

It thus appears that the difference between the true mean temperature of an aerial column, and the semi-sum of the temperatures of its extremities, is, generally speaking, a variable and complex quantity, into which the following elements must enter:—

1. The error due to Laplace's hypothesis.
2. The Local Equations at the upper and lower stations.
3. The Horary Equations at the upper and lower stations.

In the case of Geneva and St. Bernard, Professor Plantamour makes the arbitrary assumption that two-thirds of the total difference are due to the former place and one-third to the latter. It is scarcely possible that this assumption should be true at all hours of the day, and in all seasons of the year, and the question deserves further investigation, as the proportion to be assigned to each station is precisely what, in practice, it is important to know. The different sources of error are, however, so involved that it will be very difficult to disentangle them. There is still, therefore, something to be done in this branch of the subject, and until the Local and Horary Equations have been determined for all the principal continental observatories, the theory of barometric calculation will hardly have been placed on a perfectly satisfactory footing.

ASCENT OF THE ROTHORN. BY the Rev. LESLIE STEPHEN, M.A. Read before the Alpine Club on April 4, 1865.

THE little village of Zinal lies, as I need hardly inform my hearers, deep in the recesses of the Pennine chain. Some time in the middle ages (I speak on the indisputable authority of Murray) its inhabitants were converted to Christianity by the efforts of a bishop of Sion. From that time till the year 1864 I know little of its history, with the exception of two facts—one, that till lately the natives used holes in their tables as a substitute for plates, each member of the family depositing promiscuously his share of the family meals in his own particular cavity—the other, that a German traveller was murdered between there and Evolena, in 1863. Undeterred by these warnings, Grove, Macdonald, and I, with our guides Melchior and Jacob Anderegg, arrived at M. Epinay's hospitable inn in August 1864, and I am inclined to think that our arrival rather more than doubled the resident population. M. Epinay's inn, I may remark, is worthy of the highest praise. It is true that the accommodation is limited. M. and G. had to sleep in two cupboards opening

out of the coffee-room, whilst I occupied a bed, which is the most conspicuous object of furniture in the coffee-room itself. The only complaint I can find with it is that whenever I sat up suddenly I brought my head into violent contact with the ceiling. This peculiarity is owing to a fourth bed, which generally lurks beneath the legs of my rather lofty couch, but can be drawn out on due occasion. The merits of the establishment in other respects are manifold. Above all, M. Epinay is an excellent cook, and provided us daily with dinners which—I almost shrink from saying it—were decidedly superior to those of my excellent friend M. Seiler, at Zermatt. Moreover, he nobly sent a man every day down to Sierre for fresh supplies of champagne. Finally, the room boasted of the one decent sofa in all Switzerland. It is true that it was only four feet long, and terminated by two lofty barriers; but it was soft, and had cushions—an unprecedented luxury, so far as my alpine knowledge extends. The minute criticism of M. Epinay's establishment is due to the fact that we spent there three days of enforced idleness. A persistent screen of stormy cloud drove up the valley, and clung stubbornly to the higher peaks. We lounged lazily in the wooden gallery, smoking our pipes and contemplating the principal street of the village. The mountain stoat followed his prey down the chief street in undisturbed pursuit. Once or twice an alarm of natives was raised; and we argued long whether they were inhabitants, or merely visitors from the neighbouring Alps come to see life in Zinal. I incline to the latter hypothesis, being led thereto from a consideration of the following circumstance:—One of our desperate efforts at amusement was playing cricket in the high street, with a rail for a bat, and a small granite boulder for a ball. My first performance was a brilliant hit to leg (the only one I ever made in my life) off Macdonald's bowling. I sent the ball clean through the western window of the chapel, which looks upon the *grande place* of the village—the scene of our match. As no one ever could be found to receive damages, I doubt much whether there are any permanent inhabitants. Tired of cricket I learnt the visitors' book by heart; I studied earnestly the remarks of a deaf and dumb gentleman, who, for some mysterious reason, has selected this book as the chief medium for communication with the outer world. I made, I fear, rather ill-tempered annotations on some of my predecessors' remarks. I even turned a table of heights expressed in mètres into feet, and have thereby contributed richly to the fund of amusement provided for scientific visitors who may have a taste for correcting arithmetical blunders. On Sunday the weather was improving,

and after breakfast we lounged up the Diablons, returning for an early dinner. The view met with our decided disapproval—principally, perhaps, because we did not see it—a thunderstorm drenched us during our descent, and I began to think the weather hopeless. The same evening, as I was reclining on the sofa, in the graceful attitude of a V, whose extremities were represented by my head and feet, and whose apex was plunged in the before-mentioned cushions, the sanguine Macdonald said that the weather was clearing up. My reply must remain unreported, except that it was expressive of utter disbelief, and profound contempt for an intellect so easily imposed upon. Next morning, however, at 1.50 A.M., I found myself actually crossing the meadows which form the upper level of the Zinal valley. It was a cloudless night, except that a slight haze obscured the distant Oberland ridges. But for the disheartening influence of a prolonged sojourn in Zinal I might have been sanguine. As it was, I walked in that temper of gloomy disgust which I find to be a frequent concomitant of early rising. Another accident soon happened to damp our spirits. Macdonald announced himself to be too unwell to proceed. Knowing by experience that it takes a great deal of illness or of anything else to turn him back, we felt that it would be wrong to try to persuade him to exertions which he did not willingly undertake. In fact, it soon became evident that he was in no condition for a difficult expedition. We parted with him with great regret, and proceeded gloomily on our way. Poor Macdonald spent the day dismally enough, I fear, in the little inn, in the company of M. Epinay and certain German tourists.

We followed the usual track for the Trift pass as far as the top of the great icefall of the Durand glacier. Here we turned sharply to the left, and crossed the wilderness of decaying rock at the foot of Lo Besso. It is a strangely wild scene. The buttress-like mass of Lo Besso cut off our view of the lower country. Our path led across a mass of huge loose rocks, which I can only compare to a continuous series of the singular monuments known as rocking stones. For a second or two you balanced yourself on a mass as big as a cottage, and balanced not only yourself but the mass on which you stood. As it canted slowly over, you made a convulsive spring, and lighted upon another rock in an equally unstable position. If you were lucky you recovered yourself by a sudden jerk, and prepared for the next leap. If unlucky, you landed with your knees, nose, and other parts of your person in contact with various lumps of rock, and got up into an erect posture by another series of

gymnastic contortions. In fact, my attitudes, at least, were as unlike as possible to that of Mercury—

New lighted on a heaven-kissing hill.

They were more like Mercury shot out of a cart on to a heap of rubbish. An hour or so of this work brought us to a smooth patch of rocks, from which we obtained our first view of the Rothhorn, hitherto shut out by a secondary spur of the Besso. And here, at 5.50 A.M., we halted for breakfast. 'How beautiful those clouds are!' was Grove's enthusiastic remark as we sat down to our frozen meal. Before giving my reply to this observation, I must, in justice to myself, recall certain surrounding circumstances. I never profess to be in a good temper at 5 in the morning. Macdonald's departure had annoyed me. A more selfish dislike to the stones over which we had been stumbling had put me out still further. The bitterest drop in my cup was the state of the weather: the sky overhead was still cloudless. Just before the Besso eclipsed the Oberland ridges, an offensive mist had blotted out their serrated outline. I did not like the way in which the stars winked at us just before their disappearance in the sunlight. But worst of all was a heavy mass of cloud which clung to the ridge between the Dent Blanche and the Gabelhorn, and seemed to be crossing the Col de Zinal, under the influence of a strong south wind. The clouds, to which Grove unfeelingly alluded, were a detachment, rising like steam from a cauldron above this lower mass. They seemed to gather to leeward of the vast cliffs of the Dent Blanche, and streamed out from their shelter into the current of the gale which evidently raged above our heads. At this moment they were tinged with every shade of colour that an alpine sunrise can supply. Rainbows were nothing to them. No member of this Club will fail to sympathise with me, if not to pardon me, when I say that, in answer to Grove's most unpropitious eulogy, I could only answer (and I beg again to apologise for the apparent vulgarity of the expression, for slang, though at times useful in practice, should certainly not intrude itself within these walls), 'Hold your stupid tongue.'

Yet one more vexatious element was here intruded into our lot. We were in full view of the Rothhorn, to which we had previously given a careful examination from the foot of the Trift Joch. As this is the most favourable moment for explaining our geography, I will observe that we were now within the hollow embraced by the spur which terminates in the great promontory of Lo Besso. This spur has its origin in the main ridge which runs from the Rothhorn towards the Weiss-

horn, the point of articulation being immediately under the final cliffs of the Rothhorn. It divides the Moming glacier from the upper snows of the Durand glacier. The mighty 'cirque' inclosed by the mountain wall, studded in succession by the peaks of the Besso, the Rothhorn, the Gabelhörner, the Dent Blanche, and the Grand Cornier, is one of the very noblest in the Alps. From the point we had now reached it appeared to form a complete amphitheatre—the narrow gorge through which the Durand glacier emerges into the Einfischthal being invisible. Our plan of operations was to climb the spur (of which I have already spoken) about half-way between Lo Besso and the Rothhorn, and thence to follow it up to the top of the mountain. The difficulty, as we had early foreseen, would be just after the place where the spur blended with the northern ridge of the Rothhorn. We had already examined with our telescopes the narrow and broken arête which led upwards from this point to the summit. Its scarp and perpendicular sides, and the rocky teeth which struck up from its back, were sufficiently threatening. Melchior had, notwithstanding, spoken with unusual confidence of our chance. But at this moment the weakest point in his character developed itself. He began to take a gloomy view of his prospects, and to confide his opinion to Jacob Anderegg in what he fondly imagined to be unintelligible patois. I understood him only too well. 'Jacob,' he said, 'we shall get up to that rock, and then ——' an ominous shake of the head supplied the remainder of the sentence. It was therefore in sulky silence that, after half an hour's halt, I crossed the snow-field, reached the top of the spur at 7.55 A.M., and thence ascended the arête to within a short distance of the anticipated difficulty. Our progress was tolerably rapid, being only delayed by the necessity of cutting some half dozen steps. We were at a great height, and the eye plunged into the Zinal valley on one side, and to the little inn upon the Riffel on the other, whilst on looking round it commanded the glacier basin from which we had just ascended. Close beneath us, to the north, was the col by which Messrs. Moore and Whymper had passed from the Moming to the Schallenberg glacier. It was now 9 A.M. We cowered under the rocky parapet which here strikes up through the snow like a fin from a fish's back, and guarded us from the assaults of a fierce southern gale. All along the arête to this point I had distinctly felt a keen icy blast penetrate my coat, as though it had been made of gossamer, pierce my skin, whistle merrily through my ribs, and, after chilling the internal organs, pass out at the other side with unabated vigour. My hands were numb, my nose

was doubtless purple, and my teeth played involuntary airs, like the bones of a negro minstrel. Grove seemed to me to be more cheerful than circumstances justified. By way, therefore, of reducing his spirits nearer to freezing-point, I remarked affably (it was the second sentence I had uttered that day), 'My young friend, we are going on for a quarter of an hour, and we shall then turn back to Zinal.' 'How do you know that?' said Grove. 'Because,' I replied with, I hope, a pardonable fiction, 'Melchior has just told Jacob so.' The fact, of course, was that Melchior had said nothing of the kind, but he had undoubtedly looked it.

We were on a ledge of snow which formed a kind of lean-to against the highest crest of precipitous rock. A little further on the arête made a slight elbow, beyond which we could see nothing. If the snowy shelf continued beyond the elbow all might be well. If not, we should have to trust ourselves to the tender mercies of the seamed and distorted rocks. A very few paces settled the question. The snow thinned out. We turned to examine the singular ridge along which the only practicable path must lie. From its formation it was impossible to see more than a very short way ahead. So steep were the precipices on each side that to our imaginations it had all the effect of a thin wall, bending in its gradual decay first towards one, and then towards the other valley. The steep faces of rock thus appeared to overhang the Schallenberg and Zinal glaciers alternately. The same process of decay had gradually carved the parapet which surmounted it into fantastic pinnacles, and occasionally scored deep channels in its sides. It was covered with the rocky fragments rent off by the frost, and now lying in treacherous repose, frequently masked by cushions of fresh-fallen snow. The cliffs were, at times, as smooth as if they had been literally cut out by the sweep of a gigantic knife. But the smooth faces were separated by deep gullies, down which the artillery of falling stones was evidently accustomed to play. I fear that I can very imperfectly describe the incidents of our assault upon this formidable fortress. Melchior led us with unflinching skill—his spirits, as usual, rising in proportion to the difficulty. Three principal pinnacles rose in front of us, each of which it was necessary to turn or to surmount. The first of these was steepest upon the Zinal side. Two deep gullies on the Zermatt side started from points in the ridge immediately in front and in rear of the obstacle, and converged at some distance beneath. The pinnacle itself was thus shaped like a tooth protruding from a jaw and exposed down to the sockets, and the two gullies afforded means for circumventing it. We

carefully descended by one of these for some distance, considerably inconvenienced by the snow which lodged in the deeply-cut channels, and concealed the loose stones. With every care it was impossible not occasionally to start crumbling masses of rock. The most ticklish part of the operation was in crossing to the other gully; a sheet of hard ice some two or three inches thick covered the steeply-inclined slabs. It was impossible to cut steps in it deep enough to afford secure foothold. The few knobs of projecting stone seemed all to be too loose either for hand or foot. We crept along in as gingerly a fashion as might be, endeavouring to distribute our weight over the maximum number of insecure supports until one of the party had got sounder footing. A severe piece of chimneysweep practice then landed us once more upon the razor edge of the arête. The second pinnacle demanded different tactics. On the Zermatt side it was impractically steep, whilst on the other it fell away in one of the smooth sheets of rock already mentioned. The rock, however, was here seamed by deep fissures approximately horizontal. It was possible to insert toes or fingers into these, so as to present to telescopic vision (if anyone had been watching our ascent) much the appearance of a fly on a pane of glass. Or, to make another comparison, our method of progression was not unlike that of the caterpillars, who may be observed first doubled up into a loop and then stretched out at full length. When two crevices approximated, we should be in danger of treading on our own fingers, and, the next moment, we should be extended as though on the rack, clutching one crack with the last joints of our fingers, and feeling for another with the extreme points of our toes. The hold was generally firm when the fissures were not filled with ice, and we gradually succeeded in outflanking the second hostile position. The third, which now rose within a few yards, was of far more threatening appearance than its predecessors. After a brief inspection we advanced along the ridge to its base. In doing so we had to perform a manœuvre which, though not very difficult, I never remember to have previously tried. One of the plates to Berlepsch's description of the Alps represents a mountain-top, with the national flag of Switzerland waving from the summit and a group of enthusiastic mountaineers swarming round it. One of them approaches, astride of a sharp ridge, with one leg hanging over each precipice. Our position was similar, except that the ridge by which we approached consisted of rock instead of snow. The attitude adopted had the merit of safety, but was deficient in comfort. The rock was so smooth, and its edge so sharp, that as I crept along it, supported entirely on my hands,

I was in momentary fear that a slip might send one-half of me to the Durand and the other to the Schallenberg glacier. It was, however, pleasing to find a genuine example of the arête in its normal state—so often described in books, and so seldom found in real life. We landed on a small platform at the other end of our razor, hoping for the paradise of a new mountain summit as our reward; but as we looked upwards at the last of the three pinnacles, I felt doubtful of the result.

The rock above us was, if I am not mistaken, the one which, by its sharp inclination to the east, gives to the Rothhorn, from some points of view, the appearance of actually curling over in that direction, like the crest of a sea-wave on the point of breaking. To creep along the eastern face was totally impossible. The western slopes, though not equally steep, were still frightfully precipitous, and presented scarcely a ledge whereby to cling to their slippery surface. In front of us the rocks rose steeply in a very narrow crest, rounded and smooth at the top, and with all foothold, if foothold there were, completely concealed by a layer of fresh snow. After a glance at this somewhat unpromising path Melchior examined for a moment the western cliff. The difficulties there seeming even greater, he immediately proceeded to the direct assault. In a few minutes I was scrambling desperately upwards, abandoning all thoughts of doing my task in 'good form,' or of refusing any kind of assistance. So steeply did the precipice sink on our left hand, that along the whole of this part of the shelf the glacier, at a vast distance below, formed the immediate background to a sloping rocky ledge, some foot or two in width, and covered by slippery snow. In a few paces I found myself fumbling vaguely with my fingers at imaginary excrescences, my feet resting upon rotten projections of crumbling stone, whilst a large pointed slab of rock pressed against my stomach, and threatened to force my centre of gravity backwards beyond the point of support. My chief reliance was upon the rope; and with a graceful flounder I was presently landed in safety upon a comparatively sound ledge. Looking backwards, I was gratified by a picture which has since remained fixed in my imagination. Some feet down the steep ridge was Grove, in one of those picturesque attitudes which a man involuntarily adopts when the various points to which he trusts his weight have been distributed without the least regard to the exigencies of the human figure, when they are of a slippery and crumbling nature, and when the violent downward strain of the rope behind him is only just counterbalanced by the upward strain of the rope in front. Below

Grove appeared the head, shoulders, and arms of Jacob. His fingers were exploring the rock in search of infinitesimal crannies, and his face presented the expression of modified good humour, which in him supplies the place of extreme discontent in other guides. Jacob's head and shoulders were relieved against the snows of the Schallenberg glacier far below. Our view of continuous rock was thus limited to a few yards of narrow ridge, tilted up at a steep angle apparently in mid air. I had but little time for contemplation before turning again to our fierce strife with the various impediments to our march. Suddenly Melchior, who had left the highest ridge to follow a shelf of rock on the right, turned to me with the words, 'In einer halben Stunde, sind wir auf die Spitze.' 'Melchior,' said I emphatically, 'none of your lies.' My perturbed imagination was unable to realise the fact that we should ever get off the arête any more. We seemed to be condemned to a fate which Dante might have reserved for faithless guides—to be everlastingly climbing a hopeless arête, in a high wind, and never getting any nearer the top. Turning an angle of the rock, I saw that he had spoken the truth, and for the first time that day it occurred to me that life was not altogether a mistake. We had reached the top of what I have called the third pinnacle, and with it our difficulties were over. In the words of the poet, modified to the necessary extent—

He that with toil of heart and knees and hands
Up the long ridge to the far height hath won
His path upwards, and prevailed,
Shall find the toppling crags of the Rothhorn scaled—

are close to what, by a somewhat forced metaphor, we may call 'a shining tableland.' It is not a particularly level nor a very extensive tableland; but, compared with the ridges up which we had been forcing our precarious way, it was more like a tableland than most people would think if they came upon it (say) in St. Martin's Place. It was a gently-inclined ridge, sound under foot, and broad enough for practical purposes. Within less than Melchior's half hour, viz. at 11.15 A.M., we reached—I had almost said the top;—but the Rothhorn has no top. It has a place where a top manifestly ought to have been, but the work had been left unfinished. It ended in a flat circular area a few feet broad, as though it had been a perfect cone, with the apex cleanly struck off. Melchior and Jacob set to work at once to remedy this deficiency of nature, whilst Grove and I cowered down in a little hole cut out of the last rocks, which sheltered us from the bitter wind. Here, in good temper with each other and our guides and everything but

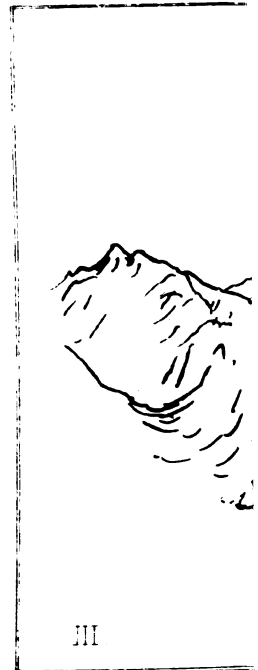
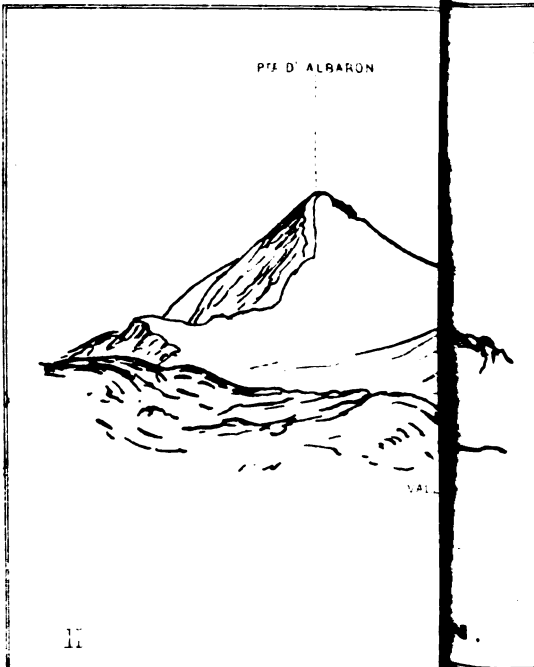
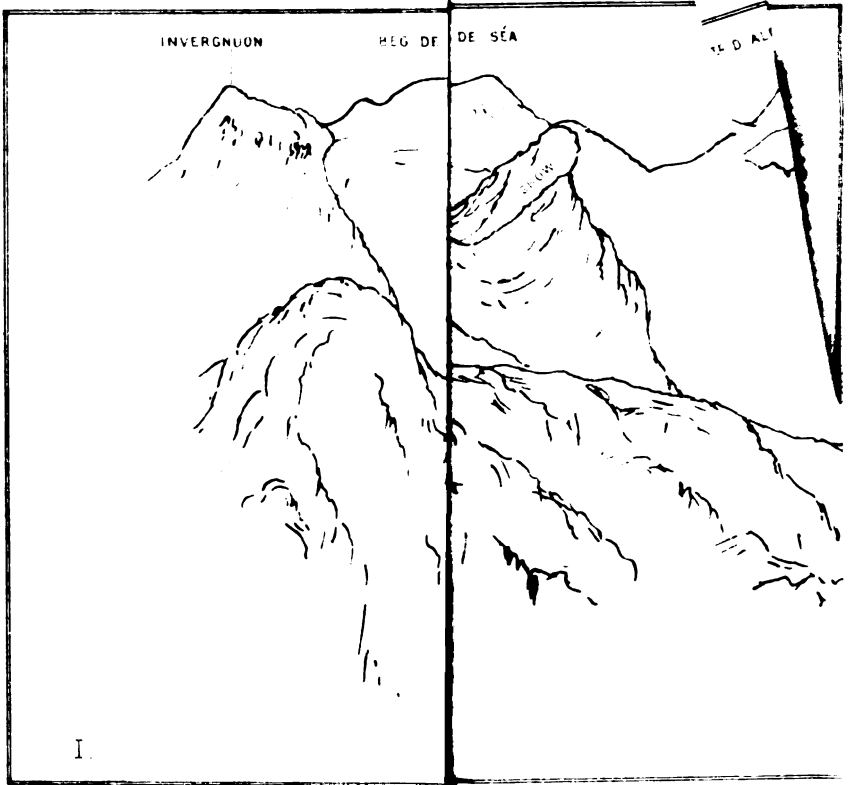
Macdonald's absence, we sat down for some twenty minutes, with muscles still quivering from the strain.

No doubt, some enthusiast will ask me about the view. I have several times been asked what the Matterhorn looked like; and I wish I could give an answer. But I will make a clean breast of it, and confess that I only remember two things: one, that we saw the Riffelberg, looking like a flat green carpet; the other, that the gigantic mass of the Weisshorn seemed to frown right above our heads, and shut out a large segment from the view. Seen from this point, it is more massive and of less elegant shape than from most others. It looked like an enormous bastion with an angle turned towards us. Whether I was absorbed in the worship of this noblest of alpine peaks, or whether the clouds had concealed much of the rest of the panorama, or whether we were thinking too much of the ascent that was past and the descent that was to come, or whether, as I rather believe, the view is really an inferior one, certain it is that I thought very little of it. And what philosophical observations did you make? will be the enquiry of one of those fanatics who, by a reasoning process to me utterly inscrutable, have somehow irrevocably associated alpine travelling with science. To them I answer, that the temperature was approximately (I had no thermometer) 212° (Fahrenheit) below freezing point. As for ozone, if any existed in the atmosphere it was a greater fool than I take it for. As we had, unluckily, no barometer, I am unable to give the usual information as to the extent of our deviation from the correct altitude; but the Federal map fixes the height at 13,855 ft. Twenty minutes of freezing satisfied me with the prospect, and I willingly turned to the descent. I will not trouble my hearers with a repetition in inverse order of the description of our previous adventures. All experienced mountaineers will, I believe, confirm my assertion that going down is easier than getting up, with very few exceptions. I will not tell at length how I was sometimes half suspended like a bundle of goods by the rope—how I was sometimes curled up into a ball, and sometimes stretched over eight or nine feet of rock—how the rope got twisted round my legs and arms and body into knots which would have puzzled the Davenport Brothers—how, at one point, I conceived myself to be resting entirely on the point of one toe upon a stone coated with ice, and fixed very loosely in the face of a tremendous cliff, whilst Melchior absurdly told me I was 'ganz sicher,' and encouraged me to jump (jump!!!)—how Jacob seemed perfectly at his ease—how Grove managed to lend a hand whenever I wanted one—and how Melchior, rising into absurdly high

spirits, took to pirouetting on the worst places, like a drunken chamois, for chamois are doubtless acquainted with the intoxicating spirit distilled from gentians. We reached the snow safely at 1.15 P.M., and looked back triumphantly at the nastiest piece of climbing I had ever accomplished. The next traveller who makes the ascent will probably charge me with exaggeration. It is, I know, very difficult to avoid giving just cause for that charge. I must therefore apologise beforehand, and only beg my anticipated critic to remember two things: one, that on the first ascent a mountain, in obedience to some mysterious law, always is more difficult than at any succeeding ascent; secondly, that nothing can be less like a mountain at one time than the same mountain at another. The fresh snow and the bitter gale told heavily in the scale against us. Some of the hardest ascents I remember have been up places easy in fine weather, but rendered difficult by accidental circumstances. Making allowance, however, for this, I still believe that the last rocks of the Rothhorn will always count among the decidedly *mauvais pas* of the Alps.

We ran rapidly down the snow without much adventure, except that I selected the steepest part of the snow arête to execute what, but for the rope, would have been a complete somersault—an involuntary but appropriate performance. Leaving the stony base of the Besso well to our right, we struck the route from the Trift Joch at the point where a little patch of verdure behind a moraine generally serves for a halting and feeding place. Here we stretched ourselves luxuriantly on the soft green moss in the afternoon sun. We emptied the last drops of the wine bag, lighted the pipe of peace—the first that day—and enjoyed the well-earned climbers' reward. Some mountaineers do not smoke—such is the awful darkness which lurks amidst our boasted civilisation. To them the words I have just read convey no sympathetic thrill. With the ignorance of those who have never shared a blessing, they probably affect even to despise the pleasure it confers. I can, at any rate, say that I have seldom known a happier half hour than that in which I basked on the mossy turf in the shadow of the conquered Rothhorn—all my internal sensations of present comfort, of hard-won victory, and of lovely scenery, delicately harmonised by the hallowing influence of tobacco. We enjoyed what the lotos-eaters would have enjoyed, had they been making an ascent of one of the 'silent pinnacles of aged snow,' instead of suffering from sea-sickness, and had a less injurious stimulant than lotos. Melchior pointed out during our stay eleven different ways of ascending the hitherto unconquered Grand

Cornier. Grove and Jacob speculated on adding its summit also to our trophies, whilst I observed, not without secret satisfaction, that the gathering clouds would enforce at least a day's rest. We started homewards with a reluctant effort. I diversified the descent by an act of gallantry on my own account. Melchior had just skipped over a crevasse and turned to hold out a hand. With a contemptuous wave of my own I put his offer aside, remarking something about people who had done the Rothhorn. Next moment I was, it was true, on the other side of the crevasse, but, I regret to say, flat on my back, and gliding rapidly downwards into its depths. Melchior ignominiously hooked me under the arm with his axe and jerked me back, with a suitable warning for the future. We soon left the glacier, and on descending the path towards Zinal were exposed to the first serious danger of the day. Certain natives had sprung apparently from the bowels of the earth, and hailed us with a strange dialect, composed in equal proportions of French, German, and Italian patois. Not understanding their remarks, I ran onwards, when a big stone whizzed close past my head. My first impression was that I was about to be converted into the victim of another Zinal murder, the gentleman by whom the last was committed being, as it was reported, still wandering amongst the mountains. I looked up, and saw that the offender was one of a large herd of cows, which were browsing in the charge of the natives, and managed, by kicking down loose stones, to keep up a lively fire along some distance of our path. We ran on all the faster, reached the meadows, and ascended the path to the village. Just as we reached the first houses a melancholy figure advanced to meet us. Friendly greetings, however, proceeded from its lips, and we were soon shaking hands with poor Macdonald. He has since asserted that our faces presented an appearance of singular gloom, which he attributes to our sense of the dangers encountered. I am glad that our efforts not to hurt his feelings by looking too triumphant were so successful. We reached M. Epinay's inn at 6.45 P.M., the whole expedition occupying 16 h. 50 m., including about two hours' halts. A pleasant dinner succeeded, notwithstanding the clatter of sundry German tourists, who had flooded the little coffee-room and occupied my beloved sofa, and kept up a ceaseless conversation. Soon afterwards, Macdonald having generously abandoned to me the cupboard in which he slept, I was trying to solve the problem of placing a length of six feet on a bed measuring about 3 ft. 6 in. by 2 ft. As its solution appeared to me to be inextricably mixed up with some question about the highest rocks of the Rothhorn, and as I heard no symptoms of



Grove's slumbers in the next cupboard, which was divided from mine by a sort of paper partition, I incline to think that I was not long awake.

And now having, in the words of the poet, 'fairly put all characters to bed,' I have only one duty to discharge. Melchior's character is too well known to require any further commendation than an expression of our opinion that on this day he surpassed himself. Of Jacob Anderegg, who is Melchior's cousin, I must add that he showed himself on this as on other occasions to be a first-rate man. He is a powerful, very good-looking fellow. He is always good-tempered, as strong as a horse, willing to take any trouble, and on bad places as handy and steady as a man can be. I cannot conclude this paper better than by strongly recommending his claims to any of my alpine friends who are unprovided with a guide, and who require one for difficult expeditions.

THE LEVANNA DISTRICT. By the Rev. T. G. BONNEY, M.A., F.G.S. Read before the Alpine Club, April 4, 1865.

THIS has been called a sceptical age; and alpine tourists cannot claim exemption from the general ban. They have made disparaging observations upon the Mont Iséran; they have instituted odious barometrical comparisons between the heights of many a peak and pass; they have pooh-pooed the difficulties of Mont Blanc; they have deprived numerous virgin summits of the title 'inaccessible;' worse still, they have refused to bow down before the dicta of Murray, and sneered at the surveys of Government engineers. I cannot claim to be clear from this wide-spread infection; for the examination of certain maps always leads me to one conclusion—namely, that I have at least an accurate idea of what is not the topography of the region that they delineate. The Iséran sheet of the Sardinian survey includes a part of the Alps which I must confess to have regarded in this light. It elaborately depicts the district at the head of the Arc Valley, from the Mont Iséran on the north to the Combe d'Averolle on the south. Sundry distant views that I had obtained of the country had shown me that mountains existed there; but my enquiring spirit refused to be appeased by the delineations of them in the map. In 1863 my desires were baffled, when on the very point of being fulfilled, by a sudden downfall of snow, which drove me away from the Maurienne to the more