

otherwise unhurt. We all refreshed ourselves with wine, and slowly and solemnly, with overflowing hearts, we retraced our steps, reached the hotel in safety, and the next morning my son tripped lightly on his way, uninjured, but not unimpressed by the danger from which he had escaped.

His own account of what befell him is, that he first fell sideways on to a ledge in the crevasse, and then, vertically, but providentially with his feet downwards, till his progress was arrested by the narrowness of the crevasse. He says he is sure he was stopped by being wedged in, because his feet were hanging loose. His arms were free. He believes that the distance he fell, when Weissenflüh dropped him, was about three or four yards, and that he fell to nearly, but not quite, the same place as that to which he fell at first, and that, in his first position, he could not have put the belt on. His fall was evidently a slide for the greater part of the distance; had it been a sheer fall it would have been impossible to escape severe injury.

I have written this account, partly from a wish to impress on glacier explorers the absolute necessity of always making use of a good rope, and partly from a strong desire to place on record a true narrative of all the circumstances. But I cannot conclude without expressing my deep sense of the kindness and skill shown by my companions on this trying occasion, and, above all, I wish to recommend the brave young Andreas Weissenflüh and his father, of Mühlestalden, in the Gadmen Thal, to the notice of all Alpine travellers as excellent guides, and noble, trustworthy men.

A NIGHT ON THE SUMMIT OF MONTE VISO.

By F. F. TUCKETT, F.R.G.S.

ON the 2nd of July, 1862, in company with my guides, Michel Auguste Croz of Chamounix and Peter Perrin of Zermatt, I left Turin for Pinerolo, proceeding the same afternoon as far as La Torre. On the following day we ascended the Val Pellice, engaging at Bobbio a good-natured, tough little fellow, Bartolommeo Peyrotte by name, as porter, for 2 francs 45 centimes and his food per diem, and reaching at 4 P.M. the summit of the Col de Seylières, where a glorious view of the Viso at once burst upon us.

We lingered there for an hour, and at 5 commenced the descent into the head of the valley of the Guil, which bears the

name of the Vallon de Viso. Intersecting the route of the Col de Traversette, we skirted the slopes on the left, so as to avoid all unnecessary descent, and then, once more mounting, gained the summit of the Col de Vallante at 6.30. The weather was exquisite; and the sun, now getting low in the western sky, sent a blaze of golden glory on the rocky mass of the Viso, which towered up close at hand in the most majestic manner. The descent on the side of the Val Vallante is rapid, but presents no difficulty. At the highest châteaux we found inhabitants, but, either naturally churlish or suspecting our appearance, they positively declined either to take us in or sell us a draught of milk. At the next lower group, which we reached about 8 o'clock, we met with the utmost kindness and civility, the *berger* and his wife welcoming us heartily, apologising for the scantiness of their means of entertainment, and begging us to avail ourselves of them, such as they were, to the utmost. The invitation was gladly accepted, a pot of milk and chocolate (the latter of course provided by us) was soon boiling merrily over the fire; and, refreshed by a hearty supper, yet sufficiently tired to make any bed welcome, we stretched ourselves upon some hay and were soon in the land of dreams.

My sleeping-bag here came into requisition for the first time, and as I shall have occasion to refer to it again, I may perhaps be permitted a short description of its construction. My friend, Mr. Galton, having kindly lent me a bag he has had constructed on the plan of those used by the French *préposés* in the Pyrenees, and described by him in the first series of 'Vacation Tourists,' my first attempt was little more than a copy of the model in question. Composed externally of macintosh, it was lined with thick homespun Welsh cloth, and on the two or three occasions when I had an opportunity of testing its capabilities in 1861, though answering the purpose of keeping out the cold, its retention of the insensible perspiration proved its weak point. To obviate this, my second attempt, whilst covered with macintosh on its under side, and on the upper surface, for a distance of about fifteen inches from the foot, consisted simply of a bag of very stout and dense scarlet blanketing (of the description known to the trade as 'swan-skin'), opening like a shirt-front to admit the body, and provided with two arm-holes for greater convenience and facility of movement. At the point where the upper surface of macintosh terminated, a sort of bib or apron of the same woollen material commenced, and could either be thrown back over the feet if not required, or drawn up to the chin and

secured by a button to each shoulder if greater warmth was desirable. A hood or *capote*, also of woollen, but uncovered with macintosh, to facilitate the escape of perspiration and confined air, and constructed after the fashion of Arctic head-gear, completed the ordinary means of protection. 'Stuffiness,' however, though a serious drawback, might be put up with in the event of a night of rain or snow in preference to a state of more or less complete saturation; and, therefore, in order to provide against such a contingency, I added a loose sheet of macintosh, with button-holes down each side, by which it could be attached to a corresponding series of buttons on the bag, and thus render the latter impervious to water. As the material is exceedingly light, I had this sheet made considerably wider than was necessary, and when not required for the bag, it proved very useful as an addition to the wraps of my guides, keeping out the wind admirably, and lessening the one great objection to the use of sleeping bags, the force of which I cannot wholly get over, viz. that, unless similar provision be made for the whole party, it seems hardly fair to expose others to the hardships which occasionally attend the practice of bivouacking. To conclude, the weight of the whole concern is about $8\frac{1}{2}$ lbs., and as it is quite capable of doing duty as a knapsack, it may for a time be made to take the place of that otherwise almost indispensable article, either for clothes or provisions. Indeed, I generally pack in it a small macintosh case, which holds a spare pair of flannel trowsers, shirt, and socks, as a change in the event of being overtaken by wet before reaching the intended *gîte*. For I need hardly say that, however well protected when once inside one's dormitory, it would be extremely unwise to risk a night, *sub Jove frigido*, in rain-soaked garments. The wet clothes, when taken off, may be stuffed into the case, which then makes a by no means contemptible pillow. Thus much premised, I will now proceed with my narrative, in the course of which I hope to be able to show that my bed fulfilled my most sanguine anticipations, and proved a most valuable ally. It was made for me by Messrs. Heyes and Co., waterproofers, of Bristol, at an expense of 1*l.* 12*s.* for the bag, 12*s.* for the sheet, and 2*s.* 6*d.* for the clothes-case; I supplying the 'swan-skin,' which cost 1*l.* 2*s.*

As I proposed, weather permitting, to spend the night on the summit of the Viso, and it was clear that we had not a long day's work before us, we were in no hurry to quit the friendly shelter of the *châlet*; but at 8.15 on the morning of the 4th, after a hearty breakfast of bread and milk, we bade adieu to our hosts, and proceeded to climb the wooded slope

immediately behind and to the E. of our quarters, which forms the southern prolongation of the Petit Viso, and the W. boundary of the Vallon delle Forciolline. After an ascent of about one hour's duration, we quitted the upper limits of the pine, and entered upon a region of grassy slopes, followed by débris, over which the remainder of our route almost uninterruptedly led. At 9.45 a short halt was called, and then, traversing a sort of shoulder or col, we found ourselves, at 10.30, on the bank of one of a chain of small lakes or tarns nestling in the bosom of the mountain, not far from the point at which the ascent to the Col delle Sagnette commences. These are formed by the melting of the snow-slopes above, and their surplus water is discharged through a rocky gorge into the Vallon delle Forciolline. The scenery is very striking, the huge and splintered crags around being reflected in the calm waters, ere they go dashing onwards to the valley below; and we lingered half an hour, under pretence of demolishing a second breakfast, in the shape of a hard-boiled egg apiece. Skirting the slopes of débris which descend from the jagged ridge on the E., traversed by the Col delle Sagnette, and avoiding the mistake of our predecessors, Messrs. Mathews and Jacomb, which led them to the summit of the Petit Viso, we reached, at 11.45, the base of the steeper portion of the mountain. As snow had now to be ascended for a considerable distance, gaiters were put on, though probably they would scarcely be needed later in the season. A steady, but leisurely progress for an hour and three-quarters, sometimes over rocks and up couloirs, varied by occasional step-cutting, brought us at 1.45 to the crest of the ridge descending from the summit in a SSE. direction towards the Col delle Sagnette.

So far all had gone smoothly, and time being less than ever an object, it was decided to halt here for dinner, rather than delay till the summit should be reached. From the position we had now attained, the eye roamed over the valleys of the Lenta and Po, and far away beyond them to the boundless expanse of the great plain of Piedmont, whilst above us the summit of the Viso towered up in rugged grandeur. The remainder of the ascent gave us little trouble, except where the rocks were covered with hard ice, rendering extra care and an occasional resort to the axe necessary. An hour and a half sufficed for the climb, and at 3.30 we stood on the summit, just $7\frac{1}{2}$ hours ($1\frac{1}{2}$ of which must be deducted for halts) after quitting the Châlets de Vallante. The ridge connecting the E. and W. peaks was, owing to the recent snow, in such a dangerous condition, and the advantage of attempting to reach the latter appeared

so questionable, that we decided to rest satisfied with having attained the point which—thanks perhaps to its snowy cap—was, at the time of our visit, decidedly the loftiest. After an unsuccessful search for the minimum thermometer attached to the cairn erected by Messrs. Mathews and Jacomb, which was in good order and remarkably solid, I proceeded to install my barometer, spread out my wet socks to dry, and examine the view, whilst the men busied themselves with small local explorations, pipes, and the conversion of very unpromising materials into a *gîte*. I shall not here dwell on the grandeur and beauty of a panorama, to which full justice has already been done by the first conqueror of this supposed inaccessible peak, but I may just remark that, after long and careful examination, I came to the conclusion that the Mediterranean was certainly not to be *distinguished* from the haze of the southern horizon. At the same time it results from a careful calculation of the effects of curvature and refraction that the Viso would be *visible* from the sea at a distance of 148 miles, or 83 miles from the shore in the direction of the Col di Tenda, while this latter being 6,158 feet in height would vanish beneath the horizon at a distance of 103 miles, or 76 from the shore. Hence it follows that there is no obstacle to the sea being seen from the Viso, or *vice versâ*, but the imperfection of the human vision or the haze of the atmosphere. It seemed to me just possible that some exceedingly distant high land seen almost over the Col di Tenda, and apparently separated from the range of the Maritime Alps by an expanse of *brouillard* such as would be produced by a large surface of water, might be the Monte Rotondo in the Island of Corsica. The height of this summit is 9,068 feet, but its distance is so great (200 miles) that the utmost I can claim for my supposition is that it is not physically impossible, the Viso being, as already stated, visible from the sea-level at 148 miles, whilst the Monte Rotondo is seen at 125.

Though the mountains of Dauphiné are very well seen from the Viso, the position of the sun rendered their details extremely confused, and as their forms were comparative strangers to me, I could do nothing in the way of identification or determination of bearings with the theodolite kindly lent me by my friend Mr. Mathews. Reserving this for the morning, when the first condition would be reversed in my favour, and whilst the barometer was being allowed to settle, I deposited in the cairn one of Casella's new mercurial minimums and a Phillips' maximum by the same maker, to which I beg to call the attention of future comers.

At five, six, and seven o'clock I read off the barometer, and the

mean resultant height deduced from comparisons with Turin, Aosta, Geneva, and the Great St. Bernard, comes out 3,860·1 metres (12,664 feet). A fourth observation at 5.30 the following morning, similarly compared, gives the lower result of 3,840·3 metres (12,600 feet). The former is within four feet of Mr. Mathews' determination (12,668 feet), and the latter within one foot of the trigonometrical measurement of the Sardinian engineers (12,599 feet), so that the mean of both (12,632 feet) is highly satisfactory. The boiling point at 6 P.M. was 190° Fahrenheit, or $87\cdot78^{\circ}$ centigrade, which, by M. Regnault's table, corresponds with a pressure of 482·53 millimetres. Now the barometer at the same hour stood at 482·1 millimetres, and the difference, 0·43 millimetre, is precisely the same as that found a week previously on the summit of the Grivola. Comparing the mean of the readings of the barometer at five, six, and seven P.M. (482·2 millimetres) with that of the aneroid (one of Secrétan's) for the same hours (477·2 millimetres), we find a difference of 5 millimetres, an increase upon that found on the Grivola, which was only 3·2 millimetres. A similar comparison of the observation at 5.30 the following morning, reduces the discrepancy to 4·3 millimetres, and the mean would therefore be 4·6 millimetres; but as on the 2nd, at Turin, the error was already precisely the same in amount, if this were used as a correction, the two instruments would be absolutely accordant.

The sunset was magnificent, the huge pointed shadow of the mountain stretching away over the light veil of fleecy clouds which began to cover the surface of the Italian plain; but as at seven o'clock the temperature had already fallen to -2° C. ($28\cdot4^{\circ}$ Fahrenheit), and the wind was beginning to rise, my position on the summit became rather exposed, and the question of shelter and a bivouac assumed increased importance. The sound of falling stones had for some time indicated considerable activity on the part of my companions, who had left me to attend to my '*machines*;' but on rejoining them, I found that their united efforts had made but little progress in the construction of a *gîte*. A small surface of ground at a point about forty feet below the summit had, indeed, been to some extent cleared of *débris*, and a sort of wall constructed of loose stones on the side of the precipice, but not a single jutting fragment offered even partial protection from radiation, and the creation of a tolerably level surface on a slope of 10° or 15° had proved an absolutely insoluble problem. The appearance of the weather, too, was by no means reassuring, and as fitful gusts of wind moaned amongst the crags, and the dull grey vapours came stealing up from the valleys, I confess I began to feel doubtful about the wisdom of

the whole proceeding. There was no help for it now, however, as darkness was coming on apace; so, whilst the final touches were being given to our nest, I occupied myself with heating a bottle of wine in my boiling apparatus by way of night-cap. Peyrotte then got into the sack which he always used to carry his load, Croz indued a comfortable knitted woollen head-piece, and Perrn a seal-skin cap, with ample flaps to come over the ears, which I had lent him. Finally, covering themselves with a *couverture* which we had borrowed at the châteaux, my companions drew my macintosh sheet over outside to make all snug. I meanwhile entered the bag, and, planting my feet firmly against a rock to prevent slipping, endeavoured to compose myself to rest, but the intensity of the cold, aggravated by the wind, combined with an uneasy position and the constant sense of being in motion downwards, proved too much for me; and, after long and persevering efforts, I calmly abandoned myself to a perpetual condition of semi-conscious wriggling. The time seemed to pass very slowly, as usual under such circumstances; but after what appeared to be hours of wakefulness I at length dropped off, and did not rouse again, at least more than partially, till about 2.30 A.M. I had buried my face so completely in the *capote*, and so closed every cranny with a handkerchief, that at first it was difficult to ascertain the state of affairs, but an icy cold drop of water falling on my nose through some unguarded chink roused me completely, and on peering out, I perceived to my surprise that everything around was white, nearly an inch of snow lay on my chest, and thick sleet mingled with fog was falling. The prospect was anything but cheering, and my feelings were so nearly akin to the painful, that I confess the thought of having to hold out for some hours more was peculiarly unwelcome. Still, though cold, I felt I could yet bid defiance to the weather, and any grumblings that tried to make themselves heard were silenced by the sense of satisfaction at the manner in which my bag bore the severe test to which it was exposed. A temperature of -2.5° C. (27.5° Fahr.), as shown by a thermometer protected from radiation, snow, wind, and damp, the worst possible combination in short, were all rendered endurable by its means, and this in itself was worth finding out at the expense of some little personal discomfort. Meanwhile, the guides were, I fear, in much more miserable plight; for though tolerably protected, and having the advantage of mutual warmth they naturally were unsupported by the same enthusiasm, and from poor Peyrotte's sack especially dolorous groans would from time to time issue. I ventured to

cheer him by suggesting that the honour of being the first subject of the king of Italy who had reached the summit of the Viso, and passed a night on it into the bargain, lasting for his life and rendering him famous to generations of Bobbioites yet unborn, would amply atone for a few short hours of exposure. Besides, it would recommend him to future travellers, who might take him as guide on the strength of this performance. I found, however, that all my eloquence was wasted, and that he would have sacrificed the brilliant future portrayed had it been in his power to escape. Thus time went on, and sometimes we dozed, and sometimes we peered out into the mist to see if there were any signs of its disappearing; but at length, about 5.15, there being no appearance of improvement, our little encampment was broken up, a hasty breakfast taken, and the barometer observed and put up in a very rusty condition from its long exposure to the damp. At six, despairing of any opportunity for using the theodolite, which had been dragged up with considerable trouble, we set out on our return.

As we descended the snow gradually diminished, then ceased altogether, and at last we emerged from the cloud which hung densely round the upper portion of the mountain and clung to it throughout the day. The fresh-fallen snow rendered caution necessary, and our progress was slow, but at 7.45, we reached the foot of the steepest portion of the descent, about half an hour above the tarns already described, and halting till 8.15 for breakfast, arrived at the chalets in about two hours more, or at 10.15. The time occupied in the ascent and descent was therefore $7\frac{1}{4}$ and $4\frac{1}{4}$ hours respectively, including halts, which amounted to an hour and a half in the first case, and half an hour in the second. At 2.30, we proceeded down the Vallon di Vallante to Ponte Castello, whence a pleasant walk of little more than an hour towards the head of the Val Vraitia brought us at 4.45, to La Chianale, thus terminating a most interesting expedition.

ASCENT OF THE DENT BLANCHE. By THOS. S. KENNEDY.

ON Wednesday, July 9, 1862, I started from Zermatt, with Peter Taugwalder and his son, a lad of eighteen, as guides, to try the Dent Blanche. We crossed the Col d'Erin to Abricolla, and were there detained two days by bad weather.