thickness. I have employed a spare rope of 82 m. and 11 mm. thick. It weighed a little more than 7 kilos. Friction was so powerful that when commencing the descent, to go down at all, I was obliged repeatedly to lift with one hand the rope off my shoulder. It was impossible to 'slide' the rope in the usual way. Practice will make perfect in this method. Nevertheless, at the end of a descent *into space* friction is barely sufficient. The earlier exertion does not tire the same muscles required later to grip more and more firmly on the rope as you gradually descend.

III. Manœuvres in Exceptional Instances.

It might happen that the climber is forced to descend *en rappel* a length of step too great for a doubled rope.

In this case, having fixed the rope, you must descend by the above methods, just the same as with a doubled rope. The

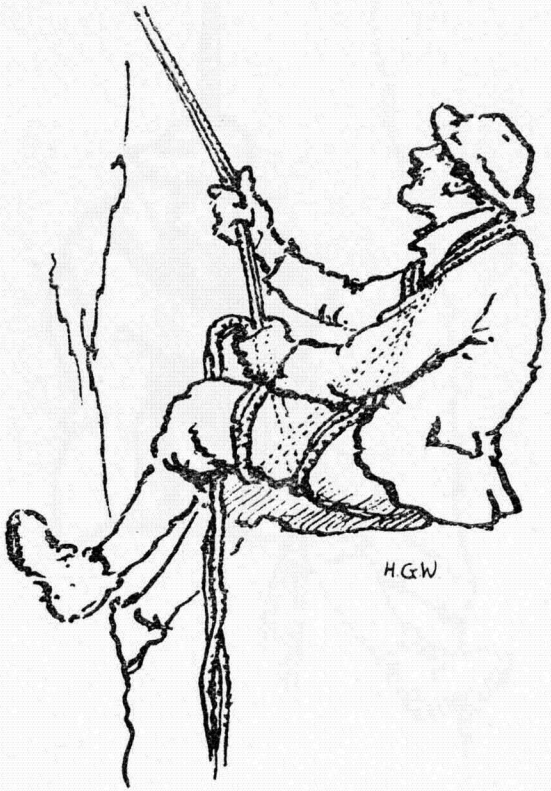

Fig. 2.

only difference is that instead of gripping, say, 22 mm. of rope, you will grip only 11. The necessity, consequently, of increasing the number of points of friction becomes obvious, as pointed out in Section II.

IV. A Warning.

It may prove dangerous for a climber *other* than the last man, about to make a *very long* descent into space, to be

roped in the ordinary way. His body *might* begin *to revolve* round and round. The ordinary or climbing-rope may frap itself round the spare rope, causing the climber to become quite stationary. Signor Ugo de Amicis [4] in his famous descent

Fig. 3.

of 40 m. on the Campanile di Val Montanaia (first third vertical, last two-thirds overhanging considerably), contrived to avoid stoppage, although roped in the ordinary way and spinning round and round.[5]

[4] See *Petits Hommes, Grandes Montagnes*, p. 170, by U. de Amicis (Dardel, Chambéry).

[5] The only means of avoiding this stoppage are *either* to unfasten the knot—hardly ever feasible—*or* to cut the ordinary climbing-rope. If a careful and watchful climber keeps cool, he should

Others, like him, have been able to avoid this peril. In such cases what particular factor occurs which did *not* occur in my case? I am speaking of a descent of 40 m., of which 29 m. were completely in space. Was it my fault in that I thought myself *obliged* to pass the climbing rope through the ring holding the spare rope, a factor obviously tending to keep both ropes close together? (See *later*.)

V. Supplementary Tools required.

It is preferable, often obligatory, to fasten a *rope-ring* round the hitch supporting the spare rope.[6] Shop-made rope-rings are often too small. It is better to carry some rope lengths and make the rings oneself on the spot. M. Montandon has described and illustrated (by Herr Fahrni) a method of drawing down the rope-ring after use ('A.J.' **33**, 212, 214).

A hammer and drill are useful to cut a groove round the boss used as a hitch for the rope-ring. Care should be taken that the ring remains in the said groove. Sometimes it is useful to smooth out any projection likely to wear out or even cut the ring.

Iron or even wooden pitons can usefully replace the rope-ring, but this depends on the nature of the rocks. The former should have a metal ring. Wooden wedges fixed against the iron piton render the latter immoveable. Sometimes the drill must be used to make a hole for the piton. When descending over a bergschrund, an ice axe need not be sacrificed provided a wooden piton is available.[7]

VI. Necessary Precautions.

Loose rocks should be cleared away from the neighbourhood of all hitches. Chimneys should also be swept of any tottering boulders, as the rope is liable to disturb these even when the climber has not touched them. To avoid superfluous risk I always stuff my hat with handkerchiefs.[8]

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doubtless be able to avoid this frapping, but loss of power and time is inevitable.

[6] *N.B.*—Knobs of rock wear out the rope and prevent it running freely when trying to pull it down after you.

[7] An *aluminium* piton and ring is used by some German and Austrian mountaineers.—*Editor.*

[8] I have seen a well-known A.C. carrying, *on occasion*, the unexpended portion of the day's rations, his spare stockings and Shetland jersey, etc., in his hat!—*Editor.*

As regards the actual 'placing' of the spare rope, the following points should be observed :—

(1) Straighten out the rope strands.
(2) Pull down the rope on the side where the knot is made.[9]
(3) Do not let go suddenly of the spare rope on landing, a rope stretched by a very long *rappel* is liable to spring into lumps and knots likely to hitch up.
(4) Be careful of the little disc fixed, in Switzerland, on the 'official' guides' ropes; inspected yearly in Valais.[10]
(5) If, in spite of every precaution, the rope jams, change your position by getting farther away and, if possible, climbing up a bit.

In the case of very long *rappels* and especially when a serious overhang may prevent climbers from seeing or hearing each other, it will be wiser to have some previously arranged short and sharp signals for the necessary manœuvres.

VII. Is it possible to Climb up a Vertical or Overhanging and Holdless Step by means of the Spare Rope ?

Without wishing to quote a gymnast's feats—and these, moreover, quickly attain their limit of height—I will mention the note published in *La Montagne*, 1928, p. 322, by Monsieur E. Gérard. M. Maurice Paillon, Editor of *La Montagne*, has kindly allowed me to reproduce it in the Alpine Journal. I have no experience of this method, but I should not be up to date were I to neglect mentioning it :—

'It is perfectly simple to climb up a smooth rope of 10 mm. diameter. Have 3 rope-rings from 70–80 centimetres long, of plaited cord (of 5 or 6 mm.), one in an easily accessible pocket, the others in the rucksack . . . Fix the first of these rings on the spare rope by means of the knot [Figs. 4 and 5] and place one foot in the ring, thus supporting the *entire*

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[9] For long *rappels* two ropes have sometimes to be fastened together. Be very careful when descending of the moment when you encounter this knot; it may take you by surprise and cause trouble. If the ropes be of equal length, the passing of the knot over the body occurs as you take off. But with ropes of unequal length you will have to be careful of the knot just at the worst moments.

[10] [?] We were quite unaware of the existence of this disc.—*Editor.*

weight of the body. This knot, properly fixed, gives such purchase that it cannot possibly slip.

'Now, supported not only by this ring, but also by the loop of the climbing-rope, place at your leisure the other rings, arranging them in the same way, 50 cm. to 1 m. above the first; place the unemployed foot in the middle ring and insert, through the upper ring, your head and arms.[11]

'All you have now to do is to loosen, push up and retighten in turn each ring, thus climbing up without any trouble at all.'

Of all my descents *en rappel*, that of the E. face of Pointe Beaumont[12] remains in my recollection as the most instructive.

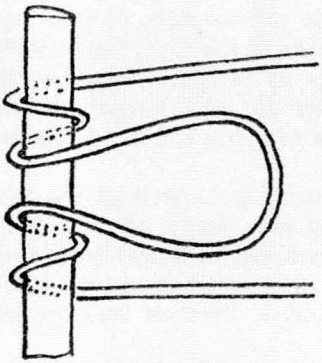

FIG. 4.

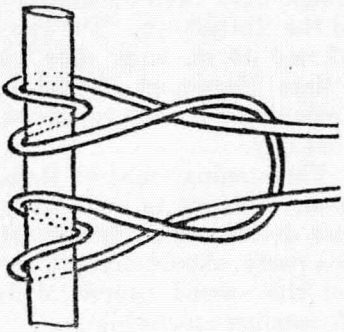

FIG. 5.

I am giving a full account in support of several of the theories enunciated above:—

Our party was composed of Baroness Ch. de t' Serclaes and the writer with the guide Kaspar Mooser of Taesch. The day, October 6, 1928, was gloomy and inclined to rain. However, we chanced the weather and the expedition was successful.

The E. face is some 200 m. high, the lower three-fifths of which is steep and the upper two-fifths perpendicular or overhanging. The face is dominated by a secondary top close to the summit and hardly lower than the latter.

Among the boulders composing the secondary top—our point

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[11] This appears to be a new form of capital punishment!—*Editor.*

[12] ***A.J.*** **40,** 391–2. *Pointe Beaumont* above Finhaut, to the E. of the Col de Fenestrale, was known as the Dent de Fenestrale till its ascent by M. Paul Beaumont. The original name, 2582 m. = 8472 ft., is found in the Siegfried map.

of descent—only one proved quite firm. We fixed a hempen ring round it through which to pass our spare rope, and were obliged to throw down a large number of loose stones. These fell silently over the vertical face and then crashed noisily on to the lower slopes, whence, becoming visible they sped like lightning or described curves on to the rock-strewn Comba Rosse, that deserted glen lying at the foot of the wall or face.

My spare rope was originally 11 mm. thick, 82 m. long, and weighed little more than 7 kilos. I had, however, allowed Mooser to cut it in two for his reconnaissance in September, with Viktor Imboden, of the N. face of the Matterhorn.[13] Its weight and especially its bulk when rolled up in the rucksack would have been dangerous on the pitiless slabs of that face of the Matterhorn. The two portions of the rope, respectively 37 and 45 m. long, were used by us as spare ropes for the Pointe Beaumont, lashed together for the longest *rappel*. Including the other ropes, we were carrying 152 m. of rope on that day.

Threatening signs of thunder and fog as well as the late hour combined to make us try and save time ; accordingly it was decided that Mooser, relying on the technical powers of the party, should descend as first man and prepare the hitch for the second *rappel*, Madame de t' Serclaes and myself descending meanwhile.

11.45. After a steep section of 6 m. Mooser disappeared from our sight, the descent for some 14 m. being perpendicular or even slightly overhanging. All this we soon discovered when it came to our turn to rejoin him at 11.55. Our landing-platform was just sufficiently large and quite convenient. The second rope-ring was already fixed round a flattish boulder, on the outer edge of the platform, in which Mooser had cut a groove. Never, at Chamonix, have I seen more careful work and never also have I seen any similar attempt in the Aiguilles to descend such a precipice. There is no risk, with Mooser, of a rope-ring slipping or being cut.[14]

We had to lean far forward to view our next platform, very

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[13] *A.J.* **40,** 404.

[14] The porter of another party, during my traverse of the Drus, was descending as last man. The spare rope slipped and the careless and hurrying Chamoniard fell. His employer and the guide held him while falling past them, a handy snow patch breaking the fall.

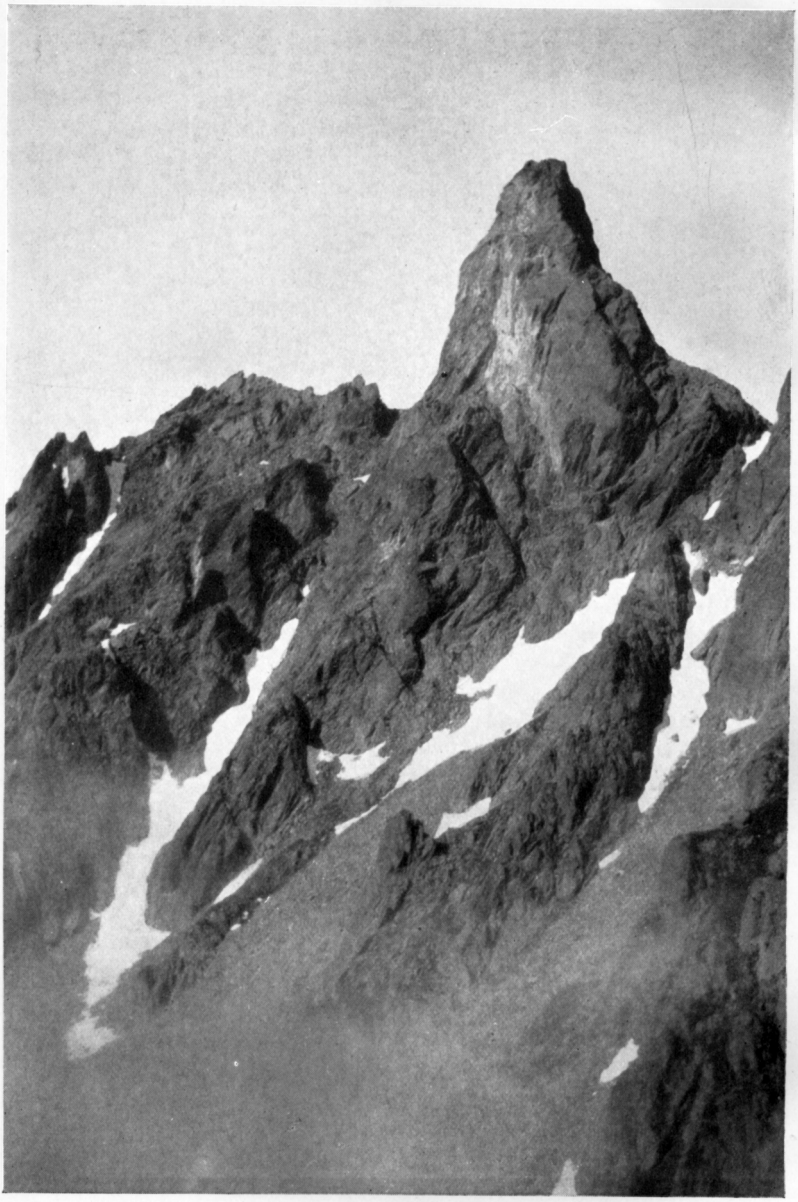

Photo. E. R. Blanchet.

POINTE BEAUMONT, E. face.
(COMBA ROSSE glen in foreground.)

unattractive it looked too, with its steeply inclined grass slopes powdered with snow. This second *rappel* measures 15 m. and is more overhanging than the first. However, our feet still touched the rock. At 12.30 we were once more united on the unpleasantly slippery grass slopes. (This is an ideal spot for a bivouac, according to Mooser, compared with the tiny foot-holds where, standing upright, with his sack on his back, he had passed 7 hours of the night with half-frozen hands in threatening weather on the N. face of the Matterhorn, with the cheerful prospect of descending, by a series of *rappels*, 400 m. of steep and ice-glazed slabs!) Held by the rope, Mooser bent over a deep gulf formed by an overhanging wall. Beyond a tiny and far-distant platform, there was apparently another overhang. But to our right, a black and very steep slab sloped down towards the S. giving out, after 6 metres, into the blue. Mooser risked the descent while I bent myself double in holding him. The prospects appeared better to him from there; at the top of a snow couloir, some 35 m. lower down, he could perceive a possible and spacious platform. Moreover, he reported that further on the wall appeared to ease off and become more broken. The slab, however, overhung like the eaves of a roof in such a way that everything between him and the platform remained hidden.

There was no hitch available for the rope. Nevertheless, about a metre above us—at the base of our second *rappel*—we disclosed an evil-looking gutter or crack. We drilled two notches in the edge of the gutter some 20 cm. apart, fixing our third rope-ring in them, strengthened by an iron piton planted in a drilled-out hole. Without our precious drill we should have spent here, undoubtedly, the rest of our lives. We knotted our 47 and 35 m. lengths together and slipped our 80 m. rope (no longer 82 m. because of the knot) through the ring. A long and very awkward business in our too tiny and uncomfortable workshop.

Mooser was obliged to make great efforts to get into a taking-off position and still greater exertions to lift, each time he wanted to descend, the heavy rope and slip it over his neck duly protected by his turned-up coat-collar.

Soon the knot causes further complications. The scratching of boot nails suddenly ceases, Mooser has passed over the eave of the roof and only the quivering rope shows henceforward that he is still descending. The overhang must be tremendous: if his feet were still touching the rock we should hear a *diminuendo* of boot scratchings. The silence is positively

startling, no answers come back to my shouts. Madame de t' Serclaes and I do not exchange a word and some seven minutes elapse. At last, far away, a voice, or rather a thin semblance of a voice, reaches us, but all too incomprehensible. Then, Mooser having no doubt changed his place, I hear clearly a 'Fürchterlich,' an astonishing expression on his lips chary of theatrical expressions, more especially in really critical situations.

Tied on to the climbing rope which, together with the spare rope, I had slipped through the ring, Madame de t' Serclaes now uses her utmost powers to start off. I pay out the rope gently, hardly holding it at all—as she had begged me. After a sudden jerk over the eave of the roof where the black slab ends the speed of the descent gradually increases. The wait appears interminable to me. Shouts in two languages, confused by the echo and absolutely incomprehensible, cause me suddenly to tighten the rope. Is Madame de t' Serclaes overcome by cramp or weakness? I keep on pulling the rope. Ought I, perhaps, to loosen it? The long following silence frightens me almost more than the shouts, but I still grip the rope with surprising ease.

At last, a whistle. My companion had warned me that she would thus announce the moment when I was to begin my own descent. I let go the climbing rope, it slips through the ring and disappears.

A moment later and after the slab, as my feet slip into the void, my arm bumps violently against the rock angle and I am launched, like a spider, completely into space. Never have I seen anything like this emptiness; the wall is far away, soon several metres distant. My companions appear like Lilliputian dots and the strands of the rope like diminutive strings. These hang straight over the abyss towards a snowy crater, the head of the precipitous couloir. I am slowly revolving, but the pace soon quickens. The distance covered by the spin becomes greater. Three times I am compelled to hold on with the left hand only, while I reraise my coat-collar and replace the rope searing my neck. I continue in great sweeps while the wall—there are 29 m. of overhang—grows nearer till at 5 m. from the landing place my feet grate uselessly against the holdless rock. The landscape ceases to revolve, Mooser from below seizes the rope and draws me beyond the crater to a platform which he himself had been forced to attain by a pendulum-like swing. This action of his reacts on me like the vigorous application of a brake and is

more of a fatigue than a help. My descent had taken 6 minutes and the hour is 13.40.

Madame de t' Serclaes had literally just avoided strangulation by the *climbing*-rope. At each swing the said rope twisted itself round the spare rope, and she saw herself soon brought to a complete full stop. When I heard her call out, my actions, owing to the said frapping motion, had ceased to have any effect on the rope : of this I had had but little doubt. The knot never tautened when I began to pull hard. Thanks to this fact, Madame de t' Serclaes contrived to undo it and also, owing to the luck of the 29 m. overhang being nearly finished, her feet could be pushed at right angles against the vertical rocks, thus relieving her when almost at the last gasp.[15]

Below us the face now appeared broken and less steep. A steep spiral rib led us out on to a boss, flanked to the left, N., by gently sloping slabs. We had here once again to use the spare rope on account of sopping snow clinging incoherently to the smooth slabs. Instead of continuing the now uninteresting descent to the barren Comba Rosse and its dreadful stones, we pulled out more to the N. along slippery rocks and snowy ledges, attaining a snow couloir down which streamed much water. Ten minutes later, having scaled the couloir, we reach well-known ground at the N. foot of Pointe Beaumont.

[Figures 1, 2, 3 were drawn, very kindly, by Mr. H. G. Willink from photographs and material supplied by M. Blanchet.]

The N.W. Face of the Škrlatica in the Julian Alps.

By STANKO TOMINSEK.

THE Triglav is king of all the adjoining mountains including the Škrlatica (*Scharlachwand* = Scarlet Crag), which, although slightly lower, is in no other respect much inferior. The Triglav arrogantly displays its superior height, while the Škrlatica conceals its beauty, surrounded as it is by an array

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[15] Armand Charlet considers the *rappel* made by him and me on the Corne Sud de Chamois de Tenneverge, 2526 m. (October 4, 1925, *A.J.* **37**, 365–6, with an illustration), as the most difficult he has made. But it bears no comparison to that of Pointe Beaumont.