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TO THE

ALPINE JOURNAL

VOLS. I. TO XV.

INCLUDING 'PEAKS, PASSES, AND GLACIERS'

EDITED BY

F. A. WALLROTH

VICE-PRESIDENT OF THE ALPINE CLUB

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P R E F A C E

THE Index to the 'Alpine Journal' was commenced five years ago, but, owing to various causes, the completion of the work has been delayed; but the delay will not, I hope, detract from its value, as, by including the volumes since published, it is now brought down to date.

The original scheme was rather more elaborate than the present, the matter contained being divided into seven heads. This it was thought advisable to curtail, and it has therefore been condensed into four sections, viz. :—

I. The Names of Authors of signed articles and notes, followed in each case by a list of writings, excluding New Expeditions, In Memoriam notices, and Reviews.

II. A list of Maps and Illustrations.

III. A special Index for each mountain group in the Alps (based largely on the arrangement in 'Ball's Alpine Guide'), the headings of which are set out with an explanatory map. Additional special headings for non-Alpine groups.

IV. General Index.

The three vols. of 'Peaks, Passes, and Glaciers' are included in the Index, and are numbered P. i., P. ii., and P. iii., to avoid the confusion of the two series.

The dates of issue of the various numbers of the 'Alpine Journal' are given, as in many cases this will facilitate reference.

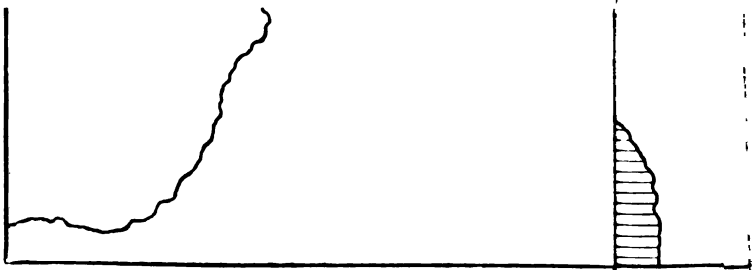
I have to express my thanks to Messrs. Blackstone, Brooksbank, Coolidge, Gardiner, Marett, W. Mathews, Packe, Sowerby, Tuckett, and Walker, who kindly undertook the task of indexing various volumes; and also to Mr. Dent, who, in addition to indexing a volume, has helped me in the revision of the proofs.

June, 1892.

F. A. WALLROTH.

MAP

to face opposite page



LIST OF DISTRICTS INTO WHICH THE ALPS HAVE
BEEN DIVIDED FOR THE PURPOSES OF SECTION III.
OF THE INDEX

1. *Maritime Alps*.—Main chain from Col d'Altare to Col de l'Argentière, S. of Col di Tenda.
2. *Cottian Alps*.—From Col de l'Argentière to the Mont Cenis, E. of the Durance Valley and Col du Galibier.
3. *Dauphiné Alps*.—W. of the Durance Valley and Col du Galibier.
4. *Tarentaise Alps*.—N. of the Arc Valley and W. of Col d'Iseran and the Tignes Valley.
5. *Graian Alps*.—From Mont Cenis to the Little St. Bernard, E. of Col d'Iseran, E. and N. of the Arc Valley.
6. *Mont Blanc*.—From the Little St. Bernard to the Great St. Bernard, S. and E. of the Chamonix Valley.
7. *Chablais, Genevois, and Faucigny*.—N. of the Chamonix Valley, S. of the Lake of Geneva, and W. of the Rhone Valley.
8. *Great St. Bernard*.—From the Great St. Bernard to Cols de Valpelline and d'Hérens, W. of the Evolena Valley, including Arolla.
9. *Evolena—Zinal*.—E. of the Evolena Valley, W. of the Zermatt Valley, N. of Col d'Hérens.
10. *Monte Rosa*.—From Col de Valpelline to Monte Moro, including the Saasgrat.
11. *Simplon*.—From Monte Moro to the Simplon, including Monte Leone.
12. *Lepontine Alps*.—From the Simplon to the St. Gotthard, including Ticino and the Italian Lakes.
13. *Diabletets*.—W. of the Gemmi, N. of the Rhone Valley.
14. *Bernese Oberland*.—E. of the Gemmi, W. of the Grimsel.
15. *Tillis and Rhone Glacier*.—From the Grimsel Valley to the Reuss Valley, S. of the Lake of Lucerne, N. of the Furka.
16. *North Switzerland*.—N. and W. of the Vorder Rhein Valley, E. of the Lake of Lucerne, including the Rigi, Glárniseh, Säntis, and Tödi.
17. *St. Gotthard*.—From the St. Gotthard to the Fluela Pass, S. of the Vorder Rhine Valley, N. of the Inn Valley.

18. *Bernina*.—From the Inn Valley to the Adda Valley, W. of the Stelvio, E. of Lake Como.
19. *Ortler District*.—From the Stelvio to the Botzen Valley (Lower Adige), N. of the Tonale Pass, S. of the Upper Adige Valley.
20. *Adamello and Brenta District*.—S. of the Adda, Tonale Pass, and Val di Sole, E. of Lake Como, W. of the Adige.
21. *North Tyrol*.—N. of the Inn Valley, Pinzgau, and Ennsthal, between the Fluella Pass, Inn, and Bavarian plain, including the Silvretta group, Vorarlberg, and Salzburg.
22. *Central Tyrol*.—S. of the Inn Valley, Pinzgau, and Ennsthal, N. of the Drave, E. of the Adige, including the Oetzthal, Stubai, Zillertal, Gr. Venediger, and Gr. Glockner.
23. *South Tyrol or Dolomites*.—S. of the Drave, E. of the Adige, W. of the Piave.
24. *South-Eastern Alps*.—E. of the Piave, including Terglou, Bosnia, Herzegovina, &c.

**DATES OF PUBLICATION OF 'PEAKS, PASSES, AND
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Vol. xv., A. J. BUTLER

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AND

SCIENTIFIC OBSERVATION

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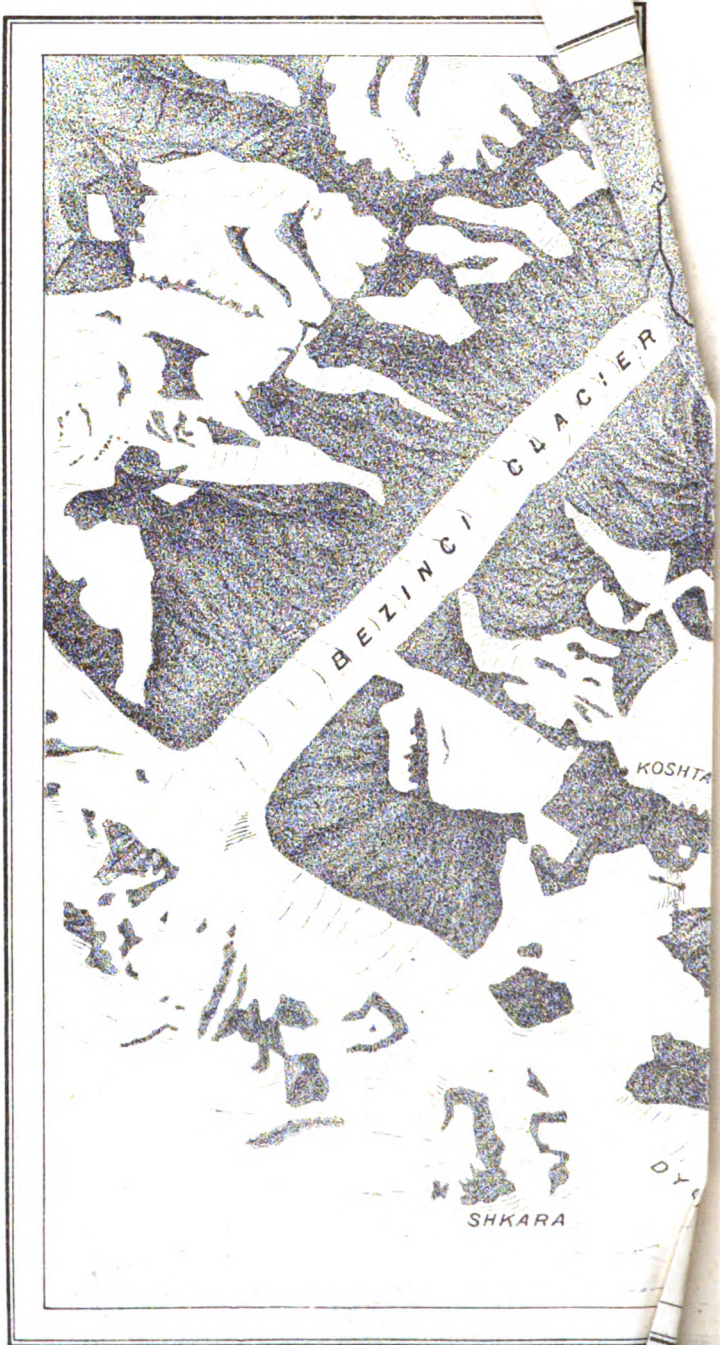
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THE
ALPINE JOURNAL.

FEBRUARY 1890.

(No. 107.)

PREFATORY NOTE.

IT is probably known to every member of the Alpine Club that with the present number a change takes place in the Editorship of this Journal. Hitherto similar changes, when they have occurred, have been unannounced, save by the change of name on the cover ; but in the present instance there are some special circumstances which seem to render it desirable that the incoming Editor should introduce himself more directly to his fellow-members. In the first place, all his predecessors have been distinguished mountaineers ; every one of them bears a name eminent in the record of first ascents and early explorations ; Chamonix and Zermatt know them, they are honoured in Grindelwald and Pontresina. To him, on the other hand, from various causes, the 'centres' are almost totally unknown. His acquaintance with the chain of Mont Blanc is founded on dim schoolboy recollections of a walk round the lower cols, in days when the Alpine Club itself did not exist. Zermatt he has not seen for nearly a quarter of a century, while Grindelwald still remains to him merely a place on the map. In fact, his only qualifications for the duty he has, perhaps, rashly undertaken are a sincere love of the 'Alpine sport' and a fair acquaintance with Alpine literature. The mention of Alpine literature, again, cannot but remind him how sternly his work

has been 'cut out for him' by his immediate predecessor. Few people will be likely to contest Mr. Coolidge's distinction as a climber; no one, it may be supposed, who knows anything about the matter will question, not merely his distinction, but his rank as *facile princeps* in respect of acquaintance with everything that has been written about the Alps from the days of Josias Simler to the latest 'Zeitschrift' of the D.Oe.A.V. Here, however, the present Editor trusts that he may look for the co-operation of the Club at large to supply in some measure his own deficiencies. He has not the leisure, even if he had the knowledge, needed in order to enable him to gather from the mass of current Alpine literature all things which it is expedient that English readers should know; and he will be especially grateful to any members who may be kind enough to refer him to any information of interest in foreign journals or elsewhere which may come under their notice.

Lastly, he wishes to say that any variations in the established arrangement of the Journal which may be detected in the current number are not to be taken as indicative of any desire on his part to make a 'new departure.' Conditions which are not likely to recur have necessitated somewhat abnormal treatment; but in future he has every intention, so far as his capacities will allow, of following the lines upon which his predecessors have worked, and adhering to the methods by which they have maintained the 'Alpine Journal' in the position due to its rank as the *doyen* of Alpine periodical literature.

The May Number will contain a portrait of the late Mr. Ball, which is intended to form the frontispiece to Vol. XV. when bound.

ADDRESS TO THE ALPINE CLUB.

BY CLINTON DENT, LATE PRESIDENT OF THE CLUB.

(Read at the Annual General Meeting, December 16, 1889.)

SOME years ago a former excellent Secretary of the Club came to me in distress, occasioned by the fact that he had been unable to find any member to read a paper at the December meeting. I suggested that the retiring President might fitly be invited to come forward with a review of all that had occurred during his term of office. The idea was carried out with the happiest results, and, thrice repeated, appears now to have, somewhat rapidly, established itself as a tradition. I had no conception at the time that I had devised something which was ultimately to fall on my own head, as the guillotine is, erroneously, supposed to have on that of its inventor, and that I should ever be hoist with mine own petard. I perceive now all the objections most fully. Not only is your retiring President constantly reminded of his approaching demise, not only has he to arrange matters for his impending dissolution, but he has actually to pronounce his own funeral oration. Three years hence I anticipate that my views will have wholly changed. For the moment I can but face the task to the best of my ability. Like the gladiators of old, I may say before I set to work, 'Moriturus vos saluto,' and feel that as you held up your hands just now for my successor with one accord, so you will extend mercy when I have done, and at least hold up your thumbs for me. In one respect I am fortunate. Three years ago my predecessor in this chair found occasion to lament that he had too little to dilate upon. But Mr. Grove had the skill, like the ingenious artisans in Hans Andersen's fairy tale, to weave a brilliant fabric out of nothing. No dilatation is wanted now. My difficulty is one of compression, not of expansion.

In turning over the pages which chronicle our progress the first impression borne in upon the reader is a sad one. It would be out of place now to make more than passing allusion to the gaps made in the ranks of the Club. Yet a history would be but imperfect if no mention were made of men who contributed so largely to construct it. We miss the face of F. J. Church, so faithful an attendant at the meetings, and of J. F. Hardy, an original member who never ceased to take a warm interest in the Club. Two veterans

whom we shall always be proud to have numbered among our honorary members have passed away in Bernard Studer and Ivan von Tschudi, but their names will be remembered as long as science is held in honour or exhaustive and accurate guide-books to the Alps are valued.

Some losses are still so fresh in our recollections that I need but glance at them here. It is only a year since the Club was startled by the news of that terrible disaster in the Caucasus which took from us W. F. Donkin and Harry Fox. This is not a matter to dwell on now. At the last annual general meeting in this room the undertaking was given that a search should be organised, and I ventured to predict that it would not be fruitless. What was then felt to be a certainty is now proved to be such. We have lost, too, A. T. Malkin, one of the veterans of the old guard; Count Paul de St. Robert, a most distinguished man of science; Sir Francis Adams, who of the many honours he deservedly won did not, I think, value the honorary membership of this Club among the least; and Lieutenant-Colonel Eustace Anderson, one of our few remaining original members.

It will not be thought out of place here to pay a passing tribute to old associates in the mountains, although not actually members. The stalwart figure of a great mountaineer, Emil Boss, will be seen no more. From the ranks of leading guides have passed away the veteran Ulrich Kaufmann, Kaspar Streich, Johann Fischer, and Peter Taugwalder the elder.

Two names I have purposely withheld to the last—those of John Ball and A. W. Moore. They may well be associated in our retrospective sketch. We may never replace John Ball, who, as the first President, may be looked upon as almost the father of the Club, and who ensured for it a reputation of which we cannot be too jealous; nor A. W. Moore, who nursed the Club through a dangerous illness (tending to atrophy), and who laid down the main lines on which our society has been conducted ever since his time. The Club has suffered from slight attacks since, but, thanks to a healthy and vigorous constitution, which was chiefly due to Moore's fostering care, has been able to withstand these transient derangements.

We may turn with a feeling of relief to other matters, and note how far the Club has progressed in its several departments. For several there are. I have seen the Alpine Club spoken of in print—by that type of moderation and sound impartiality, a criticised author—as a mutual admira-

tion society. Not entirely. The term has less sting than its employer imagined. Even if it were true the condition is more heaven-like, though less common, than a state of mutual detraction. Some, also outside the pale, think it a mere gymnastic body. But, as we all know, the uniting bond is forged of far more complex materials, for association with the mountains draws men out in many directions.

Some of the energy accumulated in the Club is given off in artistic shape. Of this we have had the happiest proofs at intervals during the past three years. Not only abroad but at home also, at the Winter Meetings and in our own rooms, has the art of mountaineering been exemplified. Through the kindness of our artist members many works have found a home where they can best be appreciated, while our collection has been further enriched by many of Signor Sella's superb views and the magnificent set of Mr. Donkin's photographs.

Some energy, again, is given off in literary form. In concrete shape this is shown in Mr. Coolidge's admirable 'Swiss Travel and Swiss Guide Books,' and the bovril-like 'Guide du Haut-Dauphiné,' of which he is part editor with MM. Duhamel and Perrin—a happy instance of the correlation of literary forces. We have too Dr. Emil Zsigmondy's 'Im Hochgebirge,' edited, though not actually written, by a member, a book that owes no little of its charm to the illustrations provided by Mr. Compton's graphic pencil. For the most part, of course, our Alpine doings are recorded in the pages of the 'Alpine Journal.' The Club has formally recognised the ability with which this has been conducted, but it will not be thought out of place for me to add a word on a topic that should be fraught with interest. It should be, I say, for the 'Alpine Journal' is a work that the Club will hereafter look back to perhaps with more pride than it sometimes manifests at present. Seeing that the materials for this brief paper have been chiefly drawn from its pages, I should indeed be ungrateful were I not to acknowledge the extraordinary accuracy and thoroughness which has characterised the Journal throughout its late editorship. For more than nine years—since August 1880—Mr. Coolidge has, with unremitting industry and most conscientious labour, been slowly piling up a monument of which the credit is too much apt to be absorbed by the Club. As the sphere of our activity has enlarged so has his work increased and he has ever shown himself more than equal to it. No comparisons are permissible or needed, but this much I may say, that we

have never had an Editor who better deserved the grateful recognition of the Club.

Mr. Grove found occasion to lament that, during his tenure of office, climbing was undergoing what physiologists term a latent period of activity, but he spoke hopefully of a possible revival. This hope has, I think, been more than fulfilled. Such indeed has been the awakening that it might fitly be described in the language of the Revivalists as 'glorious.' For years the Club had seemed to look upon the reports of the Caucasus as mere travellers' tales. For years the preaching of Mr. Freshfield and others had fallen upon barren soil. Then came an abrupt change. Straightway the Club behaved even as larger bodies sometimes do and having discovered that the property was of value proceeded, in a mountaineering sense, to annex the new country. For it is only since 1886 that climbers have begun really to appreciate the Caucasus. Some members of the Club, deaf to all precept, were not slow to follow example, and the example was a brilliant one. I am glad to think that Mr. Donkin and I did something towards setting it. But the real impetus came in 1887, when Tetnuld, the Jungfrau of the Central Caucasus, fell before Mr. Freshfield's determined onslaught, while the smaller but yet considerable peaks of Ukiu and Shoda-tau were also brought into subjection and trampled under the iron-shod heel of the conqueror. As might have been expected, Mr. Freshfield was keenly alert in matters of mountain topography. The dead white of the Central Caucasus group was not indeed to be wholly changed in a single season, but the old mistakes and imperfections of the 5-verst map began to be shown up and cleared up. The topographical mists that had veiled the great mountains for so long melted away in great measure, and in this one district the peaks and glaciers began to take the definite shape and positions that the Russian surveyors had so long denied them.

In dealing with Orientals the well-known rule is always to follow up promptly an advantage. The rule may apply to mountains as well as to men, and I am glad to think that it was acted on in this case. The very next year—1888—a whole row of giants fell before the attacks of our members. Indeed, an almost clean sweep was made of the great peaks of the central group. The history of the conquest of the Alps in the early days of the Club repeated itself. I think that a volume of Caucasian 'Peaks, Passes, and Glaciers' that contained accounts of Shkara, Koshtan-tau, Djanga-tau,

Katun-tau, and the Saluinan Chiran Peak need not fear comparison with any book of mountain ascents. The Club had indeed woke up from its slumbers, for, in addition to the ascents already named, I must not omit to mention Mr. Cockin's remarkable success on Ushba, and Mr. Mummery's double pass over the Thuber, Gvalda, and Bashil Glaciers. Nor should we forget the solid results of Donkin and Fox's expedition. Witness the ascent of the eastern point of Dongusorun, their exploration of the Ullu-az Glacier, and their last climb to the summit of the Ullu-az Pass. Very noteworthy and valuable too was the new pass by which they crossed from the Adyr to the Bashil valley, as being one of the first high passes made across a spur dividing the lateral valleys, and thus a contribution to a high-level route between Urusbieh and Bezingi, the Chamonix and Zermatt of the Caucasus. As an instance of how rapidly mountaineering possibilities have been extended in these regions, I may mention that little more than three years ago Mr. Moore warned me, with characteristic emphasis, against attempting any such expeditions. The time was far distant, he then thought, when exploration of this nature would be feasible or judicious. Again, within the last few months we have been enabled to add to our list the ascent of Leila-tau by Mr. Freshfield and Capt. Powell, of Mala-tau by Signors Vittorio and Erminio Sella, and the crossing of at least four passes of the first rank by members of the Club.

Finally, Mr. Hermann Woolley has shown that there is no run of bad luck that cannot be turned by pluck and perseverance. The grand Aletschhorn-like peak of Koruldu has been won by him. Only 50 feet of Mishirgi-tau remains to be climbed by the next visitor to the central group. Kasbek has undergone the humiliation of a 'variation' ascent; Elbruz has met with similar treatment, while as a crowning achievement the giant Dych-tau has been gathered in. A pretty good record this for a Club whose limbs, if not its members, were thought to be waxing feeble, and of which the degeneration of premature senility has been predicted.

But, though all this has been done, let me beg of you not to suppose for an instant that nothing yet remains. As an instance—one only out of many that might be given—the Adai Choch district, the first great mountain mass west of Kasbek, offers an immense field for mountaineering of the first rank. Let some one go out and devote his energies to this group alone. Let him ascend the double-headed peak (miscalled Skatigom Choch) marked '3' in Mr. Freshfield's

sketch map,* lying between the Ceja and Karagam snow-fields, just behind the point on the watershed first climbed by M. de Déchy. Close by he will then find another point, higher still, the Russian Adai-Choch (15,244 feet). Let him ascend this too, if only to see how much yet remains to be done; next cross from the basin of the Ceja to the upper snow-fields of the Karagam Glacier, and then climb Burdjulatau, and he will probably be rewarded by as fine a panorama as any to be obtained in the whole chain. I trust that these magnificent peaks and glaciers will continue to attract, not merely for their own beauties, but also for reasons to be presently mentioned.

Yet remember that in the Caucasus, as compared with the Alps, the snow and ice conditions are more varied, more prone to rapid changes, and seemingly more treacherous, because less perfectly understood. Remember that the traveller has to depend infinitely more on his own judgment, and less on that of his guides, than in the Alps. Remember that for years to come, in countries such as the Caucasus, mountaineering skill will not be the sole qualification needful. Unless possessed of some of the attributes necessary for the successful explorer the climber augments the difficulties, and possibly the dangers. I am not now thinking of the past, but rather pointing out what I believe to be the sum of the experience gained by those who have visited and climbed among these unique mountains. For I feel assured that the good start already made will be followed up, and that the Club will maintain its pride of place in the Caucasus, as elsewhere.

But I may not dwell longer on a subject which has as yet no wide interest among our members, though the distinguishing feature of the past three years of our history has been the exploration of the Caucasus. You must have thought that those who go to that country do even as the Caucasians do, and pour out unending streams of watery verbiages. Do not suppose that I would have the old haunts abandoned, or the Alps, that we have made our own so much, deserted. It is a pleasure to come back to them, whether with the pen or the axe, for, however other mountains may attract, the Alps will never lose one iota of their charm. Nor have they been neglected during the past three years. In Dauphiné and elsewhere, in districts which he has almost made his own, Mr. Coolidge, the indefatigable, has pursued

* *Alpine Journal*, vol. xiv. p. 453.

his way with a perseverance that can only be described as relentless, and has won a place among mountaineers that is unique. I know not how many fresh peaks and passes he has still in store, or how many more 'grandes courses' have to be added before he reaches the limit he has prescribed for himself; I do not like to call it the seventh century, for that suggests too strongly the Middle Ages. The word 'impossible' has long been banished from the Alpine dictionary. The term 'exhausted' must follow suit. And let me say, parenthetically, if such words as 'arête,' 'couloir,' 'gendarme,' 'col' (the verb), and the latest-born monstrosity, 'Gratwanderung,' were to go also, the sacrifice of these foreign importations would be a gain to English Alpine literature.

It is somewhat startling to learn that in the year of grace 1887 a member of this Club was able to make—and to discover—three new ascents in the Oberland. Yet such was Mr. H. S. King's good fortune. Excellent climbs as they were the actual finding of the novelties was not the least meritorious part. As a motto at the head of Mr. King's paper might have been fitly inscribed, 'Inveni, vidi, vici.'

It is not, however, in districts like the Oberland that the best work has been done in the Alps. Far away from the too seductive centres mountaineering, sometimes amid 'new,' usually among too little known scenes, has been recorded. Mr. Yeld in the Graian Alps, Mr. Gardiner and Mr. Coolidge in the same district, Dr. Scriven and Mr. Gardiner again in the Dolomites, Mr. Butler in the Oetzthal have all striven to keep the climbing fraternity free from the charge of becoming too gregarious in their Alpine habits.

A former President, Mr. C. E. Mathews, in his swan song, which took the form of an admirable address to the Club, traced the growth of mountaineering from its inception to the year 1880. I have no intention of attempting any continuation of his paper, but will ask you only for a few minutes to consider in what directions Alpine mountaineering has tended, during the last decade, to change in character.

In 1880 the Club had come of age. By the present date, therefore, it should have reached that laudable period of life which is always vague and sometimes conspicuously absent, and is spoken of as years of discretion. Let us see how far the term is justified.

Although I have been able to point to good and valuable exploration in the more outlying Alps, it is yet to be feared that the number of our countrymen to be found in these districts does not increase. The tendency of the Alpine fraternity,

as of other bodies, is to centralise. Now I do not wish to preach against the modern growth of the two mountaineering centres, for practically there are only two at present, namely, Grindelwald and Zermatt, but only wish to note what I believe to be facts. I have nothing to say against these mountaineering centres, provided only they justify their title. But is such the case? Are not the centres more obtrusive now than formerly and the mountaineering less conspicuous? Such at least is the burden of the lamentation now often made by the guides, who complain that they are spoken of as leading but not so frequently employed in that capacity. We can hardly, however, accept the guides as wholly unbiassed witnesses, and I should be glad to learn that the growing disfavour with which they view the centres is but due to personal prejudice. It may be doubted, at any rate, whether the luxury and splendour of these mountain palaces is altogether healthy—I am not making any allusion to the drainage, for I will not speak ill of the absent—from an Alpine point of view. Some already hold that the superficial comfort and ease have dulled the keenness with which mountaineering was formerly pursued. Austere disciples of the old school are inclining to the opinion that the code of social ethics dictated of fashion is but a poor substitute for the ancient goodfellowship born of the mountains and thriving best under simple conditions.

Still, even though the centres may gradually cause some forgetfulness of the obvious purpose for which mountains and glaciers were primarily intended, the very centralisation enables the reviewer to estimate with more facility any changes that may have crept in. Of one, I think, there can be little doubt. Rock-climbing and rock peaks are more in favour now than formerly. The snow mountains no longer attract as they did of yore. Different terms are applied to them. People talk of the one form of mountaineering as a rock climb while they stigmatise the other as a snow grind. The change of opinion cannot but react on the guides. Some proof that such is the case is to be found in their little testimonial books. These are rather monotonous reading, but it is surprising to note how in their pages the owner is always described as possessed of transcendent ability on rocks and how seldom that best of qualities in a guide, ice-craft, is even alluded to. It cannot be that the writers of these panegyrics are slow to appreciate or unable to judge. Then we are forced to the conclusion that ice-craft must be a rarer quality than formerly. Perhaps the field of

mountaineering is narrowing, or, in other words, tends to specialise, but it is never safe to do that until some knowledge of the whole subject is attained, and this may be carried too far and become, so to speak, a specialism *in excelsis*. Indeed, the travellers of to-day seem to me to gauge the excellence of a guide almost entirely by his powers as a rock-climber. Yet rock-climbing is often mere gymnastic skill and soon wears out, while proficiency in ice-craft grows slowly, requires far more experience, much wider knowledge of the mountains, greater variety of source and sound judgment, in short, demands imperatively all the best qualities of the finished mountaineer. Possibly these may be but prematurely middle-aged croakings, for all climbers pass through what may be termed a stone age. This much is certain, however: that the traveller who goes out to regions such as the Caucasus, unable to rely to a very large extent on his own judgment and experience in matters of ice-craft, runs a very great, if not an altogether unjustifiable, risk.

A curious freak of development is to be seen in an odd familiarity common now in the mountaineering centres, in speaking of the mountains, such as extremely young men are wont to exhibit in alluding to celebrities—usually feminine. I was informed once in the Alps, by a quite juvenile person, clad in a polychromatic lawn-tennis costume, in answer to an enquiry, that ‘Papa had strolled off to the Fingerhut. He then meant just to do—(hateful word)—to do the Steinmannspitz, put a new face on, or at any rate col, the dear old Darnennadel, and bag the Katzenhorn on his way back.’ I can only trust the familiarity may not be the precursor of contempt.

It may be observed that mountain expeditions have now, for the most part, fallen into two categories; one the ridiculously easy, the other the most difficult ever achieved. Between the two there seems to be no degree. The climber who describes a given passage as the hardest thing he ever accomplished in his life is usually the more accurate; certainly he is the more judicious. People are apt to laugh to scorn early Alpine writings, and to point out, complacently, how expeditions once considered formidable have now ceased to be so estimated. It does not follow that they have in the least degree altered in character. Possibly the old descriptions showed not so much want of skill as sense of responsibility. Such responsibility every member of this Club incurs, in virtue of his membership, every time he goes on a mountain. If, gifted with special powers, he describes, with

perfect truth, an expedition as easy which to others would be difficult; or if, favoured with special conditions of weather and the rest, he speaks lightly of a climb which might usually or often be formidable, he may show himself to be a capable mountaineer, but he does so at the expense of proving himself an unreliable, if not an incapable, judge. Instances are not far to seek. Let me take the one important mountain Ushba. From this Mr. Donkin and Mr. Fox were forced to turn back twice. On the first occasion a great rock avalanche fell across the track they intended to follow. The snow in the great gully was not in a state to justify perseverance. Again, Mr. Hermann Woolley this year, starting from a high bivouac, after fourteen hours only reached the ridge connecting the two peaks, and a second attempt was also frustrated. Mr. Cockin in 1888 succeeded only at the third attempt in making his memorable ascent of the northern peak. On the first occasion his party had to turn back, owing to the illness of a guide. On the second, after five hours' continual step-cutting, they had again to acknowledge defeat. Finally the ascent was made with tolerable ease, the snow in the great gully being in an exceptionally favourable condition. But can such conditions often be counted upon, or can a mountain which occupied nineteen hours of hard going to such a skilled and determined mountaineer, led by a guide of the first rank, be classed as easy because it was on one occasion out of seven found so by exceptional men? I prefer to explain the term easy by the fact that the intrinsic difficulties were at a minimum, and even then had to be overcome by a combination of pluck, energy, and skill such as is given only to a few. A mountain often impossible, usually very formidable, and only under very favourable circumstances easy to highly skilled climbers, must rank as an expedition of great difficulty. We may not always speak of mountains as we are often told to speak of men—as we find them. There is nothing new in all this. It has all been said before; but it appears to me to require saying again.

This drifting of thought leads me to allude to a form of mountaineering that has, not unnaturally, of late tended to develop: I mean guideless expeditions. On this matter the Club has often, and with no uncertain voice, expressed a decided opinion. I have no intention of reopening the question. As so constantly happens, the rules are laid down with admirable clearness and precision. The difficulty is to get people to refer to and act on them.

The truth is that the number of amateurs really competent to undertake serious expeditions without guides is considerably less than the number who think that they can do so. There must be no weak spot on such occasions, and no mountain party, certainly when amateurs are concerned, ought to consist of less than three. Perhaps the best guideless expeditions of late have been achieved in Norway, and by one of our members who, as all will agree, is more than qualified to undertake them. I would gladly specify some of Mr. Slingsby's exploits, but a brief paragraph in the 'Alpine Journal,' referring to some and containing more unpronounceable names than I ever saw before collected into six lines, deters me. I must ask you to take them as read; it is so exceedingly hard to take them as spelt.

A tendency has sprung up of late—I will be merciful and not term it a craze—to solitary mountaineering. This unwholesome product of climbing development I cannot regard with any favour. It is not one that should be in any way countenanced by a club that has the best interests of mountaineering at heart. Whether right or wrong, and in my opinion it is always wrong, the example set is one to be deprecated. It is mere gambling with the mountains. What argument, worthy the name, can be urged in favour of expeditions necessarily fraught with risks so obvious? Whatever the objects men have in climbing mountains, these objects are prejudiced under such conditions. Can a view be finer because there are none by to share it? It may be doubted whether the acrobat who crosses Niagara on a tight rope appreciates the grandeur of the waterfall as much as the man who gazes at it in security. The necessity of mutual reliance is not the least of the many lessons taught in the mountains. I may speak plainly, for a President, like an Editor, may be impersonal if he believes he is but giving expression to the general feeling. I know that solitary expeditions are no novelty. There is not even that much to be said for them. Precedents may be quoted in justification. But oftentimes when we seek for a precedent we but search for a covering excuse. Solitary expeditions on minor snow mountains are selfish, on more considerable peaks or passes unwise or worse, and on the great rock or snow mountains unjustifiable. They may be magnificent, but they are not mountaineering. For expeditions of other kinds, but undertaken in a similar spirit of disregarding well-known rules, the 'attractive force of nature' has been pleaded. I know not what the conveniently vague phrase

may mean. The attractive force of the earth as exemplified by gravitation is more practical, and if dangers are deliberately incurred which can be minimised or obviated altogether, the physical laws that govern the momentum of falling bodies run no slight chance of being illustrated.

There is something to be said on the other side in favour of the mountaineering centres. Increased facilities have led to a larger number of winter expeditions, and many of these have been of the first class. I need only mention such ascents as the Schreckhorn, Mönch, Wetterhorn, and the Jungfrau, the crossing of the Lys-joch, and the remarkable traverse of Mont Blanc from the Aiguille Grise to the Grands Mulets to show that winter mountaineering opens up a wide field of possibilities. The fact that some of these expeditions were made by a lady is not without its significance. Indeed, one of the best climbs recorded in the Alps of recent times, the ascent of the rarely visited Aiguille de Bionnassay and the traverse of its entire eastern ridge, was also achieved by a lady. The Alpine sisterhood has been busy, too, in Norway and elsewhere. So much the better. It is a good sign that the popularity of mountaineering is not diminishing and that the revival is not a mere flicker but has really, as the theatrical people say, 'caught on.'

The evidence is finished, and I may sum up in a word. I have endeavoured to point out how of late the field of mountaineering has extended, far indeed beyond the limits already mentioned, as Mr. Green's exploration of the Selkirk Mountains and Mr. Topham's attempt on Mount St. Elias, in distant Alaska, show. The standard nearer home has at least been well kept up. So mote it be, for the Alps will ever remain the best training ground to be found. The old expeditions, or their variations, should attract no less in the future than in the past. Nowhere can mountaineering be so easily or so safely learned if only all due precautions are observed. Switzerland might almost be advertised as a scholastic *pension*. 'A large staff of first-class professors always in attendance. Lifts provided to many of the minor summits. Home comforts. Terms moderate. Wine also moderate.'

On a subject which I would gladly pass over altogether I feel constrained to say a few words. The list of accidents in the mountains occupies year by year, in the November number of the *Journal*, a large and, it is to be feared, an increasing space. No doubt some calamities have been recorded in these pages which can only remotely be classed as 'Alpine'

accidents. But our Editor, with, I think, a wise discretion, has not drawn too sharp a line and has thus allowed people to judge for themselves. With the rarest exceptions the moral to be drawn from each grim recital is only too obvious. And this moral is as easy to gather as it is certain to be neglected. I confess to agreeing with those who believe that mountaineering can never become wholly free from peril. The greater the experience and the more that experience is utilised the less will be the risk; but some risk there will ever be. Unfortunately the peril has not yet nearly reached its minimum point. It can hardly be gainsaid that a small proportion of the accidents that occur are a reproach to mountaineering. Such as these it is the especial duty of this Club to guard against to the utmost of its ability. There is room for further efforts. By discouraging mountaineering which is but flashy athleticism, by bearing constantly in mind that a wholesome responsibility attaches to our Society which is at once a burden and a privilege not to be thrown off, and by maintaining a respect for a sport which even a golf-player has been known to admit to be in some points superior to that seductive game, we may not indeed wholly eliminate what is ineradicable, but we may whittle the element of reproach down to vanishing point. And this brings me face to face with the question so often asked by unbelievers—Is the game, then, worth the candle? To that my answer is, unhesitatingly, Yes! and still yes! even when the question is asked of mountaineering which can neither plead the excuse of scientific aims nor the justification of new exploration.

And now it is time that I should bring to an end an address the length of which can but feebly be excused by the difficulty I find in speaking the last few words; for

‘Parting is such sweet sorrow,
Though tempered by the thought we meet to-morrow,’

that I have deferred unduly what must yet come.

I have to thank you for much, for more, indeed, than I dare seek to express in words. Consider what a true and acceptable reward the present prosperity of the Club and of mountaineering generally is to one whose term of office, with all its attendant responsibilities, is nearly over. I can but say, paraphrasing the homely eloquence that Bret Harte put into the mouth of Tennessee’s partner, ‘It ain’t the first time that you have borne patiently with me, as you have this evening. It ain’t the first time that you have supported me in this chair. It ain’t the first time that you have en-

couraged and helped when help was needed, or condoned when shortcomings were only too obvious. And now that it's the last time, why—it's a sort of rough on a man.' And now, gentlemen, my address is over; and my thanks and your President's thanks to you for all your indulgence and all your attention.

JOHN BALL.

THE notice of Mr. Ball which appeared in the November number of this Journal told what was necessary, and all that under the circumstances was then possible, with regard to the main facts of his Alpine work; but it was generally felt that some fuller commemoration was due to one who, though he was not, strictly speaking, among those to whom the Club immediately owed its inception, was nevertheless felt to represent so pre-eminently the spirit in which the Club was formed that he was at once fixed upon as the fittest person to be its first President, and to edit those first records of mountain adventure put forth under its auspices, out of which the long series of this Journal has grown. The natural and obvious form of commemoration would have been a detailed biography; but it was found that this had already been undertaken, on behalf of the Royal Geographical Society, by the person who of all others was most competent for the task, and it was clearly inexpedient to do anything savouring of rivalry or emulation in such a matter. Consequently it was decided to ask certain among the older members of the Club to contribute independent reminiscences of Mr. Ball, and more particularly appreciations of his scientific work in connection with the Alps. This they have most kindly done; and it is hoped that what they have written may be accepted by the Club as a fitting tribute to the memory of its first President, and may serve to show to those of us who never enjoyed personal knowledge of him, and to members yet to come, 'of what sort our patriarch was.'

EDITOR.

Mr. John Ball became President of the Alpine Club in 1858. One of the first literary works connected with the Club in which he was engaged was editing the first series of 'Peaks, Passes, and Glaciers,' which appeared in 1859. He contributed to this volume chapter vi., entitled, 'Zermatt in 1845,' with a description of the passage of the Schwarz

Thor, made by him for the first time and with a single guide. The paper contains some interesting observations on glacier physics and a reference to a paper by the author in the 'Philosophical Magazine' for 1855. The editor has enriched the various chapters in the volume with terminal notes, containing important information on various topographical, botanical, and physical questions. He also contributed chapter xviii., 'Suggestions for Alpine Travellers,' containing 'Notes on the Mode of Travelling in the High Alps,' on the 'Measurement of Heights, Distances, and Angles,' on 'General Physics and Glacier Phenomena,' and on 'Geology and Natural History.'

Mr. Ball's next important work in connection with the Club was the production of the 'Alpine Guide,' of which vol. i., the 'Western Alps,' appeared in 1863; vol. ii., the 'Central Alps,' in 1864; and vol. iii., the 'Eastern Alps,' in 1868. It is impossible to give in this place an adequate description of this remarkable book; suffice it to say that for scientific information, clearness of arrangement, abundance of topographical detail, and charm of literary style it is without a rival.

It was in or about the year 1862 that Professors Ramsay and Tyndall first promulgated the theories, the former that the lakes of Switzerland and Wales had been excavated by ice, the latter that all the great valleys of the Alps owed their origin to the same agency. These theories are advocated in various papers, in the 'Quarterly Journal of the Geological Society,' the 'Philosophical Magazine,' Professor Ramsay's 'Physical Geology and Geography of Great Britain,' and elsewhere, and are discussed at length in chapter xvi. of Mr. Whymper's 'Scrambles in the Alps.' They are held by many of the most advanced glacialists of the present day. Two Italian geologists—MM. B. Gastaldi and G. de Mortillet—had previously published another theory of lake basins, viz. that they had been filled with diluvium which had been cleared out by ice. The first physicist to controvert these theories was Mr. Ball. In the 'Philosophical Magazine' for February 1863 he opposes Professors Ramsay and Tyndall; in the same serial, in December 1863, he opposes MM. de Mortillet and Gastaldi. As an important element in the discussion of the origin of Alpine lakes Mr. Ball had urged the necessity of ascertaining by means of soundings the exact form of the principal Alpine lakes. He published in the 'Geological Magazine' for August 1871 the result of a complete survey

of the bed of the Lake of Como, executed in 1865 by Signor Gentili, one of the engineers of the Lombardo-Venetian Railway, in connection with MM. Casella and Bernasconi. The glacial origin of Alpine lakes has been opposed by many writers subsequently to Mr. Ball, among whom Professor Bonney, Mr. Whymper, and Mr. Ruskin are the most eminent, and may be said to have completely demolished the theory.

In the year 1861 the late Canon Moseley communicated to the Royal Society* his observations on the movements of a plate of metal on an inclined plane, and their reference to the problem of glacial motion. This communication was followed by various papers in the 'Philosophical Magazine' (May 1869, August 1869, January 1870, August 1871, January 1872). In these papers the Canon developed what has since been known as the 'crawling theory' of glacial motion, viz. that glaciers moved downwards in consequence of alternations of temperature within their mass. The theory was refuted by the late J. D. Forbes, by the present writer, and especially by Mr. Ball in two papers, the first published in the 'Philosophical Magazine' for 1870, the second in the same serial in February 1871.

There are few problems of greater interest connected with the Alpine regions than that of the distribution of plants. In the remarkable lecture delivered to the Royal Geographical Society on June 9, 1879, Mr. Ball discusses the question of the origin of the flora of the European Alps, and supposes it to have been derived in its main features from that of the highest mountain regions in Palæozoic times.

In the year 1877 Mr. Ball made with Sir J. D. Hooker and Mr. Geo. Maw the well-known journey to Marocco and the Great Atlas. The journal of this tour was not published until 1878, and was mainly the work of Mr. Ball. The botanical results of the journey, including the determination of many new species, were communicated to the Linnean Society under the title of 'Spicilegium Floræ Maroccanæ,' and occupy five parts of the journal, Nos. 93-97 inclusive, vol. xvi. 1878.

In the year 1882 Mr. Ball made the tour of the greater part of the coast of South America, visiting the West Indies, crossing the Isthmus of Panama, and visiting successively Guayaquil, Callao, Lima, the Lower Andes, Valparaiso,

* *Proceedings*, August 11, 1861.

various parts of Chili, Patagonia, Monte Video, and Brazil. The results of the journey are recorded in a volume entitled 'Notes of a Naturalist in South America, 1887.' It contains two valuable appendices, the first on the 'Fall of Temperature in Ascending to Heights above the Sea-Level,' the second on 'Mr. Croll's Theory of Secular Changes of the Earth's Climate.' The botanical observations are contained in full in two contributions to the 'Journal of the Linnean Society'—the first, 'Contributions to the Flora of North Patagonia,' vol. xxi. 1884; the second, 'Notes on the Botany of Western South America,' vol. xxii. April 1886.

In the early part of the year 1888 Mr. Ball made his last journey; this was to Tenerife, in company with Mrs. Ball and Mr. F. F. Tuckett. At this time his physical powers had become greatly weakened, but his zeal for botany and his mental activity were by no means diminished.

Mr. Ball's last important contribution to Alpine physics is the paper on the 'Measurement of Heights by the Barometer,' communicated to the Royal Geographical Society, published in the volume of supplementary papers for 1888, vol. ii. part 3. One of the main objects of this paper, which extends over forty pages, is to ascertain the rate of decrement of the air temperature, corresponding to successive increments of height of 1,000 feet. The balloon observations of Mr. Glaisher, the observations of the Comte de S. Robert in the Alps, of Mr. Whymper in the Andes, and of Sir J. D. Hooker and General Strachey in the Himalayas are fully discussed and considered.

W. MATHEWS.

Concerning the expedition to Tenerife, mentioned above, Mr. Tuckett writes to Mr. Mathews:—

'You ask me to furnish you with a few notes of my intercourse with Mr. Ball when, at his invitation, I accompanied him and Mrs. Ball to Tenerife in February 1888; but the state of his health, after a severe bronchial attack, so limited his activity during the time I had the happiness of being with them that I had less opportunity than I had hoped for of noting his characteristic method of work in the department of botany. On the other hand, however, it was my privilege to become more intimately acquainted with him than I had ever been before, and this is equivalent to saying that my appreciation of his character and my affection for him, high and deep as they were before, were largely increased.

'His well-furnished mind, sweet temper, bright manner, exquisite courtesy, clear good sense, and playful humour,

coupled with a keen and many-sided interest in a wide range of subjects, rendered him a most charming companion, especially in a ramble; and then, when the proposed scene of operations—some barranco, perhaps—was reached, it was very interesting to watch the rapidity and skill with which he would take stock, as it were, of its botanical wealth, and, as one specimen after another was transferred to the vasculum, enlarge, from the rich stores of his reading or personal knowledge, on their affinities, or modifications due to climate, altitude, or cultivation. His was a very bright mind, lodged in a happily constituted and finely balanced nature, and with that enviable capacity for placing itself *en rapport* with a wide range of character and subject which the Italians well describe by the word *simpatico*. He told a story well, and his large and varied acquaintance with leading men in the political and scientific world, both in England and on the Continent, especially in Italy, made him rich in anecdote, allusion, and reminiscence, whilst, thanks to his scientific sobriety and accuracy of thought and expression, the stream of his conversation always left behind more valuable deposit as it flowed along. In action he was delightfully practical, and especially fertile in expedients. I remember how, after sundry disappointing attempts to dry his botanical papers on the azotea of the hotel during the moist month of February, and in the spray-charged atmosphere of Puerto di Orotava, he one day took me to his room and gleefully pointed to his bed, the iron frame above which (for supporting mosquito curtains) looked like the gills of some monstrous fish or the fringes of whalebone in a whale's jaw. He had stretched a number of parallel lines of string lengthwise from head to foot, and then hung on them a mass of sheets of damp botanical paper, which, in defiance of the rheumatism or bronchitis which I prophesied, he proposed to dry by the action of his own radiated caloric as he lay beneath!—a result which was, in fact, successfully realised.

‘I do not think that a better idea could be given of his healthy, cheery, practical view of life and its opportunities than by quoting the following portion of some remarks which occur near the end of that most charming book of his “Notes of a Naturalist in South America.” They illustrate the spirit in which he himself travelled, worked, and lived, and I cannot but believe that a life which furnished so bright and stimulating an example to others must itself have shared richly in the happiness which it radiated to all who came within its genial influence. The entire passage

deserves to be quoted, but would, I fear, be too lengthy for these pages:—

“Often during this return voyage my thoughts recurred to an article in some periodical lent to me by my kind friends at Petropolis, wherein the writer, with seeming gravity, discussed the question *whether life is worth living*. My first impression, as I well remember, was somewhat contemptuous pity for the man whose mind could be so profoundly diseased as even to ask such a question, as for a soldier who, with the trumpet-call sounding in his ear, should stop to enquire whether the battle was worth fighting. When one remembers how full life is of appeals to the active faculties of man, and how the exertion of each of these brings its correlative satisfaction; how the world, in the first place, needs the daily labour of the majority of our race; how much there is yet to be learned, and how much to be taught to the ignorant; what constant demand there is for the spirit of sympathy to alleviate suffering in our fellows; how much beauty exists to be enjoyed, and, it may be, to be brought home to others—one is tempted to ask if the man who halts to discuss whether life is worth living can have a mind to care for truth, or a heart to feel for others, or a soul accessible to the sense of beauty.”

‘The world is distinctly the poorer for the passing away of such a life, and he will be as widely and deeply mourned as he was truly and deservedly loved and appreciated.

‘F. F. TUCKETT.’

It would be presumptuous in me—perhaps in any member of the Club—to attempt to criticise Mr. Ball’s varied scientific work, but there must be many who can remember the vigour which he infused into the Club at starting, and the pains that he took to instil into us that the investigation of Alpine phenomena, especially in plant life, would add to, not detract from, the pleasures of the mountain climb. ‘If,’ he writes, ‘the members of the Alpine clubs of our own and other countries will be prevailed upon to use their eyes as well as their legs, and, better still, to preserve a few specimens that will fit in a pocket-book for future reference and verification, we shall get to know much more than we now do of the vegetation of the highest region. Favourable situations become so rare above the level of 10,000 feet that no single traveller has many opportunities for observing them.’*

* *Lectures to the Royal Geographical Society, June 9, 1879, p. 7.*

My earliest recollection of Mr. Ball takes me back to two delightful excursions in the years 1858 and 1859 to the English lakes and Wales made with him, W. Longman, Hinchliff, and Malkin. Of the party, alas! the writer alone survives; but I well remember that it was on these two courses that I first acquired any taste for botany from seeing the pleasure the flowers we chanced upon gave to two of my companions.

At all points, whether as geographer, explorer, writer, geologist, or botanist, Ball was indeed pre-eminently qualified to illustrate the Alps and Alpine travel. In the first of these branches of science—the extension of geography and the knowledge of the mountains—he has to a great extent succeeded in infusing his spirit into the Club; but in the last, which was that in which he himself especially excelled and delighted, I am afraid his followers, at least among us, are few and far between. Unfortunately few mountaineers are good botanists, and still fewer botanists are good mountaineers. Ball was both, and both in the highest and widest acceptation of the words. He was a mountaineer, not for the sake of ascending a peak that had been thought impossible, still less for beating the record and doing it in the shortest time, but because of the pleasure which a mountain climb afforded him. He was a botanist not so much as a microscopic scientist for investigating the structure of plants and their minutest organs, but as taking a deep interest in the geographical distribution of plants throughout the earth, and especially in the perplexing problem of the origin of the Alpine flora.

In the year 1878 I was with Mr. Ball at Windisch-Matrei, in the Tyrol. He still carried an ice axe, though then only using it, as he told me, as a digger for plants. As an instance of his marvellous acquaintance with the likely habitats of Alpine plants, even the most rare, I may mention that on parting to return by the Brenner Pass he told me that on some of the mountains in that district it might be possible to find *Ranunculus pygmaeus*, a rare and most tiny plant, of undoubted Arctic origin, which had descended somehow or other to these parts along the Scandinavian backbone. The plant he himself had never met with, but described to me so well the spots and aspect on which I was likely to meet this little straggler from the Arctic vegetation that I succeeded in finding it in quite a new locality—on the north side of the Kraxenrager, about 300 mètres below the summit (2,690 feet above the sea level).

The result of Mr. Ball's observations on the origin of the flora of the European Alps are summed up in a most interesting lecture, which he read to the Geographical Society on June 9, 1879. In this he will not admit that the flowers which glow with such warm bright colours on the mountain-tops are mere interlopers drawn down from the Polar regions during some glacial epoch, but he thinks that the existence of identical or at least allied species on remote mountain summits goes to show that these, for the most part, were the original denizens of the soil, probably dating back before the tertiary period. 'With a very few apparent exceptions,' writes Mr. Ball, 'all the mountains known to possess rich and varied floras, with many endemic species, are portions of ancient continental masses that have been at various periods isolated, but never utterly submerged.' We have no space here to give the ingenious arguments by which he supports this theory, and shows that the dispersion of the Alpine flora has been a descending migration from the mountain-tops to the plains, rather than in the reverse and more generally accepted order.

The geographical distribution of plants, especially on the mountains, was an enquiry of undying interest to our first President, and I can hardly doubt that it served as the motive power in many of his ascents and explorations. It seems, then, not unfitting that this notice of him should close with the eloquent words that he addressed to the Fellows of a less aspiring but cognate society: 'Especially do I solicit your attention for those humble plants that dwell in the highest region of lofty mountains, springing from crevices in the rocks or fringing with bright colour the edges of the snow-field. It will not diminish the interest of the search if you believe with me that these organisms, exempted from the vicissitudes to which the ancient world was exposed, may represent the earliest forms of the higher types of plant life; and even that some of the identical species that now adorn the Alpine heights may, during the inconceivably long lapse of geological ages, have looked down unchanged on the revolutions that have slowly destroyed and renewed the various forms of life on the surface of our planet.'* C. ПАСКЕ.

Although, so far as I am aware, Mr. John Ball did not attempt to keep pace with the rapid strides which geology

* *Lecture to the Royal Geographical Society, June 9, 1879, p. 25.*

has made during the last thirty or forty years both in petrology and palæontology he had a firm grasp of the principles of the science and knew as much of its details as was necessary for his own purposes. Thus he was well qualified to deal with such geological questions as came before him as either the editor of an Alpine Guide Book or a student of Alpine botany; and in that work the chief physical and lithological features of the mountains are always presented to the reader clearly and sufficiently. The task, however, of writing the prefatory article to the 'Alpine Guide' was entrusted to M. Desor, though one or two brief notes show that it was carefully read by Mr. Ball. The article was not, in my opinion, in all respects satisfactory, and I believe that some parts would have been better executed by the editor himself. The branch of the science in which Mr. Ball felt most at home was physical geology, and on questions of this kind he has written two or three excellent papers; of these the best and longest was published in the 'Philosophical Magazine' (February 7, 1863). It was evoked by two papers which had appeared a few months previously, one in the 'Quarterly Journal' of the Geological Society, the other in the 'Philosophical Magazine' itself. In the former, by Professor Ramsay, the older explanations which had been given of the origin of Alpine and other lakes were examined and rejected, and a new hypothesis was advanced, viz. that these lakes resulted from the erosive action of glaciers, which, owing to special causes, such as some peculiarity in the topography or in the nature of the rock, had produced exceptional effects in certain localities. The second paper, by Professor Tyndall, took a far bolder flight, by ascribing the Alpine valleys themselves to the excavatory action of glaciers. The latter hypothesis indeed repelled by its boldness more than it attracted by its brilliancy, and may be said to have died of a chill caught at its first reception. But the former speedily attracted a host of enthusiastic admirers, and even now, though the lapse of time seems to have told disadvantageously on its charms, numbers several votaries. A few geologists of experience in mountain regions—for example, Sir R. I. Murchison—at once took up an antagonistic position, but Mr. Ball was almost if not actually the first to make a formal attack. His paper is an excellent example of his lucidity of arrangement and expression, and of his invariable courtesy in debate. In one or two places perhaps some exception might be taken to his reasoning, for, like most geologists of the last generation, he was slightly dis-

posed to exaggerate the power of marine erosion and underrate that of subaërial and fluviatile. But it cannot, I think, be denied that his attack is extremely formidable, both from his acuteness in detecting weak points and because of his intimate knowledge of Alpine topography. His method was in part similar to that followed by myself in a series of papers in the 'Quarterly Journal of the Geological Society' for 1871, 1873, and 1874—papers, I may say, written in ignorance that Mr. Ball had published anything on the subject.* Mortillet's view, which, were it not earlier in date, might be called a modification of Ramsay's, is also criticised, more briefly indeed, but certainly not less effectively. In a shorter paper, published in the 'Geological Magazine' for 1871, Mr. Ball discusses a series of soundings of the Lake of Como made by some Italian engineer, and indicates, conclusively as I think, how irreconcilable are its subaqueous features with Ramsay's hypothesis of its origin.

The papers published in the 'Philosophical Magazine' for 1870 and 1871 in which the hypotheses of Moseley and Croll as to the cause of glacier motion are discussed, belong to physics rather than to geology, but are so closely related to the latter subject that I must not leave them unmentioned. Both show Mr. Ball's wonted clearness of thought and accuracy of expression. Nor must we forget his excellent paper on the origin of the flora of the European Alps,† where geology goes hand in hand with botany.

To this notice of Mr. Ball's geological work—brief, because his main power was turned in another direction—I may add a few words on the man himself. I became acquainted with him some thirty years since, but we met more frequently after I came to reside in London. We were brought into still closer relations about two years before his death, when he succeeded me as treasurer of the Philosophical Club, a body composed of Fellows of the Royal Society, which meets monthly to discuss dinner and science. The duties are not onerous, but they enabled me to appreciate the thoroughness and method with which Mr. Ball carried out everything that he undertook. They could not make me appreciate more highly than I did before—for that were scarce possible—his

* It was rather unfortunate that he published his paper in the *Philosophical Magazine*, for original geological papers do not frequently appear therein; so that they are apt to be overlooked by students of that subject who, like myself, prefer the open air or the museum to the library.

† *Proceedings of the Royal Geographical Society*, 1879, p. 564.

courtesy and suavity of manner. In him high intellectual gifts were united with a remarkable gentleness. 'Mitis sapientia' might have been taken as his motto. He seemed never hurried, never ruffled, incapable of bitterness, and still more incapable of anything base. When men of his nature die, not only friends but many others also are the losers, because an influence for good is taken away from the world.

T. G. BONNEY.

THE HISTORY OF THE SEARCH EXPEDITION TO THE CAUCASUS.

BY CLINTON DENT.

(Read before the Alpine Club, Tuesday, February 4.)

IN the following narrative I have endeavoured to abstain from forcing on readers of the 'Alpine Journal' the views generally held, to the best of my knowledge, by the members of the search party, and I have sought as far as possible to state simply the facts, leaving those interested to draw their own conclusions. With the aid of the accompanying map (for the materials for which our warmest thanks are again due to the topographical department in Tiflis, and especially to General Shdanoff and Messrs. Djukoff and Bogdanoff) and outline sketches (p. 37, *infra*) many points of topography, hitherto obscure to those unacquainted with the district, can now be made clear.

Some recapitulation is necessary in order to set forth the nature and conditions of the problem we had set ourselves to work out.* On August 27, 1888, as learned from Fox's diary, the party having made their way up by the Ullu-az Glacier, attempted the ascent of Dych-tau by the north ridge. They reached a point (shown on the map) on the ridge separating the west basin of the Ullu-az Glacier from the Kundium Mishirgi snow fields. A tower of rock barred the way upwards. Following Streich's advice, they descended a few hundred feet on the Mishirgi side and then attempted to climb by a rock-rib back to the ridge. I may quote from the diary:—'We left the col at 9.10. The descent took a long time and there was much step-cutting. We then tried the rib and found the rocks, as we expected, quite smooth. We cut up between them and forced our way up slowly, the fresh snow making everything most difficult, but at 11.40

* *Alpine Journal*, vol. xiv. pp. 94, 432, 438.



had made little progress, and as it was obvious we had not time to make our peak that day (the arête alone would take at least four hours), and as clouds were gathering, we reluctantly ordered a return.'

No further idea of attempting the ascent from this side seems to have been entertained. It may be mentioned that this north ridge is feasible enough, but the best access to it is probably from the Kundium Mishirgi Glacier. If attacked from this side the rock tower could be avoided altogether, as the ridge can be struck higher up. The expedition would probably be extremely long, and in cold or windy weather a very serious undertaking.

On August 28, 1888, Fox wrote in his diary, 'Weather permitting, we hope to start again to-morrow very early and take three or four days' provisions. Make the Doumala-Dych-su * Pass first day and camp near its head. Climb Dych-tau if possible from the south side the next and descend to the Dych-su Glacier. Thence to Karaoul.'

The party did not actually start till August 30 from their camp at the end of the Ullu-az Glacier,* and they then proceeded in the direction of Dych-tau. Their tracks were afterwards seen by Mr. Phillipps-Wolley† and M. Djukoff on the moraine on the left bank of the glacier, by the side of the lower icefall. These tracks may have been made either on August 27 or 30. A detailed story had found its way into a Vladikafkaz newspaper to the effect that a search party of Bezingi men had found tracks of English nailed boots on the snow slopes on the east side of the Ullu-az Glacier. The tracks had been followed up, so the report ran, to the top of the pass, i.e. to some point on the crest between the Ullu-az glen and the Cherek valley, and had then been lost on the loose rocks on the Balkar side. There can be no difficulty in crossing the northern and lower part of this (the Koshtan crest), at more than one point, and descending to Balkar, and it was hardly conceivable that any accident could have happened in such a place. Yet the account was rather puzzling, for it seemed circumstantial enough. We decided, however, that the clue was not of sufficient importance to divert us from our intention of searching first for a bivouac on the south side, though it might be worth while to elucidate the matter subsequently if we failed to find any traces. I shall have occasion to refer again to this account.

* The Doumala and Ullu-az Glaciers are identical.

† *Alpine Journal*, No. 102, p. 102.

In 1888 our knowledge of the glacier topography on the south side of Dych-tau was very slight, and the name Dych-su was applied generally to all the glaciers comprised in the great snow cirque, bounded by Dych-tau, Mishirgi-tau, Shkara and Koruldu, whose streams form the head waters of the Cherek river. We did not learn till last year how far it might be possible, having crossed the east ridge of Dych-tau, to make a way back to the Mishirgi Glacier or across subsidiary ridges to the snow fields of the Dych-su proper.

We saw no reason to doubt that Donkin and Fox had endeavoured to carry out the intention expressed in the entry of August 28 in the diary. It was evident in considering the general plan to be adopted in the search that one of two lines might be taken. One course was to follow Donkin and Fox's route up the Ullu-auz Glacier to the pass. In favour of this plan was the fact that the party might have been overwhelmed by the avalanche the traces of which were seen by Mr. Phillipps-Wolley.* We could not, however, bring ourselves to believe that the accident was due to this cause. The pass is simple enough from the Ullu-auz side, and it seemed highly improbable that they had failed to cross it and bivouac, as they intended, high up on the south side.

The other course consisted in approaching the Ullu-auz Pass from the south, thus meeting the line taken by Donkin and Fox. From the Stulee-vsek ('vsek' = pass), as can be judged by a photograph taken by M. de Déchy, a fine view is obtained of the south and east aspects of Dych-tau, and this view could hardly fail to be of value.† It was accordingly decided to make for Karaoul by way of the Stulee-vsek. Our chief hope was that we should find a bivouac, and that we should be able to infer from this the probable movements of the party, and also the directions in which any further search that might be necessary should be prosecuted. The search might involve arduous work, and it was prudent to get into fair condition before undertaking the main object of our expedition. We devoted, therefore, about ten days to the journey from Vladikafkaz—our meeting-place—to the Cherek valley.

If the search on the south proved abortive we proposed to proceed to the Ullu-auz glen, subsequently exploring the Mishirgi Glacier and the west side of Dych-tau.

* *Alpine Journal*, No. 102, p. 102.

† The aspect of Dych-tau from the Stulee-vsek is much the same as that from the hill N.E. of Karaoul. See sketch, *infra*, p. 37.

The weather, which on the whole had been extremely favourable for the first few days of our journey, broke down on the day we crossed the Stulee-vsek, and we saw very imperfectly the view from which we expected to gain valuable information. Nevertheless the walk was very beautiful and interesting. Apart from the distant view the graceful peak of Pasmak-Chonch, which resembles the Eiger from some points of view, rises on the watershed south-east of the pass and forms a very conspicuous object. Looking down the valley towards Karaoul, a low range cuts off the view of the Dych-su. The thin white line of the Agashtan Glacier, with its lateral overflow of ice—a phenomenon of tolerably common occurrence in the Caucasus—forms a prominent landmark. We were able to get the horses over the pass, but not without much difficulty, owing to soft snow, and near the top all the luggage had to be carried. Probably our leading native did not choose the best route and might have avoided the snow more skilfully. The weather improved as we made our way down the long valley of the Upper Cherek, passing by the bed of a dried-up lake, which must have been once of good size. Numerous iron springs stain the ground bright red in places, and herds of cattle now find good pasture on the wide level. This spot may some day become the site of a health resort, and is well adapted for such a purpose. In the evening we crossed the Cherek by a rather unstable bridge, which was swept away altogether a few days later, and in the fork between this stream and the Dych-su ('su' = 'stream') we saw, to our delight, the white tents of a Russian survey officer, M. Bogdanoff. The baggage horses were, as usual, far behind, and we were glad indeed to accept his hospitality, expressed in the liquid form of tea, made only as a Russian can make it, whatever the conditions under which he finds himself. As an example of the prices for which horses may be hired by judicious bargaining, I may mention that we took seven from Sadon to Karaoul, and paid seventeen roubles—about thirty-four shillings—per horse for the whole journey for six days. Our party was eight in number, exclusive of the natives.

The first stage of our journey had thus been most successfully carried out, and we were now face to face with the central object of the expedition. The best line of access to the south side of the pass by which Donkin and Fox had, we felt assured, crossed from the Doumala glen was not quite clear, and M. Bogdanoff's survey was still too incom-

plete to be of much help in the upper snow regions we had to explore. It was tolerably evident, however, that by following the glen of the Tutuin stream ('tutuin' = 'smoke'), the first torrent of any importance joining the Cherek below Karaoul, we should be led in the right direction. We arranged, after a day of rest, to proceed up this glen early on July 28 and camp high up. We sent a special messenger to Col. Veeruboff, the governor of the Naltchik district, requesting that stores of bread, &c., might be sent up, and asking also for a cossack. The latter had been promised and the man we had brought from Allagyr had left us on reaching the limits of his own district. The stores arrived in due course, but the cossack, for some unexplained reason, was never provided.

Unfortunately, the next day Kaufmann, Woolley's second guide, was found to be too ill to start. The constant wettings from rain and the fording of streams, added to the effects of unaccustomed diet, had combined to bring on a mild attack of dysentery, a complaint to which travellers in these regions are rather liable. Seeing that the success of high expeditions depends so materially on the health of the guides taken, travellers in the Caucasus will do well to watch their men very closely and insist in the most peremptory way on their observing ordinary precautions. A Swiss guide, for instance, if left to himself will allow his clothes to be soaked with rain before he will put on a mackintosh, and finds apparently more satisfaction in complaining of the hardships than in taking the simplest measures to mitigate them. It would be hard to find a more terrible incubus or a more depressing companion than a sick guide.

A further delay of twenty-four hours was necessitated, and we arranged to leave at 1 A.M. the next morning, intending to profit by the fine weather and push on as far as possible. Freshfield and Powell spent the day in ascending a hill north-east of the camp, whence a good view might be expected of the south side of Dych-tau, while Woolley made for the Tutuin glen. The Tutuin-su a short distance up the glen is joined by a stream flowing from the Ghertui Glacier. This glacier, which becomes visible soon after entering the glen, descends from the south-east slopes of the Koshtan crest. The Tutuin glacier is not visible until the open plateau far up the glen is reached. Woolley was not unnaturally deceived, and followed the northern or Ghertui stream until he was satisfied that the way up that glacier was practicable. It is highly probable that we should have

fallen into the same error had not Freshfield, after long and patient waiting, been able to make out the topography of the two glaciers, and especially the relation of the Tutuin to the Ullu-az Pass. The lower part of the Tutuin Glacier plunges down a deep gorge in a narrow broken-up stream of ice. By this only could access be gained to the upper snow-fields, though it was evident that some difficulty might be experienced in making a way through the complicated ice-fall.

The information thus obtained was obviously of the highest value. We knew previously the situation of the pass we had to make for. We had now learned also the most direct line of access to it. Everything promised well save that Kaufmann was obviously unfit to join in the expedition, and we turned in early in a very hopeful spirit. But a curious complication now arose. At 11 p.m. a native came to our tent, saying that M. Bogdanoff had received a letter for us. Powell went off to see what it was, and returned in a few minutes with a pencil note from Baron T. Ungern-Sternberg, dated a few hours previously. The note set forth that the Baron had that day crossed the 'Ullu-az Pass;' that on the summit he had found three stone-men; that the descent had proved very difficult and had occupied eight hours; that his guide, Hofer, had found the imprint of an ice axe ('Eispickel-Abdruck') on the moraine; that he was camping out in the Cherek valley close to the glen by which he had descended (name not given), and intended to push on to Balkar in the morning. We were the more surprised at receiving the letter in that we had been led to believe that Baron Ungern-Sternberg was at the moment in the Elbruz district, where, we understood, he had some work to carry out.

At the first moment it seemed as if all we had journeyed so far to accomplish had been already done. It was possible enough to infer from the note that the Baron had crossed the pass Freshfield had seen and had descended by the Tutuin icefall. If so his camp could not be far distant. On the other hand, we found it hard to believe that he had succeeded in making his way down the icefall with a single guide and accompanied by natives, who are not proficient in ice-craft. Still, as all was uncertain, it was agreed that Freshfield should ride down early to the mouth of the Tutuin glen and endeavour to ascertain what the Baron had really done. The plan of starting at 1 a.m. was accordingly abandoned, and a native, the son of a Balkar chief, was sent down at once with instructions to delay the Baron's departure.

Freshfield rode forth early next morning, but when we arrived in due course at the opening of the Tutuin glen we learned that he had been unable to discover the Baron. The party was thereupon divided. Powell and Freshfield rode off down the valley towards Balkar at their best pace, and Woolley and I with the guides and baggage made our way upwards to the division of the streams, agreeing to wait till midday. About noon Freshfield and Powell rejoined us. They had found the Baron $1\frac{1}{2}$ hour's ride down the valley, and had been able to make out from him pretty clearly the route that he had taken from the Ullu-az Glacier. It appeared that he had descended by the Koshtan-su glen,* and it was clear therefore that he had not crossed *our* Ullu-az Pass. Still the Baron was confident that the stone-men he had found were the work of Donkin and Fox. He had, he believed, followed the line of the tracks which the Bezingi men were alleged to have discovered 11 months previously. I may finish this part of my story at once. Probably the Baron crossed the Koshtan crest by a pass known to the native hunters, which can be identified in one of Signor Sella's photographs, and either descended by the side of a branch of the Koshtan-su or even farther north. His pass, therefore, is about 5 miles N.E. of the pass crossed by Donkin and Fox. The stone-men were built for surveying purposes, as we afterwards learned from M. Djukoff. The tracks, as far as Powell could ascertain by close questioning, existed only in the imagination of the Starshin of Bezingi, and were wholly legendary. I have only one object in mentioning this episode, to which I have already devoted more time than it deserves. The idea that the disappearance of the party was due to violence at the hands of the natives was tolerably widespread; it is certain, at least, that it was believed in by more than one person holding official position in Russia. The results of Baron Ungern-Sternberg's expedition seemed to point in the same direction. It is necessary, therefore, to point out the flimsy nature of the evidence.

An intensely hot day made our progress up the steep ascent of the left or southern branch of the Tutuin glen slow. As often occurs in the Caucasus, the upper part of the glen widens out into a broad level plateau, which would well deserve to be called the Valley of Beautiful Flowers.

* A letter recently received from Baron Ungern-Sternberg confirms this account of his expedition.

The blue ice-stream of the Tutuin Glacier sweeps down in front, and the great mass of Dych-tau towering up behind completes the most superb mountain-picture imaginable. The Tutuin Glacier is clearly advancing, and the extremity has ploughed up the soil recently for a considerable distance. Our camp for the night was formed at a height of 9,300 feet, under a vertical rock on the right bank of the glacier and a little above its end. A low wall of stones showed that the place had been used as a 'kosh' by the herdsmen, but the enclosure was full of high weeds. We took one native up as far as this bivouac.

On July 29 a start was made at 4.30 A.M. We took with us provisions for the day only, expecting to return to our kosh at night. The ascent is by the rocks on the right bank of the glacier for an hour or so, and then over slopes of avalanche snow. After a little discussion a line was selected across the icefall, and we were fortunately able to follow it, with but little difficulty and scarcely a check, to the left side of the glacier. Later in the year it might be found very difficult, if not altogether impossible, to force a way through this broken-up glacier. If such were the case a way could be made by the Ghertui Glacier, by crossing the ridge that separates it from the north-east extremity of the Tutuin snow fields. On surmounting the Tutuin icefall this alternative route soon becomes apparent. We should very possibly have been deceived had it not been for the information gained on the hill above Karaoul. The mistake would only have been found out on the top of the pass between the Tutuin and Ghertui Glaciers, and a day would have been lost. It must be remembered that the trough of the glacier is narrow, while the rocky walls bounding it are high and steep, and that the view consequently is very limited. On reaching the undulating snow-fields above the icefall we were well at the east end of the glacier, and the buttress of rock descending from the point marked 2,133 (=14,931 ft.) cut off all view of the pass. An agreeable surprise met our eyes as we rested awhile. The day was well advanced, and it is only on rare occasions in the Central Caucasus that the valleys and sky are free from cloud at such an hour. But not a vestige of mist was to be seen. The conditions were not merely of good omen, but were also in the highest degree fortunate, for the object of our search seemed very minute in the presence of such gigantic surroundings. The air was clear and soft, and the snow in perfect order for walking. We worked our way due west, and gradually as we turned

the buttress of rock a steep and broad ice gully came into view, leading up to the pass. This consisted of a broad snow-topped depression, from 1,500 to 1,800 ft. above the snow-field. On the right or east of the pass the ridge ran sharply up to the pinnacle already mentioned, while on the left the ridge, broken up on its crest by great towers of rock, stretched away to the summit of Dych-tau, the peak of which from our point of view was not visible. A careful inspection of the rocks with the telescope revealed nothing. A possible place for a bivouac might have been found at any point on the rocks below the pass, but no particularly likely spot was evident. It was conceivable too, of course, that the travellers had discovered a more suitable place on the Ullu-anz side close to the summit of the pass. In any case our plan of action was clear, and we set forth without delay to ascend the wall. Two long ribs of rock lying on the right of the ice gully offered the best means of access. Both looked feasible, but it was only after a moment's hesitation that the left-hand one was selected, as it seemed more broken, was broader, and ran up higher. If the right-hand rib had been chosen, we might conceivably have missed the object of our search altogether. We made our way up the rocks without any great difficulty. Half-melted masses of snow constantly hissed down the ice gully as we ascended, and the great chasm that extends along the base of the cliff was choked for the most part with avalanche snow. The rocks were steep, but so broken as to offer good hand- and foot-hold. Still the mind was sufficiently occupied in attending to the details of climbing to prevent the thoughts from wandering. Insensibly we began to think little save of the view that would be revealed from the top of the pass. From time to time an opportunity would be found of gazing to the right or left, but progress was tolerably continuous. Maurer, who was leading, looked upwards now and again as he worked out the best line of ascent, but the rocks were so steep that he could only see a very few feet. Just about midday, as he stopped for a moment to look upwards, I saw his expression suddenly change. 'Herr Gott!' he gasped out, 'der Schlafplatz!' I think I shall never forget the thrill the words sent through me. We sprang up, scrambling over the few feet that still intervened, and in a moment were grouped on a little ledge just outside the bivouac. There was little enough to be seen at the first glance save a low horse-shoe shaped wall of stones, measuring some six feet by eight and carefully built against an overhanging

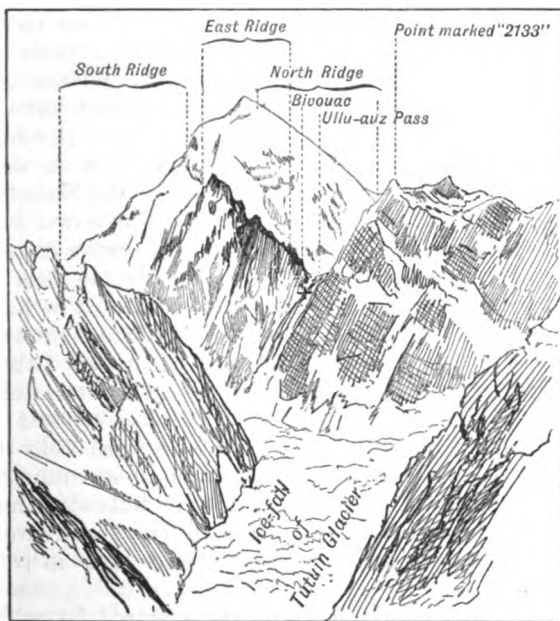
rock. The enclosure was full of drifted snow, raised up into a hump at the back, where it covered a large Rucksack. On a ledge, formed by one of the stones, a little tin snow-spectacle box caught the eye as it reflected the rays of the sun. For a few moments all was excitement as the presence of one object after another was revealed. 'See here,' cried Maurer as he scooped away the snow with his hands, 'the sleeping-bags!' 'And here a Rucksack,' said another. 'Look, they made a fire there,' called out a third, 'and here is the cooking kettle and the revolver.' Then came somewhat of a reaction, and for a few minutes we could but gaze silently at the place that told so clear a tale and endeavour to realise to the full the evidence that had come upon us with such overwhelming suddenness.

The character of the place has been reproduced for us by Mr. Willink's skill with surprising accuracy, the drawing being founded on a sketch made on the spot by Capt. Powell. Before long we made up our minds as to the course to be taken. The space in the enclosure was so confined that only two, or at most three, could work at digging out the objects buried. It was necessary to see all that could be seen from the top of the pass, some twenty-five minutes above us, and accordingly Freshfield, Woolley, and Jossi went on while we fell to clearing the snow and ice out of the enclosure. The sleeping-bags were, we found, neatly arranged beneath two spread-out mackintosh coats. Underneath, and firmly frozen in, lay a bundle containing maps, drawings chiefly of the Dych-tau district, and other small articles. The papers were perfectly uninjured, and were of great interest, for on several were indicated possible routes up Dych-tau by the northern ridge, showing that this ascent was much in the minds of the travellers. With the exception of some bread, which had become mouldy, the provisions in the Rucksack were undamaged. Some tea in a little bag was perfectly dry and good, a fact which speaks well for the waterproof qualities of the Willesden canvas of which the Rucksack was made. Digging out the frozen-in articles proved a tedious business, and the party returned from the summit of the pass before we had finished. They reported that they had found a small stone-man, but no cards or records. The descent from the top down to the Ullu-az Glacier seemed perfectly simple. From the pass the whole of the Ullu-az side of the eastern ridge of Dych-tau could be seen. This ridge is of immense length, and along the first part of its actual crest it was impossible to go. The

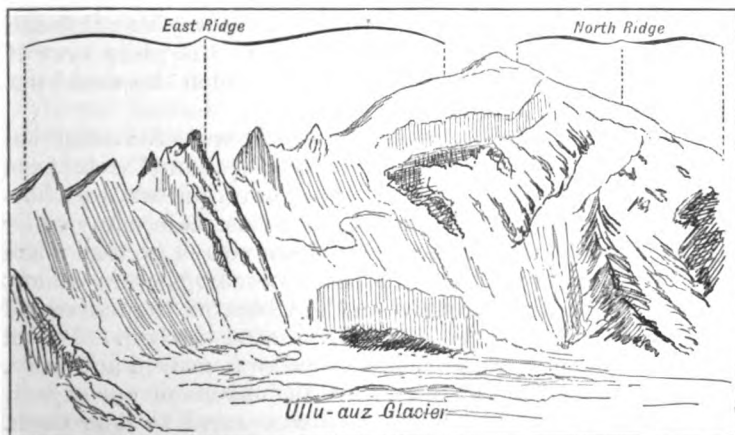
northern cliffs were of the most forbidding nature, being, indeed, a series of ice slopes of great steepness. On the southern side also the wall was of very formidable appearance. Yet it was evident that by one or other of these routes the party had proceeded eleven months previously. The situation and contents of the bivouac showed that plainly enough. Everything was in readiness for spending another night in the same place, and all articles were arranged as for a late return. There was no fire-wood, but several self-cooking soup tins were among the stores. They had not descended to the Tutuin snow-fields to try the route adopted by Mr. Woolley last year in ascending Dych-tau, for they would have carried down their luggage if any such idea had occurred to them. It was clearly by the Tutuin Glacier that the descent had to be made to Karaoul. The head of the Tutuin Glacier is closed in by an exceedingly steep wall, and the only possible escape in that direction lay up an ice-trough which would have demanded five hours at least of step-cutting. The route, if feasible, would land the traveller on the eastern branch of the Khrumkoll, not on the Kundium Mishirgi Glacier. The descent, therefore, to the Dych-su Glacier was by no means a simple business. North-east of the point marked 2,331 the ridge sinks, and no expedition offered in that direction. The field was thus much narrowed. It seemed absolutely certain that the party had started for an attempt on Dych-tau, from which they never returned. They would have naturally aimed at reaching the eastern snow ridge, visible as they looked up the Ullu-azuz Glacier,* having already failed on the northern crest. To reach the eastern snow-ridge it was absolutely necessary to make a way across the rock-face either on the north or south side. Neither looked promising, but the south seemed to be the easier of the two. The outline sketches give an idea of the main features and enable the reader, to some extent, to judge for himself. An additional item of evidence was the fact that no appliances for high mountaineering, such as rope or axes, were found in the bivouac. The party had undoubtedly started in light marching order. To sum up, therefore, it is most probable that the accident occurred on the south side of the cliffs forming the eastern ridge of Dych-tau. The party must have been roped at the moment, and it is very reasonable to suppose that they were engaged in traversing one of the many ice- and snow-covered

* See *Alpine Journal*, vol. xiv., illustration facing p. 10.

slopes that exist on this side. What the exact nature of the accident was matters little; but it may be remembered that the snow on such slopes and ledges often binds very lightly,



DYCH-TAU AND THE TUTUIN GLACIER, FROM S.E.



DYCH-TAU AND THE UPPER (SOUTHERN) SNOW BASIN OF THE ULLU-AUZ GLACIER, FROM THE ULLU-AUZ PASS.

and that there are no mountains, perhaps, where these places are more numerous or more treacherous than in the Caucasus. It was possibly one of those rare instances in which the rope was a source of danger and not of security to the party as a whole. Yet the rule is clear, and it amounts to this: if a place is too dangerous to cross with a party roped, lest the slip of one drag down all, then it is too dangerous to cross at all. So steep are the cliffs that a fall must have meant instantaneous death. As an example, a torn sleeping-bag which was thrown over the bivouac wall fell to the very bottom of the slope, and we saw it just above the Bergschrund as we descended. It was necessary to take down some of the articles discovered, for we might otherwise have found difficulty in convincing the natives of the success of the expedition, and this was an important point. The height of the pass is 14,350 feet, and of the bivouac about 14,000 feet. We left the bivouac at 3.30 p.m., the day being still perfectly cloudless. The icefall offered some little difficulty, one or two of the bridges by which we had crossed in the morning having broken down. Still we were able to keep to almost the same line as that adopted in ascending. We reached our kosh at 7.30 p.m., and the following morning made Karaoul at 10.15 a.m. Late in the year it would be wise for any party making the pass to take it from the Karaoul side.

No one familiar with the Caucasus would be willing to believe that any native could have reached the bivouac. The people are still very timorous on ice and are wholly incapable of facing an icefall, much less of making any way through one. No native could have been got to the place even if in the train of competent mountaineers; alone he would not have set foot on the glacier at all.

A day or two later we made our way down to the collection of villages known as Balkar, a good $3\frac{1}{2}$ hours' walk from Karaoul. The place is not well spoken of, but we were hospitably received and entertained. In this, as in many other villages subsequently, the story of our search excited much interest. On every occasion the proceedings were almost exactly identical. As usual in the Caucasus the natives all crowded into our apartment soon after arrival. Powell would then select some Russian-speaking man in authority, and announce through him that the results of our expedition would be made known to all who cared to hear them. The whole story was then told, and admirably Powell used to narrate it, winding up by pointing out how the people of the

district were now exonerated from any suspicion that may have lain on them. Such suspicion, he used to add, had never been entertained by any English people. The account was always listened to in breathless silence. At the conclusion it was repeated by the chief to the natives in their own language. Then the Rucksack was brought in and the articles found shown. These were always instantly accepted as absolute proof, the rusty revolver especially exciting attention. Expressions of sorrow and brief interjections were always heard on all sides. Then the chief spoke to some such effect as follows: 'We are indeed rejoiced that you have found these traces. It relieves our people from an irksome and unjust suspicion. It is well that Englishmen came to our country for this search, for we believe that no others could have accomplished what you have done. We are all very grateful to you. Englishmen are always most welcome in our country. We are glad to receive them. Our houses are theirs, and the best we can do shall always be done for your countrymen.' In several places—at Chegem, for instance—words were added to this effect: 'We remember well Donkin and Fox; they were brave and good men, and we loved them. It is very sad to us to think that they are lost.'

From Balkar we despatched to Naltchik a special messenger, bearing a formal report of the results of the search, which he was charged to deliver to Prince Dondoukoff-Korsakoff, the Governor-General of the Caucasus. In this letter we laid especial stress on the fact that no shadow of suspicion could possibly attach to any native. The letter was duly published in the Russian newspapers, and, as we were glad to learn, had the desired effect.

It was usual, in the old days, in Alpine papers to reserve to the end praise of the guides of the expedition. Such praise was honestly deserved by Kaspar Maurer, by Andreas Fischer, and by Christian Jossi, and may not be withheld. But something more than mere guiding is wanted in the Caucasus, especially in such an expedition as we had in hand. This we had in our party. It were difficult to overrate the immense value of Freshfield's geographical insight, of Powell's extensive and accurate knowledge of the Russian language, and of Hermann Woolley's unselfish aid.

I have endeavoured to set forth a straightforward story in the simplest language, and with this account I desire to close for good one of the saddest chapters in the history of mountaineering and the annals of the Alpine Club.

LEAVES FROM THE DIARY OF THE LATE MR. A. T. MALKIN.

[We are indebted to the courtesy of Mrs. Malkin both for copying the following extracts from her husband's diary and for permitting us to publish them. They are most interesting and valuable records of mountain travel before the foundation of the Alpine Club, and supplement the outline account of some of the same excursions which has appeared in these pages ('Alpine Journal,' vol. x. pp. 44-5). A few brief notes, mainly identifications of places, have been added, and are distinguished from the original text by being placed within square brackets.]

1839.

The Wengern Alp and Faulhorn.

July 12.—Over Wengern Alp to Grindelwald. To chalet facing Jungfrau $2\frac{1}{2}$ hrs., summit $\frac{1}{2}$ hr.; descent 3 hrs. First hr. very steep, after that reasonably easy; over mountain pasturage chiefly. View of Jungfrau, Mönch, Eiger magnificent; saw no avalanche, but heard many. The view from the summit finest of all, where the valley of Grindelwald, Mettenberg, Wetterhorn, are added to what was seen before. Descent less steep than ascent. 'Aigle Noir' at Scheideck end of village; very civil; comfortable, good house, no fleas. Evening to foot of lower glacier, about 20 minutes' walk. Vault over the river considerable, but much choked with fallen ice.

July 13.—To the Eismeer. M. A. on horse-back for $\frac{3}{4}$ hr., then in a *chaise à porteurs* $1\frac{1}{2}$ hr. more. A promenade on the ice 1 hour about, then return $2\frac{1}{2}$: total $5\frac{1}{2}$ hrs. Way on the east side very steep, and some time nervous; made for transit of sheep to the upper pastures of the Mettenberg. Glacier firm and solid, though plenty of crevasses but seldom wide. We walked over scores. Saw two most singular and striking waterfalls in the glacier—considerable streams going down headlong into the blue gulf. You can see a long way, but how far nobody knows. The porters capital. I believe this to be the most luxurious mode of travelling that ever was invented. Two only, 4 francs each, *pourboire* 1=10 francs. M. A. obliged to walk in many places. The scene most superb when enclosed in this vast amphitheatre of ice and snow, and again most singular on coming again in sight of Grindelwald; it looks like something unreal, a great green carpet with Swiss cottages worked on it, hung out slanting to dry. Altogether a most delightful excursion, and neither danger nor difficulty except a little fatigue. Evening to upper glacier; near an hour's walk thither. It seems to project farther

into the valley, and I think is rather firmer than the lower, but don't well know. It is less loaded with rubbish.

July 14.—Up the Faulhorn; near 5 hrs. The lower part of the ascent is steep until the valley, in which lies the little Bachalp lake, is fairly entered, to do which takes about 2 hrs. Another hour or more from the foot of the valley to the lake; not steep, but long and rather dull; and then another hour of rather steep ascent to the top. About 20 min. or more over one large bed of snow. The view of the great chain very fine, from neighbourhood of the Grimsel to the Blümlis Alp. The sunset most magnificent. No rosy tints on the Alps, but a heavy mass of clouds behind them, glowing as with the furnaces of ten thousand Merthyr Tydvils, while the sun himself set in the middle of molten rubies. The lake, however, was but faintly visible, and all the low country massed in haze and shadow. The sunrise was clear, but not so fine as the sunset; however it showed all the country from the Titlis to the Pilatus very distinctly, which we had not seen well the night before. The quarters of course are not of the best; however we got tolerable coffee, and good bread, butter, and milk. No fleas. Charges not out of the way, considering—15 francs for tea, breakfast, and lodging for two.

Tschingel Pass.

August 26.—Left Lauterbrunnen at 9 o'clock for the Schmadribach and Steinberg. Reached foot of Schmadribach in a little more than 3 hrs., taking it very easy. Climbed to the top, or near, on the right-hand (rather stiff; the ascent on the left is easier), $1\frac{1}{4}$ hr.; thence round under the glacier, crossing the head of the valley close under the Tschingel Glacier, and back to the chalet on the Steinberg, between 2 and 3 hrs. from the Schmadribach. This is a most splendid walk, and well worth the attention of those who do not mean to cross the Tschingel. From the Steinberg chalet to Lauterbrunnen descending may be 3 hrs.; ascending, an easy 4—sleeping in hay, none of the best.

August 27.—Started from the Steinberg, reached foot of glacier in 25 min., and after traversing it for about 30 min. arrived at the foot of the rocks, on the right-hand side. Here began a steep climb, much of it regular scramble, hand and foot, but with little real danger. In less than $1\frac{1}{2}$ hr. from the chalet we reached a green slope, having passed the worst. After this there is a laborious climb of

another $\frac{1}{2}$ hr. to the top of the rocks, making near 2 hrs. from the chalet. The views of the Jungfrau and Ammertenthal superb. Shortly after reaching the top of the rocks we again came on the glacier, which extends in a vast, unbroken field of ice for another $1\frac{1}{2}$ hr. to the top of the pass. Few large crevasses to pass and little or no danger. A fresh fall of snow of some inches increased the fatigue much. The Tschingel Horn, an insulated peak, rises in the middle of the glacier. Beyond it the chain of Alps seems to be little elevated above the passage, which is very high—I should think upwards of 9,000 feet [9,265 feet]. To the right are passed the precipices of the Steinberg, and a dark row of peaks, which we took to be the S. side of the Blümlis Alp, but could not get at the name.* From the summit sloped gradually to the south side of the glacier, the edge of which we reached in less than $1\frac{1}{4}$ hr., rather more than 4 hrs. from our first setting forth on it. The descent very steep and severe—at first over muddy moraines, then green slopes, then a steep descent of stones, which is very long and very fatiguing. The glacier superb, especially when it takes its first leap from the upper valley to the lower one; it beats any which I have yet seen. Thence it descends a long way into the valley. The path, difficult and fatiguing, lies between the rocky side of the valley and the wall of ice formed by the glacier, which keeps its own bounds, clear from the rocks, in a most singular manner. Reached end of glacier near 2 hrs. after quitting the ice; passed a village in another $\frac{1}{2}$ hr. or more, and in another $1\frac{1}{2}$ hr. reached Kandersteg, after a rapid walk of 9 hrs. Found many bees and some dragon- and butterflies on the highest fields of the glacier, and saw a flock of 18 or 20 chamois not very distant. They are said to abound in these mountains. The scenery of the high glacier in sublimity hardly reached my expectations, owing to the great height we reached, which made the surrounding peaks look insignificant.

Lauener, of Lauterbrunnen, best guide for the Tschingel. Rudolph Michel a good guide at Interlaken.

The Gasterenthal from the foot of the glacier appears to be most exquisitely beautiful, enclosed by the most abrupt rocks, abounding in glorious waterfalls. Judging from our very imperfect view, I should think there was hardly a finer valley in Switzerland. The entrance very remarkable.

* Lampeberg [probably Ganchiberg].

The Buet.

September 7.—Ladies to Chamounix, self and E. J. to Servoz—round, thus far, very magnificent. We were fortunate in having a most clear, unclouded view of Mont Blanc. Left the party to proceed, and turned up the valley, north of Servoz, to ascend the Buet. The ascent for the first two hours very steep, passing below a magnificent wall of rocks—the Rocher des Fys—then landed in a beautiful upland valley, leaving on the left the Col d'Anterne. Pass a large collection of chalets, after which you wind round a corner of the mountain and descend considerably, mounting again before reaching the chalets of Villy, the highest in the valley. These lie less than an hour from its head, where the ascent of the Buet itself may be said to commence. The valley, from the time that the vale of Servoz is shut out, has much of the Scotch character—green and bare, turf broken by faces and peaks of rock. It is desolate and grand. To the right the Brévent, and the Aiguilles Rouges, a superb chain of rocks. View of Mont Blanc from the chalets splendid at sunset and sunrise. Top of Buet not visible. From the valley the ascent begins over steep green rises [?] intersected by beds of snow filling the ravines. A very steep and difficult ascent of rotten slate succeeds, the most laborious part of the whole. To the top of this from the chalets 2 hrs., where you find yourself on the edge of the ridge which divides the Val Orsine from the valley descending to Servoz. More to the south is the Col de Bérard, a high pass communicating more directly between Servoz and the Val Orsine. (N.B.—Keller places this on the other side of the Buet.) The view of the Aiguilles Rouges and the Aiguilles du Tour and d'Argentière, Col de Balme, &c., is superb, though of course inferior to that from the summit. After following the crest for a short time another long and steep bank of slate is to be mounted, then a large field of snow, steep enough to be of some difficulty when the snow-face is hard. After surmounting this you find yourself on a sort of wall of rock, the backbone of the mountain, with glaciers sloping down on either hand and 4 or 5 feet broad. This extends, perhaps, for 200 yards; then you enter again on the last glacier, which leads with a gentle slope to the summit. On either side deep rifts are visible in the ice, in one of which, on the N. side, a traveller [M. Eschen. See 'Alpine Journal,' vol. xiii. pp. 179–82] met his death in 18[00]. The middle is sound and free from danger. The air was not

clear, and flying clouds continually scudded over the hill. It is said that a perfectly clear day on the Buet is a thing of rare occurrence—the next was eminently brilliant. None of the mountains on the N. side of the Valais were visible, nor the Jura, nor Lake of Geneva. On the other hand, the whole chain of Mont Blanc from the Dôme du Gouté to the Aiguille du Tour was seen at intervals in the utmost splendour, and this is acknowledged by those who have been also on the Brévent, &c., to be far the finest view of the great mountain. The Aiguilles Rouges and the Brévent form a magnificent screen of pyramids of dark rock, while between them and the Buet the valley of Val Orsine lies far beyond the reach of the eye.

To the north the valley of Sixt extends, and the Môle is visible as a green hillock. Little to be seen in the direction of the Dent d'Oche or Dent du Midi. The head of the valley of Sixt, the Fer à Cheval, is said to be remarkable, but could not be seen. Large wreaths of snow prevented our approaching the edge of the mountain and interfered with the near view on that side. The ascent from Villy occupied $3\frac{1}{4}$ hours of hard work, making at least 8 hours from Servoz. The descent to the head of the Val Orsine is very steep and very grand. It follows the way up near to the place where we gained the col, then turns to the left, and continues very steep over sheets of rock, interspersed with beds of snow, sometimes down a precipitous water-course—lower, over steep green banks broken by rock. Some parts of this descent are among the wildest things that I have seen. To get down to what may be called the head of the Val Orsine took about 3 hrs., thence to the village about $1\frac{1}{4}$ hr. more, down a very grand valley. The last descent commands a soft and beautiful view. Turn to the right across the fields just before reaching the village, and keep on for the top of the pass between the valley and that of Chamounix. Val Orsine to Argentière $1\frac{1}{4}$, thence Argentière to Chamounix $1\frac{1}{2}$; total, $3\frac{1}{4} + 4\frac{1}{2} + 2\frac{1}{2} = 10\frac{1}{4}$ hrs. The descent of the valley of Chamounix, varied by its numerous glaciers, is very fine. 'Hôtel de Londres' comfortable but fleecy. Landlord an old guide, and said to be a very respectable and trustworthy person; name Tairraz.

1840.

[*Waldensian Valleys.*] *Col de la Croix.*

July 2.—Started alone on foot from La Tour [Torre Pellice] for the Col de la Croix. Not much ascent to Bobi

[Bobbio], 2 hrs. through a very beautiful valley, richly wooded with chestnut and walnut; luxuriant meadows, vineyards on the hill-sides. At Bobi the ascent begins and continues without intermission, and generally pretty sharp, to Pra, $3\frac{1}{2}$ to 4 hrs. The lower part up to the limit of the chestnut is the most picturesque part of the valley, the sides rising in broken knolls upwards to a great height, the mountain peaks, when visible, jagged and black. Decent wine at Villeneuve [Villanova], rather more than half-way to Pra, a mountain basin, with a very poor inn, savage and not pleasing. Here they grow rye or barley. Turn directly up the col, a very steep ascent of $1\frac{1}{4}$ to $1\frac{1}{2}$ hr., very beautiful, through scattered pines. Much rhododendron in blossom. Top of the col above the growth of the trees, and the grass thin—probably upwards of 7,000 ft. Thence to La Monta an hour of rapid descent after the first $\frac{1}{2}$ mile or so. The valley of the Guil is bare and not very picturesque. The inn at La Monta is a regular mountain farm house, unplastered, dark, and dirty, but I got a good bed. Eggs, white bread, wine, and coffee, and much civility, at a small price; and may be recommended, instead of descending to Abriès, to come up again to Monte Viso the following day.

July 3.—Tried to reach the Traversette, as the Col de Viso is called. The valley is grand and large, but not very picturesque; one of its great beauties is the luxuriance of its pastures and the abundance of flowers. High up the valley acres are covered with anemones and violets; the latter are gathered by the women, and sold to persons who come up the valley to collect them at the rate of from 20 to 25 sous the pound of dry leaves, to make which takes 4 or 5 pounds of fresh. Monte Viso is said to be famous for its plants, and much resorted to by botanists and herbalists. On each side the higher ridges were of black rugged rocks, and Monte Viso itself, which fills up the head of the valley, is a grand pile of dark rocks, interspersed with extensive fields of snow and ice, but lacking the extent and grandeur of the Swiss glaciers. From La Monta to the col I should think would occupy about 4 hrs.; the ascent is continued, but not rapid, until within less than an hour of the col. An unusual quantity of snow having fallen last winter, there is much more than usual at this time, and the morning's rain and the lateness of the hour having much softened the snow, the guide was unwilling to go on, and I unwillingly obliged to turn back; to which, however, I was somewhat more reconciled by seeing the clouds gathering heavy on the

Italian side of the Alps. Out from 9.30 to 5, or thereabouts.

July 4.—Returned by Col de la Croix to La Tour. From La Monta to Pra, $2\frac{1}{4}$ hrs., taking it easy; Pra to Bobi, $2\frac{3}{4}$ hrs., not including 10 min. rest; Bobi to La Tour, 2 hrs., pretty sharp. Total, 7 hrs. 10 min., stoppages included.

First Visit to Zermatt and Saas. Tour of Monte Rosa.

August 6.—Char to Tourtemagne, and found the Valais dull, as before. Walked to Visp, $2\frac{1}{2}$ hrs., and slept at the 'Poste.' Beds clean, eating baddish, charges low. Auguries of rain.

August 7.—Fine morning, but lowering over Bernese Alps, and their threats changed into doings before 10 o'clock. Started at 6, reached Stalden at 7.30 and St. Nicolas about 9.30. To Stalden tolerably level, but beyond it steep ascent nearly to St. Nicolas. The valley is a deep trench, with very high sides, which generally exclude the highest peaks and go right down into the river. Above St. Nicolas it becomes broader and more fertile, having rich meadows and several villages before reaching Zermatt, which we did, coming slow in company with M. de la Rive and his horse, in 5 hrs. About $1\frac{1}{2}$ hr. from St. Nicolas a splendid fall, high in the mountains and seemingly almost inaccessible. The approach to Zermatt is also fine. Wet from 10 to 12, and again in the afternoon, and the clouds always too heavy to see the scenery to advantage.

August 8.—Weather uncertain, so stayed here and made excursion towards Monte Rosa. Ascent of the Reifel [Riffel] begins across the river, just opposite Zermatt, first through larch forest—bad path—then over pasturages and up a steep rocky slope, until you turn to the left, and passing by a good cow path along a steep hill-side reach the first view of Monte Rosa, $2\frac{1}{4}$ hrs. from Zermatt. $1\frac{1}{2}$ hr. of this at least might be ridden. Another stage of $\frac{3}{4}$ hr. takes you under the Reifelhorn to a second and better point, commanding the whole of Monte Rosa. Five great glaciers sweep down from the main chain. To westward first the Glacier St. Théodule, next the Breithorn Gletscher in two branches, next the Glacier de Monte Rosa, next the Gorner Gletscher, coming down from the Gornerhorn [or Höchste Spitze of Monte Rosa], into which all the others fall, and which sweeps down into the valley of Zermatt, being called by Keller the Zermatt Glacier. The tops never quite clear—still a fine day—perfect solitude and wildness. Another stage, easy, of $\frac{3}{4}$ hr. brought us to a third point, overlooking the Findelthal, up which lies the way to

Macugnaga—a long and difficult passage beside the Findel Gletscher and over the Weissthor. This point commands noble views also across the valley of Matterhorn and the mountains towards the Turtmanthal, among which the Trift Gletscher, from which the stream of Zermatt comes down, is remarkable. No passage to the Turtmanthal, but one, not difficult, up the Staufel, or Zmutt Gletscher, to the Eringerthal—5 or 6 hours over ice, but not difficult. More difficult is the passage to Saas—10 hours. All these might be recommended to a well-practised walker. From the third point to the foot of the Gorner Gletscher, where the river issues, is 1 hr. 20 min.—fast. This is the most picturesque part of the valley—corn, meadows, forest, ice, all close together. The stream is very powerful, and issues from a deep, but not high cave; it is confined within its banks, so that there is none of the ugly waste ground at the source of the Arveiron. And there is no moraine, perhaps because the glacier is advancing—you go close to it on the turf. Thence to Zermatt $\frac{3}{4}$ hr., very picturesque, over grassy knolls, with a rapid descent. Total about 6 hours' walking, including the détour to the glacier—very interesting and pleasant.

August 9.—Started for St. Théodule at 20 min. to 6. Morning beautiful. Thermometer at 5, 46°. Ascended by a higher route than that by which we came from the glacier—through the hamlet of Zumsee, leaving Zmutt much on the right. This part of the valley, as before, very picturesque, the Gorner Gletscher below adding much to its beauty, much resembling the Bossons. After leaving the forests and meadows, which lie generally on a steep ascent and are broken into beautiful knolls, the way lies over a steep hillside, leading up to a ravine, to the E. side of which you cross by a bridge, $1\frac{1}{2}$ hr. from Zermatt. From hence the ascent continues 50 min. to the foot of the moraines, which the path skirts, over rocks, stones, and earth sodden by the melted snow, for 40 min., the paved mule path being visible from time to time. We mounted the glacier over the slope—not rapid—of snow; indeed, except at intervals, the ice was completely covered with snow, which usually bore well. After 25 min. on the ice we came to a bare pile of stones, rested 10 min., and pursued our course to the col—distant about 1 hr. We did not, however, reach it in that time, having stayed to trace the new tracks of three persons which crossed our path, leading towards the foot of the Breithorn. Paccard followed them as far as he durst—to the edge of the crevasses—and found the tracks still leading onwards, three

abreast. It appeared that they had missed the col and descended by a glissade from the high rocks, nearer to Mont Cervin, having mounted from Breuil on that side, and wholly missed the way. The view from the higher part of the glacier is magnificent—to the right the Matterhorn, which, however, was never clear; to the left the Kleiner Matterhorn, the Breithorn, Lyskamm, Monte Rosa, Stockhorn, Gornerhorn [probably means the Gornergrat here], all forming part of the same splendid chain, almost wholly snow and glittering like silver in the morning sun. The Mont Fée [Mischabel] clear and beautiful; the fine mountains at the head of the Turtmanthal always clouded. On the opposite side the view down into the Val Tournanche is also splendid; it is enclosed by a black wall of rocks of enormous height, from which the Matterhorn seems to rise in an unbroken precipice. But the Matterhorn was never clear. On the farther side of Val d'Aosta the mountains of the Val de Cogne, or Grisanche, formed magnificent objects. Ice on both sides covered with snow, and no crevasses on the route, which lies diagonally across the glacier, from N.E. to S.W. by compass. To the right lie dangerous glaciers towards Mont Cervin; to the left, others as bad, below the Breithorn; so that good guides and good weather are needed: with them there is no danger. Towards Piedmont the way to Breuil lies nearly at right angles to the path on the other side; another course, to the left, leads over the glaciers of the Cimes Blanches to Ayas, Val Challant, in about 5 hrs., of which 2 must be over the glacier. This is the best way for those who wish to go to Macugnaga, being at least 3 hrs. shorter than by descending to Breuil. I took the latter course, cleared the glacier in 40 min.—quick—and in 1 hr. 30 min. more reached the higher chalets of Breuil. No crevasses visible, though the guide took the precaution of tying us together, and no difficulty in the descent afterwards, which, however, is steep. This hamlet is above the larches, and the valley owes its grandeur to the magnificent wall of rocks and the glaciers at its head. It has no beauty. Heard at Breuil that 3 persons had been seen to pass; one said 2 travellers and guide, another 3 travellers without guide: nothing certain to be known. Reached Breuil 1.30, left at 2.25 to commence a steep ascent towards Ayas. Reached the top of the first mountain-line at 4.40, and found that our guide was out of his bearings. Below a deep offset of the Val Tournanche, the head of which we should have crossed—not an hour's affair—to the

white rocks, the Cimes Blanches, opposite, south of which lies the passage; descent steep, but free from precipices. Descended to some chalets—50 min.—and found that we had an hour's mount again to aforesaid Cimes Blanches, which we reached at 6.55. Thence, after getting down the first stony declivity, the way lies over short pastures, past several chalets, and to St. Giacomo—in reality must be two short hours. We missed it altogether, kept too long on the W. side of the stream, and, after wandering in the dark amidst a larch forest till I thought we should have to sleep there, at last got to the village of Fraschez [Frachay]—or some such name—which we had passed by mistake near an hour before, at 10.13, knocked up a good peasant named Jean Joseph Villermatt [Vuillermet], who gave us wine, bread and cheese, and nice bed where the bugs—if there were any—did not bite. Good coffee next morning. Paid 6 francs for all three. Some fine lads about—hunters—who speak French and would make good guides. From the time that you get into the lower valley and region of trees the Val Challant is very beautiful. Seen imperfectly by the moon, which glittered on the Breithorn above, nothing could have been more romantic, if we had known where we were to sleep, and had not been 14 hrs. and more on foot.

August 10.—Left Ayas at 10—or rather Fraschez. Ascent very steep through larch woods for $\frac{1}{2}$ hr. or more, but by a very good mule path. This ascent surmounted, skirt upwards, still through the larch woods, to reach the Furca di Betta, which is 3 not hard hours from Fraschez. I do not recollect that there is any snow to speak of on either side, nor from the summit much view, except of the mountains the other side of the Val d'Aosta. Descent rapid. About the second chalet (I think) a path turns off to the left to go to the upper part of La Trinité de Gressoney, a long scattered village, while another continues to the *auberge*, &c., the best part of an hour lower. Took the former, and had magnificent views of the Lyskamm, and two great glaciers sweeping down to form the Lys Gletscher at the head of the valley, which is one of the finest in the Alps. Rock, river, rich pasturages, larch forests, glaciers,* and mountains are

* The Lys Gletscher comes very low, and is formed by the union of two magnificent branches, which stream down from the summit of the Lyskamm. Near the chapel there is a remarkably picturesque spot on the river, close to the road; it has hollowed itself out a very deep channel, across which a mass of rock has fallen, which makes a natural bridge, leading to the chapel and hamlet. There is another

here combined. Refused a bed at the mansion of the millionaire at the head of the valley, also at the little inn. Finally, about 4 o'clock, took up our quarters in a barn filled with dry hay, where we passed the night undisturbed till 4 o'clock in the morning.

August 11.—Started at 4.15 for Col d'Ollen. Morning coldish. Ascent rapid, commanding fine views down the valley, and from time to time partial views of the Lyskamm, &c. Reached a mountain plain or basin where several chalets are scattered. Stopped to breakfast at the highest, the handsomest and best I have seen in the Alps—a large stone building, with an inner apartment containing two good beds, parted off. Good provision of utensils and everything beautifully clean. Mistress a civil and obliging woman, who lives at Aosta and comes with her cows first to Gressoney in the spring, then to a lower chalet, then here, where she had been about 15 days. *Café au lait*, made by boiling a quantity of milk and then stirring into it a spoonful or two of coffee; result very good. Thermometer, 7 o'clock, 46°. Gressoney to this chalet 1 hr. 30 min., thence to summit of col 1 hr. 10 min., about 20 min. over snow. The point of passage, a mere ridge, is marked by some remarkable rocks, an insulated point, with a higher mass near it overhanging its base. Mountains much clouded, so that I can say little of the distant views, but every now and then some of the high points of Monte Rosa broke through the mist, with the appearance, and indeed the reality, of enormous height. Descent rapid and stony. Instead of taking the course S.E. towards Alagna, kept N.E., winding by a laborious pathless course along the mountain-side, in and out, and finally ascending under a wall of dark rocks nearly to our original height (1 hr. 50 min.), where we stopped a few minutes by a small pond, and then began a rapid descent, which brought us in 45 min. to the first group of chalets, called, I understood, the Chalets de Riva. Passed on the way a very lofty waterfall of considerable body. All this a very fine specimen of rock and turf scenery. The higher mountains probably are not visible; at all events the clouds hindered me from seeing them. Descend from the chalets by a very steep staircase, for such literally it is, and on turning the lofty peninsula on

bridge, near $\frac{1}{2}$ hr. higher, above the great house. Still higher the meadows near the house where we slept were beautiful in themselves and command beautiful views. Downwards towards St. Jean de Gressoney the valley also seems to be very beautiful.

which they stand a magnificent view opens up into the heart of Monte Rosa, from which a glacier streams far down into the valley, the upper part of which seems to be a mere mass of stones, while from the sides green mountains, covered with larches below, rise with a very steep slope. If the river were low, and one could cross it here or a little higher, and file round the opposite mountain towards the Pas de Turloz, it would probably save an hour's time and a great descent. As it was both guides pronounced it impossible to pass; and we had to descend about 40 min. more to the first bridge—a very rapid descent through larch woods, &c. The situation of the bridge is remarkable—by a huge mass of rock against which another has fallen, so that you pass under a kind of Cyclopean arch to reach it from above. Here you meet the road from Alagna, which lies a good hour below, to the Turloz [the Turlo Pass]. Stopped 20 min. to eat a roll and drink half our wine, and then began the second pass at 12.20, much to the dissatisfaction of our German guide, who had for some time declared it impossible to get to Macugnaga that day, to Paccard's great amusement. The ascent is by a mule path, extremely steep and almost dangerous, to the first chalets, about 40 min., if I recollect; then keep filing always up, up, steep, steep, until, turning as it seemed round the head of the valley, we found ourselves, in 2 hrs. 30 min., above a large bed of snow in the bottom of the valley. After this, pursuing the same course, crossed a considerable bed of snow, and came again upon thin herbage, along which we passed to the col—a hollow filled with snow—between which and a rock we passed, on the N. side. The passage is not, however, where we would expect, but more to the N., marked by a cross, which, however, we did not see till near the summit. A well-traced path winds, keeping to the left, up to it, which, however, must be covered with snow until late in the year. Saw a chamois, not far off, on the opposite side, and many of their tracks in the course of the day. Also in descending to Breuil on Sunday saw a marmot; and to-day, after passing the Col d'Ollen, a blue hare; also three ptarmigan descending towards Breuil. The top of the pass, again, is a mere ridge. It is worth while to mount the rocks to the right; you can descend on the snow. Here again clouds hindered my view. The scene, however, is very grand, though I doubt whether the higher peaks of Monte Rosa are visible. Descend over a deep bed of snow, but no glacier; a famous place for a glissade when the snow is hard. I should have said that we reached the col in

3 hrs. 20 min., including a loss of some minutes by going too high. Going steadily, but not quick, it might be done well by fresh legs in 3 hrs. from the bridge or 4 from Alagna. Keep well to the left in crossing the snow, then descend rocks, and keep well to the right again. Made a famous glissade over a long bed of snow, and turned a very good somerset. After clearing the snow the descent is very steep and very bad, over beds of rhododendron and bilberries, for the mountains rise like a wall round the head of the valley, which we reached in 1 hr. 10 min. from the summit, and I verily believe it would be near 3 hours' hard climbing. Thence to the junction of the two valleys 1 hr. 15 min.—quick. Instead, however, of descending with the stream you take a higher path round the hillside, and reach the plain of Macugnaga just by a small hamlet [Borca], where the river is crossed by a bridge. Thence a short, sharp ascent to Macugnaga, 30 min. from the point of turning. After reaching the valley at the foot of the Turloz the descent is uniform and not steep, through a beautiful valley of larches, rocks, and clear streams; but Paccard strode away inexorably, being, as I imagine, resolved to reach his quarters before nightfall, which we effected, arriving at Macugnaga at 7.5; otherwise one could willingly have loitered in this beautiful valley. From the peninsula which you pass over the view down towards Pestarena and upwards is very superb, and must be far more so when the high mountains are visible. Inn better than it seems; bed clean, people civil; for the eating, very so-so. The master, Paccard tells me, is blind—I did not find it out, for he goes about his little house as well as another man—also miserably deformed.* Professes to have four good beds—of which I got the worst—and can get others. In fine weather more might be borne for Monte Rosa.

August 12.—Night and morning soaking rain; clouds low. Wished to stay for a clear day, but was advised by Paccard to go, as the day was likely to be worse to-morrow, according to the testimony of a man on whom he seemed to place much reliance. Never saw a bit of glacier of Monte Rosa, but started at 11 30 with sun clear above the mist, and the hope of getting above the clouds, which was not quite disappointed. The lower part of the ascent is extremely picturesque, up a rapid slope, between two streams, which form the most varied and beautiful cascade—a considerable

* [For some account of Gaspard Verra see the extracts given in Mr. Coolidge's *Swiss Travel and Swiss Guide-Books*, pp. 232-3.]

height. The steep hill-side is composed of rocks intermixed with the bright green turf, larches, and a profusion of excellent bilberries, or blackberries, be they which they may; so that every three minutes all three of us were on our knees picking, to the detriment of my trousers and of the journey. However we got on steadily if not quick. Reached chalet easily by 1.25, and found a set of churls who would neither give nor sell milk. Ascent thus far very rapid. I say nothing of the view, for I had none, except of the immediate neighbourhood—sometimes a peep at some high peak, and, after we had mounted high, always breaks of the glorious blue sky overhead—an Alpine sky, blue and clear as the Mediterranean—always rocks at hand. But the view from these heights down into the deep valley of Macugnaga with Monte Rosa and her maids of honour is said to be, and must be, one of the finest things in the Alps, or the world. Reached patches of snow at 2.25, and avoiding them as much as possible began a regular scramble up the rocks, which are slaty and highly inclined in the stratification, at 2.45. At 3.5 reached the top of them, and found a *plan*, or basin of snow, with a wall of snow stretching right across it. Slanted up to the rocks on the left hand over soft snow—steep and laborious—and reached the col [the Monte Moro] at 3.20, about $3\frac{1}{2}$ hrs. going from Macugnaga. I think Keller's height (7,750 feet) must be wrong: the pass, judging from the absence of vegetation and the quantity of snow, has every appearance of being higher—much—than the Furca, perhaps even than the Col des Fours.* Views towards Switzerland clearer, but all the high mountains clouded. Walked to the edge of descent, between the rocks on the right hand and an elevated peak (on the other side of which, I believe, is the descent to Antrona), but could get no view towards Italy. Towards the N. a wild, sterile, grand mountain basin, a snow-covered glacier, in which the crevasses were visible, streaming down some hundreds of feet on either side snowy mountains, their peaks hidden in the clouds; further dark mountain-sides, broken on the W. by two grey glaciers extending into the valley, and one of them completely blocking it up four or five miles below. Ascent from S.W. to N.E. Descent N. by compass, avoiding the glacier in the centre of the hollow, and keeping high over steep tracts of soft snow—too soft,

* [According to the latest surveys the Monte Moro is 9,390 feet, the Col des Fours 8,891 feet, and the Furca 7,993 feet in height.]

and indeed too much inclined, for a slide. Stopped $\frac{1}{2}$ hr. on top, and began descent at 3.50. 15 min.—quick—cleared the first great bed of snow, after which for some time the descent is very steep on rocks, with a good mule path at intervals, occasionally broken by avalanches or torrents, but always passable. Paccard says that a mule in a fortnight might pass very well; on the S. side there is, high up, a made road, which I believe takes an easier and longer circuit than that by which I ascended, which is far too steep for anything laden, though assisted occasionally by steps cut in the worst parts. Crossed another and a third steep slope of snow, streaming down the hill-side. Not good for weak nerves, the slant being very great and the depth not trifling; but good footing and no danger. Left the last at 4.45, and in 20 min. reached the highest chalets at Destal [Distel], where we stayed 20 min., drank milk, and ate bread. Remains visible of several chalets that have been destroyed by avalanches; those now existing have, next the hill, pointed dykes of huge stones to turn and break the force of the falling masses. Left Destal at 5.25, being told it was 3 hrs. to Saas, so made what speed we might. Below Destal a swampy plain, sometimes filled with water, produced by a glacier which dams the valley. Above Destal one grand and immense glacier streams down from the Mittaghorn [P]; then a second, which at one time has pushed itself right across the valley, as is plain from the moraines on the E. side. Then comes the third, forming a solid mound of ice 150 or 200 feet high across the valley, under which the furious river burrows and rushes out below like the Arveiron. The breadth of this dam is probably not less than a mile, and below it is remarkably pure and blue, a beautiful object. The upper valley has fine pastures, but is wholly bare—not a tree nor stick even, hardly a rhododendron—it is a great trench for avalanches to fall into, with sides extremely steep and extremely high. We passed the remains of many. One remarkable mass had encircled a huge fallen stone, big enough to cut into a dozen Borrowdale Bowder stones. The snow had melted about it, and we could see the thickness, which certainly was not less than 25 to 30 feet; the height of the rock above the snow considerably more, probably from 70 to 80 feet in the whole. The path, generally good, rises high, to clear the glacier, and then makes a rapid descent to the second level of the valley. Here larches begin, and there is a remarkable stripe of them, extending on as it were up between two branches of the

glacier. Reached the middle of this barrier of ice in 40 min., i.e. at 6.5; a group of chalets—name Saasky [?]—at 6.35; a second group at 7, about which there is a riant lovely plain, with the Rothhorn, or one of the high mountains towards the Simplon, just peeping down into it through a fold in the mountain-side. Below this is a remarkably strong dyke, built to contain the river, and the centre of the valley is occupied by a vast mass of sand and rocks, the remnant of some former flood, on which beautiful young larches of 20 and 30 feet are just beginning to grow. Higher than this spot the road through the larch woods is sometimes extremely picturesque, but none of the best for mules. One part is very remarkable, strewn with large stones and apparently denuded of earth; yet scattered larches grow in every variety of picturesque deformity, and a large proportion are broken right off about the middle, apparently by the furious winds which sweep the valley in winter; not by avalanches, for higher up the hill-side the forest is whole and flourishing. Another thing worth observing is the build of the many bridges which span this formidable torrent. Natural abutments of rock there are hardly any, but a broad arch is made by abutments of stones, then two layers of trees, each projecting 8 or 10 feet over the mass below, and balanced by heavy stones and timber placed over the abutments; resting on these, some long trunks of larches span what remains of the river. The valley as we descend becomes less savage and more beautiful, with visions of the snowy peaks on either side from time to time. Looking up, the glacier seems to close the valley; there can be nothing beyond but mountain summits and eternal ice; it is impossible to imagine that above it there is a large plain, chalets, pigs, cows, and men. Reached Almagell, where is the highest church, at 7.12, and thence by a level and admirable road, like one through a park, to Saas, at 7.45—8½ hrs., including about 1 hr. stoppage, or rather more. From Destal very quick, and indeed the whole descent, which took 3 hrs. 45 min., pretty well.

August 13.—Started at 5.50; a beautiful morning. Thermometer 40°. Moritz Zurbrucken's beds are, I believe, unexceptionable, except one tiny flea; his honey delicious, butter and bread not bad, and chamois excellent, coffee too strong of the water. But Moritz himself is a capital fellow, and his favourite maxim, 'Pazienza nelle montagne,' is really hardly necessary in his house. Moreover he is a capital hunter, and reputed a first-rate guide, and as civil and more solicitous than any smart waiter. He was in great spirits at having

killed lately four chamois at the same time with two double rifles, as far as I could make out his 'Crack, crack, tombe, tombe,' by the flesh of which I profited, and found it better than any I have yet eaten, tender and juicy. Started at 5.50. About Saas the valley is soft and lovely, and so continues longer than I had supposed. In about $1\frac{1}{2}$ hr. it begins to assume that deep gorge-like character which henceforth marks it to Stalden, and renders it extremely remarkable, though *not* a rival of the Via Mala. At 7.20 observed a barrier of rock extending completely across the valley, but cut down by the water as by the chisel to a great depth. Before this must have been a lake, and in the rounded forms of the upper side of the rock I thought the action of water was plainly visible. Again $\frac{1}{4}$ hr. and the path passes along an almost precipice, at an immense height, where there are some of the noblest larches, two in particular, that I have yet seen. Shortly after a narrow bridge—not in the road—spans the gulf; it is well worth while to descend. A stone dropped from the rock falls on the opposite side of the stream and takes 3 seconds to descend. A second bridge, perhaps $\frac{1}{2}$ hr. lower, is still more remarkable—hard by a cluster of houses. Yet on the whole, fine as this valley is, I think it hardly comes up to Brockedon's description. The bridge over the Zermatt stream, before reaching Stalden, is a very striking point of view. Stalden in 3 hrs., i.e. at 8.50. Visp is another $1\frac{1}{2}$ hr. easy; the descent from Stalden softer, but very beautiful. Total, Saas to Visp, $4\frac{1}{2}$ hrs.; Visp to Sion, 7 hrs. by *char.* Day clear and beautiful, eheu! for Monte Fée, and the Stauffel Gletscher; Croix Blanche. Sion.

Col de Cheville.

August 14.—Started from Sion for Bex by the Diablerets, 5.45. Mem.: Inn both cheap and good, but a suspicion of bugs. Crossed bridge over Morge at 6.25, and turned off the highroad, and in 10 min. began the ascent of the hill, passing through a long scattered village. Neither Paccard nor I quite fresh, and he with a bad foot, so walked all to-day gently, and made 1 hr. 35 min. of gradual ascent, commanding very beautiful views of the Valais, until at 8.10 we turned a corner of rock and came into the very remarkable glen of the Lizerne, a deep chasm rent in the limestone rocks on the W. side; at top, bare peaked sheets of naked rock; and below, either mural precipices or slopes as steep as slopes can be, clothed with larches. The E. side mural precipices, and beeches—such beeches as one rarely sees,

and a few in particular which for their roots might be models for a painter—clothing the sides below. These in about an hour give place to larch. Road carried high along the E. side—a good mule road, but beset with terrific precipices. Reached the first, and one of the most remarkable, of these at 9.5, where the road winds round a little gully in the hill, barely a yard wide, and skirts an all but vertical precipice, by our joint estimate at least 600 feet in depth. Road ascends and then descends considerably, winding round another similar but larger gully, clothed with some of the tallest, straightest larches I have ever seen. All this is most picturesque. One spot near the entrance of the valley should be remembered, where the path is completely hewn into the rock, which projects over it. Met numbers of mules heavily laden with hay; it seemed as if their burdens might push the animals over, but we were assured that an accident was never known to happen. At 9.50 the descent of the road and ascent of the stream brought us nearly to a level, and we entered on the débris of one of the great falls, a singular and picturesque scene, now overgrowing with a fine crop of young larches. Crossed the Lizerne by a bridge at 10.10, and continued our course along the débris; it is curious to see the edge of them to the W. as distinct as the edge of a moraine, and the forest in its primitive state, intact, close to the foot of and considerably below the scattered ruins; the projecting buttress of the mountain above has effectually secured this strip of valley from desolation. After passing this buttress the path turns sharp round to the W. and proceeds along the S.—not, as Keller has it, the N.—side of the lake [Lac de Derboren]; but it is probable that a shorter course might be found along the N. side, making straight for the ravine at the foot of the Diablerets—not that which goes from the head of the lake towards the Dent de Morcles. We, however, followed the beaten road, and, passing round the head of the lake, began to ascend the steep green mountain, tending N. till we reached the Chalet de Cheville at 11.45, i.e. 6 hrs. Master a model for a Hercules, and master and man extremely civil. Pasturage here beautiful; cows large, milk delicious. Tend still to the right, across the stream, up the green slope, and by a good but very steep path up a little ravine, past a waterfall, to the top of the col, which we reached in 40 min. from the chalet, at 1.5. Views of the Alps not extensive, but fine, extending, as well as I could guess, from Mont Combin to the mountains at the head of the Eringenthal. Top of the pass a plain; on one

side the line of the Diablerets, clothed with extensive glaciers; on the other the bolder peaks towards the Dent de Morcles. Hitherto day very fine, but we saw at once that the weather was threatening below to the N.W., and descended, reaching Bex at 5 o'clock—i.e., excluding stoppages, in little more than $3\frac{1}{2}$ hrs. Rain soon began, and we had an almost uninterrupted thunderstorm, with very sharp flashes and rattling thunder. Stopped at a chalet during a heavy paroxysm, where Paccard found me a larch shingle, about 1 foot broad and 2 or more long, which I turned into an umbrella by balancing it on my head, and so walked for about 2 hrs. into Bex, much to the amusement of sundry persons. Mem.: The effect so good that after $2\frac{1}{2}$ hrs. of heavy wet my upper works really were not wet through. The descent very beautiful; thoroughly Swiss-peaked green hills, thickly clad with larch, and rugged peaks above them, much like the passage of the Col de Jaman, especially the descent to Montbovon. As you approach Grion, and thence to the Salines, larch yields to walnut, &c., and the scenery becomes still more rich; and the views of the Valais, in fine weather, must add greatly to the beauty of the scene. Passed the salt works a good $\frac{1}{2}$ hr. from Bex. All this extremely cheerful and lovely in fine weather. Total, including stoppages, about $10\frac{1}{4}$ hrs.; a fast walker would do it in $9\frac{1}{2}$ to 10 hrs. with ease.

Second Visit to Zermatt.

August 21, 1840.—With ladies to Zermatt—beautiful, very hot. Started at 8.15 A.M., arrived about 7.15 P.M. Valley more beautiful than before.

August 22.—Day superb. Started for the Schwarzsee. Road same as to St. Théodule to first bridge and some way beyond, then up through the larch forest—a very steep and fatiguing ascent for the ladies thereabouts—then reaches a more level plain of pasture. Total to the Schwarzsee, 3 hrs. Lake small, with nothing striking in the spot; but the low ridge to the east, which the ladies ascended, commanded a splendid view—of easy access, not 10 minutes' walk from the lake—of the whole circuit of mountains. H. R. and I ascended to the ridge above—called, I believe, the Kleinerhorn [Hörnli], the end of a chain of rocks which runs to the Matterhorn. Ascent not difficult; first turf, then a high moraine, then $\frac{1}{4}$ hr. over ice, then a sharp but not difficult climb up the crest of rocks. The view superb, finer decidedly than from the Reifel [Riffel]. Ascent from lake, 1 hr., steady. Descent on side of Zmutt Gletscher, over patches of snow. Height probably

about 9,000 feet [9,492 feet]. Returned by a different road, the ladies and horses coming round nearly to the foot of the Zmutt Gletscher, and so traversing the whole length of the Zmutt valley, which is most picturesque, even more so than the other branch, except that it has not the views of the glacier to enliven it. Bridge over the torrent of immense height and great span, the most remarkable specimen of that sort of wooden building that I have seen. The descent from the Schwarzsee to Zermatt this way would probably occupy about $3\frac{1}{2}$ hrs. We did it leisurely. It is longer but less steep than the way by which we ascended.

August 23.—Morning rather uncertain, so late. Started for St. Théodule at 6.30; reached bridge in ravine at 8.15, edge of moraine 9.15. Ascent with mules not difficult, inasmuch as the ladies were never obliged to get off till the mules entered upon the snow. Skirted along the moraine rather longer than before, and had some soft bad patches of snow among rocks to cross before reaching the solid glacier. On the ice a short 2 hrs. Snow soft, so that the horses sank very deep; and the difference between our horses and the mountain horses was remarkable, the former much frightened. Reached the summit at 12.15, i.e. $5\frac{3}{4}$ hrs., including at least 20 min. halt to refresh the horses. View towards Italy not so clear as before, but quite as fine. Matterhorn clear, and nearly all the peaks on each side of the valley. Sky blackish. E. and S. both rather affected by the rarity of the air, and one of the guides said to be unwell. All the party delighted with the view, which struck me as being even grander than before, partly probably owing to the Matterhorn being uncovered. Dined in De Saussure's hut. Left St. Théodule at 1.45, and cleared the glacier at 3.11. One of the horses jammed in the rocks, and narrowly escaped breaking its leg. Reached the resting-place at 3.45, stayed about 20 min., reached the bridge at 5 and the inn at 6.30. M. A. walked nearly the whole descent, from the time we left the snow to the village of Zermatt, Mrs. R. a large part of it. Left the horse road 20 min. above Zumsee, at the chalet, and descended through beautiful meadows.

Eggischhorn.

August 24.—With ladies left Zermatt. Fine hot day. Descended to St. Nicolas in $4\frac{1}{2}$ hrs., or rather more, and thence to Viège. Valley about and above St. Nicolas seen to most advantage by the afternoon lights. On to Brieg by *char*. 'Hôtel d'Angleterre' good, much better than the

'Poste,' and the master apparently a very respectable and straightforward man.

August 25.—Heavy rain in the morning, but cleared by 10. By *char* to Laax, 3 hrs.; the road would be reasonably good if in repair. Many places are now barely wide enough to pass, with the Rhone foaming below, altogether a nervous sort of ride. Pass a remarkable stone bridge over a deep gorge of the river, more than half-way up, just beyond which the road mounts a desperately steep hill, which rises to the upper plain, in which Laax stands. Viesch is a short $\frac{1}{2}$ hr. beyond—not visible. Altogether the valley is more interesting than I had expected; the neighbourhood of Brieg and Naters, and the entrance to the valley of Aletsch, down which comes a furious and powerful torrent [the Massa], are extremely picturesque, and probably would well repay an excursion. From Laax to Viesch is also extremely pretty, and there is a footpath the greater part of the way through the fields, much preferable to the horse path. Inns very fair, both at Laax and Viesch; the *cuisine* best at Laax, the rooms rather better at Viesch.

August 26.—Started for the Eggischhorn at 7.45. Ascent very steep, by a *traineau* path; no horses or mules used in the village. Through pine forest for about 2 hrs., then a third hour to the higher chalet, where we left the horses, then 1 hr. 30 min. to the col, the highest point to which the ladies went. This commands a fine view of the chain of the Alps from the Furca beyond the Matterhorn—I forget whether Mont Blanc is visible from this point or not—of one branch of the Aletsch Gletscher, and of the lake [Märjelensee] at its foot—a very beautiful and peculiar feature with its floating icebergs. Why it should give so much effect to the view I hardly know; but the deep green water, contrasting with the dead whiteness of the ice which bounds it on one side and the floating masses, has a most singular and striking effect. Hence to the summit of the Eggischhorn—45 min. stiff climbing, especially towards the top, which is a steep pile of huge stones heaped together one cannot conjecture how, with crevasses between them, enough to break not only your leg but your neck. The view from the summit superb—Alps from Mont Blanc to Furca; on the opposite side the huge Glacier of Aletsch, with its two branches, the Glacier of Viesch, the Viescherhörner, the mountains which bound the Lötschenthal, the Finsteraarhorn, looking much less imposing than from the other side, and the Jungfrau, which, however, was overclouded. Top of Mont Blanc also in-

visible, but we believe that we made out its position and foot. The foreground of rocks and peaks is also magnificent. Altogether this is certainly one of the finest views that I have seen in Switzerland, and worthy of being more frequently visited. We descended from the top to the first chalet in 50 min., and reached the road to Laax in about 2 hrs. more, the ladies having been much helped by a notion of E. R. of fitting up a sledge, on which they descended, ride and tye, with much quickness, comfort, and satisfaction. A stiff day for the ladies. M. A. on foot for 1 hr. 30 min. up and near 2 hrs. 30 min. down, besides the horse-work. Our ladies the first that ever ascended. Guides—a young man, a notary—very civil and obliging; another—lame—Joseph the *Maréchal* [the *Maréchal ferrant*, or village farrier]—recommended, but not at home. Crossed one largish field of snow on the descent. Home at 5.30.

Lötschen Pass.

August 27.—Left Viesch at 5.30; Laax before 6; arrived at Brieg about 8. Thence by *char* to the bridge leading over the Rhone to Gampel, where we took a guide and began the ascent of the Lötschenthal. It is very narrow and steep, rising, not in terraces, but with a uniform and rapid slope. 1 hr. 30 min. before we saw either corn or pasture in the valley. About 1 hr. from Gampel there is a waterfall, of no great height, not exceeding, perhaps, 60 feet, but of great body of water—more than the Turtmanfall. Access laborious, as it is not visible from road. 1 hr. 30 min. reached the first houses, in a beautiful spot—meadow, rock, and wood, with superb peaks rising in the east. Higher up a similar one, even still finer; and the approach to Ferden is the most beautiful part of all. It is remarkable that for the first 1½ hr. not a green field or corn is to be seen. About Ferden it is more riant and cheerful. The view from the elbow, whence both branches of the valley are visible, is superb. Glacier large, but still distant; the mountains on either side of the valley extremely fine. To Ferden 3 hrs., easy; Kippel, 1 hr. 5 min. more. Lodged *chez le curé*; civil and comfortable.

August 28.—Started at 5.30. Beautiful morning. Ascent for about an hour steep, through most magnificent larch forests; then still mounting, and always steep, for another hour or more; then a long traverse across the mountain, up and down, but still rising, to the pass, which lies immediately at the foot of the Balmhorn—the end, I believe, of the great

group of the Altels, a splendid mural precipice capped with glacier. We should have reached the top of the pass about 10 o'clock, having dawdled a great deal, but turned off to the E. on the representation of the guide that the Hockhorn [Hockenhorn] commanded a splendid view, extending to Berne and beyond. Ascent, he said, 1 hr. 30 min. *fort*; it took us a quarter of an hour more *fort*. Skirted up the ridge, crossed to the Gasteren side, and then proceeded, generally over snow-covered glacier, sometimes on a very steep slope, for about $\frac{1}{2}$ hr., when we reached an insulated rock on the crest. To the Gasteren side the slope of the glacier was horribly steep; so we demurred to pass and turned it on the other side. Under the dark rock a beautiful pool of blue water, formed by the melting snow. Crossed an isthmus of ice, sloping steeply on each side, with the steeple on one side and the high peak on the other—a most striking position, which we agreed was enough to repay us for the climb. Way round the steep sloping shoulder of the hill looked rather nervous, so a second demurrer, but being assured by the guide that there was no danger we went on and found none. At the same time, as we wound round the shoulder of the hill, with space on two sides of us, our position was rather unusual and remarkable. After getting fairly off the ice we had the last peak of rock to mount, which we calculated at 5 and found 15 min.; very steep and laborious, over loose and not very large stones. Reached summit at 11.50. Storm brewing in the N.W. and the Alps hazy and indistinct, but still clear enough to make out distinctly Monte Rosa; the Matterhorn, changed in form; and Mont Blanc, towering immensely—by compass S.S.W. This is the first high mountain of the great chain seen on the ascent, and attracted our notice by its enormous height before we could believe it to be Mont Blanc; the guides called it Weisshorn, but did not seem to have a notion of its position. Our peak overlooks a sea of mountains towards the Simmenthal and the country beyond, but in this direction all was hazy, only mountain-tops visible. To the E. a splendid view over the Tschingel and its summit, Mittaghorn [the Mutthorn], the chain leading to the Jungfrau, and, I believe, the top of that mountain, with the mountains of Aletsch behind it; but in this direction also a thick darkness was brewing. Opposite the Frau [perhaps meaning the Doldenhorn rather than the Weisse Frau] and the Blümlis bounded the view. Below, 5,000 feet or more, the Gasterenthal. Stay cut short by the weather; it began to rain as we began to descend, and came on sharp before we

reached our resting-place, where the luggage had been left. Made the best of our way over wet rocks with soaked shoes, and after quitting the glacier descended rapidly on the Gasteren side, over bad stony ground, taking advantage of a slide over some large beds of snow, till we reached the moraine of the Balm Gletscher, along which the regular way from Ferden passes. All the ice is on this north side of the mountain; the glacier is probably $1\frac{1}{2}$ to 2 miles in length, and well crevassed, like the Mer de Glace, but presents no danger. Crossed it to the foot of the Balmhorn, diagonally; and stopped in a sort of grotto of rock to eat, when the storm began again (it has passed off more slightly than we expected) and a very grand scene occurred. Vivid flashes of lightning darted across the deep chasm between us and the Hockhorn, and the thunder was instantaneous and tremendous. From the high rocks of the Balmhorn, over our heads, a triple cataract came pouring down; and opposite, on the side of the Hockhorn, a furious torrent of water, stones, and mud burst at once from the glacier with a noise rivalling the thunder. We had reached this point in 2 hrs. or thereabouts, and after waiting for the rain about 20 min. began our descent somewhere about 2.15. No difficulty, though the slope is as steep as a slope can well be; but we kept too much to the left and had to come back. The river is to be crossed by a bridge, near a chalet, some little way above the higher of the two gorges; there is no other bridge till the top of the lower gorge, and the passage of the cliffs would be difficult, perhaps impossible. Reached this bridge in about 1 hr. 15 min. to 1 hr. 30 min.; thence to Kandersteg 2 hrs. or rather more. Having lost my notes I cannot speak accurately. The valley, which I had seen imperfectly before, is extremely fine; the mountains between it and the Lötschenthal—Zekhorn [Sackhorn], Hockhorn, &c.—sweep right down into this grand mountain basin, as do the precipitous bases of the Frau, on the other side. The first gorge delighted Henry, and is picturesque in the extreme; river here has cut a deep channel through broken knolls, covered with pines, and high crags above. Below, a second less extensive basin, the bottom flat and sadly mauled [?] by the river, which had risen higher than I could have supposed in so short a time, and committed great depredations on the highway. In one place the road was wholly gone, and we had to wade the stream round a projecting point of rock. The two great torrents from the Frau much swollen, and some difficulty in passing, the logs which serve as bridges

being covered or carried off. Jumped these dry by help of my long *bâton*. Henry and the guide both jumped in. An hour earlier, I believe, we could not have passed, as the water, in the main stream and torrents, had evidently fallen much. Second gorge begins about an hour from Kandersteg, and struck us amazingly. The river foaming down this steep descent is a specimen of a mountain torrent in its power. First view of the Kanderthal remarkable, through this magnificent frame. Reach the Gemmi road at first bridge, thence 30 min. to Kandersteg. Evening fine, so got in dry at 5.45. The rest of the party arrived at 6.30, having left Leukerbad a little before 12. They had the storm—not very heavy—all the way up the ascent; dried and lunched at a comfortable little hotel [Schwarenbach] on the col, and arrived well, but not particularly struck with the pass. Inn better than I supposed; dinner good, beds not bad.

(*To be continued.*)

THE EARLY ASCENTS OF THE DENT BLANCHE.

BY W. A. B. COOLIDGE.

As a certain amount of confusion seems to prevail with reference to the precise routes by which the early ascents of this magnificent peak were effected, I should like to put on record a number of facts which I have collected in the course of years.

The first ascent of the Dent Blanche, as is well known, was made on July 18, 1862, by Messrs. T. S. Kennedy and W. Wigram, with J. B. Croz and J. Kronig. The party started from Bricolla, and followed the Col d'Hérens route to the upper snow field, whence they gained the S. arête (probably somewhere between the points marked 3,729 and 3,912 mètres on both editions of the Federal map), and made their way up it, being occasionally forced on to the S.W. face by great rock-towers on the arête. As the ascent was made during a terrific storm the narrative* of the route followed is not quite as precise as might be desired.

The second ascent was that by Mr. J. Finlaison, with Christian Lauener and Franz Zurfluh, on September 11, 1864, the party thinking at the time that the peak had never been conquered.† Starting from Bricolla, they climbed up the steep rocky W. face, not touching the S. arête till within a few steps of the summit, for Lauener had tried it earlier in the same season, though unsuccessfully. Thus a new route was struck out and, perhaps owing to the terrible

* *Alpine Journal*, vol. i. pp. 33-9.

† *Ibid.* vol. ii. pp. 292-301.

experiences of the 1862 party in the storm, the 1864 route was followed by the next four parties, viz.—

June 17, 1865. Mr. Whympfer, with Christian Almer, Michel Croz, and Franz Biner.*

September 3, 1868. Mr. J. Stogdon, with Ignaz Biner and Franz Andermatten.†

July 26, 1870. Mr. Coolidge, with Christian and Ulrich Almer.

September 6, 1871. Mr. W. E. Utterson-Kelso, with Joseph Gillioz and Jean Martin.†

Thus of the six ascents of the mountain which were recorded up to the end of the first week in September 1871 one (the first) was made by the S.W. face and S. arête, five by the W. face—the start having been made in every case from Bricolla or a bivouac near it.

The seventh ascent was made on September 13, 1871, and is of considerable historical interest. It was effected by Mr. Robert Fowler, with Peter Knubel and J. M. Lochmatter. Mr. Fowler has kindly supplied me with the following particulars of his ascent:—His party started from Bricolla, and gained the summit by the usual route up the W. face; but thinking (quite rightly) that the danger of falling stones would be considerable on that face, in the afternoon they ‘descended mainly by the S. arête,’ to the snow-fields at the S. foot of the peak, turning one great rock tower by its W. flank. Mr. Fowler’s description of his route, and a sketch he made at the time (of which he has sent me a tracing), confirm me in the belief that his line of descent was very much that taken, up and down, by Mr. Kennedy’s party in 1862. Mr. Fowler’s party returned to Bricolla, and next day crossed the Col d’Hérens to Zermatt.

The very day that Mr. Fowler was making his ascent (September 13, 1871) my aunt, the late Miss Brevoort, and I, with Christian and Ulrich Almer, Niklaus and P. J. Knubel, two porters, and our dog Tschingel, left Zermatt, in order to attempt the ascent. We crossed a variation of the Col d’Hérens, just W. of the figures 3,595 on the Federal map,‡ and bivouacked that night on some lofty and exposed rocks a good deal farther to the N., somewhere near the point marked 3,714. The next morning (September 14) the two porters returned to Zermatt; P. J. Knubel remained at our camp to take care of Tschingel, whilst the rest of the party—five in all—started at 5.30 for the peak. I copy the description of our ascent from my diary:§—‘We crossed an ice slope, and then climbed a

* *Scrambles amongst the Alps*, pp. 274–80; *Ascent of the Matterhorn*, pp. 215–22.

† Private information. I found Mr. Stogdon’s card in 1870, Mr. Utterson-Kelso’s and Mr. Fowler’s in 1871.

‡ These are the rocks by which Forbes tried unsuccessfully to force his way in 1843 (*Travels in the Alps of Savoy*, pp. 304–5). We named the pass ‘Pollingerjoch,’ in honour of the struggles of Alois Pollinger, then a young porter, now one of the leading Valais guides; but I am glad to say that the more appropriate name ‘Wandfluhjoch’—suggested by M. de Déchy in 1873 (*S. A. C. Jahrbuch*, vol. ix. p. 191.)—has quite superseded that which we gave to it in a joke.

§ See too *Alpine Journal*, vol. v. p. 277.

rocky spur, reaching the foot of the great S. arête (very high up on the Ferpèche side) at 7.18. We halted for breakfast from 7.45 to 8.3. Then, keeping below the jagged crest, we "traversed" not very difficult rocks, and struck the arête at the point gained in ascending from Bricolla at 9.3. The arête, and indeed the whole mountain, was in a most favourable condition, and we reached the top at 9.48. We enjoyed a superb view, though there were a few clouds. We found my old paper and the names of Messrs. Utterson-Kelso and Fowler, who had ascended on the 6th and 13th inst.' On the descent we followed the same route back to our breakfast place, whence N. Knubel was despatched to pick up his brother and Tschingel. 'The rest kept along the S. snow arête, mounted several points, and at length emerged on rolling snow-fields and gained the Pollingerjoch,' from which, after being rejoined by the Knubels and Tschingel, we all descended to the Stockje, where we camped a second night, and returned to Zermatt next morning. At Zermatt we found Mr. Fowler, who, on September 14, had learnt from the howls of Tschingel (indignant at being left behind) that another party was attempting the ascent.

I have been thus particular in describing our ascent of 1871 as it was a notable one in several ways. It was the first time that the peak had been climbed by a lady, and the first time since 1862 that the ascent and descent had been made by the S.W. face and S. arête, while never before apparently had anyone chosen Zermatt as a base from which to attack the peak. My recollection of our route is that we kept just beneath the crest of the S. arête from our breakfast place to the point where we struck the arête, just where we had struck it the year before when climbing straight up from Bricolla. I cannot remember encountering any difficulties in 1871, and the whole climb was a great contrast to our experiences in 1870, when my aunt had been forced to remain behind with a porter when some way up the W. face, generously allowing me to go on to the top (2 hrs. off), while on the descent we had suffered greatly from falling stones. I imagine that from the foot of the S. arête we followed very much the line taken before us by Mr. Kennedy and by Mr. Fowler.

Since our ascent Zermatt has served as the usual starting-point for the ascent, except in a few cases where new routes have been forced up the N.E. and down the W. arêtes. Monsieur de Déchy, on August 5, 1873, repeated our ascent with curious exactness, and has published a detailed narrative of his experiences.* Amongst our successors one party at least made a slight but useful variation in the line of ascent usually taken. Mr. Frederick Gardiner, with Peter and Hans Knubel, on July 12, 1876, starting from the Stockje hut, climbed the peak, but, owing to much ice and snow on the rocks, followed the S. arête 'almost in its entirety;' this limitation meaning, he tells me, that they skirted round the W. flank of a tower of rock instead of climbing over it. This ascent showed that when the usual route was 'closed' (an event of not infrequent occurrence) the peak

* *Jahrbuch des Schweizer Alpenclub*, vol. ix. pp. 176-201.

was yet not inaccessible to a party determined not to be beaten by it. It was duly chronicled and described in these pages,* and this 'new route' appeared in its proper place in Mr. Conway's 'Zermatt Pocket Book' (p. 101), issued in 1881, and in Signor Vaccarone's list of 'First Ascents,' appended to the 'Bollettino del Club Alpino Italiano' for 1885. But it cannot be expected that every climber should be thoroughly versed in ancient Alpine history, and hence I was not surprised to read in a summary of the climbing season of 1889 which appeared in the 'St. Moritz Post and Davos News' for October 26, 1889 (p. 3), that a new and most useful route had in 1889 been discovered and frequently followed up this peak, one which avoided the well-known smooth rocks on the W. face, but was none other than that up the S. arête! I thought it well to send a correction of this slip, pointing out that this route had been already taken by Mr. Gardiner in 1876, and this correction was courteously inserted by the editor in the number of that paper for November 9, 1889 (p. 17). Here I thought the matter ended, as Mr. Gardiner's notes had been before the Alpine world for over thirteen years, and had not ever, so far as either I or he was aware, been publicly challenged. It was, therefore, with genuine amazement that in the same paper for November 30, 1889 (p. 50), I perused the following paragraphs:—

An occasional correspondent, who is a well-known member of the Alpine Club, writes to us as follows: 'I notice that in your issue of November 9 it is said (p. 17) that the first ascent by the route along the crest of the S. arête of the Dent Blanche was made by the well-known climber Mr. Gardiner with Peter and Hans Knubel on July 12, 1876. This is, however, quite a mistake. The route in question had already been followed (and probably for the first time) on August 24, 1874, by Mr. F. Morshead, who took this route in his ascent on that day with Mr. Seymour Hoare and the guides Hans von Bergen and Hans Jaun.'

Our correspondent, after giving some details of a subsequent ascent of the Dent Blanche in 1879 by Mr. Morshead, when the Blatten was the route chosen, goes on to say, 'In order to be absolutely certain that my memory was trustworthy, I wrote both to him and to Seymour Hoare, and they both entirely confirm my recollection.' It is often a matter of great difficulty to trace out the history of an Alpine peak. Local guides have not been concerned in some of the ascents of note, and thus accurate information can often not be obtained on the spot. On the other hand, some of our most energetic English climbers have failed to give us the benefit of published accounts of their experiences, and thus the desired knowledge as to past ascents of peaks is hard to come by. We therefore welcome any additions and corrections which our readers can supply us with, and shall always be happy to publish them.

These statements, I confess, strongly excited my curiosity and interest. Mr. Gardiner, the chief person concerned, had never heard of these facts, nor had Mr. Conway, admittedly the highest authority on all matters relating to the Alpine history of the Zermatt peaks, while I myself, although I flattered myself that I had paid a good deal of

* *Alpine Journal* for November 1876, vol. viii. p. 114, and for February 1878, vol. viii. pp. 376-7. Mr. Gardiner in his published narrative says, 'Knubel told me that he had once before attempted the ascent by the southern arête with the guide Lochmatter, but had found it impracticable; the reference being probably to Mr. Fowler's descent in 1871.'

attention to Alpine history in general, was equally in the dark. Both the gentlemen who were named as having been up the mountain in 1874 were at that moment members of the Alpine Club, yet neither had thought it worth while to send a few lines to the 'Alpine Journal,' or in any way to call attention to their ascent, despite Mr. Gardiner's claim, set forth publicly in 1876. As the matter seemed to me one of great historical interest, I requested Mr. Gardiner to communicate with Mr. Morshead on the subject, and I am enabled by the courtesy of both gentlemen to give the following extracts from Mr. Morshead's reply:— 'I never thought about my ascent of the Dent Blanche with Hoare in 1874 as an ascent by a new route. . . . I made no notes and thought nothing more about it' until he was asked for details by the 'occasional correspondent' of the St. Moritz paper, whose name he mentions. 'Under these circumstances I do not think that I can claim any credit for a new ascent, and I would rather leave that with you. I had not noticed the account in Conway's book, and should not have said anything if I had; for an ascent made unintentionally and never recorded for the good of others cannot be considered a proper ascent.' Mr. Morshead has since written to me to the same effect, but in even more emphatic terms. Mr. Morshead's letters thus settle the question in Mr. Gardiner's favour, and the last uncertainty as to the early Alpine history of the Dent Blanche is thoroughly cleared up.

I trust these pages may be of some use to the future historians of the Alps (in a wider sense even than that in which the phrase was applied to Bourrit a hundred years ago), while to all who have made or are planning new routes I would commend the comments of the editor of the St. Moritz paper given above, the gist of which Mr. Conway has tersely summed up in these pages in the words, which no mountain explorer should ever forget, 'An unrecorded ascent is nothing; one badly recorded is little more.'*

IN MEMORIAM.

SINCE the appearance of the last number of the Journal two more of the original members of the Club have passed away—the Bishop of Durham and Lieut.-Col. Eustace Anderson. It will probably be somewhat of a surprise to many to learn that Dr. Lightfoot claims a notice in these pages. His name, however, will be found among those named by Mr. W. Longman, in his account † of the early days of the Club, as having given in their adhesion to its formation; and Professor Hort writes as follows:—

'All his letters of that period are lying before me. On December 5, 1857, he begins thus: "I write a line or two in haste to ask you what you intend to do about the Alpine Club. Shall you join? . . . I shall feel rather like an impostor, as it is very little probable that I shall ever get up another 13,000 feet. But I feel disposed to follow your lead in the matter of the said Club."'

* *Alpine Journal*, vol. xiii. p. 166.

† *Ibid.* vol. viii.

What Dr. Hort's lead was is well known, and he still remains with us; but Dr. Lightfoot, though his interest in the Alps and Alpine doings continued till long after, seems to have withdrawn his name from the Club even before his removal to Durham. It is interesting to learn that he was the 'friend' who was obliged to leave the party of which Mr. Vaughan Hawkins and Dr. Hort were members just before that adventurous attack on Mont Blanc from St. Gervais in 1856 which Mr. Hawkins has narrated in the first volume of 'Peaks, Passes, and Glaciers.'

Colonel Anderson remained a member of the Club till the end of his life, though his Alpine career closed long ago, and for many years past he has been rarely, if ever, seen at our meetings. But his name will be remembered as one of the contributors to the volume mentioned above, in which he relates his persevering, though unsuccessful, assault of the Schreckhorn in 1857. In the previous year he had published a little book—'Chamouni and Mont Blanc'—which has a certain interest as a late example of what has been called 'the pre-Alpine period of literature.' Travellers no longer 'abstain from everything likely to produce concussion of the air,' nor when a companion jumps a crevasse without the rope on 'remonstrate with him on the impropriety of his conduct in thus endangering his life.' When volunteering first came into fashion Mr. Anderson took it up with great energy and joined the Victoria Rifles, which he ultimately commanded.

ALPINE NOTES.

KILIMANDJARO.—Full particulars of the ascent of Kibo, the highest peak of Kilimandjaro, by Dr. Hans Meyer and Herr Purtscheller are given in the January number of 'Petermann's Mittheilungen' (Gotha: Perthes). On October 2 the travellers pitched their tent on the saddle plateau which lies between the peaks of Kibo and Mawenzi, at a height of 4,350 m. (= 14,260 ft.). On the 3rd they started (duly provided with rope and axes, and in Herr Purtscheller's case with Steigeisen) at 2.30, and made their way by lantern-light through the masses of volcanic débris in a north-westerly direction. About 7 they reached the first snow at 5,000 m. (= 16,400 ft.), after passing unmistakable traces of glaciation on the rocks, though the glacier terminates at present 400 metres higher. By 9.50 they had reached the lower edge of the ice caps, presumably that which stopped Dr. Meyer's farther advance in 1887; height 5,570 m. (= 18,274 ft.). The slope of this was 35°, and after a short halt Herr Purtscheller went to work with the axe. There were a few crevasses, which do not seem to have given any trouble; and finally at 1.45 they reached the edge of the crater (5,860 m. = 19,245 ft.). During the last part of the ascent the rarefaction of the air was very sensibly felt and rendered progress slow. From the point where they stood, a little S. of its eastern limit, the crater showed as a circular basin, about 2,000 m. (= 1½ mile) broad and 200 m. deep. A 'cone of ejection' rose a little north of the

centre to a height of 150 m. Otherwise the basin was floored with ice, which issued as a glacier through a breach on the W. side. They were not quite at the highest point, which lay almost exactly at the S. of the ring; and judging that they would not have time to reach it that day, they descended to their camp. At midday on the 5th they again left this, and reached, after five hours' scrambling, a 'roomy lava-cave' at a height of 4,620 m. (= 15,145 ft.) and much nearer to the peak. Starting thence at 3 A.M. on the 6th, they gained their previous position by 8.45, and turning to the left followed the ridge to the summit. Three small rocky peaks rise through the ice, each of which they climbed, and found that the middle one was by 15-20 m. the highest. The aneroid indicated exactly 6,000 m. (= 19,685 ft.). At 10.45 they planted the German flag and named the rocky tooth 'Kaiser Wilhelm-Spitze.'

In the following week they turned their attention to the lower, but more difficult, Mawenzi. On October 13, after some hours of what Dr. Meyer calls 'die halsbrecherischste Kletterei meiner bisherigen Bergpraxis,' they reached a pinnacle of the W. ridge, at a height of 5,120 m. (= 16,798 ft.). The character of the rocks may be inferred from the fact that they could see daylight through the ridge when they were still some 10 m. below its actual crest. On the 15th they made another attempt, starting at 4.30, and bearing somewhat to the right, S. of their former route, succeeded in reaching by 8.30 one, though not the highest, of the peaks of the 'Hauptkamm.' Two more subordinate peaks lay between them and the actual summit, and the difficulties of farther progress seemed to be greater than so small a party could safely attempt to encounter. They appear to have reached a height of about 5,200 m. (= 17,050 ft.), the summit being some 50 m. higher. They were back at their quarters by 11.40, and enjoyed 'a jolly snow-storm' in the afternoon.

On the 17th the indefatigable explorers started for a third ascent of Kibo, this time from the N.E. On this side the lava ribs are steeper, and the ice does not begin till nearly 600 ft. higher, and is also steeper. They did not on this occasion go up farther than the foot of the ice, but returned to the attack next day. After sleeping in another lava cave they started at 3.15, reached the rim of the crater at 7.45, and descended into it in about 50 min. more. The ice, or névé, was too much crevassed to allow of their reaching the central cone, so after making some observations they returned to the ridge and sunned themselves (temp. 50° F.) on a snow dome a little S. of the E. point. They were back at the tent by 2.50.

October 21 was devoted to a last exploration of Mawenzi on the N., when a point 5,020 m. was reached on the N.N.E. ridge.

Two views and a bird's-eye view of the crater illustrate this interesting report, which is further elucidated by the map accompanying Dr. Meyer's narrative of 1887 (vol. xxxiii. p. 354).

Both to him and to Herr Purtscheller we beg to offer our heartiest congratulations on the success which has attended their efforts to 'solve the riddle of Kibo.'

SGURR-NAN-GILLIAN (3,180 feet?) TO BHASTEIR AND THE BHASTEIR

TOOTH, BLACK COOLINS.—On October 2, with the guide John Mackenzie, of Sconcer, I started from the Sligachan Inn, Skye, and ascended Sgurr-nan-Gillian from Bhasteir Corrie by a gully which was followed up to the larger of the two notches between the highest and adjacent peaks. From the summit of Sgurr-nan-Gillian we climbed along the ridge to the summit of Bhasteir, passing the Sgurr-nan-Gillian Tooth by a descent of 20 or 30 feet on the Sligachan side. From the top of Bhasteir we dropped, with aid from the rope, into the cleft below the Bhasteir Tooth, ascended this tooth, and reached the scree beneath by a gully running southwards. Sligachan was regained by passing the col below the Bhasteir Tooth. This route, from the notch first mentioned to the col, consists almost entirely of rock-climbing, frequently of considerable difficulty, and occupied (including short halts) 4 hrs. 50 min. The ascent from and descent to the Sligachan Inn together occupied 4 hrs. 25 min. Mackenzie states that the ridge and the Bhasteir Tooth had each been climbed only once before, on different days in August last.

R. F. BALL.

MOUNTAINEERING IN NEW GUINEA.—We copy the following from the numbers of the 'Proceedings of the Royal Geographical Society' for October 1889, pp. 605-6:—'We are indebted to our colleague, the Rev. W. G. Lawes, of Port Moresby, for the following interesting details regarding Sir W. MacGregor's successful journey to the summit of the Owen Stanley Range in New Guinea. The route taken was *viâ* Redscar Bay and the Vanapa river. A camp was formed about forty miles up this river, and Mr. Cameron sent thence to the Rigo district, thirty miles E. of Port Moresby, to engage the chief Kebokanamoia (who accompanied Mr. Cuthbertson two years ago to Mount Obree) and a number of Papuans. The party left camp for the range on May 17. It was composed of four Europeans and thirty-eight natives, including several South Sea Islanders, good bushmen and travellers. The route was one never attempted by any previous traveller, and led over hill and valley, across rivers, and through scrub, a path being made by knife and axe, until the summit of Mount Musgrave was reached, about 9,100 feet. From this some of the carriers were sent back, others remained with Mr. Cameron, whilst Sir William and a faithful five, Mr. Belford (a Samoan half-caste), a Fijian, and three Papuans, pressed forward. On June 11 the latter reached the highest crest of the range, 13,121 feet above the sea. The elevation was named Mount Victoria. The weather was damp and foggy up to 8,000 feet, but above that height a clear blue sky prevailed. During the ten days the party was above 10,000 feet not a cloud was seen; the climate was simply magnificent. The sea on both sides of the island was visible; the N. side, of course, the most distant, and the stretch of inland country towards it was much more level than that on the southern side; it was, therefore, concluded that the ascent of the range from the N. would be unobstructed and easy. From Mount Victoria eastward to Mount Lilley stretches an uneven crest thirty miles in length, and along it Sir William travelled, being altogether three and a half days on the summit. His eyes were here gladdened by the sight of daisies, buttercups, forget-me-nots, and white heath,

which grows densely in large patches looking like snow. Large icicles amused his tropical companions, who thought their mouths were burnt when they tried to bite them. Larks were plentiful, similar in wing and song to those of Northern Europe. There are no trees within 1,000 feet of the summit. The long-tailed Bird of Paradise, once before obtained by Belford (now in the Sydney Museum), was met with from 5,000 to 9,000 feet, some half-score specimens being secured. Another, apparently new, Bird of Paradise was obtained on the top of Mount Knutsford. The southern slope of the range is drained by the Vanapa river, the head of which was crossed at an elevation of 10,130 feet. No natives live on the mountains above 4,000 feet, but they hunt as high up as 9,700 feet. Although the Papuans at the base of the hills proved very friendly, nothing would induce them to accompany the party in the ascent. Sir W. MacGregor's botanical collection has been sent to Baron von Müller, of Melbourne, for determination; the zoological and geological collections would be taken by Sir William himself to Brisbane. The party returned to Port Moresby safe and well on June 25. The following are some of the principal heights observed by Sir W. MacGregor's party:—

	Feet.		Feet.
Mount Victoria	13,121	Mount Griffith	11,000
„ Albert Edward... ..	12,500	„ Gillies	8,000
„ Scratchley	12,000	„ Parkes	8,000
„ Knutsford	11,157	„ Musgrave	9,100
„ Douglas... ..	11,796	„ Belford	6,000
„ Service	10,000	„ Henry Forbes ... (?)	3,000
„ McIlwraith }	and	„ Frank Lawes ... (?)	3,000
„ Morehead }	11,000		

NOTES FROM THE NEIGHBOURHOOD OF STEIN.—The comfortable little inn at the Stein Alp used in former years to be quite a favourite resort of mountaineers tired of the more fashionable parts of the Bernese Oberland, but seems recently to have fallen into unmerited neglect. It is now one of the pleasantest and most unpretending mountain inns of the old style (like those at Zinal in former days or at Ried now), and is a centre from which many interesting climbs may be undertaken. I was there for a week in rain and snow in July 1888, and for another week in 1889, when I was more lucky in point of weather, and I now venture to offer a few scattered notes on some of the excursions around, which may be made when the higher mountains are still too deep in snow to be accessible.

Our first walk (July 2) was one suggested by a note in these pages* by Messrs. Hutchison and Powell. Young Christian Almer and I went straight up the E. branch of the little Oberthal Glacier to the snow col (overlooking the Wenden Glacier) between the points 2,993 and 3,002 (3¼ hours). Thence we rounded the peak 3,002 to the col between it and 3,036, and returned to Stein by traversing the Klein Sustlifirn, the Sustenlochfirn, and the Sustenloch, reaching the zigzags on the Wasen side of the Susten Pass, 5 minutes below the top of the

* *Alpine Journal*, vol. xii. pp. 266-7.

pass (2 $\frac{3}{4}$ hrs. to Stein from the Oberthal col). On July 3 we went over to the Göschenen Alp by the Sustenlimmi, taking on the way between the Thierberglimmi and that pass the beautiful snow dome of the Gwächtenhorn (3,428 mètres), so conspicuous an object from the windows of the little inn at Stein. In addition to the topographical evidence which identifies this peak with the Steinberg, climbed by Messrs. R. W. E. Forster and Hardy Dufour in 1861, its appearance, as we reached it from the Thierberglimmi, was absolutely identical with the sketch given by those gentlemen.* There is no longer any priest resident at Göschenen Alp, but the old parsonage now serves as a quaint little mountain inn (a good deal frequented by excursionists from Göschenen), kept by the people of the house opposite. Next day (July 4) we returned to Stein by the little-known pass named Sustenjoch (2,657 mètres) on the Siegfried map and Wallenbühl Pass by Mr. Ball.† We lost much time by a traverse very high up on the mountain side between Wüest and Hornfeli, so that I strongly advise future travellers to descend to Wicki, at the junction of the valleys, and then to remount the Voralpthal to Hornfeli, as much time must be saved thereby. The way up the Sustenjoch from Hornfeli was easy but dull, the chief object in sight being the Sustenhorn from an unusual side (by which there is a very tempting new route, which was taken on August 4 by Herr Naef and found not to be difficult).‡ The small glacier is perfectly easy, and the pass was gained in about 2 $\frac{1}{2}$ hours from Hornfeli. The descent of the great rock-wall on the N. side (so well seen from the Susten Pass) proved unexpectedly easy (40 minutes to glacier), though its appearance is most formidable. From its foot a traverse led in 30 minutes to the foot of the last zigzags of the Susten Pass on the Wasen side, 40 minutes from the top of the pass.

There is a high pass from the Wendenthal to the Trübsee, called the Titlisjoch, which is described in the Travellers' Book at Stein by Mr. T. C. V. Bastow (if I remember rightly), but which does not seem to be mentioned in the guide-books. The best way from Stein is to traverse round from the Feldmoos chalets to the Wendenthal (not by the usual traverse to the Wendenjoch by the small lake near Grätli, 2,067 mètres), whence grass and rocks lead up to a very steep rock-wall. Mr. Bastow recommends climbers to scale it close under the Titlis; we took it much nearer the Reissend Nollen, and found it a rough scramble, save the last few feet, which involved distinct climbing. The Klein Gletscher was thus reached in 1 hour from the base of the rock-wall. Traversing it to the N., another easy rock-wall leads (1 hr. 10 min.) to the pass which lies between the Titlis and the Reissend Nollen, and close to which the ordinary Titlis route is joined. Including the circuitous round by the lake, we took (on July 7) 6 $\frac{1}{4}$ hours' slow walking from Stein to the pass, and 2 hrs. 5 min. thence to the Engstlen Alp inn. It is, perhaps, worth noting here that the Wendenstock (9,987 feet) is a short and easy climb from this latter inn by way of the Pfaffen Glacier, a chimney up to the

* See *Peaks, Passes, and Glaciers*, 2nd series, vol. ii. p. 90.

† *Central Alps*, p. 143.

‡ *Schweizer Alpen-Zeitung*, 1889, p. 168.

W. ridge, and the W. arête, the only approach to difficulty being the passage from the lower to the higher peak. On July 8 we took 4 hrs. 10 min. up from Engstlen, and 2 hrs. 55 min. down. The Engstlen inn is to be very much enlarged next year; the old Trübsee inn is closed, while a new one has just been built at the summit of the Pfaffenwand.

The Gross Spannort (10,506 feet), the second in height of the Titlis group, seems a long way from Stein, and so it is, but it may be of use to climbers to have a note of the route by which (having gained the summit on July 10 in 3 hrs. 25 min. from the club hut or Hôtel Uto by way of the Schlossberglücke and Spannörterjoch) we reached Stein the same evening. From the Spannörterjoch we traversed, in 35 minutes, round the west foot of the Klein Spannort to the broad snow-pass (marked 2,940 mètres on the Siegfried map) which Von Tschudi's 'Turist' (30th edition, p. 114) calls the Kühfad Pass. Thence an easy glacier, débris, and grass slopes led down to the Klein Alp hut, at the head of the Klein Alpthal (1 hr. 5 min.), near which the route from Mr. Tuckett's Grassen Pass is joined.* In 40 minutes thence we reached the Susten road, over which a long tramp brought us back to Stein in 2¾ hours, after a pleasant four-days' round. I may add that the S. A. C. Club hut near the Trift Glacier is in bad repair, and has lost almost all its fittings, that the upper ice-fall of that glacier is of surprising magnificence, and that, favoured by hard snow (except on the peak itself), we found it possible to quit the Rhone Glacier (on its left bank, where the usual Galenstock and Nägeligrätli tracks the same) in just over 2 hours from the summit of the Dammastock.

W. A. B. COOLIDGE.

INTERCOURSE BETWEEN THE VALAIS AND GRINDELWALD IN THE SIXTEENTH AND SEVENTEENTH CENTURIES.—In the course of a paper on the alleged old glacier pass between the Valais and Grindelwald (which, it will be remembered, is supposed to have been frequented by Protestant dwellers in the Valais, who brought their children across to be christened in their new faith), Pfarrer Strasser, of Grindelwald, has, in his interesting and valuable periodical, 'Der Gletschermann' (Numbers 29-31, 1889), printed for the first time full extracts from the parish registers of Grindelwald. The main results are as follows: There are seventeen baptisms registered between 1557 and 1621, in which one or both the parents are said to be natives of the Valais; in two cases it is specially recorded that the parents came from Saas, and in two others from Lötschen. There are twenty-two marriages registered between 1560 and 1616, in which one or both parties are stated to be natives of the Valais, twelve being men and eleven women. In the cases of two women whose marriage is recorded also in the Zermatt register and two other women, the place of origin is stated to be Zermatt; three men and one woman hail from Lötschen, two men and one woman from Saas. There appears to be nothing in any of these entries which in any way points to the fact that the glaciers were crossed for the purpose of baptism or mar-

* See too *Alpine Journal*, vol. vi. p. 78.

riage. It is probable that these Valais men and women came to settle in Grindelwald as ordinary emigrants, though possibly for religious reasons. Most likely they came over the Lötschen Pass between the Lötschenthal and the Kanderthal, for that pass was well known and frequently traversed from an early date, whereas the existence of the alleged glacier pass between the Valais and Grindelwald is not supported by any distinct and undoubted evidence, though many legends and local tales have been adduced in its favour. It may be well to state here that the earliest known occasion on which it is certain that a pass was effected across the glaciers from Grindelwald to the Valais is the traverse of the Mönchjoch by Caspar Rohrdorf and his party in 1828 (August 27-8, and September 8).

While on the subject of passes over glaciers said to have been frequently made in olden times, we may refer to two recent contributions to the literature of the subject. In Nos. 9 and 10, 1889 (May 15 and 31), of the 'Mittheilungen' of the German and Austrian Alpine Club, Dr. Walter Schultze, of Halle, has collected from many quarters scattered allusions to glacier passes in the Central Alps, which are believed to have been crossed in former days—Petersgrat, Gelten Pass, Lötschen Pass, Mönchjoch, Strahlegg, Triftlimmi, Col de Fenêtre, Col de Collon, Col d'Hérens, St. Théodule, Monte Moro, Old Weissthör, Triftjoch, Adler Pass, and Sandgrat. No fact previously unknown seems to be brought forward, but the paper puts together conveniently all that has been known or conjectured on the subject, with abundant and careful references to the works in which these statements are to be found. The other is an elaborate and full account of the working (from 1705, and specially from 1782 to 1805) of the lead mines at the head of the Lauterbrunnen valley. It was delivered by Dr. A. Bähler as a lecture before the Bienne section of the Swiss Alpine Club, and is printed in Nos. 9-13, 1889 (April 15 to June 15), of the 'Schweizer Alpen-Zeitung.' Two specially interesting items may be briefly noted. It seems to be a well-ascertained fact that in 1346 and 1349 a colony of Lötschenthal men was established near Mürren and Trachsellaunen. This would show that the Petersgrat was then a frequented pass. Again, we hear of four of the lead miners crossing the glaciers from the Lauterbrunnen Valley to the Lötschenthal on July 12, 1783, for the purpose of attending mass at Kippel, and returning the same or the next day. It is often said that they crossed the Wetterlücke, but this must always have appeared doubtful to anyone acquainted with the formidable glacier difficulties of that pass, at least at present, while the fact that the Petersgrat was an old and well-known pass makes it probable that the four miners crossed that pass and not its more difficult neighbour.

CONGRESSES OF THE FOREIGN ALPINE CLUBS.—The Swiss Alpine Club assembled at Zürich from August 17 to 19, its meeting this year being of a specially joyous nature, as it was also the celebration of the 25th birthday of the Society. A large number of members attended, among others being Professor Melchior Ulrich (now 88 years of age), who thirty and forty years ago did much good work in the Alps. The general assembly took place on the morning of the 18th, about

220 being present. President Grob delivered an eloquent speech, reviewing the past history of the Club, and giving a most favourable account of its present condition. At this assembly there were announced the results of the deliberations of the business meeting of delegates from the different sections which had taken place the previous day. There was a lively dispute between the Geneva and Monte Rosa sections for the possession of a legacy of 3,000 francs left by M. Bétemps (one of the Federal Surveyors) for the construction of a hut in the Monte Rosa district. It was officially proposed, in accordance with the understanding arrived at last year, that the money should be spent in building a hut at the upper end of the Val de Bagnes, but the delegates, influenced by the fact that M. Bétemps had done much work round Zermatt, and by the representations of the Valais members, resolved by a large majority to build the hut at the foot of Monte Rosa. A sum of money was voted to the new society 'Linnæa' for its garden of Alpine plants in Bourg St. Pierre, and it was resolved to study the question of establishing a central library for the Club. No reply had been received from the Federal authorities as to the scheme for constructing a relief of Switzerland. The Rhätikon (exclusive of the Silvretta group) was selected as the Excursionsgebiet for 1890-91. The section Rhätia proposed that the central committee should contribute to the maintenance of the fittings in the 33 club huts, and that the huts themselves should be declared to be the property of the Club, the several sections being charged with the looking after them. The second proposal found but little support, and the first was carried in the form that the Central Committee should hand over 50 francs annually for the specified purpose, to such sections as stand in need of it, provided that the general regulations as to the club huts had been observed. 200 francs were voted towards the expenses of erecting a memorial to the late M. Eugène Rambert. It was resolved to collect and publish in compact form all the existing tariffs for guides in Switzerland, and to defray the excess of the expenses over the estimate (about 1,150 francs) for a relief map of the Canton of Glarus. It was announced that the Central Committee had taken steps to abate the nuisances caused by advertisements on the gorge of the Devil's Bridge, and that, as no section had offered to receive the Club next year, the choice of the place of general assembly should be left to the delegates of the sections. There has been an increase of 367 in the numbers of the Club, and a new section—Emmenthal—has been founded. There was a balance of 40,000 francs in favour of the Club. It has now 3,251 members, and 35 sections.

The German and Austrian Alpine Club met in Botzen from September 7 to 9. 1,743 members, from 121 sections, were present. It was resolved to change the name of the Sonnblickhaus to Zittelhaus in honour of the former Central President of the Club. A lively debate on an elaborate set of regulations concerning paths and club huts ended in the adjournment of the debate till 1890; but it was resolved that the sums voted in 1889 for the construction of huts should only be paid over when complete security was obtained that the existing rights (whether as owners, lessees, or users) of the Club would be upheld. About 1,800*l.* was voted towards making paths and building

huts. Mainz (Mayence) was chosen as the meeting place for 1890, Graz for 1891, and Zell am See for some later year. At the end of August 1889, the Club numbered 22,586 members (an increase on the year of 925) distributed over 175 sections. Its budget for 1889 amounts to no less a sum than 8,250*l*.

The Italian Alpine Club held its festival at Ascoli Piceno, in the Abruzzi, from August 30 to September 5, and everything seems to have passed off very successfully. The delegates of the sections held their business meeting on July 14. At the latter meeting it appeared that the Club had a favourable balance for 1888 of 14,000 francs. The prizes founded by the will of the late Signor Quintino Sella for the Italian guides who within the five years after his death should have most distinguished themselves by faithful performance of their professional duties were awarded to J. J. Maquignaz (1,000 francs), Émile Rey (400 francs), and Antonio Castagneri (150 francs). The proposal of the Signori Sella to build a hut at a height of over 4,500 mètres (=14,765 feet) was accepted, and a commission named to examine the matter, which has since reported in favour of a spot (4,540 mètres) close to the summit of the Punta Gnifetti or Signal Kuppe.* The Club now numbers 4,416 members, distributed into 33 sections. At the festival it was unanimously agreed amid enthusiastic applause that the meeting-place of the Club in 1890 should be Rome.

The French Alpine Club, as on the occasion of the Exhibition of 1878, held its congress in Paris from August 9 to 12. Though but 340 members took part in it, the proceedings were animated and interesting. The business meeting was revived for the first time since 1878, but nothing very important was done. There was a discussion on the subject of 'caravanes scolaires,' an announcement that the commune of Chamonix has agreed to add a room (to be used for meteorological observations) to the *cabane* on the Grands Mulets, and the expression of a wish that accounts of the principal ascents hitherto made should be issued in a volume, so as to form a history of climbing. The great dinner took place at Meudon; excursions were made to Compiègne and Pierrefonds, as well as the ascent to the summit of the Eiffel Tower, while a journey to Normandy (August 13-16) brought the congress to an end.

The November 'Bulletin' of the C.A.F. contains an interesting catalogue of the objects which the C.A.F. exhibited in the Exhibition. Besides many paintings in oils and water-colours, drawings, photographs, maps, a set of the publications of the Club and its sections, as well as of many of its members, was shown. Among other objects we note a working model of the Chatelleret Club hut, in the Vallon des Etançons, the tent in which M. Vallot spent three days in 1887 on the summit of Mont Blanc, and the plans for his proposed hut on the Bosses du Dromadaire. A large glass case contained the ice-axe of J. P. Cachat, one of De Saussure's guides; Dr. Hamel's compass, lost

* From *La Nazione* of January 23 we learn that a subscription to meet the cost of this (estimated at 15,000 francs) has been set on foot. The Central Committee furnish a subsidy—3,500 francs—for the initial expenses.

in 1820 and found in 1863; * the two bits into which M. Cordier's ice-axe was broken on the occasion of the accident which cost him his life; and one of the ropes left on the Meije at the time it was first climbed in 1877. Another glass case protected a collection of ninety rock specimens, taken from summits in the French Alps between St. Martin Lantosque, in the Maritime Alps, and the Little St. Bernard. The geological character of each specimen was determined by M. Stanislas Meunier, who found in several cases traces of vitrification, due to lightning. It is announced, in another part of the same 'Bulletin,' that this collection, which was formed by Mr. Coolidge, has been presented by him to the C.A.F.

MONTE CRISTALLO BY THE N.N.E. ARÊTE.—In our November number (pp. 505-6) we gave a summary of the account of this expedition sent to the 'Mittheilungen' of the German and Austrian Club by Herr Artmann, who accomplished it last summer. Herr Artmann has since written to the same periodical (number for October 31, pp. 249-50), stating that this route was not entirely a new one, as he had previously supposed, for the ascent by this ridge was first made on September 19, 1877, by Professor Minnigerode, with Michel Innerkofler, and repeated at least once since that date. At one point the 1877 route trends to the left, while that of 1889 goes to the right, the two later crossing each other. Herr Artmann therefore considers his route to be an independent variation of the 1877 way, the latter being the less difficult of the two.

AIGUILLE DU MOINE.—On August 3 last Dr. Leith and Mr. R. A. Robertson, with J. B. Aymonod, of Val Tournanche, and a Chamonix guide, discovered a route up this peak which seems not to have been previously taken. Starting from the Montenvers, they mounted the Mer de Glace to the point where it is left on the way to the Dru, and then ascended in a parallel line with it to the base of the great couloir which descends in a S.W. direction nearly from the summit of the Aiguille du Moine. The party climbed up this couloir and by the W. face of a ridge intersecting it, till they gained its uppermost end. Then striking to the left they attempted to climb the final peak by its W. face, but being prevented by a mist from succeeding in this (no serious difficulties would, however, be encountered in finer weather), they crossed round and joined the ordinary route about 20 minutes below the summit of the peak. Times, actual walking: 9½ hrs. up; 3½ hrs. down.

WINTER ASCENTS.—On January 7 the first winter ascent of the Eiger was made by Messrs. Mead and Woodroffe, with Ulrich Kaufmann and Christian Jossi. They reached the summit at 1 P.M., in 11 hrs. from the Little Scheidegg. Much step-cutting was required, but otherwise there were no serious difficulties. The weather was so perfect that through the telescope of the 'Bear' a guide could be seen on the summit in the act of striking a match in the approved Swiss fashion and handing it to his 'Herr,' who, after lighting his pipe, let it burn out.

* Thanks to the courtesy of the French Club these interesting relics—axe and compass—were among the objects on view at the recent exhibition of the Alpine Club.

On the same day Mr. Theodore Cornish, with the brothers Almer, ascended the Jungfrau in 8 hrs., and on the following day the Gross Viescherhorn in 4 hrs. 10 min., from the Bergli hut. The latter peak was also climbed by Mr. Mead's party on the 10th, but not without considerable difficulty, the weather having changed for the worse since the early part of the week.

SAAS. DOLOMITES.—The hotel at Saas-Grund has been again taken under the direct management of J. P. Zurbrüggen, its proprietor. Zurbrüggen, an excellent mountaineer, was well known some few years ago as an able guide. While he retained the hotel in his own hands it was thoroughly comfortable and well-arranged, considering its modest pretensions and moderate charges.

Members of the Club appear to be taking an increasing interest in the Dolomite group; and, while writing, I should wish to allude to the Vernel, a satellite, so to say, of the Marmolata and hardly known to Englishmen.* This steep, huge rock rises somewhere to the W.N.W. of the principal peak of the Marmolata, and might be combined with it in one expedition from either of the inns on the Fedaja. Its height is about 10,500 feet (3,197 mètres). The rocks to the summit offer a stiff, unbroken climb of about one hour from the snow. I was taken to the top in the summer of 1887 by Giorgio Bernard, of Campidello, who climbed in rope shoes. He was the first to make the ascent, some two or three years before, and then he repeated it with the Bavarian climbers Herren Merzbacher and Euringer, after which it was climbed by those celebrated Alpinists Purtscheller and Zsigmondy, without guides. I was much pleased with Bernard, who is the most efficient guide of this district.

The two aiguilles of the Schlern (Schlern-Spitzen), which rise above Ratzes-Bad, although not high, are very stiff, the highest having been first conquered by Santner, of Botzen, alone, the other by a younger brother of Bernard's, now dead, who took Herr Euringer with him to the summit.

W. E. UTTERSON-KELSO.

The first general meeting and dinner of the Scottish Mountaineering Club took place on December 12 at the Grand Hotel, Glasgow, thirty members being present. The Club now has its full complement of 'original members' (100), and it is proposed to increase the numbers and start a small journal on the lines of the 'Alpine Journal.'

C. PILKINGTON.

We regret to learn that another Alpine region is in danger of being invaded by the steam engine. The 'Oesterr. Touristen-Zeitung' for January 1 announces that a concession is being sought for a cog-wheel railway from Bruck-Fusch to the Glockner-Haus, by Ferleiten and the Pfandl-Scharte. The best prospect that is held out is that the line may be taken *under* the Pfandl-Scharte in a tunnel and not over the top of it. But in any case the vulgarisation of the Glockner, which has already advanced pretty far, will be carried some way further. Fortunately for mountaineers, the most interesting ascent is from the other side.

* The Vernel must not be confused with the Sasso Vernale, which rises to the S. of it, on the other side of the Ombretta Pass.

REVIEWS AND NOTICES.

Chemin de Fer de Calais à Milan—Ligne Directe par Belfort, Berne, la Gemmi et le Simplon. Par James Ladame. (Geneva and Bâle: H. Georg. 1889. Large 8vo. pp. 293. 5 francs.)

THE writer of this book advocates the piercing of a tunnel under the Gemmi Pass, in order (by the aid of the Simplon tunnel) to shorten the way from Calais to Milan by nearly 50 miles. Mountaineers will be interested in this project, as opening up a direct line from Calais to Zermatt. The proposed tunnel would start from Mittholz, near the Blauseeli, between Frutigen and Kandersteg, and might be pierced in three different directions. M. Ladame favours a tunnel which would be $12\frac{1}{2}$ or $13\frac{1}{2}$ miles long, and would be connected by a line of 4 or 5 miles with the Rhone valley railway at the Turtman station. The depth of this tunnel would be about 1,530 yards—far less than that of any of the other great tunnels in Europe, as would be also its height above the sea-level; but, on the other hand, it would be twice as long as the Arlberg ($6\frac{1}{2}$ miles), and considerably longer than the Mont Cenis ($7\frac{1}{2}$ miles) and St. Gotthard ($9\frac{1}{2}$ miles) tunnels. The total cost of the line (double rails) from Thun to Turtman is estimated at 56 million francs ($2\frac{1}{4}$ million pounds sterling).

Many diagrams are given, and the advantages of the proposed scheme are dwelt on at length. Bern would thus become one of the chief international centres, and English traffic would be drawn to the new line from the rival line of the St. Gotthard. The entire cost of the line from Thun to Domo d'Ossola, including both tunnels, and interest on capital, rolling stock, and unexpected outlays are estimated to amount to 150 million francs (6 million pounds sterling). The project is a magnificent one, and it must in fairness be said that M. Ladame is a railway engineer by profession (the line from Neuchatel to Chaux de Fonds was built by him), and that this gigantic scheme was suggested by him to the Federal authorities more than thirty years ago. By far the larger part of the book is taken up with a very detailed account of the three great, and many of the minor, tunnels on the Continent, the most minute details of construction being given, as well as the complete history of each tunnel. It is an interesting work, and contains much curious information, though it is to be feared that mountaineers, always taking the longest way by preference, will disdain to read of tunnels which are intentional short cuts.

Uebersichts-Karte der Alpenländer. Von Vincenz von Haardt.
(Vienna: Hölzel.)

This is one of the numerous attempts at producing a general map of the Alps. It is fairly engraved and legible, but the scale ($\frac{1}{1000000}$) is too small to allow of much detail being given. It extends from Ratisbon to Cortona, and from Lyons to Presburg. The ridiculous mistake of attributing a height of 3,883 mètres to the Aiguille d'Olan is repeated, and the Ecrins is treated as apparently one peak of the Mont Pelvoux, while the Mercantour still retains its 3,167 mètres. There are many

mistakes and omissions in the lesser known parts of the Alps, but other portions of the Alpine chain are more correctly represented. The copy sent us is conveniently mounted on cloth to fold into a case, and the map itself may be referred to for a hasty bird's-eye view of the Alps, though its details require to be verified.

Annuaire du Club Alpin Français, 15ème année, 1888. (Paris.)

In the course of his interesting account of the progress of the C.A.F. during the year 1888 the official writer makes two noteworthy statements. He expressly contrasts the 'Annuaire' with the 'Alpine Journal,' the latter periodical, it seems, enjoying a very small circulation, and that exclusively among experienced climbers, who seek in its pages accounts of new ascents, so that they may repeat what has been done by the makers of the same. A little below we read, 'Puis, le C.A.F. ne se compose pas seulement d'ascensionnistes. Ceux-ci n'en forment, au contraire, qu'une faible partie. La grande majorité des membres du Club aiment à lire le récit d'expéditions qu'ils se sentent eux-mêmes hors d'état d'entreprendre.' The same writer explains that it is not his intention for a moment to criticise the 'Alpine Journal,' which he flatteringly calls 'ce célèbre recueil,' and the present writer has not the least intention of criticising the avowed aims and composition of the C.A.F. But these statements may serve as an excuse for the overburdened reviewer when he looks in dismay at the 700 large pages of the latest 'Annuaire,' for as soon as he grasps the fact that for readers of the 'Alpine Journal'—all of course experienced climbers—only a small portion of those 700 pages have any but the remotest interest, he feels with relief that his notice need not be constructed on the same scale as the stately volume he is writing about.

The first article is by M. Janssen, the celebrated astronomer and the President of the C.A.F., and it is of greater scientific than Alpine interest. In the middle of October 1888 M. Janssen spent several days at the Grands Mulets, for the purpose of discovering whether oxygen exists in the solar atmosphere, the result obtained being that if it exists at all it certainly does not produce the same visible results as in the case of the earth's atmosphere. M. Janssen took two entire days to reach the hut from Chamonix, employing no less than 13 hours to go from the Pierre Pointue to the Grands Mulets, during part of which time he was (owing to his advanced age) borne in a sort of litter which he had devised. M. Vallot, having in view always his proposed hut on the Bosses, writes an article with the high-sounding title 'Un Siècle d'Ascensions au Mont-Blanc.' It is really concerned chiefly with the exact topography of the Grands Mulets rocks, and with a very interesting and detailed history of the different huts and inns built thereon—De Saussure's cabin (1786), first hut (1853), first inn (1866), and second inn (1881)—each being represented by a woodcut. The first pages of the paper are taken up with a very vague sketch of the different routes up the peak, and with a summary of the number of ascents, illustrated by a diagram showing the rise and fall in successive years. 1,500 travellers are computed to have reached the summit, but M. Vallot shows far too great confidence in

the Chamonix register. He is of opinion that it contains the names of most of those who have gone up with foreign guides and have come over from the Italian side. I venture to think that such is by no means the case; at any rate it was not some years ago, for of my three ascents (all made with Swiss guides only, and one from Italy to France) one only appears on the published copies of the official register, and this is very far from being the only instance. It may be noted too that the reason why there was but a single ascent in 1860 was not the Italian war, but the excessively bad weather of that season. A most curious engraving is given of the ice axe used by J. P. Cachat on the occasion of De Saussure's ascent in 1787.*

M. Ferrand's article on the Cime d'Oin is far and away the most permanently valuable contribution in the present volume. It is a most painstaking and detailed study of the exact topography of a peak in the Tarentaise, misplaced as to position and given an exaggerated height by the French map, and is illustrated by a number of very poor woodcuts from the author's capital photographs. M. Dulong de Rosnay describes the first ascent of the Pointe de Calabre, in the same district, and also that of the Tsanteleina or Sainte Hélène. The latter narrative is disfigured by many mistakes—e.g. statements that Mr. Nichols has never published a full account of his ascent (though it appeared in these pages in 1866, vol. ii.), and that the 1889 route is new, though it is practically the same as Mr. Nichols' in 1865. He overlooks the second ascent made by me on August 5, 1878; † gives the name of Grande Parei to the peak, though it belongs to another far away to the north, and a perfectly fanciful derivation of the name Tsanteleina (really from the patois 'tsantel,' meaning an inclined slope as contrasted with a steep wall), and makes the north face wholly Italian, whereas it is wholly French.‡ M. Dulong de Rosnay has been misled by the French map, which is far inferior in those regions to the new Italian one, but he is quite right in taking the name Pointe de Bazel from the Tsanteleina and giving it (in accordance with local usage) to the peak marked 3,443 mètres farther to the east.

A description by M. Giraud-Jordan of the High-Level route from Zermatt to Bourg St. Pierre appears to be the only paper relating to Switzerland, for another, bearing the title (most singularly inappropriate from the historical point of view) of 'Burgundian Switzerland,' deals with the Côte d'Or only. There are several articles on the Pyrenees, Count Henry Russell in particular narrating his seventeenth ascent of the Vignemale, and describing his new grottoes thereon, while advocating the excavating of similar caves as far better than the building of huts. M. Martel continues the narrative of his remarkable subterranean explorations in the Causses.

* See note, p. 78.

† *Alpine Journal*, vol. ix. p. 101.

‡ Since writing the above I notice that M. Dulong de Rosnay has published a supplementary note in the *Bulletin du C. A. F.* (November 1889, pp. 275-7), in which he has himself rectified the slips I have pointed out in the text. The right reference to my ascent of the Tsanteleina from the north in 1878 is, however, to the *Bulletin* of 1883 (p. 254), not to that of 1888 (p. 254), my original note appearing in vol. ix. p. 101 of the *Alpine Journal*.

It seems that a medal has been struck in honour of the C.A.F., bronze copies of which may be purchased by members of that society. The engraving of it which forms the frontispiece of the volume is, however, rather mirth-provoking, as is also the description of the medal given later on in the volume. On the obverse 'un personnage symbolique' (of the female gender) grasps an 'alpiniste' by the shoulder and points into space—or (as the explanation tells us) towards a difficult peak. The 'alpiniste' has rope, ice axe, gaiters, and (possibly) spectacles, but no hat, and the motto is 'Per ardua.' The reverse is even more delightful. It represents the 'Genius of the Mountains' (again a female), with wings but without clothes, lounging (there is really no other word to describe her attitude) on a rock, which is fringed with icicles, and holding a sprig of edelweiss. Above the rock appears Mont Blanc in the background, while on the face of the same rock there is a blank tablet whereon the name of the recipient (or purchaser) of the medal may be engraved. The result does not seem to me at all successful. M. Vézian writes on Mountains in *Geological Times*, and M. Dufayard gives a pleasant sketch of diligence-travelling in France in the seventeenth and eighteenth centuries. M. Durier gives two photographs (taken by M. Joseph Tairraz) of the Argentière and Tour Glaciers as they were in 1888. They are printed by some permanent process, and will one day be valuable historical documents for glacialists.

Dauphiné does not receive much attention in this volume, though it is the highest mountain group which is wholly in France. There is an account of the new mountain inn of La Pra, on the Belledonne, of the first ascent of the not very important or conspicuous Aiguille de la Coste Rouge (between the two cols of that name), and of a new route up the Rouies (completed by another party a week later).

M. Bartoli describes the minor mountain ranges in Central and Eastern France (Auvergne, Vercors, Taillefer, Chartreuse), as well as a visit to the Mont de Lans Glacier and an ascent of the Dôme de Chasseforêt, and M. de Laclos his ascent of the Charbonel, the monarch of the Southern Graians.

The narrative of a four-days' round of a party in the Queyras is usefully supplemented by a very interesting article by M. de Gorloff. This tells how he worked his way along the mountain chain (keeping always on the French side, for it seems that travellers now wishing to cross into Italy by the carriage road of the Col de l'Argentière are turned back unless their passports have been *visés* by some Italian consul!) from St. Martin Lantosque to Abriès. He waxes enthusiastic—and with perfect justice—over the magnificent ice and rock scenery of the Chambeyron group, but he is wrong in stating that there are still some new peaks left there, as in 1879 and 1881 I worked out the district very thoroughly, while three weeks after M. de Gorloff's visit I captured the one remaining fortress—Péou Roc.* M. de Gorloff would have found the difficulties of the Tête des Toillies very nearly disappear if he had resolutely attacked the apparently smooth rocks. He is inaccurate in saying that the Italian

* *Alpine Journal*, vol. xiv. p. 144.

soldiers came up from the east; they simply gained the west base of the peak by means of a couloir on the east side, and their route up the last rocks was taken in 1879 by M. Guillemin, and by myself in 1888.* M. de Gorloff too is not quite right in saying that the Argentera (the monarch of the Maritime Alps) has only been twice climbed by Italians, for though there have been several alleged ascents I believe that the card I left there on the occasion of the first ascent (August 18, 1879) has been found but once,† so that in all probability only one party has reached the highest point since my visit. Nor is St. Véran the highest village in the Alps. It is not necessary in these pages to mention the papers on Khroumiria, the Sahara, the Ægean Sea, &c., which are accounts of travels rather than of climbs. According to the official account the club numbered (on July 1, 1889) no fewer than 5,506 members, distributed into 47 sections, the newest of which is the 'Léman,' with its head-quarters at Thonon. The official writer makes a sympathetic allusion to the great loss which the science of photography and the art of mountaineering have suffered, as well in England as on the Continent, by the terrible disaster in which our late Secretary perished with his companions—'morts sur le champ d'honneur.'

W. A. B. COOLIDGE.

Annuaire de la Société des Touristes du Dauphiné, 14ème année, 1888.
(Grenoble: Allier.)

Few societies have done so much for a special mountain district as the S.T.D., and not the least valuable part of this work is the long series of annual volumes, in which a vast amount of local information (for, most wisely, the society does not often step beyond the limits of its special region) has been gradually heaped together.

One of the articles in the latest volume will be well known to readers of the 'Alpine Journal,' for it is a translation of Mr. Gardiner's 'A Week amongst French Dolomites,'‡ while another, dealing with certain climbs in the Grandes Rousses and Chaillo districts,§ is due to the pen of the present writer. 'A. C.' gives a review of the 1888 season in Dauphiné (the details of which are supplied in the excellent classified lists of all ascents made therein, entitled 'Revue Alpine'), which, despite the weather, was most brilliant, for no fewer than ten ascents of the Meije and fourteen of the Ecrins are recorded as having been made by English, French, Italian, Austrian, German, and Belgian mountaineers. Miss Richardson's brilliant feats are spoken of in the most flattering terms, nor are Signor Sella's wonderful photographs overlooked.

There is a pleasant account of the annual meeting of the S. T. D. at Allemont on July 29, 1888, luckily a magnificent day. There are also two historical articles, one containing the Hints for the Excursion to the Grande Chartreuse by the Echelles from Chambéry, written by a Swiss, Louis de Manoël de Végobre (1781), and the other a most

* *Alpine Journal*, vol. xiv. p. 144.

† *Rivista Mensile del C.A.I.* 1888, p. 305.

‡ *Alpine Journal*, vol. xiv. pp. 211-21. § *Ibid.* vol. xiv. p. 145.

vivid and interesting narrative of a journey from Grenoble to Bourg d'Oisans, La Grave, the Col du Galibier and Valloire, which was made by H. J. C. Colaud de la Salcette and a friend in September 1784. M. Guinier discusses the different systems of tracing roads, his fundamental proposition being that as far as possible every road should follow the line marked by the stream flowing through the valley traversed; if otherwise, great care must be taken in tracing the secondary roads which serve as feeders to the main road.

The society's affairs seem to be in a flourishing condition. It now numbers 608 members, though its budget is of very modest dimensions, under 320l. It proposes to repair some of its club huts, which have been illtreated by weather, and to improve the little inn at Le Clot, in Valgaudemar. I am glad to see that M. Tairraz has been granted a fresh lease (for twelve years) of the Chalet Hôtel at La Béarde, which is one of the chief monuments of the activity of the S.T.D.

W. A. B. COOLIDGE.

Signaturen in- und ausländischer Kartenwerken. Von Josef Zauffak, Edler von Orion. Second and enlarged edition. (Vienna: Eduard Hölzel. 1889. 16mo. pp. 150. 3s.

This little book is primarily meant for the use of military men, but will be useful to mountaineers as well. It is intended to serve as a handy companion to the chief published maps, official and non-official, of the principal Continental States. As is well known, many different symbols are adopted on each of the great surveys, but the very sheet containing the explanation of these is not always at hand or easy to procure. The first 68 pages of Herr Zauffak's work are concerned with a detailed list of these symbols, arranged systematically under each map in due order and accompanied by 45 small tables figuring the said symbols. Three tables and three pages of the text are occupied by a very convenient enumeration of the scales on which a great number of Austrian maps, and 24 others, are constructed, besides two measuring rulers marked in 'Zollen' and 'centimètres,' and some details as to the figuring of forests, &c. Among the maps which deal with mountain ranges we find the Austrian and Austro-Hungarian, the Italian (the 1881 survey), the Swiss (Siegfried map), the Russian, the French (1800), the Greek, and that of the Balkan peninsula. This elaborate list is followed by instructions (filling 5 pages) how to pronounce certain doubtful letters in many non-German languages, and a most handy comparative dictionary (in no less than 12 languages and covering 70 pages) of various terms and abbreviations occurring on these maps. This dictionary is alphabetically arranged, and is followed by a set of separate glossaries (7 pages) for the 12 languages. Although not specially restricted to Alpine words, both dictionary and glossaries include many of these, and form perhaps the handiest and most striking feature of a most useful little book. It need only be added that the twelve languages are Albanian, Bohemian, Bulgarian, Croatian, French, German, Greek, Hungarian, Italian, Polish and Russian, Roumanian, and Turkish. Herr Zauffak's booklet will be henceforth indispensable to anyone who wishes to

read his map intelligently, while a comparison of the words used in different languages to designate the same object (*e.g.* glacier, stream, alp, hut) is very instructive and interesting. W. A. B. COOLIDGE.

Bollettino del Club Alpino Italiano per l'Anno 1888. No. 55. (Turin.)

There is nothing very new or striking in the latest volume of this periodical. Signor Cainer publishes a revised edition of his 'Cronaca del C.A.I. dal 1863 al 1888,' of which the first issue has been noticed at length in these pages.* It is a full and authorised outline of the rise and acts of the C.A.I. and its members. The short paper contributed by the Signori Sella on their winter traverse of Monte Rosa (Feb. 1889) scarcely adds anything to the paragraph already published in these pages † as regards this noteworthy expedition. The ascent was apparently made by Mr. Hulton's 1874 route from the E. (which the Italians persist in calling Signor Rey's route, though he took it in 1886 only), but the real fatigues and difficulties of the undertaking began with the traverse of the Gorner Glacier and the ascent to the Riffelhaus. This article is chiefly remarkable for the suggestion therein contained that club huts should now be built, not only half-way up the higher peaks, but on the very summits of the latter, the Zumstein Spitze and Signal Kuppe being suggested as suitable sites, and the cost of a hut being estimated at 15,000 francs. It is urged that the panorama could then be studied under different lights and shadows, and that valuable meteorological observations might be recorded. No doubt these are advantages, and others are mentioned, but the practical difficulties are great, as shown by the breakdown of the scheme for erecting a hut on the summit of the Jungfrau. The Italian Club have, however, determined to make the attempt, and have selected a spot close to the top of the Punta Gnifetti, or Signal Kuppe, and entirely in Italian territory, as the most suitable site. ‡ Signori Sella do not advocate huts on the summits of difficult peaks, such as the Matterhorn, but hint at building one on the highest rocks found on the Aiguille Grise route, not having heard apparently of M. Vallot's proposed hut on the Bosses du Dromadaire. Signor Lerco sends some pages from his forthcoming book, describing his Caucasian journey in 1887. He was prevented by stormy weather from quite reaching the top of the W. summit of Elbruz, but successfully traversed Kasbek, ascending by a new route from the S.E., and descending by Mr. Freshfield's 1868 route. This is the second ascent of Kasbek, but we regret to see that Signor Lerco still believes in the alleged ascent of Elbruz in 1829 by the Cossack Killar (whom he calls the 'Jacques Balmat of the Caucasus'), although it has been shown over and over again that it rests on the weakest evidence. Signor Lerco seems to have his doubts, however, even as to Killar, for he calls the 1868 ascent 'the first scientific ascent.' Signor Piolti describes the beauties, natural and scientific, of the great plain which forms the summit level of the Mont Cenis, but does

* *Alpine Journal*, vol. xiv. p. 174.

† *Ibid.* vol. xiv. p. 325.

‡ *Rivista Mensile del C.A.I.*, September 1889, pp. 309-11.

not add that at present strangers visiting it are not looked on with favour by the military authorities, so that in 1889 the inn, kept by Jorcin of Lanslebourg, was closed by them, for it is just within Italian territory and not far from the two great fortresses recently constructed on the pass by Italian engineers. We agree with him that the system of hospices requires amending in the interest of tourists, for whom part of the house might well be set aside as an inn, where they could pay for the accommodation required, and would be free from the vexation of making voluntary offerings, and feeling ill at ease, as half free guests, half paying travellers. Signor Marinelli sends a very detailed and valuable article on the highest peaks in the Carnic Alps. These seem to be Coglians (2,801 mètres) and the Kellerwand (at least 2,760), both ascended for the first time by Dr. Grohmann. Both are higher than the Jôf del Montasio (2,760) and the Peralba or Paralba (2,694). Prof. Cacciamali gives a careful account of the basin of the Liri and the surrounding ranges, lying in the provinces of Rome, Aquila, and Caserta, and the Marchese de Gregorio describes some rambles up the hills round Palermo, undertaken last autumn and winter by the members of the local section of the C.A.I. Dr. Giordani brings before the eyes of readers who are not scientific geologists the state of the upper Val Sesia during the Glacial Period. Father Denza sends a lengthy and detailed article describing the avalanches in January 1885 and February 1888, particularly with reference to the Italian Alps. Those of the former year were far more destructive than those in the latter, which were almost entirely 'Staublawinen;' but, curiously enough, the number of lives lost was the same in each case—248. In 1888 the estimated damage amounted to about $4\frac{1}{2}$ millions of francs. This volume is accompanied by Signori Fiorio and Ratti's treatise on the 'Dangers of the Alps,' which will be noticed separately, and by views of Monte Coglians and of Elbruz, as well as by a sketch map of the Liri basin. It is a good average volume, but does not stand out conspicuously from its predecessors, as has been the case with one or two of the more recent numbers of the series. W. A. B. COOLIDGE.

Jahrbuch des Schweizer Alpenclub. Vol. xxiv. 1888-9. (Bern: J. Dalp.)

This volume appeared rather later than usual, owing partly to delay in the arrival of the Rhone Glacier report, and also in the completion of the map of the Glarus Alps which accompanies it.

The Special District, though already tolerably well known, supplies some interesting articles. Professor W. Gröbli has for years devoted part of his holiday to the study of this district, and especially of its highest summit, the Ringelspitz (3,251 m.=10,666 ft.). He describes several ascents of this mountain by the usual route from the S.W. On August 7, 1887, he effected the first ascent from the side of the Kalfseuserthal. Starting with the guide David Kohler from Vättis at 2 A.M., they reached the Glaser Glacier, and then by a couloir running up towards the Ringelspitz and partly over rocks they reached at 10 A.M. the glacier plateau N.E. of the summit, which was gained from that side by a short but sharp scramble. On

January 5, 1889, Dr. Gröbli with Herr E. Huber made the ascent by the usual route and descended into the Kalfeuserthal. Starting from the Alp Lavadignas at 6 A.M., the top was reached about 1 P.M. The final rocks were not more difficult than in summer. The descent was effected by the 1887 route. The Glaser Gletscher was quitted at 5 P.M. The rest of the descent was effected in the dark, and after many falls on the ice-covered road Vättis was reached at 9 P.M. Two papers are devoted to excursions in the Graue Hörner (N.E. of the Ringelspitz), whose highest summit is Piz Sol (2,825 m.=9,268 ft.). The ascent of the latter made by Herren Imhof and Zwicky on October 28, 1888, was exceedingly laborious, and the descent to the Lavtina Alp very dangerous. Starting from a hut on the Lasa Alp at 5.30 A.M., they reached an apparently unascended summit (2,650 m.=8,694 ft.) at 9.15 A.M. The ridge was followed for some time towards the Piz Sol, but they were forced at last to descend on to the snowfields. Here they sank in breast-deep, and often had to take six to eight steps to gain a few inches. The summit was not reached till 3.40 P.M. The descent over glazed rocks was difficult and dangerous, and Weisstannen was not reached till after midnight.

The geology of the Special District is discussed by Professor A. Heim, whose article is illustrated by several profiles of the Tamina valley. According to him the Rhine at a former period flowed over the Kunkels Pass and down the valley of the Tamina, its bed being then 700 m. (2,300 ft.) above Reichenau. Professor Meyer v. Knonau gives an interesting account of the chief centres of historical interest in the same district. This is divided into four heads—Sargans, Pfäfers with Ragatz, Luziensteig, and Maienfeld, of which the first two are in the present volume, whilst the others will appear next year. A separate article by Herr C. Brüschi is devoted to an account of the castle and district of Haldenstein (on the left bank of the Rhine, opposite Chur), which retained independent rights until 1803.

Out of the Special District there are accounts of ten ascents (either new or by new routes), which shows that plenty of new work remains to be done, unless everything below 4,000 mètres, or 13,000 ft., is excluded. On July 15, 1888, the brothers Paul and Charles Montandon, starting from Lauterbrunnen soon after midnight, reached the Steinberg Alp at 4 A.M. Leaving at 5.10 A.M., after a difficult ascent, especially in a couloir below the ridge, they reached the Tschingelgrat (3,140 m.=10,303 ft.) at 2 P.M. The last 200 m. took them two hours. The descent was effected more easily than was expected, thanks to the length of their rope. Herr P. Montandon with four others on August 9, 1888, made the first ascent of the Elwerrück (3,386 m.=11,109 ft.), the first peak to the east of the Bietschhorn, and on August 14 from the Schafberg hut they ascended the Bietschhorn by the west ridge, descending by the north ridge.

Dr. H. Dübi, after giving a *résumé* of the principal expeditions in the Viescher Grat (twelve in number, of which nine were made by English parties), proceeds to describe an expedition which presented a new combination. After being twice defeated by bad weather he left the Bäregg with Christian Jossi and Peter Schlegel on September 27,

1888, at 1.10 A.M. The Zasenberghorn was reached at 4.10 A.M., the peak marked 3,570 mètres (=11,713 ft.) at 11.40 A.M., whence by the N. arête they reached the Ochsenhorn (3,905 mètres = 12,812 ft.) at 3.40 P.M. The descent was made to the Concordia hut. The soft snow made the excursion a very fatiguing one. Next day they started at 8 A.M., with the intention of crossing the Eiger Joch, but instead ascended the Gross Viescherhorn by the ordinary route, reaching its summit at 12.30 P.M. The Mönch Joch was reached by the N.W. arête of the peak at 4 P.M., the Bäregg at 9 P.M., and Grindelwald at 11 P.M. Some slips in Herr Dübi's paper, relating to English climbers, have been already pointed out in these pages.*

Pfarrer H. Baumgartner made the first ascent of the Kilchlistock (3,113 m.=10,213 ft.) from the W. side. This mountain, which descends to the Rhone Glacier in easy rocks and snow slopes, appears from the west side as a pyramid of forbidding steepness. On September 7, 1888, with M. Brémond and the guides Von Bergen, Moor, and Tännler, he started from Guttannen at 4 A.M. The small Hohmad Glacier was reached; then by a couloir and a traverse over rocks they reached the south-east ridge, by which the top was reached without serious difficulty at 10 A.M. The descent was made over the Steinhaushorn and the Furtwang Pass, and Guttannen was gained at 4 P.M. The same two gentlemen, and the guides Von Bergen and Tännler, on September 27 made the first ascent of the Bächlistock (3,274 m.=10,742 ft.). Leaving the Handeck inn at 4 A.M., the notch (3,047 mètres = 9,997 feet) to the S.E. of the peak was reached at 10 A.M. This pass had been made by Herr E. v. Fellenberg in 1877. The ascent from this point was impracticable. They therefore descended on the west side and then effected a traverse southwards to the small Trift Glacier on the S.W. of the peak. Much time was consumed in this, and the summit was not reached until 3.20 P.M. They followed the same line in the descent to the Trift Glacier. Thence the Pavillon Dolfuss was reached at 6 P.M.

Herr C. Seelig again describes a number of Sunday excursions in his happy hunting ground of the Geschenen Alp. His expected finds of crystals did not come off, because the snow made the spot inaccessible. His excursions, if not of much novelty, are not the less adventurous. For want, no doubt, of leisure he burns the candle at both ends in a way that must tell against him in the long run. Along with two friends, A. Näf and E. Huber, he left Zürich on the evening of June 2, 1888. At 11 P.M. they left the Geschenen station. They had to cross the remains of numerous avalanches, and the Geschenen Alp was not reached till 3 A.M. Leaving at 4 A.M., the Winter Glacier was reached at 7.20 A.M., and the col between the Winterstock and the Gletschhorn, after long struggling through soft snow, at 1 P.M. Herr E. Huber led, and the latter part of the ascent was so critical that Herr Seelig declared he would not for a thousand francs return the same way. The condition of the snow made the ascent of the Gletschhorn impossible. They descended southwards towards the

* *Alpine Journal*, vol. xiv. p. 514.

Tiefen Glacier, but were at last stopped by a precipice and forced to return. The col was reached for the second time at 6.30 P.M. The dreaded traverse was effected in fear and trembling, and the Winterlücke was reached at 7.50 P.M. Down the glacier a space which had taken four hours in the ascent was passed in as many minutes, and at 9 P.M. they were once more at the Geschenen Alp. After several other Sunday excursions, on August 26 he made his way alone from Geschenen to the Salbit Alp, and about 10 A.M. was on the ridge a little to the south of the Kühplankenstock (3,223 m. = 10,575 ft.). Making his way towards it he passed several summits in the ridge, and at last came to one so sharp that he was obliged to let himself down by the rope into a narrow notch. He thoughtlessly drew the rope after him, and then found that he was regularly caught in a trap. Advance and retreat by the ridge were equally impossible. On the side of the Voralpthal was an absolute precipice. Eastwards towards the Rohrfirn was his only chance of escape. It was an awful position. He let himself down on to a narrow ledge about 25 feet below. Here the stones dislodged from the ledge fell on the snow 350 feet below without touching the rock. He now slid along the ledge with his back to the rock and his legs hanging down for about 50 feet. Then for some distance the descent was a little easier. The next 50 feet were the worst. No secure point could be found round which to place the rope. The only available piece of rock was loose: however the rope was put round it, and in fear and trembling he let himself down. Then the rope would not come away: only after repeated efforts did it move; and then the piece of rock came with it right upon him. The interposition of his axe saved him from serious injury, but he received a severe bruise on the head. Once more he had to let himself down; then the Rohrfirn was reached without difficulty. The descent of about 430 feet had taken 1 hr. 40 min. He now saw, as the mist slightly cleared away, that had he at once descended to the Rohrfirn on reaching the ridge he would have avoided all difficulty. In spite of this unpleasant experience he persevered in the ascent. The Kühplankenstock was reached at 2.20 P.M., and he was back in Geschenen at 6.30 P.M. The editor of the 'Jahrbuch' very properly reproves Herr Seelig for his rash proceeding. The fault, however, lay more in his carelessness in withdrawing the rope at a critical point than in his going either alone or in a fog. The Fleckistock (3,418 m. = 11,214 ft.), farther to the north in the same ridge, was first ascended by Herren Raillard and Fininger, with Ambrose Zraggen and Caspar Blatter, in 1864. Since that time it seems to have remained unnoticed until 1888, in which year it was climbed no less than four times—twice by Herr E. Huber (May 20 and September 15) with Jos. Gamma; on October 28 by Herr Seelig with Jos. Zraggen; and later in the year (December 9) by Herr Schumacher, of Basel. All these ascents were made from the Voralpthal. In the second and fourth the somewhat difficult ascent was effected by the Kartigelfirn to the Meienthal. This route affords a much shorter approach to the mountain than the Geschenenthal.

Herr A. Francke contributes an article on the Melchthal, including

an ascent of the Hohenstollen, with many interesting particulars about its inhabitants.

Dr. Th. Curtius, with Klucker, made the first ascent of the highest peak of the Pizzi di Sciora (3,235 m. = 10,614 ft.). These summits lie in the lateral chain in the Val Bregaglia, which divides the Albigna and Bondasca Glaciers. The first attempt was made on August 17, 1887. Leaving the Capanna Badile, above the Bagni di Masino, at 5.30 A.M., the Passo di Bondo was reached at 8 A.M. The ascent was then continued by the ridge, which gradually increased in difficulty until, when not far from the summit, on account of the bad weather and the state of the snow, they abandoned the attempt. They observed that an easier way to the summit was from a lower point of the Bondasca Glacier across the west face. This was effected—August 14, 1888—from Promontogno. Starting at 2.15 A.M., after considerable difficulty with the *Bergschrund*, they reached the first rocks at 11.50 and the summit at 1.10 P.M. Herr August Lorria, on October 8, 1886, along with the late Michel Innerkofler, ascended the Croda Rossa (3,133 m. = 10,279 ft.) by a ravine (*Riss*) running up from the Gottresthal. This had been followed by Herr Wallner, with the same guide, in the descent some years before; but the ascent by it was more difficult, as in several places it was blocked up. There was one especially bad place about 20 feet high. Innerkofler, standing on Herr Lorria's shoulders, made three attempts in vain. The fourth time he succeeded. Herr Lorria followed on the rope, but at the critical point where the rock bulged he was pushed off and swung in the air. The rest of the ascent was easy, and the descent was made by the usual route.

The folding case attached to the volume contains a map of the Glarus Alps in two sheets, in which an attempt has been made by colour and shading to relieve the somewhat monotonous uniformity of the maps of the Siegfried Atlas, and to make them more intelligible to the popular mind. Herr Fr. Becker remarks that in proportion as maps cease to be pictorial, and represent the ground by mere mechanical curves and lines, they cease to attract the uninstructed eye. He remembers, at the Zürich exhibition of 1883, how the peasants admired the 1664 map of Canton Zürich, with its pictures of towns, &c., whilst they passed by unheeded the maps both of the Dufour and of the Siegfried Atlas. In the present map, as in those of the Niesen and of the Stockhorn chain in vols. xx. and xxii. of the 'Jahrbuch,' on the ground of the Siegfried Atlas, are added toned neutral colours to represent the natural appearance as seen from a great distance; the blue colour of the lakes and glaciers is retained; the light comes from the north-west. It is a praiseworthy attempt to make a map pleasing to the unlearned. Whether it will be equally so to the learned is a doubtful question.

Professor F. A. Forel, in his ninth article on the 'Variations Périodiques des Glaciers des Alpes,' refers to the discovery by Professor R. Wolf, of Zürich, of the eleven-years' cycle of the solar spots, and to the connection which Professor H. Fritz, of Zürich, has sought to establish between this cycle and that of the variation of the glaciers.

He, however, declares that further observations fail to confirm this theory, since, from observations of more than 30 glaciers of the Western Alps, the period between two maxima appears to be not less than 38 years. He gives a number of particulars of the glaciers of the Eastern and Western Alps, of the Pyrenees, and of Greenland. The usual report on the Rhone Glacier is deferred to next year. Professor L. Rüttimeyer explains the relation between the S.A.C. and the Commission for the survey of this glacier, and refutes some erroneous ideas about the application of its funds for this purpose. Amongst new ascents which have not been already mentioned or recorded in the 'Alpine Journal' are those of the Tagliaferro (2,973 m. = 9,754 ft.), by the north ridge, by SS. Sinigaglia and Defilippi, with C. Martinale and G. Bottoni; of the Hühnerthälhorn (3,181 m. = 10,436 ft.) by Herren C. Montandon and H. Kümmerli without guides; of the Bifertenstock (3,426 m. = 11,240 ft.) from the Frisal Glacier by Herr J. Weber-Imhof, with A. Pollinger and P. J. Truffer. In the early spring of 1888 a great avalanche fell in the Haslithal, near the Handeck, which destroyed the larger inn with the adjoining outhouses, and carried away the grove of trees there, which are at least 400 years old. Mr. Philip Gosset went up to examine and photograph the avalanche. On March 11 the party took more than half a day to go from Meyringen to Guttannen. Several places were dangerous from the frequent recurrence of avalanches. At Guttannen they were detained for a week by bad weather. On March 18 they reached the Handeck in 3 hours. The place was unrecognisable. The fall was completely covered over and no noise could be heard. One photograph was taken from the middle of the gorge. It would have been possible to ascend the whole way up the fall had time allowed. The question arises, What occasioned this avalanche, which had not been known to fall before for so many years? It is probable that the avalanche had often fallen before, but not come so far. Mr. Gosset concludes that the Handeck avalanche fell because the glaciers are now in a period of increase, and that it advanced farther than ever before and did more damage because the people of Guttannen had unwisely cut parts of the ancient forest.

Professor Meyer von Knonau addresses a letter to the editor on the vexed question of Hannibal's passage of the Alps. He has perfect confidence in Polybius and none in Livy. The fiction of the latter about finding great quantities of wood in a treeless region (xxi. 37) utterly destroys his credibility. Therefore the only route is the Little St. Bernard.

Few of the heroes of the new school of mountaineering, who for some years figured so conspicuously in the pages of the 'Jahrbuch,' appear in the present volume. Herr Purtscheller, as a member of the S. A. C. (section St. Gallen), contributes a list for 1888 of 93 peaks and passes, of which three were new excursions. The principal of these was the ascent of the Eastern Verstanklahorn (3,260 m. = 10,696 ft.), a difficult climb, on September 5.

The S.A.C. has been accused by some of wasting its funds unjustifiably upon scientific objects which are without any practical

value, whilst neglecting more useful objects, as the building of huts, the making of new paths, the marking of mountain routes, &c. This is of course a matter of opinion. It may be observed that in parts of the Austrian Alps some of these objects are quite overdone. In Southern Algäu there is hardly a peak up which a path has not been made and marked. In the summers of 1888 and 1889 the Società degli Alpinisti Tridentini marked the way up nearly every peak which can be reached from the valley of the Adige. The traveller is no longer allowed to think for himself. Maps are henceforward at a discount, and the tourist is like a child in leading-strings.

In 1888 the S.A.C. had no general Club festival, but only a meeting of delegates. This took place at Olten on September 17.

Besides numerous illustrations in the volume there are, in a case attached to it, the map of the Glarus Alps, already referred to, a view of the chain of the Ringelspitz from the Tschepp, a view of the mountains of the Voralpthal from the Mittagstock, near Wasen, and a second addition to the most valuable bibliography of the literature of the Bernese Alps compiled by Dr. E. von Fellenberg. J. S.

New Editions, Pamphlets, &c.

Signori Bazzetta and Brusoni have already been obliged to bring out a second edition of their excellent guide to the Val d'Ossola and its lateral glens.* In order to reach a wider public, the new edition appears in a French dress, and contains also many additions and corrections of statements in the first issue; in particular a description of the railway journey from Milan to Gravellona by way of Novara, Gozzano, and the Lake of Orta. We noticed the first edition at length some time ago,† and are glad to be able to recommend its successor, which should specially be consulted by all climbers proposing to visit the ranges around the Falls of the Tosa at the head of the Val Formazza.

A second edition, too, has appeared of the Guide to the Valley of Aosta, by Signori Ratti and Casanova,‡ in which, besides the corrections of the slips which inevitably occur in a first edition, the section relating to the environs of Courmayeur and the chain of Mont Blanc has been entirely re-written.

Two further volumes (completing the series bearing the general title of 'Les Alpes Suisses') of the late M. Rambert's papers and articles relating to the Alps have been issued.§ One contains his writings on historical and political subjects, nearly 200 pages being occupied by

* *Guide Historique, Descriptif et Itinéraire de l'Ossola et ses Environs.* Par G. G. Bazzetta et E. Brusoni. (Domo d'Ossola, 1889. 3 francs.)

† *Alpine Journal*, vol. xiv. pp. 838-9.

‡ *Guida Illustrata della Valle d'Aosta.* Di C. Ratti e F. Casanova. (Turin: Casanova, 1889. 5 francs.) See *Alpine Journal*, vol. xiii. pp. 490-1.

§ *Études Historiques et Nationales.* Par Eugène Rambert. *Études de Littérature Alpestre, et la Marmotte au Collier.* Par Eugène Rambert. (Both published by F. Rouge at Lausanne, 1889. 3 francs 50 centimes a volume.) See *Alpine Journal*, vol. xiv. p. 340.

his excellent and detailed account of the 'Landsgemeinden' of the Democratic Cantons. The other is filled with various scattered papers of a literary nature, e.g. notices of Friedrich von Tschudi and his celebrated work 'Le Monde des Alpes,' of 'Tartarin sur les Alpes,' of Schiller and Goethe, and the ideas, imaginary and real, of the Alps, besides the quaint diary entitled 'La Marmotte au Collier—journal d'un philosophe.' The books are well printed, and form a worthy monument of one who loved the Alps well.

Several new numbers have been added to the useful series 'Europäische Wanderbilder,'* while English and French translations of many earlier numbers, including the guide-book to the Valais have been favourably mentioned in these pages.† Of the most recent numbers (still in German dress only) we may mention: 151, the Hungarian Carpathians; 152, Meran; 153-4, the railway up Pilatus (very complete and interesting); 155, Le Prese; and 160, Waldhaus-Flims. The reputation of this series is so deservedly great that we need not do more than chronicle these latest additions to it.

Herr Buchheister, a medical man of Hamburg, publishes a lecture he delivered on the subject of 'Mountain Climbing.'‡ The first half is taken up with a description of the mechanical causes and effects of climbing, together with a consideration of the foods best adapted to make up for the waste of muscular power. The author strongly recommends bacon and black bread, condemns extract of meat unreservedly as useless though agreeable (!), and highly approves drinking glacier and spring water while on the march. The second half of the pamphlet discourses on mountain apparatus and mountain dangers, and is largely borrowed from Dr. Güssfeldt's writings, several allusions being also made to the late Emil Zaigmondy's book on the 'Dangers of the Alps.' 'Steigeisen' are approved of, but guideless climbing is viewed with great disfavour. Dr. Buchheister seems, however, to miss the point when he asserts that, while certain amateurs can climb as well as guides, yet it is wrong to maintain (as has been done lately) that the best amateurs, when among mountains unknown to them, are inferior to the guides of the district. We cannot believe that no one ever dreamed of making the latter statement, for the real question is, What are the relative merits of guides and amateurs when the mountains which they are climbing are unknown to both or known to both? A comparison implies similar conditions. Many of the author's other remarks on the guide question will be cordially endorsed by all experienced climbers, though he modestly claims to be no more than a moderate mountaineer.

Dr. Carl Schmidt, of Basel, also publishes a lecture delivered by him on the subject of the Geology of the Swiss Alps.§ He first

* Orel, Füssli & Co., Zürich. 6d. a piece.

† *Alpine Journal*, vol. xiii. p. 277; vol. xiv. pp. 265-6.

‡ *Ueber das Bergsteigen*. Von Dr. med. J. Buchheister. No. 78 of the new series of Virchow's *Sammlung gemeinverständlicher wissenschaftlicher Vorträge*. (Hamburg, 1889. 8vo., pp. 40. Price 1s.)

§ *Zur Geologie der Schweizeralpen*. Von Dr. Carl Schmidt. (Basel: Benno Schwabe, 1889. 8vo. pp. 52. 2 francs.)

describes how the different kinds of rocks were formed, and then how the Swiss Alps were built up. He adopts Hutton's view, that causes actually at work are sufficient to account for the history of the earth's crust, and that it is not necessary to call in the aid of cataclysms or revolutions. Some diagrams serve to illustrate the statements contained in this unpretending and not uninteresting lecture, which was originally composed as the author's 'Habilitationsschrift' for the position of 'Privatdocent,' which he holds at present.

Another work treats of Switzerland, not as a geological museum, but as a hospital for invalids.* A good deal of useful information about the climate, mineral waters, and general characteristics and accommodation is given as to all the chief health-resorts in Switzerland, arranged in alphabetical order. Zermatt appears in this list, but not Chamonix or Grindelwald. The numerous illustrations are fairly well done (though one is rather startled, while perusing a book of this description, to come across a view taken from the summit of the Matterhorn), and the hints as to how to reach the different places are very full and accurate. As an appendix, some account is given of the wintering-places along the Mediterranean coast; the excuse for including them in a book relating to Switzerland being that many persons pass their winter in the South, and the rest of the year in Switzerland. 'La Suisse et le Midi se complètent l'un l'autre.' It is proposed to issue an edition of this book every year, thoroughly revised and brought up to date. Its subject and arrangement carry our minds back to the seventeenth- and eighteenth-century Swiss 'Badschriften.'

The six Piedmontese sections of the Italian Alpine Club (Turin, Aosta, Varallo, Domo d'Ossola, Biella, and Pinerolo) have recently issued two very useful little books in connection with the organisation of the guides in those parts of the Alps which they have lately effected. † One contains the regulations for the guides (printed in Italian and French), and is followed by fifty-four carefully arranged tables of the tariffs for the guides and porters of each district, the tables including nearly every conceivable peak and pass from the Col de Tenda to the Gries Pass, the height (in mètres) being given in each case, as well as the number of hours required to effect the expedition. The prices seem reasonable enough, e.g. Monte Viso 25 to 35 francs, Bessanese 25 francs, Ciamarella 15 to 25 francs; but 35 for the Grand Paradis by the very easy route up from Val Savaranche, and 60 for crossing to Cogne or ascending it from that place seems a high price, for 35 is the sum asked for the far harder Becca d'Invergnan, and 45 for the very difficult Col de la Grande Rousse, while the Grivola is priced at 30 only. The Courmayeur tariff is, as might naturally be expected, by far the highest in the book, e.g. 100 to 130 francs for crossing Mont Blanc and returning, and 70 for the Aiguille du Midi, while 80 only are asked for the Col

* *Annuaire de la Suisse Pittoresque et Hygiénique*. (Lausanne: Bureau de la Bibliothèque Universelle, 1889. Small 8vo., pp. 402. 3 francs 50 centimes.)

† *Arruolamento delle Guide e Portatori del Club Alpino Italiano—Elenco delle Escursioni e Tariffe nelle Alpi Occidentali*. (Turin: Candeletti, 1888. 8vo. pp. 95.)

de la Brenva. The Aiguille Noire du Péteret is priced at 70, while it is remarked in a note that for the Aiguille Blanche du Péteret travellers must make their own bargains with the guides and porters. The 120 asked for crossing the Dent d'Hérens is probably influenced by the 150 for crossing its neighbour the Matterhorn. As a whole, however, the tariffs cannot be complained of.

A smaller book* contains the names of the guides and porters licensed and insured by the C.A.I., arranged under the separate villages. Each guide's name is followed by a list of the expeditions he has made, which is very curious reading, though there are some slips here and there.

Both pamphlets will be henceforth indispensable to travellers in the Piedmontese Alps, and the associated sections of the C.A.I. deserve great praise for their efforts to create and to maintain a class of trustworthy guides in many of the remoter parts of the Italian Alps.

WINTER EXHIBITION.

THE picture and photograph exhibition, accompanying the Winter Dinner this year, was one of the most successful the Club has yet organised. The tendency, already apparent on the last two or three occasions of the same kind, for more attention to be bestowed upon the photographs than upon the paintings and drawings, was again manifested. It must be confessed that, the subjects of the photographs being considered, this was not unreasonable. We know our Matterhorn, Weisshorn, and all the rest so well that there is a charm in turning to something fresh; it is the self-same charm that attracts those climbers who have the time, strength, and money away from the Alps to less hackneyed districts. The great photograph of the year was Signor Sella's wonderful view from the slopes of the eastern peak of Elbruz, in which all the famous Caucasian peaks are ranged in their order, rising out of a sea of cloud.† There were many more Caucasus views by the same well-known photographer, besides an interesting series contributed by Mr. Woolley. A collection of Rocky Mountain and other American photographs was exhibited by Mr. Baillie-Grohmann, and a series of views in Bosnia and the Herzegovina by M. Déchy. Mr. H. Holmes also showed some good Alpine views, but the novelty in Swiss photographs was the wonderful series of cloud effects, caught with much skill and with a rare artistic sense by M. Loppé.

Amongst the paintings the palm was carried off by Mr. Compton's beautiful picture of the Hochalpenspitze. The light in the sky and

* *Guide e Portatori riconosciuti ed assicurati dal Club Alpino Italiano arruolati dal Consorzio fra le Sezioni delle Alpi Occidentali.* (Turin: Candelotti, 1888. Oblong, pp. 37.)

† Signor Sella has also produced this panorama in an enlarged form, in which it presents probably the most impressive reproduction of a high mountain view that has yet been seen. All Signor Sella's photographs can be purchased at Messrs. Spooner's, where a priced catalogue may be obtained.

the bold grouping of shadow upon the hills are excellently rendered in it. Mr. T. Hope MacLachlan's impressive Matterhorn was a noteworthy rendering of an old subject. M. Loppé was represented by, amongst other pictures, a fine view of the Aiguille Verte from the summit of the Buet. The sublimity of the rocky Valley of Glencoe was well represented in two large drawings by Mr. Alfred Williams, but the same artist reached a higher level of excellence in his delicate, and at the same time dignified, rendering of the view of the Finsteraarhorn seen from the Furca. Mr. C. B. Phillip's 'Torridon' attracted and deserved attention; it is in his own well-marked style, but shows increase of power. No exhibition of Alpine paintings would be complete to which Mr. Barnard did not contribute; and he was, in fact, represented by several works. Mr. Arthur Croft sent a series of pictures, large and small, including Alpine and American views, studies of Niagara Falls and Rapids, and (best of all) some very carefully painted scenes from the valleys of the Adirondacks. Too little of Mr. Donne's charming work was shown; we only noticed a 'Chalet' and a 'Matterhorn.' There were several of Mr. J. W. Garrett Smith's drawings, and some bright studies of Algerian scenery by Mr. A. H. Hallam Murray. Mr. H. G. Willink again contributed examples of his remarkable sketches of mountaineering incidents, but the interest attaching to the subject of 'The Last Bivouac of Donkin and Fox' gave it prominence over the rest. The portrait of the late Mr. Donkin, by Miss Donkin, excellent likeness as it is, has been noticed elsewhere. We have left ourselves no room for more than briefest mention of the delightful 'St. Maurice,' by Bonington; the characteristic Tyrolese peasants, by Professor Herkomer, A.R.A.; the charming study of the Albanian Hills, with Corfu in the foreground, by Walter Crane; or the remarkable night panorama of the English Lake district, illuminated by the series of beacon fires which blazed in honour of the Queen's Jubilee, by Mr. Collingwood. Alpine sculpture, if we may use the phrase, was represented by one of Melchior Anderegg's skilful wood-carvings, a group of fighting stags, done in the round with very considerable skill, after Landseer's well-known picture.

We have reserved for final mention the most important of all the exhibits—the specimen prints of some 80 of the wood engravings which form about one-third of the illustrations to Mr. Whymper's forthcoming and long-expected work on the Andes. It is, of course, impossible for them to be superior to the illustrations to 'Scrambles in the Alps,' but we may at once admit that they attain the same level of high excellence. For technical skill it would be impossible to surpass the representations of some of the beetles, so many new genera and species of which Mr. Whymper discovered on his adventurous journey. The views of the crater of Cotopaxi will likewise certainly attract attention, and it is to be hoped that the fine work in the view of Chimborazo, sketched from a distance of 92 miles, will not escape the notice of purchasers of what cannot fail to be a most beautiful book.

W. M. C.

ALPINE IMPLEMENTS, ETC.

THE experiment first tried two years ago of adding a collection of Alpine appliances to the Picture Exhibition was repeated this year, and with marked success.

In point of interest this year's collection certainly surpassed its predecessor, and the fact of its being subsequently transferred to St. Martin's Place enabled those members who wished to examine the collection at leisure and undisturbed by such distractions as must necessarily be caused in a crowded assemblage such as met in the Whitehall Rooms. The collection was representative of the ancient and the modern in climbing.

Of the former perhaps the most interesting exhibits of all were two, for the sight of which visitors to the exhibition are indebted to the kindness of the French Club. The compass belonging to Dr. Hamel, which was lost in the accident on Mont Blanc in 1820, was one of the relics yielded up by the Glacier des Bossons in 1863, and, considering its adventures, it is in a fair state of preservation. The *prehistoric* ice-axe found an example in that formerly belonging to Cachat (L'Aiguille), one of De Saussure's guides, its very shape showing how little of what is required of an axe was then understood. An axe exhibited by Mr. Tuckett shows the persistence of the early type; while the germ of the *historic* or recently evolved form may be traced in that of Mr. Horace Walker. An atlas by John Speed, published in 1627, was interesting as showing in its map of Africa the Nile issuing from two lakes, and mountains—Linca Montana, supposed to be identical with Ruwenzori, rediscovered by Mr. H. M. Stanley.

Of modern appliances we had axes to suit many tastes, from the lady's axe to the somewhat formidable weapon manufactured by a Norwegian peasant, with a removable head, which it is conceivable might prove as great a snare and delusion as the fire-escape appliances recommended by their enthusiastic inventor for use in rock-climbing. We doubt, too, if a closer inspection of *Steigeisen* will encourage their adoption by members of the Club, though possibly they possess advantages undreamt of by those who have never tried them.

Valuable hints as to the best form of sleeping-bag, of *Rucksack*, of lantern, of cooking apparatus, of compass, of aneroid, might have been gleaned from the specimens exhibited.

We noticed that a self-cooking soup tin, by Messrs. Silver & Co., was specially commended, as was also an 'insect puzzler,' 'for use in all parts of the world.' We rather fancied the 'Rob Roy' cooking apparatus as containing a good deal in a small space, and we believe the Viennese form of folding lantern to be still the best.

A tent used in the Caucasus was on view, as was also that used by M. Vallot during the three nights passed by him on the summit of Mont Blanc.

Altogether the exhibition was an interesting one, and we shall hope to see it repeated and still further extended in future years.

P. W. T.

PROCEEDINGS OF THE ALPINE CLUB.

THE ANNUAL GENERAL MEETING of the Club was held at the Club rooms on Monday, December 16, at 8.30 P.M. The *President*, Mr. C. T. DENT, occupied the chair.

The following candidates were balloted for and elected members of the Club: the Rev. Frank C. Bell, Messrs. George Broke, Edward Alfred Broome, Otto Koecher, A. F. Calder Leith, Arthur Milnes Marshall, and Francis W. Newmarch.

The *PRESIDENT* announced that an admirable portrait of the late Mr. W. F. Donkin, drawn by his sister, Miss Alice Donkin, had been presented to the Club by the artist, and, on his motion, a cordial vote of thanks was passed to Miss Donkin for her most acceptable and gracious gift.

The best thanks of the Club were also voted to M. Gabriel Loppé for his kindness in presenting the Club with a set of very beautiful photographs taken by himself.

The *PRESIDENT* then briefly alluded to the very serious losses again sustained by the Club during the year, remarking that amongst others we had to deplore the loss of an honorary member, Sir F. O. Adams; of one of the original members, Lieutenant-Colonel Eustace Anderson, who had served on the first committee; and of Mr. John Ball, our first president. Mr. Ball's name was a household word not only with ourselves, but with all Alpine Clubs; his loss had been felt with equal keenness at home and abroad. The Section Austria of the Deutsch-Oesterr. Alpenverein had put on record their sympathy with the Alpine Club on this occasion by a formal vote passed at one of their meetings. The committee, the *President* continued, had already, on behalf of the Club, expressed their deep sorrow to Mr. Ball's relatives; they had also under consideration the question of the possibility of re-editing 'Ball's Alpine Guide,' as the most appropriate tribute of respect to his memory.

Mr. WILLIAM MATHEWS also spoke, and referred to Mr. Ball's eminent services to the Club, and to his wonderful knowledge of Alpine geography and science.

The election of officers for the ensuing year then took place. On the motion of the *PRESIDENT*, seconded by Mr. W. MATHEWS, Mr. Horace Walker was unanimously elected *President* in the place of Mr. C. T. Dent, whose term of office expired.

Mr. WALKER briefly returned thanks.

On the motion of Professor BONNEY, seconded by Mr. G. E. FOSTER, Messrs. F. A. Wallroth and S. F. Still were unanimously elected *Vice-Presidents* in the places of Messrs. M. Holzmann and C. Pilkington, whose term of office expired.

On the motion of Mr. NICHOLS, seconded by Dr. LIVEING, Messrs. T. H. Carson and P. W. Thomas were unanimously elected new members of the committee in the places of Messrs. L. Pilkington and G. S. Barnes, who retired by rotation.

On the motion of Mr. WHYMPER, seconded by Dr. SAVAGE, the Hono-

rary Secretary, Mr. F. O. Schuster, and the remaining members of the committee—viz. Messrs. Conway, King, Beachcroft, Mortimer, Slingsby, and Willink—being eligible, were unanimously re-elected.

Mr. C. E. MATHEWS moved, and Mr. BLACKSTONE seconded, the following resolution, which was carried unanimously: 'That the best thanks of the Club be presented to the Rev. W. A. B. Coolidge for the great services he has rendered to the Club as the able, careful, and conscientious Editor of the "Alpine Journal" during a period of nine years.'

The PRESIDENT then delivered an address to the meeting, dealing with the development of mountaineering during the last three years, at the conclusion of which a vote of thanks to him for his interesting paper, and for his eminent services to the Club during his tenure of office, was moved by the PRESIDENT ELECT, and carried by acclamation and with the greatest enthusiasm.

The Exhibition of Alpine Paintings, Photographs, and Appliances was held at the Whitehall Rooms of the Hôtel Métropole during the afternoon of Tuesday, December 17, and attracted a very large number of visitors. A detailed notice will be found on p. 96.

The Annual Winter Dinner took place at the Whitehall Rooms on the evening of the same day, the chair being taken by the *President*, Mr. C. T. DENT. The attendance was by far the largest on record, about 200 members and guests being present; amongst the latter were Lord Thring, the Right Hon. C. T. Ritchie (President of the Local Government Board), Sir James Paget, Bart., F.R.S., Sir Alfred Dent, K.C.M.G., Mr. J. Hutchinson (President R.C.S.), Mr. Marcus Stone, R.A., &c. &c.

Errata in Last Number.

Page 457, line 22, for 1860 read 1865.

" 518, note, for 'So Rivista Mensile. See C.A.I.' read 'See Rivista Mensile del C.A.I

" 523, lines 9 and 10, delete the phrase between brackets.

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THE ASCENT OF THE DOM FROM SAAS.

BY M. CARTEIGHE.

(Read before the Alpine Club, Tuesday, March 4, 1890.)

THE first ascent of the Dom from Saas was made, as is doubtless well known, by the Rev. C. Taylor, Mr. R. Pendlebury, and Mr. G. S. Foster in 1874.* They slept in the 'Egg Fluh' and gained the summit from the Nadeljoch, this pass having been crossed for the first time in 1869 by our President (Mr. Horace Walker) and Mr. George S. Foster.†

In 1875 Messrs. Alfred D. Puckle and Walter B. Puckle made a second route to the Dom from the Egg Fluh by following the Nadeljoch route for a time, and then striking across under the ridge which connects the Nadeljoch with the Dom, to the eastern rock buttress, running straight up from the left arm of the Fée glacier to the summit.‡

In 1885, after a winter during which exceptionally little snow had fallen, I found myself at Saas, and struck again, as I had often been before, by the grandeur of this face, at that time quite free from snow and ice, decided to attempt a direct attack on the Dom from the Fée glacier. Accordingly late in the afternoon of August 19 that year I started with Gabriel Taugwalder, of Zermatt, and Xavier Imseng, of Saas Fée, as guides, up the left arm of the Fée glacier to the foot of the great rock-wall. A few feet above the glacier we found a break in the rocks sufficient to form a gîte. There was no shelter from the wind except that afforded by the wall itself, but there was abundance of room for us to

* *Alpine Journal*, vol. vii. p. 105.

† *Ibid.* vol. iv. p. 365.

‡ *Ibid.* vol. vii. p. 324.

lie down, and for a fire. In fact, it was a wide ledge of rock and *not* a hole.

The night was fortunately fine but cold, and was got through fairly well. We kept ourselves tolerably warm, partly by means of a fire and chiefly by frequent and copious libations of a thin soup, which was kept running all night, made from a leg of mutton bone. It was not strong; it was not salt, but it was *hot*. Having heard on all sides that falling stones and ice usually enlivened all expeditions in the Mischabel range undertaken on the Saas side, we decided to start early.

At 1 A.M. on the 20th we substituted tea for the soup, and made an early breakfast. We were ready to start at 2 A.M., and for two hours we climbed slowly by lantern light and contrived to get some warmth into our limbs by sunrise. With daylight we were in a position to see what sort of work lay before us. The rock looked, and indeed is, formidable; but so far as we could judge it was perfectly firm, and there were no indications visible of fallen stones or ice.

The rock, though steep and in places difficult, was not dangerous, and so we climbed straight up, not deviating more than a few feet to the right or left, without encountering any serious difficulty, to a notch about 300 feet below the summit. At this point our progress was barred by an inverted pyramid of stones perched on the face. This could not be turned, and it was obviously necessary to pass over with caution. Accordingly Gabriel went over first with about 60 feet of rope that he might 'prospect.' Imseng was roped next, and was on one side of the pyramid, while I was last and lower down on the other side of the stones.

When the rope was tight between Gabriel and Imseng the latter began to move. Instead of crawling in a loving manner over the group, he thoughtlessly made a spring, seized a large boulder-shaped stone, which he pulled upon himself, and then, turning head over heels backwards, freed himself from the stone and regained his foothold, the rope being 'ganz fest.' The stone then bounded over to the right towards me. I managed to avoid a direct collision, but one end caught me on the mouth and jaw, removing, as the dentists say, two teeth, and then as the stone rebounded to the left, the opposite end struck the palm of my left hand, gashed up the flesh, and then sped its way down to the glacier below.

Taugwalder, being 60 feet above us, could not see what was going on, but Imseng's gymnastic feat soon tightened

the rope, which the former prudently held firmly, fearing that the mass of stones was moving downwards. As a matter of fact the whole group was so disturbed that it did commence slowly to move, but as I had taken the precaution to throw a length of rope over the top and round the pyramid, Gabriel's firm hold and mine enabled us to arrest any further motion.

Imseng got off with some trifling damage to his face and head, and the loss of hat and axe. He and I then crept tenderly over the stones, picked up Gabriel, and repaired damages. The remaining part of the climb had to be done slowly, because as the rock was steep both of my hands had to be used, and the slightest extra pressure on the left hand sent the blood spurting out of the wound and alarmed the guides much. Moreover we had to take shelter from some stones thrown down from the summit by a joyful party* which had ascended the peak from Randa. In about three quarters of an hour from our last halt we gained the summit, composed, not as usual, of hard snow, but of three rock slabs projecting directly over the face. There was no cornice. Time from gite, $8\frac{1}{2}$ hours, including halts and 2 hours slow going by lantern light. Following the tracks of the party referred to, we descended to Randa by the usual route.

The ascent by the Messrs. Puckle was undertaken shortly after a heavy fall of snow, and they had to beware of falling stones and ice. They struck the face at some point very high up, and in passing under the ridge connecting the Nadeljoch with the Dom, they would be exposed in bad or doubtful weather to falling stones and ice. I think the variation described in this paper is less dangerous than the route taken by them, but obviously it should not be attempted unless the greater part of the wall is free from snow and ice.

By starting early from Saas Fée there seems no reason why the Dom should not be crossed within the compass of a moderately long day, and the inconvenience of a bivouac on the rock avoided. Gabriel Taugwalder led with great judgment and boldness, and Xavier Imseng, though young and impulsive, displayed both courage and coolness.

* See *Report of Proceedings*, p. 170.

THE DOM FROM THE DOMJOCH.

BY W. M. CONWAY.

(Read before the Alpine Club, Tuesday, March 4, 1890.)

Infandum jubes renovare dolorem.

A PEREMPTORY command from our esteemed Secretary is my only, and sufficient, excuse for directing the attention of the Club, away from the fervid glories and excitements of Caucasian exploration, to the lukewarm story of achievements a dozen years old. It seems like the other day, but it was in the summer of 1878, that Penhall and Ferdinand Imseng (may they rest in peace!), with the St. Niklaus guide Truffer and me, were loitering around at Zermatt, full of projects for climbing all the unclimbed ridges in the district. The Rothhorn, straight up the face from Zinal, the Matterhorn from the Stockje ridge, and the Dom from the Domjoch were the three expeditions we had determined on in our plan of campaign. Of these, the bad weather only allowed us to accomplish two that year; the third was duly carried out by Penhall in 1879. It appears that there was at least one other party at Zermatt intent upon the same goal as ourselves, though we knew it not. Imseng, I believe, found it out from the guides, and this accounted for his peremptory command to us to start one very unpromising day. Much fresh snow had recently fallen and more threatened to fall, but Imseng would hear of no delay, and so on August 18, after lunch, we started, driving off to Randa, amidst the jeers of our friends and the sneers of rival guides. From Zermatt to Randa we easily beat the record, for we went at a good canter all the way behind the best horse in the valley. About 2 hrs. after leaving Zermatt we had hired a porter, packed up provisions and all things necessary for sleeping out, left Randa behind, and were steadily plodding along towards the spot known as the Täschhorn sleeping-place. We walked up zigzags, past the Tschuggen Alp, and in 1¼ hr. from Randa turned into the Wildi Thal. Then we went along, high above the right bank of the torrent, for 2 hrs. more to an overhanging rock, close to the moraine of the Kien glacier and near the point marked 2,613 mètres on the Federal map.

I forgot all about the night, except that it was hot, and that the stars twinkled finely. By 2 A.M. on the 19th we had breakfasted and started off, along the moraine, which

we followed by lantern-light for an hour, till close under the cliffs of the Grabenhorn. Then we took to the north half of the Kien glacier and made our way for half an hour along its right edge ; we crossed below the séracs (20 mins. pause for roping) towards a tower of rock that stands in a gap in the ridge that divides the glacier longitudinally. We doubled back again towards the right bank till we came to a point directly under the Domjoch, and so made straight for the huge *bergschrund*, reaching it in 2 hrs. from the foot of the séracs. Thus far we had been walking in the night or in pallid dawn, with our enthusiasm chilled down to freezing point. The sky gave every promise of a bad day, and a nasty wind already visited every chink in our apparel. The great *schrund* gaped diagonally into the mountain, and we crawled miserably enough into it and ate a frozen apology for breakfast. When this formality had been accomplished we emerged from our shelter and found clouds whirling about in all directions close at hand. We forced a way with some difficulty over the great chasm, and then attacked the steep rocky slope that leads to the Domjoch. It was thickly encrusted with new snow and the covered rocks were rotten—a nasty rock slope of the usual kind, diversified with ill-marked gullies and indistinct ribs, up which we scrambled with silent doggedness. We bore always rather to the left, came level with the Domjoch in about 2 hrs. from the *bergschrund*, and got on to the south arête of the Dom in some $\frac{1}{2}$ hr. more. There, for the first time, the full blast of the storm caught us. It had been already snowing for an hour or more, and the wind came in blasts which were sometimes terrific. Once a stone, of no trifling weight, was literally blown off the arête before our eyes. Of course there was no possibility of stopping for food or rest. The west side of the ridge was too steep and the east side too rotten, even if the wind had not put a veto on any such indulgence. We could not even pass round the brandy flask. What the arête might look like under other circumstances I cannot guess. As things were, it afforded scrambling which we were just able to accomplish and no more. The rocks were all thick set in snow, and often glazed with ice. Our heads were in similar condition. Once or twice we were forced on to the actual crest of the arête and then we had to go on our bellies clutching hold with all our might. Two or three very nasty places remain photographed in my memory—one where there was a kind of elbow in the ridge, and we had to jump from an oval-topped ice-covered block across a gap

of no particular width, landing on a knife-edge of rock, from which we had instantly to step again on to firm footing. The thing would have been easy enough without the glazing and the gale, but the memory of the moment before that flying step comes back to me sometimes like a cold horror. Truffer took the opportunity of a brief lull in the gale to shout in my ear that he had a wife and children at home, whom he never hoped now to see again. We should certainly have turned round and gone back if we had dared, but a great deal of snow had fallen and yesterday's snow had become soft, so that avalanches were continually tumbling over the rocks up which we had climbed. In fact, our best chance of getting down at all seemed to be to reach the top and descend by the ordinary route.* Things went a little better for a time, and then we seemed to be stopped. There came a vertical step in the arête, some 20 feet high. On the west there was a steep smooth slab with a bed of loose snow kept up by a crack or two at its foot. We tried the east face, but could not stand on it, the rocks were so broken and unstable. There was nothing for it but to surmount the smooth slab, which was iced into the bargain, or to turn tail. We crossed a treacherous snow gully and then made a ladder of three of us, leaning on the slope of the smooth rock. Imseng climbed us and got his axe over the top edge of the rock, and so crawled on to the arête again and hauled us up after him. Two yards further along the arête we came to easier conditions; the clouds parted for a moment and showed us a peak (which we took to be another *gendarme*) evidently easy of access. We went forward with lighter hearts and presently stood on the top of it, and found to our joy that it was crowned by a stone man. It was the highest point. The ascent of the arête had taken us 3 hrs. 35 mins.

It was far too cold and too windy to stop even for a moment. The cloud was so thick about us that we could not see from one end of the rope to the other. The rope, moreover, was frozen so stiff that there was no possibility of untying the knots or altering our relative positions, so I had to come down last—a position I hate. The descent lay at first over featureless snow, enveloped in milky cloud, but we

* My notes are: 'At first the arête was dangerous. We had to climb over a tooth, which was rotten, and down on to a rotten snow cornice, the whole thing crumbling; hence about $1\frac{1}{2}$ hr. of difficult arête work over two or three more teeth, till at last we seemed stopped.'

were somewhat less exposed to the wind than we had been in the ascent. The snow down the first slope was in an unstable condition, and suggestive of avalanches, so we bore away to the left towards the N.W. arête. As we neared it a very curious thing happened. Imseng, who was leading, suddenly disappeared into the snow, and it closed up like water over his head, leaving the surface level above him. He had not gone into a crevasse, for the rope remained slack between him and Penhall, who jerked it about like a fishing line in an altogether unconcerned manner. We had been so battered and flustered for hours that none of us were surprised or curious as to what had come to Imseng. We just stood around and waited (I suppose for seconds, though it seemed like hours). Presently Imseng emerged a little to the left of where he went in; the snow closed up again as before, and we went on, giving the mysterious place as wide a berth as we could. At the time talking was quite impossible, for our ears were bunged up with mufflers and ice, and the howling of the wind swallowed all lesser sounds; but later in the day we asked Imseng what had happened to him, and he said that he could scarcely remember—the whole business had been such a dazing tumult that one detail had not impressed itself upon him more than another. He dimly recalled having found himself suddenly enveloped in snow (which he took to be a small avalanche), and having crawled on all fours for a moment or two, and found himself out of it again. I suppose it was really some kind of hole or dent in the slope which the *tourmente* had filled with light new-fallen snow, little more consistent than water. We reached the N.W. arête in about ten minutes from the top, and then we went down it, taking to the slopes beside it whenever we could. The arête consisted of blue ice in many places, swept clean by the wind, and a great deal of step-cutting was involved, so that our progress was slow. At last the mist became less dense, and all of a sudden we stepped out of it into clear, transparent air, through which we could see down to the glacier and valley below, and across to the opposite hills. It was a glad moment for all of us, and we relieved our pent-up feelings with shouts. Our headgear soon thawed and could be unwound, and our hands warmed and could be ungloved. In a few minutes we reached the col in the ridge between the Hohberg and Festi glaciers, $3\frac{1}{2}$ hrs. from the top of the Dom. A blissful half-hour of feeding and repose was snatched—the first halt we had been able to make since

breakfast in the *bergschrund*. The remainder of our route presented no novel feature.*

A few days later (September 2) Mr. Fitzgerald ascended the Täschhorn from the Domjoch† in faultless weather. That expedition was afterwards repeated by Mr. G. F. Cobb, and both parties combine in praising the interest of the climb and the splendour of the views from the arête. Our route up the Dom has not been visited by any other party, and so I am unable to express an opinion about its normal difficulty. I should think that, under ordinary circumstances, it would not be called difficult by the mountain-gymnasts of the present generation. I don't think it is properly a gymnast's expedition.

The gymnast likes 'pretty bits' of rocks, with a cracklet here for a finger and a cracklet there for a toe. He does not mind whether he reaches a summit or not. He is not careful to enlarge his knowledge of the Alpine chain as a whole. The climbing of details is his pleasure. He is fond of Alpine centres and likes to be near his work. He has been known to pass whole days scrambling about stiff little bits of rock in the immediate vicinity of an hôtel. He returns frequently to the same resort. He loves it in detail. He usually lacks the geographical instinct. He does not care for wandering. He hates long valleys. He has small affection for trees and mountain forests. He dislikes snow-fields and slopes. Easy climbs are a bore to him. He has, of course, great virtues of his own. He detests swagger, and does not willingly talk about his expeditions. He slips off by stealth and returns as from a stroll in the meadows. He will do all he can to avoid following in the steps of a predecessor, and then will be unable to say exactly where he has been. He is not fond of following a guide, preferring to set and solve scrambling problems for himself.

The mountain-climber, on the other hand, is an altogether different kind of person, but at present he is not so easy to

* My notes are: 'Crossed a few rocks on to the Festi glacier. Kept close along the snow by the r. bank for $\frac{3}{4}$ hr. to the moraine. Unroped. Followed moraine for 20 mins.; thence 15 mins. down rock *débris* slope to sleeping-place on the Festung. Stopped for some time. Hence by rocky gullies and faces (one or two steep bits), and then by the r. bank of the Randaierbach in $1\frac{1}{2}$ hr. to Randa, which we reached at 7.45. Dinner there. Drove to Zermatt in the evening.' The whole expedition, under most unfavourable circumstances, took 18 hrs. of actual walking from Randa and back.

† *Alpine Journal*, vol. ix. p. 109.

find. What he loves, first and foremost, is to wander far and wide among mountains. He does not willingly sleep two consecutive nights in the same inn. He detests black-coated tables d'hôte. He hates centres. He gets tired of a district and likes his holiday to be a tour. He loves a good and companionable guide. He always wants to see what is on the other side of any range of hills. He prefers passes to peaks, and hates not getting to the top of anything he starts for. He chooses the easiest and most normal route. He likes to know the names of all the peaks in a view. He cannot bear to see a group of peaks none of which he has climbed. He covers maps with red lines, marking his routes. He willingly explores side valleys. He has ascended the Basodine and other splendid points of view of easy access. If he visits the Tyrol he is not content with merely climbing the more famous Dolomites; he is certain to make for the Gross Glockner too. If he has the time and the money he will probably be now contemplating a visit to the Caucasus.

Such are the two types of mountain lovers, which have become clearly differentiated from one another during the last ten years. Both are valuable and excellent in their way. The future of Alpine literature depends upon the climber, but the prosperity of climbing as a sport depends upon the gymnast. Most men, especially married men, have to go to a mountain centre for their holiday. They cannot wander from place to place—mere questions of expense often enough forbid that. They do not care to pay a guide every day, but they want a daily scramble. Scrambling for its own sake soon becomes an absorbing pleasure to them, and they find great delight in making themselves acquainted with every gully and rib of rock in a neighbourhood. They naturally prefer a place which lies in the midst of short expeditions of moderate difficulty, with a selection of tougher scrambles for special occasions. Thus they become gymnasts. The opening up of the Caucasus will leave Switzerland more and more to them. The unluggaged climber with his knapsack-wardrobe will become more and more of a stranger in the homes of the gymnasts. He will not be welcomed by the well-dressed crowds at Zermatt or Grindelwald. Fortunately there remain plenty of districts which he can still explore, but the cream of the Alps is taken from him. He is by nature a pioneer. Like a backwoodsman, he is driven out by advancing civilisation. The civilised mountaineer is the gymnast. The typical climber hates civilisation. His

chief aim is to get away from it. He is generally a dolicocephalous black man,* one of that small dark stock that always has to go under before the ruddy brachycephalous Saxon Philistine. 'Shy trafficker of the wild Iberians,' lover of discomfort, of ill-ventilated huts and open-air campings out, of ragged and unkempt attire, lost wanderer from a prehistoric age, condemned to live unwillingly amidst a clean and shaven race, even the Alps are no longer for him. His days are numbered there also. Delilah and the Philistines lie in wait for him, and he shall not escape.

The following letter from Mr. G. W. Prothero was read by Mr. Conway, and may fitly be appended here:—

63 Trumpington Street, Cambridge:
March 3.

My dear Conway,—I see you are going to read a paper about the Dom at the Club to-morrow, and that Carteighe is to give an account of his first ascent. Perhaps as so few ascents have yet been made from Saas (I was told in 1888, when I went up that way, that only three had been made previously), a few notes of my journey may be of use, as the routes did not, I fancy, exactly coincide. Of course, don't make any use of this letter if you don't think it adds anything worth mentioning.

Our party, consisting of Clemenz Zurbriggen, Peter Ruppen, and myself, slept on a patch of rocks—the lowest patch on the face—to the right of the flat ridge that reaches down from near the Domjoch to the glacier. The spot where we slept had been occupied a few nights before by a German (Herr Wetzckin) and his guides, on their way to the Dom. In the interval between the two ascents a considerable snow-avalanche had fallen from high up the face, and we crossed the débris in going slantwise from the upper glacier to these rocks. In the night there was a violent thunderstorm, and snow fell for some hours, so that we did not get off till a quarter past five. We reached the top of the rocks in a few minutes, and then struck off in a slanting direction, bearing upwards and to the right, towards a ridge that leads down nearly from the top and eventually loses itself in the face to the right of the rocks where we slept (or pretended to sleep). By 6.30 we reached this ridge, crossing a good many snow-couloirs on the way. It was down these couloirs that the snow-avalanche I spoke of above had fallen, and it would probably not be safe to cross them in the afternoon, but they were all right at the early hour in the morning. Once on the ridge we stuck to this all the way to the top, never deviating from it, except, I think, on two occasions, to turn a couple of rock towers. Our progress was rendered rather slow and the climbing more difficult by the quantity of fresh snow which had fallen in the

* [These somewhat crude anthropological generalisations must not be taken as committing the Alpine Club to any theory on the subject.—Ed.]

night, and which lay deep in places on the ridge. The climbing was nowhere really difficult, but required pretty continuous attention. The rocks were generally, but not always, firm, and the angle continuously steep. We made only short halts on the way, and reached the top at 12.10, having struck the main ridge about 200 yards, I should think, to the right, or N.E. of the actual top. Under favourable circumstances the expedition would, no doubt, take less time. The German, I was told, had not kept to the ridge, but had for the greater part of the way followed the snow and rocks to the left of the ridge. We were prevented from doing this by the fresh snow. Our route was, I should think, the safer of the two. In fact, except for the snow-couloirs at starting, it was quite safe all the way. The expedition is a fine one, and deserves more attention than it has had hitherto. I send a rough sketch which may explain our route. It is drawn from a photograph taken by W. Leaf from a point near the Unter Allalín Horn to the S.E. of the Dom.

Yours ever,
G. W. PROTHERO.

EXPLORATION IN SIKKIM HIMALAYA.

BY COLONEL MICHELL, COMMANDING 13TH BENGAL INFANTRY.

[By the courtesy of the Indian Government we are enabled to print the following most interesting account of work done in its service by a member of the Club. One or two passages bearing more directly on military science have been retained, as furnishing an answer, if any be needed, to those who question the practical value of mountain training.]

I LEFT Pakyong, June 18, 1889, with two sepoy and twelve coolies, carrying ten days' provisions, and marched 12 miles to Guntok, altitude 5820'.

June 19, 1889.—Mr. J. C. White, Political Officer, who wished to obtain a more accurate knowledge of the high ground dividing Chumbi from Sikkim, agreed to accompany me, and we journeyed together from Guntok. We marched 13 miles to Lagyapla, altitude 10,700'. Leeches were exceedingly numerous and troublesome from Kangshu, 6250', to Mirreh, 10,000'; they literally swarmed on the coolies' legs, while ponies and dogs had their bodies, nostrils, and eyes clustered with them. As it would have been impossible to camp on any ground where these pests abounded, we determined to push on to Lagyapla, 10,700', which was above their range; rain fell in torrents, and the march was most laborious to the coolies, the road being very bad and steep (an ascent of 6000 ft. in seven miles).

Arrived at Lagyapla at dusk, still raining heavily. We

found no good ground to pitch our tents, so camped in a spongy marsh; dry fuel was not obtainable and we found it impossible to light a fire; sepoy and coolies went without food, and we contented ourselves with a dinner of dry biscuits.

Though leeches had ceased at this altitude, we were much annoyed by venomous midges, which attacked us in great numbers and made rest impossible.

June 20, 1889.—Marched 11 miles up the Yalichu valley. We found the bridge at Ronglambi had been washed away by floods, and all traffic from Chumbi, over the Nathula Pass, that used to come *via* Tanitso, had consequently to be diverted down the Yalichu valley.

We pitched our tents at lower Benthang, a mile below my camp of last year. At this altitude, 12,400', the climate was perfect: maximum temperature 53°, minimum 47°, and all insect worries ceased to trouble.

Rain, however, was still continuous. I may here mention that we were using single fly mountain service tents, which have been lately issued to native troops, and which I took with me on purpose to test their capabilities in wet weather.

I found them perfectly useless in heavy rain; water simply poured through them, and we were compelled to sleep with umbrellas over our heads and tarpaulins over our bedding.

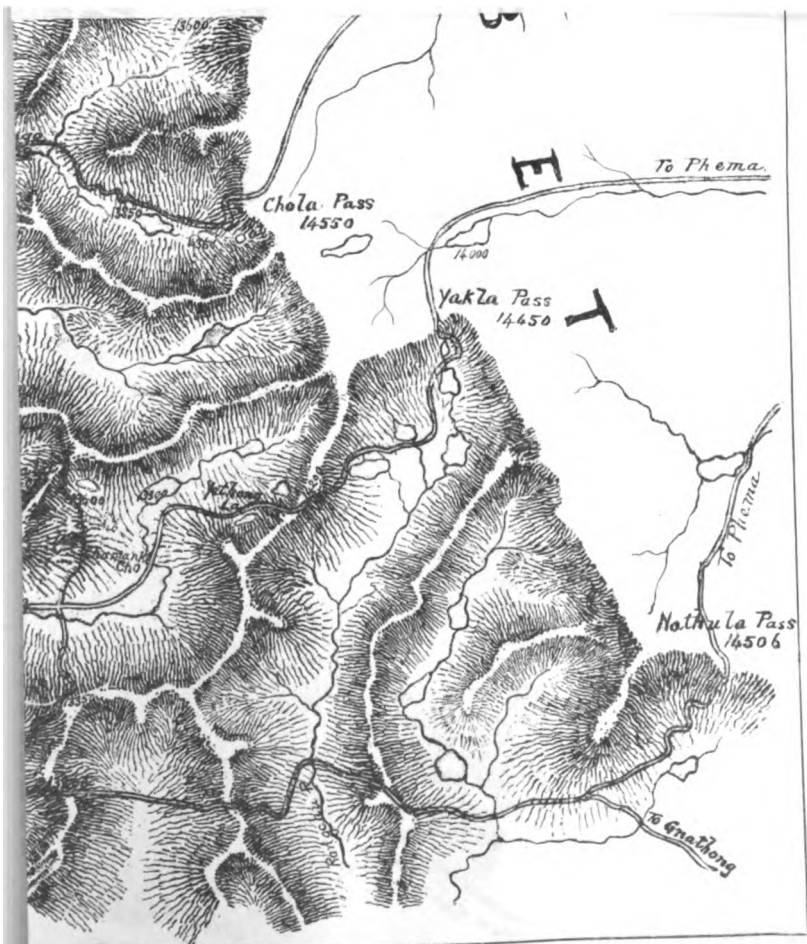
June 21, 1889.—Camp halted at Benthang. Mr. White and I visited the Yakla Pass.

This route, as far as the Yethongla Pass, has been already described. From that point the Yakla (pronounced 'Yālā') Pass is four miles distant. The road is accurately delineated in the accompanying map; it is bad and unridable, passing chiefly over old moraines. Five small lakes are passed *en route*, the last one, near the pass, was frozen; the one next below it contained floating masses of ice: its temperature was 34½° F.

There was much snow about the pass and the hills on either side were very rugged and inhospitable; the whole scenery was gloomy and dismal. No view was obtained from the summit owing to mist and rain.

We returned to camp Benthang by 5 P.M., having been out 8 hrs.; it rained continuously all day.

The temperature of the air at noon on the Yakla was 44°; its altitude was found to be 14,450'. The pass is marked by the usual cairn of stones and sticks, with coloured rags, and also by a remarkable rocking stone, of about twelve tons in weight, which moves and sways on the slightest pressure.



A fine lake was just visible through the mist, some 600 ft. down on the Chumbi side.

The peculiar geological formation of the rocks between Yethongla and Yakla, viz. smooth perpendicular walls of rock, flanking the western side of the track, is evidently caused by water entering into the crevices of the vertical strata and there expanding by congelation, thus causing the rock to burst outwards in clean sheets.

The snow on the hills about the Yakla was melting fast, owing to the warm S.W. monsoon current of moist air which was blowing up the Rongchu valley. The corroding action on snow of this warm damp wind was far greater than that of the sun's rays on a bright day; it caused innumerable rivulets to trickle down from every snow slope and fill the lakes below.

In the accompanying map, the positions of the Yethongla and Yakla Passes may be relied on as accurate. The heights have been now determined by two aneroid barometers, which were corrected before starting, by means of a mercurial barometer at the meteorological observatory of Abbé Desgondins at Padong, and all errors again noted when trigonometrical points were met with. The heights, therefore, now marked may be taken as accurate as can possibly be got.

June 22, 1889.—Moved camp over the Busala Pass to Chomnago at the foot of the Chola Pass, in the Dikchu valley.

The road (ridable) ascends from Benthang, three miles to the Busala Pass, 13,650'. Two small lakes are met with *en route*, whose names and elevations are marked on the map. At Chamanke Cho, 13,150', there is good ground to encamp 200 men; rhododendron fuel abundant.

The ground about Busala is level, the ridge being broad and covered with a short nutritious grass, which is excellent fodder for yaks and mules.

On descending to the Dikchu side of the pass, the road, for the first mile, passes through wide, undulating pasture lands, and is in good order; the second mile is through dense rhododendron scrub, and is steep, bad, and unridable; the third mile runs through a mixed forest of pines and rhododendrons, and is also very steep, bad, and unridable. The Dikchu River is met at the end of the third mile. On arriving there we found it a swollen torrent, unbridged and unfordable, and were detained several hours on the left bank, seeking a ford; failing in this, we constructed a rude bridge by felling a large

pine tree with kookries and knives (there were no felling axes with the party) and letting it fall across the stream.

Chomnago, 12,650', was two miles up the valley from the point where we crossed.

A herd of thirty yaks, belonging to the Rajah of Sikkim, was grazing there, and we were able to procure a welcome supply of fresh milk and butter.

It rained the whole day.

June 23, 1889.—Our camp halted at Chomnago. Mr. White and I visited the Chola Pass, distant five miles. The road was in fair order the whole way, and ridable, except in two or three rocky places, which could easily be repaired. At 400 yards the Chomnago Chu stream is crossed, unbridged but fordable; the road then ascends sharply up the right bank of the Dikchu for a mile, when it leaves the stream to avoid moraines of large boulders which line the banks.

After ascending for another mile, the gradient becomes much easier up to Patheng Cho Lake, 13,850', three miles from Chomnago. There is room on the northern margin of this lake to encamp 300 men; the place is above the limit of fuel, but there is much bush rhododendron half-a-mile down the valley.

From Patheng Cho the road again ascends rather steeply over stones for a mile to a small frozen lake called Chola Cho, 14,360'. From this spot it is an easy mile of very gradual ascent to the Chola Pass, 14,550'; a small frozen tarn is passed immediately under the pass.

The ridge on which the pass is situated is flat, and forms a curtain of about 600 yards between two flanking high hills, with steep snow slopes leading up to them. If this position were held by the enemy, it would not, I think, take long to dislodge him. A direct front attack could be delivered, owing to the favourable nature of the undulating ground on approaching the pass, which would give cover to the attacking troops.

If the pass were held in strength and fortified, a feint could be made of a direct front attack, combined with a real flank attack from the hills which dominate the pass on either side. These flank movements would be slow and laborious, owing to the steepness of the ground, but they are quite practicable, and could not fail to turn the enemy out.

On returning to Chomnago from the Chola Pass, we determined to explore the Chomnago Chu valley, which is little known, even by the Bhotias, and the survey people do

not seem to have entered it. There is no road or track leading to it, but striking off from Patheng Cho, we walked along the mountain sides, which were very rough, from the débris of large rocks which had been detached from precipices above.

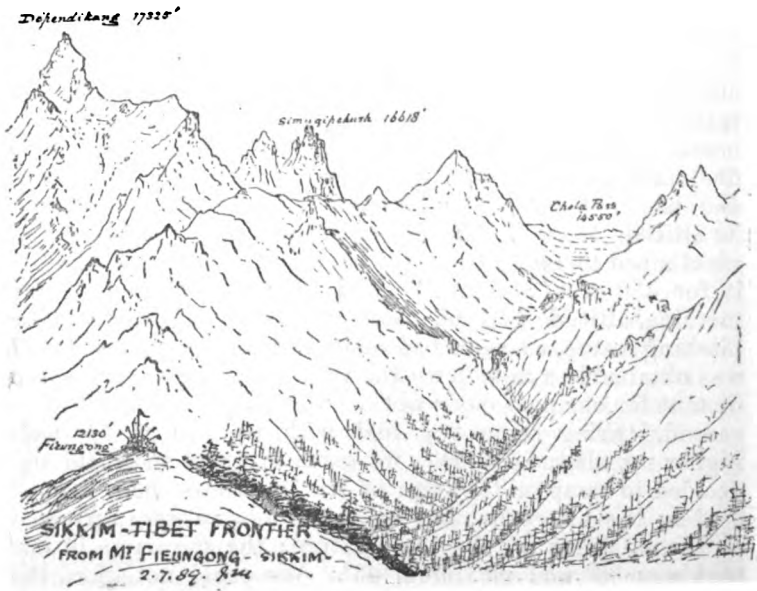
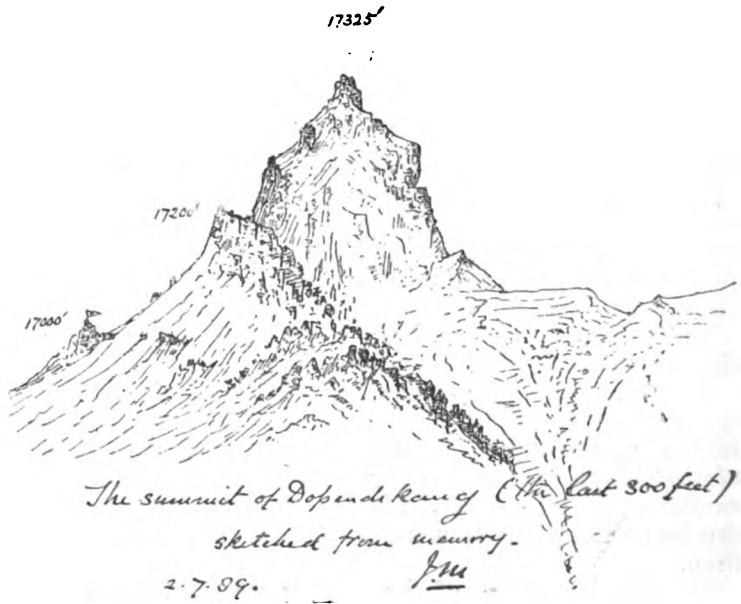
The valley is narrow and the mountain chain that confines it is the highest and most precipitous on the frontier. There was no sign of a feasible path across the rugged pinnacles of rock that extend from the Chola Pass to Simugipchurh, and there would, therefore, be no fear of a flank movement from Chumbi intercepting an advance on the Chola from Chomnago.

We returned to camp by a steep track under the large cliff which overhangs Chomnago.

June 24, 1889.—The reconnaissance, for which I had come out, was now completed; but I was anxious to explore still further that part of the high frontier which extends from Simugipchurh to Dependikang, and, if possible, to scale the summit of the latter peak. I had in a former report expressed this desire and pointed out certain advantages accruing therefrom.

In spite, therefore, of threatening weather, we took a diminished camp and moved from Chomnago into the Tambiacho valley.

A well-marked yak track led to the Tambiacho Lake, $1\frac{3}{4}$ mile, altitude 13,200', a fine but shallow sheet of water, 600 yards long by 400 broad; the northern end of this lake is silting up and has formed a marsh 300 yards long by 250 broad. One mile up the valley from Tambiacho is another fine marsh, which must have been a lake a few years ago and has now silted up; its extent is 700 yards by 400, and its altitude 13,700'. Threading our way through this marsh we climbed up along the right bank of the stream that feeds it for 450 feet, and at the end of a mile came to a flat moraine, altitude 14,150'. This was a convenient place for pitching camp, as snow had melted off the ground and fuel was obtainable a mile down the valley, but the spot was too distant for our next day's work. We therefore continued to ascend, taking some dry fuel with us, and at $1\frac{1}{2}$ mile higher up, altitude 15,000', we came to a vast snowfield and decided to camp on the edge of it. It sleeted here a good deal in the afternoon, but on the whole we were surprised at the mildness of the temperature; the minimum in our tent was 36° and maximum 43°. We could not afford the



luxury of a fire, as the wood we brought with us was only sufficient to warm our food.

In the evening we explored the ground two miles beyond camp, ascending as high as 16,000', and decided on the best way of attempting the ascent for the morrow.

June 25, 1889.—Weather very bad and misty this morning. We meant to start at daybreak, so as to allow fourteen hours for getting to the top of Dependikang and back to camp before dark, but we had to wait till 8 A.M. before it lightened, and we then made a start. We took three hardy Bhotias and one sepoy with us; two of the men were told off to carry a young pine tree, which was cut at Chomnago, to act as a flagstaff; the other carried a flag, a 60-foot rope, and some food.

We first of all worked our way through deep snow for $1\frac{1}{2}$ mile, till we reached a depression on the western ridge, which a Chomnago Bhotia called 'Chakung La,' as he said it was possible for a man to reach Chakung on the Teesta by this route, though of course there is no road or track leading to it. The elevation of this so-called pass is 15,500', and the depth of snow on it was 9 feet.

We had decided to stick to this ridge as long as possible, as being the safest line to take; it was dangerous to leave it, for rockfalls and snowslips were constantly coming down the steep slopes on either side.

We worked laboriously up from 8 A.M. to 2 P.M. and had then attained a height of 17,000', the snow here being 15 ft. deep.

The intervening ground was a mixture of steep snow slopes and rugged rocks over which we scrambled as best we could. But at this elevation the ground became dangerous; it was exceedingly steep and covered with hard, smooth glacier ice, all the more treacherous from being covered with a thin 2-in. mantle of fresh-fallen snow; the rocks, too, instead of being firm, were loose, rotten, and disintegrated, and the slightest pressure of foot or hand on them displaced tons of stones, which threatened to engulf us at each step.

It was impossible for the men, at any rate, to go further without risking their lives, so we called a halt and planted the flag on an abutting rock at 17,000'.

After a while I attempted to ascend still higher, and succeeded, not without much exertion and danger from falling rocks, in attaining an elevation of 17,200', i.e. 125' below

the apex of the peak. At this point, however, a snow storm came on, and the wind blew with great violence, hurling masses of rock into the chasms below; it was not possible to see more than five yards ahead, but I got one glimpse of the summit of the mountain, when the mist cleared for a moment; it seemed to be a perpendicular mass of crumbling rock, and I despaired of ever reaching the top in such weather and without the usual appliances for Alpine climbing. With much reluctance I therefore returned to the men below, and found the descent far more perilous than the ascent, for each step I took loosened a small avalanche of rocks and ice.

At 4 P.M. we began the return journey to camp, snow falling very heavily and obliterating the marks of our footsteps.

When we had proceeded half-a-mile we came to a long steep snow slope, which ended in the level snowfield where our tents were pitched; glissading down this at a rapid pace, we covered in seven minutes the ground we had taken six hours to ascend; the glissade was a mile in length and 1500 ft. in vertical height.

We arrived in camp safely before sunset; the sepoy pluckily slid with us down the glissade, but the Bhotias were frightened and picked their steps down the descent, coming in 2 hrs. after us.

I have sent for Alpine gear, and hope to have an opportunity in finer weather of once more attempting the ascent and planting a flag on the summit of Dependikang.

June 26, 1889.—Returning to Chomnago we picked up the remainder of our camp there, and moved down to Burfonchen, 11 miles, altitude 11,500', in the Dikchu valley.

June 27, 1889.—Marched to Runkpo, 14 miles, altitude 5950'. The road from Fieungong down was much cut up by rain and will require repairs to make it ridable.

June 28, 1889.—Marched to Guntok, 12 miles, altitude 5820', by the short cut *via* Satak village; the bridge over the Dikchu R. (Durbar Road), which was washed away, not having been yet repaired.

June 29, 1889.—Rode in to Pakyong, 12 miles, altitude 4650'.

GENERAL REMARKS.

Weather.—We were most unfortunate in our weather; the monsoon set in the day we started, and after ten days and nights of continuous rain, the first fine break occurred on the day we returned. What were insignificant streamlets a

month ago were now torrents, which delayed us not a little on the march.

Physical Features.—In traversing the high ground on the Sikkim frontier, one cannot help being struck with the number of lakes and tarns that dot the upper valleys. Some geological convulsion apparently caused a subsidence of the hills below an altitude of 12,500', leaving the drainage to collect in pools in the comparatively level dales of greater elevation; it is remarkable that there are no lakes below 12,500', and that most of the hills are excessively steep from that altitude downwards.

Another physical peculiarity is that snow lies deep on the western slopes of this high region, while those sides of the hills which have an eastern aspect are clear of snow and covered with short grass.

This would prove what is known for a fact, that the mornings in spring time are invariably fine, and the afternoons cloudy; the rays of the morning sun hit the eastern slopes and soon denude them of snow, while the western slopes never receive their warmth at all; hence the abundance of snow on that side.

Vegetation.—Between 13,000' and 14,000' the ground was carpeted with a luxuriant growth of flowers, the most prominent of which were five kinds of primulas—white, buff, yellow, mauve, and purple—the marsh marigold, buttercups, anemones, and the yellow snow poppy.

Most of the rhododendron tribe had already blossomed, but the orange, pink, and yellow-coloured ones were still in bloom, between 11,500' and 13,500'.

The limit of pines is variable; well-grown trees were found as high as 13,100' in sheltered nooks; but as a rule they are seldom met with above 12,900'.

The dwarf aromatic rhododendron was seen as a shrub, 9 in. high, on the Yakla Pass, 14,450'. The giant rhubarb I was surprised to find quite common at 15,500' near Chakung La, and grasses at 15,000'.

At 17,000' the only signs of vegetation were mosses and lichens, which were found attached to sheltered pieces of rock; but above that altitude vegetation was conquered and ice reigned supreme.

I searched for the Alpine 'Edelweiss' and Canadian 'tripe-de-roche,' but failed to find them.

Sport.—Monal pheasants and woodcock were very numerous in the Tambiacho valley above the marsh marked 13,700'; musk deer and blood pheasants (*Ithaginis cruentus*)

on the Chola route, under Patheng Cho Lake. Flocks of wild sheep, Burrell (*Ovis nahura*), come over from Chumbi in October and feed in the Chomnago Chu and Tambiacho valleys; we saw numerous marks of them in both these places.

LEAVES FROM THE DIARY OF THE LATE MR. A. T. MALKIN.

1843.

The Straleck.

August 1. Grindelwald.—‘Eagle’ comfortable and civil as ever, and the valley more beautiful than ever. The three great buttresses of the chain coming down into the valley are unsurpassable by anything in Switzerland; and the glaciers, dirty as they are, add a great charm to the scenery. Took a starlight walk; the night most superb, and the valley by that light singular and ghostly. I have seldom seen the stars shine more brightly.

August 2.—Another glorious morning. Not a soul but myself in the house now. One English party last night. Visited the lower glacier. Vault of ice large and beautiful. Started for glacier about 3, and arrived at chalet on Zäsenberg in rather more than 3 hrs., easy walking. Bed rather better than usual, being, in fact, two long feather beds of hay. Only goat’s milk (only goats and sheep and a few calves pasture here), which does not make coffee as good as cow’s. Gave 2 francs, with which the shepherd seemed content. Clouds from the N., and thunder and heavy rain before 10 o’clock at night. Plenty of avalanches all the way. The glacier is dirty, though not so bad as the Aar Glacier. One of the *moulins* of great size and beauty. Crevasses large, not very clear. The path to the glacier, which struck us as being so precipitous the first visit, seemed nothing out of the way this time.

August 3.—Morning doubtful, but the rain ceased, and though the clouds hung about the mountain-tops we made a start at 5. Took the shepherd to help us. Crossed the glacier again with little interruption from crevasses by 5.50, and began a desperately steep ascent up rocks intermixed with grass. No real danger as long as the head is steady, for the foothold is always sufficient. Continued in this way along the side of the Mettenberg, steep climbing varied by steep beds of snow till 7.15, when we again took in earnest

to the ice, or snow rather—for, though crevassed in places, I never made it out to be ice—taking advantage whenever we could of steep crests of rocks, which pierce through the coating of glacier. These crests were all regular hand and foot climbing, where I gave my pole to a guide and worked up hand over hand, quick and easy and not dangerous, the hold being good and the ascent not being so steep as to make it easy to fall. Still it is not a pass for weak heads. Weather uncertain; clouds constantly floating about the mountain-tops, and occasional falls of finely crystallised snow. Schreckhorn generally clear, Eiger nearly so, Finsteraarhorn always covered by deep mist. I never had a glimpse of him all day, which is a sore disappointment. Viescherhörner very white and beautiful; they appear to join on to the Finsteraarhorn—in short, to be a prolongation of its ridge towards Grindelwald—while the Straleck, or Mittelgrat,* is a cross chain connecting the nearly parallel ridges of the Schreckhorn and the Finsteraarhorn. The character of the scenery on the ascent very similar to that of the Eismeer below; but the greater purity and brilliancy of the glacier gives a greater charm, and the higher you advance there is an indescribable something more of wildness. This is especially the case on the ridge of the Straleck, where the excessive steepness of the descent to the S., the pinnacles of black rock towards the Finsteraarhorn, and the white waste of snow beneath make a view most singular and striking as I saw it, and one which under a clear sky, and with all the vast mountains around visible, would be far more imposing. Still I do not think the passage can equal, as to the beauty and grandeur of the view, that of the Matterjoch [St. Théodule]; in itself it is more interesting from its greater steepness and variety. About $\frac{1}{2}$ hr. from the top—perhaps more—we finally quitted the rocks and crossed a slightly concave surface of snow, not steep, to the crest of the Straleck, which we reached at 11.15, 6 $\frac{1}{2}$ hrs. from the chalet. We had stopped pretty often, for the guides seemed to make a great point of corporally refreshing both themselves and me. The long ridge of the Schreckhorn, which extends in fact from the peak of the Mettenberg to Im Abschwung, is very grand, also the Viescherhörner, which hide, I conceive, the Mönch, and most of the Eiger. The grandest feature, the Finsteraarhorn,

* [On this old name of the pass see Herr Gottlieb Studer's *Das Panorama von Bern* (1850), p. 74.]

was always enveloped in mist, the worse for me; but the crest of the pass towards it was very grand—snow where we stood, with low rocks close by, and farther on high black pinnacles cutting against the white snow and mist which covered the side of the Finsteraarhorn. Towards the Schreckhorn runs a similar range, but less marked in character, or at least less seen, for to the N. there was a rising slope of snow; to the S. the character of the ridge was the same, as we saw afterwards. Between the black pinnacles above mentioned and the Finsteraarhorn lies the main body of the great glacier which descends to Grindelwald; it is lower, I was told, than the Straleck, but dangerous, perhaps impossible to pass, on account of its highly crevassed state. To the S. a vast body of glacier below; but whether the mountains were too much hidden by clouds, or my attention during the time we remained was otherwise engaged, or the view itself less striking, I remember, unfortunately, little on this side. The descent itself, indeed, was sufficient to engage one's attention—a slope of brilliantly white snow, filling up a gully in the perpendicular black rocks, steeper than almost any house-roof, and cutting against the rock some fifty yards off, so as to hide what was below. Usually this is filled with hard snow, in which steps have to be cut; and the descent may occupy from 2 to 3 hrs.; we did it in little more than 1, in consequence of the abundance of snow, which luckily held us up, being indeed nearly up to our hips.

Kaufmann here took the rope and went down first to reconnoitre—very cautiously. Bohren and the shepherd followed, keeping nearly the length of the rope distant. Having gone some way, and been absent perhaps ten minutes, they returned, and we made preparations to descend, Kaufmann first, I next, the rope running through a leather strap buckled round me, and the other three behind. So we went, I treading in Kaufmann's steps as far as I could, and striking my heels well in (this being the point he chiefly insisted on), to his perfect satisfaction—'Très bon, très bon.' As soon as we had gone the length of our tether we made standing-place, and the rest came down to us, and then off again, keeping close under the wall of rock on our right. So without danger or mischance, Bohren and Kaufmann singing the 'Ranz des Vaches' all the time, till within two or three hundred yards of the bottom, when Bohren gave a yell and set off upon a slide *a posteriori*, the snow being too soft to slide on our feet. I prepared to follow him, so Kaufmann, not alto-

gether trusting me, took my legs round his waist, and away we went together at a slapping pace, the others behind us.

Reached the bottom at 12.35, stopped to eat and drink, and sent back the shepherd with a flask of spirits, some bread and meat, and a couple of francs: no large pay. Heard him yell half an hour later from the top of the Straleck, so knew that he got safe so far on his way.

After getting a little way from the Straleck it is difficult to conceive where or how you or anybody else ever passed it. The scenery of the Aar [Unteraar] Glacier disappointed me; but this might be partly owing to the clouds. Four feet of fresh snow on the ice, which bridged over the crevasses and made the passage easier in one sense, more fatiguing in another, but less interesting decidedly. So far as I could see the chain of rocks which divide it from the Ober[aar] Gletscher is not very high or grand, nor that which ends in Im Abschwung; but we might be too much under this latter to see the higher peaks. Besides, the clouds came lower and lower, and we grew more intent on reaching our journey's end—Zinkenstock is the chief peak of the chain separating this from the Ober[aar] Gletscher. Reached the Abschweigungen [foot of Abschwung] in about 2½ hrs. at 3, and the 'Hôtel des Neuchâtelois' *—full of snow, with its kitchen furniture, tables, &c., all lying about in wretched confusion—about ¼ hr. later. Cold heavy rain had now come on, and we thought of little more than getting to the Grimsel, which we did in about 2½ hrs., generally sharp walking, but with a halt. Luckily the heavy rain did not continue long. Grimsel, 6.50 p.m. Total time, nearly 14 hrs., including probably more than 1 hr. of stoppages. It would not be done so quickly, I should think, under all circumstances.

The pass is given in the map of the Oberland glaciers at 9700 feet French = 10,500 English [10,995 feet, according to the great Swiss map]—nearly 300 feet lower than the Matterjoch, and near as much higher than the Buet, being,

* [This was the stone hut built on the central moraine by MM. Agassiz and Desor's party in 1840, but which, owing to the great quantity of snow in and around it, they were forced to abandon in August 1843—a few days after Mr. Malkin's visit—for more comfortable quarters on the spot, high above the glacier and on its left bank, where the 'Pavillon' (later called Pavillon Dollfus) was built in 1843. The great boulder of the 'Hôtel' split during the winter of 1843-4, and its fragments were discovered in 1884 much further down the glacier (see *Alpine Journal*, vol. xii. pp. 177-8).]

in short, my second greatest height [the St. Théodule is 10,899 feet, and the Buet 10,201 feet, according to the latest surveys]. It is a very grand and curious one, traversing in its length one of the most extensive glaciers in the Alps, and is so far not difficult to a practical mountaineer that the notion of danger never occurred to me in any individual spot. And I have been more fatigued with easier days—for instance, with the Susten. Still it is not for all the world; and much heat, or much cold, would make it more fatiguing than I found it.

Round from August 20 to 31, including Tignes, Col de Galèse, Aosta, Col de Collon, Col d'Hérens, Weisathor.

August 19.—I dawdled and breakfasted till 8.45, when I set out with Paccard for Nantbourant, part of the intermediate time having been occupied in catechising Victor Tairraz, Professor Forbes's guide [in 1842] to Zermatt, &c.—a fine, intelligent young man, who is only an aspirant and may hope to be a guide a dozen years hence. Reached the 'Pavillon,' Col de Voza, at 12, having got a cast in a car for a couple of miles or more, and ascended very gently, on account of the heat. View very fine from col. Much to be recommended to any party with a lady to take a *char* to Les Ouches, and there saddle the mule or mules, which would make this excursion to the 'Pavillon' a very easy and pleasant day. The Glacier des Bossons and the cascades might be combined with this—making the day harder, however. 'Pavillon' civil and comfortable, as heretofore. Left it at 1, and reached Nantbourant at 4.10, making rather less than 6½ hours' walking. The descent from the Col de Voza and first views of the Val Montjoie excessively beautiful; duller for 2 miles on each side of Contamines, but the ascent from Notre Dame de la Gorge extremely fine, as is the evening view from Nantbourant. No one but myself. Supper: roast mutton, good; milk, delicious; tea, execrable; butter, not much better; honey, good. Coffee tolerable next morning. Paid 5 francs, which gave satisfaction.

I should have mentioned that, before completing the ascent, on reaching the bridge, there is a fine waterfall to be seen without going 20 yards from the road. Look out for a small path which leads to it. The depth and narrowness of the bed of the river are the most striking points—the volume of water large, this year at all events. The river on each side of the bridge is also remarkable. But the

finest fall of all is on the branch of the stream, which comes down from the glacier of Trelanlai [Trélatête], a short 15 min. from the chalet where you sleep, and just behind a noticeable group of chalets on the hill opposite. The height is not great, but the channel of the river most singular and remarkable for its depth, narrowness, and ruggedness; go higher on the left bank, and you find it still narrower—in one place so narrow above as to be easily jumped—probably not 3 feet over. Formerly a plank served as a bridge, but one frosty morning a woman going over it slipped and was killed, since which it has not been used. A passage formerly by the Trelanlai and Miage Glaciers from this spot into the Allée Blanche. The keeper of the chalet told me seriously that a company had been talked of to rearrange the route, which, he said, half a dozen men might soon do, by cutting stairs here and there in the rocks, the change in the glacier having now rendered the old route impassable. It must be very high, probably 11,000 feet.*

August 20.—Morning very fine. Started at 7.30, visiting the cascade above mentioned, and returning to the road at some height above Nantbourant. Reached Plan des Dames at 9.30; from the upper end of it to the very summit almost all snow; and in the deep basin at the foot of the col the remains of the winter's avalanches lie, according to Paccard, to the depth of 60 feet or more. A few more such seasons and a permanent glacier here. Reached the cross on the ridge at 10.5; slow and steady.

Below the Plan des Dames, about opposite to the last chalet, you may turn towards the left and cross another col, considerably higher than the Fours,† but not commanding a remarkable view, according to Paccard, who has passed it twice. It lies to the left of a large round hump on the mountain ridge. After crossing the ridge you coast the mountain-side to the Col de la Seigne, without descending to Motet. Paccard says it saves 2 hrs., also that scarce a dozen of the Chamounix guides know it; but a guide may be got at Nantbourant, or higher.

* [This probably refers to the 'Col dit Infranchissable,' which was reopened to travellers by Mr. Eccles in 1870, and on the Miage side of which a silver mine was formerly worked (see *Alpine Journal*, vol. v. p. 278).]

† [Probably the Col d'Enclave, 8812 feet, is meant, though the Col des Fours is 8891 feet high, but possibly the easy glacier pass of the Col du Mont Tondou, 10,132 feet, leading direct from Nantbourant to the Col de la Seigne, is really referred to.]

Crossed the summit, and reached the highest ridge at the edge of the descent at 10.50. Here the way to the Col des Fours turns off. In crossing some of the slopes of snow deep, steep, and nervous; the scenery very desolate and grand. Saw a large flock of ptarmigan and the tracks of chamois.

Reached first chalet 11.30—the place where Campbell fell, just 15 min. higher. The storm [September 3, 1830], according to Paccard, not very severe. There seems to have been much mismanagement, and some blame attaching to the guide; had he compelled them to stop sometimes and turn their backs to the wind, probably they might have escaped. But they strove on, it appears, till Campbell dropped and died, and the other must have dropped very soon after.

Chapiu at 12.10. 1 hr. 5 min. from the top, but done rather quick. Hotel looks equal to that at Nantbourant. *Eau-de-vie* bad. Stayed 10 min. and started at 12.20. Valley dreary and treeless; rain the greater part of the way to Bourg St. Maurice, which we reached at 3.15. The Val d'Isère is rich and beautiful; the views of it, in descending, are very lovely.

Bourg St. Maurice is a narrow, dirty town, with a tolerable inn—*chez Magot*—where one gets bed, dinner, and fair wine. Walked in the evening a mile out, down the valley; soft and riant, with fine peaks in the distance.

August 21.—Heavy rain in the night; morning doubtful. Started at 9, and in about half an hour reached the village of Sééz, where the [Little] St. Bernard road turns off to the left. Here Paccard stumbled on some return mules; and—more for his sake than for my own—I took 4 francs' worth out of them, being a mule for each of us up to Tignes. It may here be observed that the process of riding on a pack-saddle can hardly, under any circumstances, be made agreeable, however many blankets intervene between your person and it. There is something in the construction of the saddle altogether at variance with the human form. Left Sééz at 11 and reached Tignes at 4.30, having stopped full 30 min. at an intermediate village, so that Murray's estimate of 5 hrs. from Bourg St. Maurice to Tignes is about right. The valley rich, and ascent not steep, until below Sainte Foi, to which there is a steep climb, and from that to the village of La Thuille first, and then Brennières [Brévières], the ascent is almost continual. The approach to Ste. Foi is strikingly beautiful; its situation is most commanding and

ornamental, and that of another village [Villaroger] on the opposite bank of the Isère is still more remarkable. After passing La Thuille, another quite new and more remarkable view occurs opposite the village of La Gurra, whose church, high perched on a commanding rock, is a striking feature. Directly above is a precipice, topped by the glaciers of the Chaffe Quarre [better known as the Mont Pourri], which here descend to the neighbourhood. The superb cascades—superb even at the distance at which they were seen—descend from the glaciers—one, a perpendicular spout, to the depth probably of 600 or 700 feet. This, however, and other parts of the journey lost much in grandeur by the upper peaks being rarely—and never entirely—visible. Higher up the village the small plain of Brennières is reached, after which a steep ascent through an extremely wide and grand gorge, wooded with magnificent pines, leads to the larger plain of Tignes. One spot is very remarkable—where the road crosses a deep side ravine, going down almost perpendicularly into the Isère, far below. Another steep and grand gorge, bare of trees and more savage, but less grand in its features, leads to another basin—that of Laval [La Val d'Isère], the highest village, which is reached in 1 hr. 30 min. from Tignes. Here larches are nearly extinct. A fine view of the pyramid of [the Grande Motte] is the most striking feature of the view. In character the valley resembles the higher basins of the Rhine—as at Schans, for example. I believe I lost much by the clouds; at one time distant snowy peaks were visible [Aiguilles de Trélatête and du Glacier], which I believe belong to Mont Blanc, and the loss of the Chaffe Quarre is a great loss.

A pass from Tignes to Termignon and Lanslebourg for mules, 3 or 4 hrs. over ice [Col de la Leisse]. It appears to join the route which descends from the Col de la Vanoise.

The inn here about the rudest I have been in, and the hostess almost rude in manner, but not disobliging. Charge 6 francs, including a bottle and a half of wine and bread and cheese to take with us, leaving about 4 francs for the supper, tea, and breakfast—quite enough for what I had, and yet not as much out of the way as might have been expected.

August 22.—A morning without a cloud. Started at 5.30, having engaged a man to go to the bottom of the Little Colouret [coluret=couloir], for 8 francs—quite enough too. But the passage is certainly a little out of the ordinary, and to go up and down it is certainly hard work. The ascent

to the Col d'Iseran soon turns off to the right, passing high above the valley. Behind [S. of] the village of Laval is another pass [Col de La Rocheure or Larossor] to Lanslebourg, by Termignon, running under the foot of the Roche d'Or,* a snow-capped mountain of great height and beauty, and joining the route from Tignes above mentioned. My guide here—Bock [Boch], a good mountaineer, who knows most of the country—says that there is not more than $\frac{1}{2}$ hr. over ice for the mules, which is much more likely; possibly the man of yesterday spoke of the present year and meant snow.

The ascent from Laval is gentle to and beyond the hamlet of Fornet, after which a group or two of chalets is passed, the highest [Saint Charles] at 6.50—1 hr. 15 min. from Laval. Shortly after the path begins to ascend above a narrow gorge, through which the Isère foams for $\frac{1}{2}$ hr. far under the path, which runs along ugly precipices. For nearly the whole distance at present the channel is covered over with snow, the remains of the avalanches, the water being visible only at intervals. At one spot a cross marks the spot where a priest, returning from Piedmont in 1816 (?), was robbed and murdered and cast down below. Emerging from this gulf (7.30) a large basin of beautiful pasturage [the Prariond] is reached, which is rented by a Piedmontese, who sends thither yearly a large flock of merinos, and pays 300 francs rent, a small sum enough for the extent. At the end of this basin is the foot of the glacier [de la Vache] from which the Isère issues, and it is surrounded and enclosed on all sides by snowy mountains of great height and beauty of form. Leaving the glacier on the right, you mount a steep promontory of green turf, between a deep ravine and the glacier. Stopped to eat high up it for $\frac{1}{4}$ hr., took to the snow at 9.5, and reached the top of the pass at 9.50, not more than 4 hrs. of steady but not quick walking. Ordinarily there is no snow here, and the ice is not more than $\frac{1}{2}$ hr. across. All the way up the Roche d'Or is an object of great and increasing beauty, rising in height as it is viewed from a higher level. From the summit the view is most superb. Looking back, the Roche d'Or and its neighbours bound the view, and on each side the steep

* [This name is not now applied, even in the patois form of Rocheure or Rossor, to any point in the neighbourhood. The peak meant is most probably the Grande Motte, which is in the Leisse valley and separated from the Rocheure valley by the ridge of the Pointe de la Sana.]

rocks and glaciated pinnacles of the valley of the Isère. To the E. the view is more extensive, but is still confined by the enormous mountains which bound the valley of Cogne, principally the Levanna, which separates it from the valley of Lanzo, a lofty, glacier-covered ridge of superb outline.* The pinnacles immediately around on the crest of the mountain are also very grand. The view will be best seen by climbing the round-headed rock to the right of the path, from which a panoramic view of the whole is obtained. Not less striking is the view into the enormous depth of the valley below, from which a perpendicular wall of rock separates you. The glaciers stream down into it far below, and at present the entire basin is deep in snow; its bottom is always, I believe, covered with the remains of avalanches, but now, to within 50 or 60 feet of the top of the Grand Colouret, the whole is an amphitheatre of glittering white. Beyond is seen a lake [Lago Cerrù], separated from the upper plain or basin of Belotte [Bellotta] by another ridge scarcely less steep, though less high, than the Grand Colouret, but from this elevation the difference of level is almost overlooked; and still far below the depths of the Val d'Orco are seen towards Ceresole, which I conceive to be about the farthest point visible.

Formerly, in the time of the Revolution or the Empire, when the traffic over the Mont Cenis was closed, a considerable mule traffic took place over this pass. For mules to descend the Grand Colouret indeed was altogether impossible; but by making a considerable détour to the right, a descent, not so steep but that it could be made practicable by cutting steps in the ice for a long distance, could be effected into the plain of Belotta, and thence by mounting the side of the mountain on the left the Little Colouret was avoided and a practicable descent obtained.

On the other side, from the last chalet [Saint Charles] I think, another pass branches off, leading to the Val d'Aosta by the Col de Rhêmes, a valley of the same name. It is evidently a good bit higher than the Galèse, and there is much more glacier to cross—I believe about 2 hrs. The guide thought it harder than the Galèse, which war'n't nesheshury; but, as he seemed to think more of glaciers than rocks, I demur to that until I have crossed it.†

* [In reality the Levanna rises above the Lanzo valleys on the frontier ridge, but is separated from the Cogne group by the deep-cut trench of the Val d'Orco.]

† [The height of the Col de la Galise, or Galèse, is 9838 feet; that of

The Col de Galèse is a nick in the mountain, where the heat of the sun has melted a circular cavity in the glacier, leaving a wall of ice nearly perpendicular and 30 or 40 feet high at its middle. The ends, however, are lower; and the passage down to the rocks was made without any difficulty. Here begins the real difficulty and danger. They are slaty and shivery, and it is necessary to climb in and about, going down as you can for 60 to 80 feet, when the *talus* is at length reached and the danger is over. The rest of the descent ought to be over shingle and loose stuff, in which the feet take hold; now it was over snow, sometimes mixed with shingle, which made a loose mud, very unpleasant. But we soon got upon pure snow, soft enough to take good hold of the feet, and steep enough to look literally perpendicular when viewed from below. However by sticking the heels well in this descent (of several hundred feet, I should think) was easily passed, and then a long slope and the level of the plain of Belotta.

This being passed, we found ourselves on the edge of the Little Colouret, which being full of snow, the guide thought too steep to descend, so led round the rocks to the right and began a horribly steep descent through rocks and turf, traversing back and fore to the bottom of the Colouret, which we reached, probably in a shorter time than it seemed. The footing, however, and handgrip here are good, and there is little real danger if the head be firm, which is indispensable. A steep descent over stones conducts down to the level of the upper plain, where there are chalets; but without descending so far you pass, still on the left, considerably above the level of the lake [Lago Cerrù], a lonely little chapel, looking like a chalet—Madonna della Neve—on the right, at the edge of the next steep descent. Higher up than this are the chalets of Serue [Cerrù]. Much time and distance would be saved to the traveller to Aosta by striking up the valley to the left instead of descending farther, and sleeping at the higher chalets instead of descending to Chapis [Ciapili, sometimes wrongly called Ciapini], about an hour below. A broken bridge over a torrent coming down this valley, too broad to leap, involved us in considerable perplexity, and finally, after wasting half an hour, we had to

the Col de Rhêmes is 10,046 feet according to the French, or 10,174 feet according to the Italian map; but about 3 hrs. over ice and snow are necessary in the case of the latter pass, though the glaciers are perfectly easy.]

return half-way to the chapel, where we found a bridge over the Orco, which we recrossed about 10 minutes below, and shortly after, after passing a desert cluster of large chalets, reached Chapis—wretched quarters enough, the cows being all higher. Reached the bottom of the Colouret at 11.10, being just one hour from the summit. I should think the descent could not be less than 2000 feet [from col to lake is 2159 feet], and from thence to Chapis at least 1000 feet more [1601 feet]; but these estimates are very loose, and the former may be much more. Larches grow above Chapis, but very scattered, and not large, and a little unripe barley about it. I should think the height of the pass could not be less than 9000 feet [9838 feet]. Brockedon says 10,000, but I doubt. The peasants call the whole group of mountains, including the mass on the left side as you descend, by the name of the Galèse [now known as the Pointe de la Galise or Punta della Galisia]. Brockedon * calls the latter Mont Iseran [following the 1683 map of Borgonio], which name the people of Laval give to a mountain somewhere towards Lanslebourg, but I could not learn where. In short, the names of the mountains are almost inextricable. †

I should have mentioned another high glacier pass to Groscavallo, in the valley of Lanzo [strictly speaking, that one of the three Lanzo valleys which is called Valle Grande], from Laval, intermediate between the Col d'Iseran and the Galèse, passing between the snowy tops which bound the S. side of the Val d'Isère, and leaving the glacier of the Isère considerably to the left—in short, I suppose striking upwards somewhere near Fornet. ‡ In short, Laval abounds in passes and only needs a better inn. §

August 23.—A fine morning; mists at first, which cleared and gave a fine view over the mountain peaks. Started at

* [See the account of his visit, some time between 1825 and 1836, from the Italian side, to this Col—apparently the only one by an Englishman before Mr. Malkin's expedition—in *Blackwood's Magazine* for May 1836, pp. 649–653.]

† [See *Peaks, Passes, and Glaciers*, 2nd series, vol. i. p. 355.]

‡ [The writer here makes a slip, for the valley of the Arc lies between the Laval and Lanzo valleys, so that it is physically impossible to pass directly from Laval to Lanzo. He was probably thinking of the Col Girard, leading from the Arc to the Valle Grande.]

§ [It was not till the summer of 1889 that a fair inn was opened at Laval by M. Moris, which may help to attract travellers to this excellent headquarters for mountain excursions (see *Alpine Journal*, vol. xiv p. 518).]

4.35, after a very scanty or no breakfast, reached the broken bridge in 45 min., and after a very steep ascent the first and last chalets unoccupied at 5.55. A rapid ascent thence for 15 min. to the mountain plain, after which we bore much to the left to scale a crest of rocks, the top of which and summit of the pass [Col de Nuvolé or Nivolet, 8665 feet] we reached at 6.45, 2 hrs. 10 min.—if very steady not very quick going. Stayed 15 min. View over Val d'Orco, the Levanna, the ranges dividing it from the valley of Lanzo, and the head of the Galèse extremely grand; towards the Val Savaranche less extensive. A gradual descent over snow, where no snow should be, and then by a lake-side and over fine pastures, led in an hour, i.e. at 8, to the first chalets, which are extensive and contain 130 cows and very good milk. A guide of the country is needed for this passage. Had I been left to myself I should certainly have kept too much to the right and entangled myself in the wilderness of mountains between this valley and that of the head of the eastern branch of the Val Savaranche, where the only way is a 'strada delle camozze,' as my guide phrased it.

A long, dull, marshy plain extends for half an hour beyond the chalets; the pastures present the greatest extent of level ground that I have ever seen in the High Alps. Towards Cogne there is still the same extent of barren peaks, with very little pasturage, as far as I could understand, scattered among them, and no way to Cogne across them but for the chamois and their hunters. Indeed the shepherds said that to go to Cogne they should have to descend to Chapis, and go lower down the valley, which, if true, is the strongest possible proof of the utterly impracticable character of these mountains.* They do, in truth, run into aiguilles and inaccessible rocks in an extraordinary degree; and such appears to be the whole character of the country between the Val d'Aosta and the Val d'Orco. Towards the valley of Lanzo the mountains seem equally high; but the slopes are rather softer, and the clothing of glaciers is more extensive.

After leaving the plain a rapid descent for perhaps 15 min. over rounded rocks—which, however, are not rubbed smooth like the Höllenplatte, and therefore do not, as it seems to me, bear testimony to the presence of an ancient

* [Recent explorers—Italian and English—have since 1843 made several passes across this range, and climbed all its pinnacles and peaks.]

glacier—leads to the edge of the great descent, where is placed a cross, the Croix d'Aroletta [or Croce Roley]. The view from hence is superb—down the Val Savaranche and up to its head, shut in by the splendid peaks and glaciers of the Grand Paradis. The continuation of the chain to the N., separating this valley from Cogne, is also extremely grand; the peaks are jagged like a saw for miles, and apparently quite inaccessible. If there be a path, as Murray says, from this valley to Cogne it must be a queer one—probably over the glacier of the Paradis—and the path to the Val de Rhêmes must be equally queer, for such a mass of aiguilles as the whole chain presents I have hardly seen.* Indeed, the most striking feature of the valley is the excessive perpendicularity and height of the enclosing mountains. Far below the hamlet of Pont—only a spring and summer residence, as I understood—is seen, probably from 1500 to 2000 feet down [1221 feet]. A tolerable mule path, winding like a corkscrew, leads down this almost perpendicular hillside, by which we reached Pont in 30 min. with little fatigue—no more than walking downstairs. From Pont the descent, though of course constant, is singularly level. To Gioux [Dégioz or Dégioux, the chief hamlet in the Val Savaranche] 2 hrs., where a little bad bread and sour wine were all that was to be had, and that with some difficulty. Let no one look to stay there for the night. The character of the valley continues grand, but very uniform. Murray hardly does it justice. A less pleasing feature is the multitude of crosses, indicating deaths, towards the lower part of the valley, which, as they occur where there is no possible danger in the path, unless from avalanches, seem to intimate a considerable amount of deaths from violence. They are, however, chiefly of the last century and the times of the war. About 2 hours below Gioux the valley becomes much more rich and picturesque, opening out as it meets the Val de Rhêmes; and the path quits the river and is carried, nearly level, along the mountain-side till it descends to Villeneuve by a long and fatiguing slope, much worse than, though not half so steep as, the descent from the Croix d'Aroletta. The cross is clearly visible from Pont, below,

* [Mr. Malkin did not foresee that some years after his visit the hunter king Victor Emmanuel II. would construct a bridle path over the Col Rosset from the Nivolet plateau to the Val de Rhêmes, and also another over the Col de Lauzon from Dégioz, lower down the valley, across to Cogne.]

and has a singular and impressive effect. From the heights above the Val d'Aosta there is a noble view of that valley and the Allée Blanche; but Mont Blanc was clouded, and we saw no more than what appeared to be the Grandes Jorasses.

Villeneuve is a detestable place, not even affording a *char*; so we had to walk on to Aosta, rather a slow 2.20 over dusty road and through not the best part of the valley. The approach to Aosta, however, is very beautiful.

Chapis to chalets of Nivolet, 3.25; Croix d'Aroletta, 50 min.; Gioux, 2.30; Villeneuve, 3.25; Aosta, 2.20 = 12 hrs. 30 min. Steady, but not very quick; a hard day.

August 24.—Heavy rain in the night and morning. Got up at 5 and went to bed again. Promising to clear all the morning, but did not till 3, after which a lovely afternoon. Wrote letter and journal till about 12. Mr. Duckworth and a party of ladies came from Courmayeur. Walked to see the Roman arches, which are striking. The bridge may have been over the Buthier formerly, but is now 100 yards E. of it—over a conduit of water which does not a quarter fill it—a path underneath. A fine specimen of masonry. The bottom of the tower of the prison, forming part of the walls to the N., seems also Roman. The church [Saint Ours], formerly belonging to the monks of St. Bernard [it is a collegiate church of Austin canons regular, but seems to have had no direct connection with the Austin canons regular of the Great St. Bernard], seems curious, and has a curious cloister, supported by small pillars curiously carved; the cathedral also seems worthy of a visit.

From 3 to 5 a delightful walk down the valley, through vineyards, walnut trees, and rich pastures, giving me a far higher notion of the loveliness of the valley than I had before. Great improvements in the town—the Place considerably enlarged, and a handsome hotel or villa built, and hardly finished, opposite to the detestable old 'Couronne,' which is still the 'poste.' Several large and handsome houses also lately erected. The 'Ecu du Valais' occupies half of the handsome façade of the town hall, unfinished within and half furnished. Master keeps the inn at Courmayeur also. Anyway I have had very comfortable quarters and enjoyed to-day, though an idle day. A glorious starlight night—a night of Italy—the Milky Way glittering like a stream of fire flies . . . a bright planet immediately over the black mountain peak between us and Cogne. N.B.—This is accessible, said to be about 8 hours, and no difficulty in the road; it is called Becca di Nona.

Copy of a Letter from Aosta.

August 24, Wednesday.—A long day, a good supper, a bottle of vin de Chambave, and a clean house. What more, my dear, can man desire in this world? You would hardly know Aosta again, it is so much improved—a splendid *hôtel de ville* built opposite the ‘*Couronne*,’ where we were before, and, adjoining it, a new ‘*Ecu du Valais*,’ with rooms new, high, white (all except the floors, which have a little of the old leaven), and airy. The master is an old friend of Paccard. . . . I wrote to you from Bourg St. Maurice. . . . The next day, up the valley of the Isère, was one of most exquisite beauty and grandeur combined. . . . We slept still an hour and a half higher (than Tignes), at Laval, in the rudest inn I ever slept in—to be an inn of any kind. Got some coffee and dry bread, however, for supper, and some half-hot meat, which might have been worse; and a double-bedded dungeon, in which Paccard and I slept, and slept right well. The day rather gloomy, which interfered with our enjoyment, as the high peaks were rarely visible.

Yesterday breakfasted early by peep of day, as we could, and started with a guide of the country to take us over the Galèse, about 4 hrs. from Laval to the summit. Of the High Alps I have scarcely seen a lovelier scene than the head of the Val Iseran [d’Isère]—beautiful pastures, enclosed on all sides by glaciers and peaks of unsullied white and beautiful form. Much snow, where there should be none; the passage of the glacier itself short, and of no difficulty or danger whatever. But for the descent of the Galèse towards Piedmont! I thought I knew something of the matter, but this beats cockfighting hollow—and the Straleck, into the bargain, being just as steep on the snow, with a most diabolical passage of 60 or 80 feet down a chimney wanting the fourth side (which would be a great convenience), with a comfortable glacier to break the fall, about 1500 feet below. However my guide seemed to regard it very much in the light of the king’s highway, and made nothing of my knapsack, having been used, as he assured me, to carry much heavier weights down—as a smuggler, I have very little doubt. Anyhow he was a very good guide, and old Paccard, with only one arm and a half, made no more bones.

It is a curious thing that of the persons whom I know to have crossed this—one of the worst passes of the Alps—three, including Brockedon, should have done it lame of one

arm. We slept at the chalets of Chapis, 3 hrs. below the summit; a short day, but we did not want to go lower down the valley, and had better have stopped sooner, for the cows were all higher, and we got no milk—nothing but a little very dry bread, some goat's milk, and wine—and slept in the hayloft. Started at 4.30 on a glass of wine; reached top of Col de Nivolet at 6.45—a desperate climb—and some chalets on this side at 8, where we got milk for breakfast; and right welcome, being, in truth, half-starved. Stayed 30 min., and continued the descent towards the Val Savaranche. View from the Croix d'Aroletta most superb. A perpendicular descent of 2000 feet by a mule path, and then about 5 hrs. of level descent towards Villeneuve, except a steep and fatiguing descent into the Val d'Aosta. . . .

To-morrow we start—weather permitting—for the Valpelline, meaning to recross that way into the Valais by the Eringerthal. . . .

August 25.—A morning and day without a cloud. Left Aosta about 7, and reached the village of Valpelline in 2 hrs. 30 min.—a very beautiful walk, turning off from the St. Bernard road, and crossing the stream from St. Rémy near the junction with the other branch from Valpelline. A rich walk, as far as the village, through fields and walnut trees. Victor took us to the house—or *campagne* rather—of a notary of Aosta, where we were received with an excess—or at least a profusion—of hospitality such as I never saw. Coffee in the first place, then, when we could not stop to dine, an omelette for all, with abundance of excellent wine. Found the father, son, and tutor all playing cards together at 10 in the morning to pass the time. Name of my hostess, who has been very and is still handsome, Rosalie Ansermin. House part of an old castle, as shown by the thickness of the walls.

The valley of Ollomont, which leads by the Col de Fenêtre to the valley of Bagnes, turns up to the left here, very narrow. Victor says that there is little ice or snow to cross, which is contrary to the usual statements. From Valpelline upwards the valley is narrow and the ascent pretty rapid. Left at 11.30, and reached the first church-village, Oyace, at 1.10, above which is a tower perched on a rock, a most picturesque object for a long distance below. Up to this village the ascent is very steep. The mountains at the head of the Val Grisanche continually bound the view backwards, while the sides are of the same very steep character as on the side of the Val d'Aosta—a collection of

aiguilles planted upon high precipices. Cultivation extends very high in this valley, which has the afternoon sun all up it, and is desperately hot in a hot summer's day. Reached Bionaz at 2.10; a wretched village, where we got some wretched wine. Indeed, all the Piedmontese mountain villages that I have fallen into on this route are detestable. Hence to Prerayen, 4.10. Rather undulating, but rapid mounting; done slow, however. Larch forests up to Prerayen, and some very fine old trees among them. Passed so many empty chalets that, being tired, I thought the real one never would come. When it did come it was a large one, with plenty of cows, and excellent good people in it, who did all they could for us. The mountain basin belongs to the Jesuits of Aosta, who have built a few chambers over one of the chalets, where they come to spend the hot season sometimes. Dry straw on the floor (their straw) served us all three for lodging, and with good 'couverture' did very well. Supped off polenta, milk, and dry bread; breakfasted on bread and milk—our own bread—with some polenta to take to the mountain; not bad.

A very grand range of snowy mountains at the head of the valley—the nearest the grand range called the Dent d'Erin [d'Hérens], stretching downwards parallel to the Val Tournanche. A pass [Col de Valcornère, crossed by Mr. Malkin in 1860] from these chalets to Brenil in 6 or 7 hours, said not be difficult; it looks very steep; not, however, much glacier. These snowy mountains are seen from low down in the valley, and it is long before you get any nearer to them.

August 26.—Another morning without a cloud. Started at 6, ascending steeply up a side valley to the left [Combe d'Oren]. Passed a group of chalets, dug out of the earth and covered only with loose boards, the only sort of erection which will stand the avalanches, being in truth nothing more than a hole when the boards are removed and piled up. Reached foot of moraine at 7, and on turning it found a large vacant space, or basin, over which the glacier extended about 30 years back. The diminution here has been immense; whether it still continues or not I do not know. On the side of Evolena it reaches nearly to the trees, and therefore is near its greatest size. After crossing a flat we reached the beds of snow at the foot of the glacier, and began to ascend easy slopes at first, afterwards very rapid. Snow hard, and bore perfectly well, almost too hard. After ascending probably 300 to 400 feet we came upon the bare ice, which, however, did not last

long, and after a short ascent we entered upon a broad plateau, like the Grand Plateau on Mont Blanc, terminated by one or two slopes of snow leading to the col. It appeared quite near, but was in truth at a considerable distance. All this part of the route excessively grand. Above to the right is the Mont Collon [more probably the Mont Brulé, 11,881 feet], a grand peak, rounded at the top and forming a perpendicular precipice to the glacier; on the other side a very beautiful mountain [La Sengla, 12,146 feet], rising in gentle slopes, which might be ascended without much difficulty, I should think, and must command a most wonderful view, unless masked by the neighbouring peaks, which are not, perhaps, inferior in height. Reached the Col [de Collon] at 9.10, and rested on a group of rocks at the foot of Mont Collon, where the summit of the passage is marked by a small iron cross, merely stuck into a cleft of the rock, dated 1754. The rust has formed a sort of varnish on it, but has not eaten in the least into the metal. Lichens, and I believe a moss or two. I estimate, with the concurrence of the guide, the height of the passage not less than 9000 feet.* Forbes measured it last year, and will probably somewhere publish an account of this and other heights, which see.† His method is by boiling water, combined with the barometer, I believe. Started again at 9.50. The glacier on this side is more crevassed than on the other, and the snow being softened by the heat, we proceeded with much caution, especially in descending the first slope, a little distance from the top, in which there was a large open gulf, under which we very carefully picked our way, and close to it. The mountains on this side are of the same character as on the other, but I think still grander; the double impediment, however, of a veil and blue spectacles is rather a bore, though very desirable on such a day as this. The passage winds on this side as well as on the other; so that there is never any distant view; this however, though a loss, adds rather to the grandeur of the immediate scene, which, as far as my experience has yet gone, is of the first order of glacier scenery. A little farther down Victor

* Height 10,333 English feet, by Forbes. [According to the Italian map the height is 10,276 feet, while the Swiss map makes it 10,270 feet.]

† [His narrative will be found in his *Travels in the Alps of Savoy*, pp. 273-287. The dedication is dated July 1, 1843, so that the book was probably published while Mr. Malkin was repeating Professor Forbes's 1842 round.]

pointed out the spot where he came last year upon the bodies of two men [more precisely, one body only was found by Forbes's party, the two others having been already recovered. See Forbes, pp. 280, 283], part of a party who in ascending, in the September [October] of 1841, from St. Martin, a village below Evolena, had been overtaken by the *tourmentes*. Five returned; the rest, three in number, perished. We were told at the chalet of Prerayen that they had taken too much *eau-de-vie*, which in bad weather, in the phrase of the master of the chalet, 'coupe les jambes.' The bodies have been removed to St. Martin. They also found two chamois, victims of an avalanche probably, robbed of their horns. A crevassed moraine to pass, and soon off the glacier, i.e. at 11.5, 1 hr. 15 min. from the col, having gained an hour at least on Forbes, who had, last year, great détours to make in order to turn the crevasses. A steep descent, sometimes over rocks, not a vast deal better than those of the Little Colouret, and afterwards sometimes down beds of snow, sometimes on the moraine, sometimes on level snow beside the moraine, in all which, however, we gained much in time and in fatigue on Forbes and [Bernard] Studer, the former of whom, being well versed in moraines, declares this to be the worst that he knows. Got finally off the glacier and its adjuncts and on the turf at 12.30. About level with the end of the glacier are three trees, growing close together, of unusual size. They are the 'pin des Alpes,' the highest tree that grows, called in the Savoyard and Piedmontese patois 'arolle' or 'arolla,' and it is from them that the Glacier d'Arolla takes its name. Gathered a group of fir apples in remembrance of one of the most striking passages that I have ever made, which I mean to take to England. From a little lower the view of the glacier, through larch woods, backed by the high mountains, dividing the valley from that of Bagnes, is very striking. The mountains [Dent Perroc, &c.] which separate this from the other branch [Ferpècle glen] of the Val d'Erin [d'Hérens] are excessively steep and grand—nothing but aiguilles and glaciers; scarce a pasturage, if one, upon them. On the crest there is the most perfect specimen of an aiguille of rock that I ever have seen, as fine as a needle almost [probably the Aiguille de la Za is meant].

The scenery of the valley [of Arolla], down to the point of junction, is very fine, and like that of Zermatt on an immense scale; the sides very high, and the precipices very deep. There is little or no level ground in the bottom—

nothing but a powerful torrent rolling in a very deep-cut bed.

From the pines to the village [Haudères] at the junction of the two valleys, 3 hrs., including a short rest, thence to Evolena about another—neither part done quick. Arrived at 4.30—10½ hours' continual walking, without including about 45 min. rest by the way; but the nature of the descent makes it harder than the number of hours. There is somewhere near the top of the Glacier d'Arolla a practicable path to the valley of Bagnes, which is only separated by one chain of mountains. This path goes round the head of the intermediate valley of Vesonce [? Hérémente], as the Col d'Hérens round the Einfischthal and Turtmanthal.*

The descent to Evolena is not remarkable; and as far as I could judge, in a short morning's walk below, there can be nothing particular in the lower part of the valley. Evolena is a considerable village without an inn; people ill-clad on week days and unused to strangers. The curé would not take us in; and after much difficulty and waiting we got quarters in a house belonging to very poor but obliging people—name Fullonier (one or two l's). Nearly eaten up by fleas, who, however, did not keep me from sleeping. Supped off cheese soup, and an omelette, and poor wine. Paccard and Victor in a loft on the hay—better off than I. Forbes and Studer were obliged to get up at 2 o'clock in the morning in this village, to avoid being devoured.

August 27.—Another glorious day. People flocking in from the mountains, clean and well-dressed, and quite different from yesterday. The church, which is of ample size for such a valley, literally crammed. Women all in the same costume—a low-crowned beaver man's hat with a gay tinsel band round it, scarlet stomacher, white sleeves—looking in the mass very well.

The two Fulloniers—brothers—took a Genevese shopkeeper over the Col d'Erin [d'Hérens] last year, the day after Forbes passed it, and will willingly act as guides. N.B.—They had never been over before. One brother lives an hour and a half higher, towards the Ferpècle [chalets], and is concerned

* [The pass probably meant is the double passage of the Col de Seilon and the Col du Mont Rouge, both old passes known to the natives, but first traversed by travellers on August 17, 1849, the party consisting of Professor Ulrich, Herren Gottlieb Studer and G. Lauterburg, with a Glarus and a Haudères guide.

See Ulrich's *Die Seitenthäler des Wallis und der Monte Rosa*, 1850, pp. 85-90, and G. Studer's *Ueber Eis und Schnee*, vol. ii. p. 275.]

in, or chief proprietor of, the mountain. He accompanied us part of the way the next day, and appears to possess a very intimate acquaintance with his side of the glacier. By the same token he narrowly escaped breaking his neck on it.

Dined off cheese soup again and a chicken, and started at 1 o'clock for the chalet of Bricolla, which we reached a little before 5, having stopped full half an hour at the house of the brother, to give him and his mule time to eat. Took up a quantity of straw with us, for a bed, on the mule. The scenery of this [Ferpècle] branch of the valley is still finer than that of the other; nothing but a ridge of aiguilles divides the two. The ascent is rapid to the foot of the glacier, and still more rapid above it; and the end of the glacier itself is the finest thing of the kind I have ever seen. It is enormously high, and more pure than common, partly forming an abrupt wall at the summit of a rock, partly sweeping down over it. Wood growing very near the bottom, and not much moraine. The path rises very high above the glacier, and is carried along very considerable ugly precipices. The view of the glacier and of the neighbouring heights is superb, commanding to the right the peaks around the Col de Collon, and on the left the Dent Blanche, or Dent d'Erin. This is not to be confounded with the Dent d'Erron or Orron [d'Hérens], at the head of the Valpelline, before mentioned.

Reached the chalet a little before 5, just in time to escape a tremendous thunderstorm, which came up in double quick time from the Bernese Alps. The lightning vivid, and the crash of thunder magnificent; rain and wind very heavy. Chalet very rude, but delicious milk. Slept with Paccard and Victor on our straw in an outbuilding, of which there are several—resembling chiefly a dog kennel, being built and roofed of rough stone, without door or window, only a hole just large enough to crawl in—inside hardly big enough to lie straight. Victor comforted me for the closeness of our quarters by the assurance that 'plus nous sommes gênés moins nous aurons froid;' and certainly I did not find it cold. Got some coffee made in the usual way and delicious new-churned butter. Early to bed, i.e. about 7.30. Storm gone; night promising.

August 28.—A cloudless morning. Guides awoke very early, made breakfast, after which I lay down again till called to start, which we did at 4.30, as soon as light enough to see our way. An hour's walk, without much rising, brought us to the edge of the glacier, which we mounted up

steep slopes of snow, covering probably the moraine, which in common years would be visible. But in no part on this side of the pass did we ever see the ice; it was all one dazzling sheet of pure snow. Last night's rain, frozen on the surface, rendered it more than usually slippery, and great caution was required in crossing the slopes. Last year Victor and Professor Forbes descended from the chalet to the glacier, and had a difficult and fatiguing ascent by the glacier and its moraines, parallel to the course, far higher, which we made easily upon the turf. Our course upon the glacier, still parallel to theirs, across the slopes, south, till we came to a crest of rocks, along which we turned east at right angles to our former course; still parallel to the course of Forbes, who had a difficult and dangerous ascent by the glacier at the bottom of this wall of rocks, of which we traversed easily the top, the heat of the sun acting on the rocks having just melted off the snow a space sufficient to leave room for a man to pass. Traversed this with much care, and at the end dismissed Fullonier, whom we had brought thus far to point out the way by which he returned last year from Zermatt. We were now nearly opposite to Monte Rotta [Mottarotta], a perpendicular rock in the middle of the glacier crested with a precipice of ice, which detaches itself in avalanches, having been about an hour, or rather better, on the glacier. The steepest slopes were passed, and though the ascent to the level of the Monte Rotta, which is left considerably to the right, is steepish, there is never the least danger from slipping, even with the snow frozen, as now. Once upon this level and you have a large undulating plain, with scarcely a crevasse visible this year, rising in rounded slopes to the col—easy and delightful walking. The sun by this time was hot, burning hot on the bare skin, but I never experienced either heat or cold to annoy; the temperature was delicious, with no more than a gentle breeze to temper the heat of the sun. The views on the ascent had been extremely grand; the glacier itself, with its rounded swells of glittering white, with here and there an open gulf, just to remind one that there are such things as crevasses and to be on one's guard, is an object of exquisite beauty. Behind, the vale of Evolena, far in the depths; and beyond the Valais, which was filled with vapour, like a sea of smoke, the Bernese Alps from the Oldenhorn to the neighbourhood of the Gemmi never, however, very distinctly seen. On the left the glacier is overtopped by the superb aiguilles at the head of the Einfischthal, and

the Dent d'Erin or Dent Blanche; on the right a perfect view is commanded of the whole chain which separates the Glacier of Ferpècle (on which we are) from the Glacier d'Arolla. The Glacier of Ferpècle itself divides into two branches [Mont Miné and Ferpècle proper], one of which runs up towards the Col de Collon, and I suspect affords the passage, of which Brantschen spoke at Zermatt, into the Val Tournanche, stopped some time back by the fall of part of the glacier. But the position of this passage is a matter of considerable puzzle to me.* A high chain of rocks divides the two branches of the glacier, on the lower end of which, on a height seemingly inaccessible, is placed a cross, visible from the valley below. The rocks, though scarped on this side, afford a pasturage on the other, and sheep are driven across the glacier, a worse passage seemingly than the Mer de Glace. I should have mentioned that from the chalet and its neighbourhood the parallel parabolic stripes, spoken of by Forbes in his published letters, are beautifully seen, and have a curious and beautiful effect.

The view from the Col [d'Hérens] is indescribable. I believe the reason why it is said that people never see anything from the top of Mont Blanc is that they can give no clear account of it, combined perhaps with a certain indistinctness from the rarity of the air. There is an immensity in the High Alps, when seen from these elevations, which the mind can hardly take in; and after using all your eyes for half an hour you find on the descent that you have but a hazy recollection, and wonder what you were doing on the top not to know more about it. The crest of the pass is in general a mural precipice, topped by ice. About the middle of it is a small point or aiguille, to the west of which we directed our course, Forbes having tried the east side (when he took his observations) in vain the year before. He descended here what seems a vertical wall, and within 15 feet perpendicular of the glacier was obliged to return to the top (a great height, probably 400 or 500 feet) by an impassable precipice of that height only owing to the lowness of the ice. The way, however, was impassable, for there was no getting down to the rocks in consequence of the

* [The Col des Bouquetins is probably meant, which leads, however, into the Valpelline, not into the Val Tournanche, as no direct communication is physically possible between the latter valley and the Ferpècle glacier.]

overhanging snow; * and going some distance to the S.W. we took Forbes's actual course, down a very steep slope of rock, deeply covered with snow, which by this time was soft enough to plunge in mid-thigh deep. Excessively steep, but no real danger, for we could not well fall out of the snow. After a long descent we were warned of our arrival on or at the glacier both by a more easy slope and a suspicious-looking crevasse—no more than a break in the snow, but long. Within a few yards of it Victor sat down, and shot it in a slide upon his caudal extremity; then planted himself firm below, with a good grip on the rope. Paccard, and I followed his example without difficulty.

Being now on the ice, one difficulty was surmounted. From above we had seen the glacier in all its extent, covered wholly with snow, so as only to show here and there large gulfs and the largest crevasses interspersed with bridges of snow. The upper glacier divides itself into two branches, one of which sweeps round under the Dent d'Erron [d'Hérens] and the Matterhorn, the other under the Dent Blanche, the direct course of the ice being impeded by a wall of rocks in the middle of the valley, which maintains the upper glacier at its level and compels it to descend by these two ice cataracts, which of course are impassable. Our way led to the south, guided by a black blunt-pointed aiguille in the chain of rocks, which seemed near at hand, but was in truth distant, and we were besides obliged to make considerable contours to choose the best passages. The snow here very soft and fatiguing to pass, from the effort made in plunging more than knee-deep in it.

I must return, however, to the col, as I see I have only described one half of the view, and that not the best, for the view to the south is far superior to that to the north. For foreground you have the precipice and the deep, deep valley of ice below; to the right the Dent d'Erron [d'Hérens], a sheer precipice on this side rising to a blunt point. In front, and seemingly at hand—for the real distance can scarcely exceed 3 miles—is the giant Matterhorn, going at a leap 8000 or 9000 feet into the glacier below, not with the graceful curve which he shows to Zermatt, but in a dark deep-recessed mural precipice, fringed by the broken edges of the great

* [This passage was forced on September 13 and 14, 1871, by Miss Brevoort and Mr. Coolidge's party on their way to and from the Dent Blanche, and is now known as the Wandfluhjoch (see *Alpine Journal*, vol. v. p. 277; vol. xv. p. 65.)]

glacier which covers his northern flank and extends to the St. Théodule Glacier. Beyond him the great Gorner Gletscher is seen in all its length, rising to the top of Monte Rosa, which is full in front, the Breithorn and Lyskamm hidden by the Cervin. Still to the left is the whole extent of the Findelen Gletscher, rising with a gradual slope to the Weissthor, and flanked by the Strahlhorn, beyond which stretch, still leftwards, the peaked summits and glaciers between Zermatt and Saas. Zermatt is not seen, but the valley of Zmutt, the heights of the Schwarzsee above it, and the Reifelhorn [Riffelhorn] seemed melted, as it were, almost into a plain, though there is little enough of plain about them. We stayed more than half an hour, ate some chicken, and drank some wine. I had not much appetite, but experienced no difficulty, or sensible oppression of breathing, either here or on the ascent, nor either of the guides. Victor said he had not suffered from it even on ascending Mont Blanc, which he had attempted six times and only completed once.

Left chalet at 4.30; edge of glacier, 5.30; level of Monte Rotta, 7.10; col, 7.50 = 3 hrs. 20 min. of ascent. Stayed till 8.30 and reached the crest of rocks [Stockje] forming the second great descent to the Zmutt Glacier at 9.55. Last year this was covered with flowers, a sort of *jardin*; now it presented alternate slopes of snow and rock, with flowers beginning to sprout, of which I gathered a few, unknown to Paccard, of delicious scent. There is no difficulty here till within 100 feet or so of the bottom, where the slope ends in a precipice, down which there is a very steep couloir, by which it is necessary to descend when the glacier, which here is considerably inclined, is in too bad a state to traverse higher. This year, however, by keeping to the left, we got down over slopes without difficulty to the ice, and struck across the glacier in the direction of Mont Cervin, at the foot of which the hard slopes of snow which have descended in avalanches offer a safe track. Saw here a herd of 5 or 6 chamois, who piloted us across, it being the received opinion that there is no danger in following the track of these strange animals across a glacier; and in this short distance I had occasion to see how nicely they chose their way over the best passages, even where the crevasses were covered strong enough to bear them.

By this time we were nearly clear of the snow, and much precaution was necessary, as the snow, if masking a crevasse, would not bear a man. Victor led the way, sounding

before him at every step; but, spite of all our care, Paccard got into a small crevasse—which Victor and I had passed—middle-deep, but was soon lugged out by the rope. Once on the ice all danger was over, for to see the difficulty is to avoid it. Many large crevasses, which it would have cost us trouble to turn, were filled up level with the hard winter's snow; and we made quick way, especially on the lower part of the glacier, which contains hardly a crevasse.

(Extract from a Letter to A. T. M.—Account given by Paccard of this Misadventure.

'He told me of your saving him at a crevasse, which, he said, was bridged over with snow; that you had ropes, which, however, were not attached; and that you, with great presence of mind, thrust the long and stout *bâton*, made out of root, which you carried, under his arm.'

Continuing our course diagonally towards the great buttress of the Cervin, on which the Schwarzsee is situated, we reached the lateral moraine at 12.15, and sat on the stones to finish our chicken and wine. The descent of the second crest had taken from 9.55 to 10.40, some time being occupied in hunting for the best passage, and our shoes so softened by the snow that it was necessary to descend circumspectly. The passage of the glacier to this point, therefore, took about 1 hr. 30 min. Another hour brought us off the ice, which, for a long distance from its extremity, is covered wholly with stones, and on to the turf, very near the place at which our party of ladies descended from the Schwarzsee three years ago; kept down the right side of the torrent through the magnificent forest of larch and the 'Pin des Alpes,' and thought the valley even more glorious than the last time—more full of subjects for the painter—perhaps because one was glad to return to mother earth after so long a sojourn in the neighbourhood of the skies. Instead of crossing the high bridge, which has been rebuilt, Victor says, still higher than before, we kept all the way on the right bank, for the sake of the shade—a magnificent walk, with deep precipices, covered with larch, going down to the torrent—not a walk for a dark night. This may be rather longer, but it is more beautiful than the way over the bridge, on the other side of the valley. After a long and rapid descent we fell into the way from St. Théodule, and reached Zermatt, right glad, at 3.15.

Left chalet, 4.30; entered glacier, 5.30; top of Monte Rotta, 7.10; col, 7.50 = 3 hrs. 20 min. ascent without stopping

more than to breathe. Left col, 8.30; top of second descent, 9.55; bottom of it, 10.40; moraine under the Cervin, 12.15; reached the turf, 1.30; Zermatt, 3.55 = 6 hrs. 15 min. of descent. Total, 9 hrs. 35 min. of going.

Inn at Zermatt much improved by the new building; * no meat, but soup, omelette, rice and potatoes, and stewed plums made a good dinner—not too inflammatory. Saw the Oran, who grinned with pleasure, and turned up his eyes when he heard whence we came. Engaged him for to-morrow for the Weissthor. Saw an eagle on our descent for the first time, far below us, on the second chain of rocks.

August 29.—Saw Brantschen, and questioned him as closely as I could about the Weissthor, which he avers to have passed, with another guide and an Englishman, some years ago. Says that the passage is not very difficult when the snow is not too hard, which I interpret to mean that there are very rapid slopes to descend on the side of Macugnaga.

Started at 2 and reached the village of Findelen in rather less than 2 hrs., easy walking. A splendid evening. Passed the time very pleasantly till sunset, supped in a clean chalet, and went to sleep in a grange with the guides on heating hay—not so pleasant. Got well through the night, however.

August 30.—Another cloudless morning. Up long before light; made coffee, and started at 4, before Orion had paled his fires and before there was good light to walk by. This, however, soon amended itself. Came fairly abreast the foot of the Findelen glacier in 30 min. It is of great height, and has considerably retrograded, as the bare space at the end of it testifies. The ascent continues in a deep valley between an old moraine and the mountain, and after some time mounts and is carried along the top of the moraine, which is now covered with a scanty vegetation and distant by a considerable interval from the ice. About 2 hrs., or rather more, brought us to the foot of a black rock, bordering the

* [The change is thus described by M. Desor in his *Excursions et Séjours dans les Glaciers*, 1st series, 1844, p. 114: 'Depuis lors' (his first visit in 1839) 'la petite maison du docteur de Zermatt a fait place à un grand et bel hôtel où l'on est fort bien logé, dit-on. La cuisine s'est singulièrement perfectionnée; on y dîne confortablement et le mouton n'est plus le seul et unique mets. Mais comme balance de ces agréments on a—des touristes!']

glacier, which there was some difficulty in passing, the glacier being too crevassed to traverse. This gave occasion for some very pretty scrambling between the two. Soon after entered fairly on the glacier, which is here none of the best—in short, to use a favourite expression of the guides, ‘bien mauvais.’ The snow, however, was very hard and bore us well across the crevasses; and it was not long before the difficult region was crossed, and nothing remained but a series of undulating swells to surmount, free from crevasses and danger. Little fatigue, except from the increasing rarity of the air, by which Peter was very considerably knocked up; neither Paccard nor Victor felt at all affected. The direction lies very close to the Strahlhorn, which rises immediately from the edge of the Col towards Macugnaga. Opposite is the peak of Monte Rosa, for it is this point, and not the more massive one nearer to the Lyskamm [=the Twins], which is considered to be the summit. Nothing can be grander than the scenery of the glaciers, and it is remarkable to see how even the Cervin himself from this height loses a good deal of his imposing proportions. The Col d’Erin still maintains itself on a level, or nearly so, but we agreed in thinking the Weissthor a little higher. [According to the Swiss map the New Weissthor is 11,959 feet high, and the Col d’Hérens is 11,418.] From the summit the view is most superb, finer even than that from the Col d’Erin. Beneath a deep and impassable precipice, extending from the Strahlhorn to Monte Rosa, crested this year with an overhanging drift of snow, probably from 25 to 30 feet in height. About the middle of the col is a rock, which rises to some height above the passage; the sun had melted the snow at its extremity and left the black points bare, while above it rose an enormous billow of snow, curling over, as if ready to break, to the height, I should guess, of 80 to 100 feet. I never beheld so singular and beautiful an object. Deep below the great glacier of Monte Rosa, with the ridges of the Pizzo Bianco sweeping round it, white and polished as the silver horn of the Jungfrau, the glacier itself tossed into enormous hills of snow, and these undermined by deep caverns of ice. The valley of Macugnaga and of Turloz are down deep out of sight, as is also the Lago Maggiore, for the intervening range of mountains rises to a great height, and though the plains of Lombardy must, I have no doubt, be visible, they were hid by the vapour, which by 9 o’clock was curling up

from the village below. It is a view difficult to take in, more difficult to describe, but not to be forgotten.

Reached the top in 4 hrs. 45 min.—not quick walking—from the chalets, which are little more than 1 hr. 30 min. from Zermatt. It might, therefore, be done in a day by starting very early. But it is very desirable to be early on the glacier, the lower part of which is none of the best. But for so great a height it is an easy ascent.

Passed the traces of many chamois, but saw none, also the traces of several wolves, on their way apparently to the Italian valleys. Several sheep had been worried lately; and a meeting took place between one of these animals and a chamois hunter on the mountain above the chalets, when both were so frightened that they ran away—the hunter without firing.

Returned to Zermatt by a different route, traversing the broad plateau of ice which intervenes between Monte Rosa and the Strahlhorn to the edge of the ridge which forms the prolongation of the Reifel. The highest point of this is called the Stockhorn, I think; it forms a blunted pyramid of little height above the glacier, and from this point a continued line of rocks bounds the Gorner Gletscher to the Reifelhorn and below. These heights are now covered with snow. Leaving the Stockhorn on the right, we gradually descended to the level of the glacier, which we reached without difficulty (the rocks here being far less steep than on the Col d'Erin) in about 3 hrs., of which the half was occupied in traversing the high plateau. No difficulty, and few crevasses occurred in this route; and, if no very great difference exist in other years, I should recommend the descent to be always made by this route, as, even in case of the Gorner Gletscher being bad to traverse, there can never, I think, be any difficulty in descending along the ridge of the Stockhorn and Reifel. The power of crossing the upper plateau, however, must always be left to the consideration of the guides. About an hour of the Gorner Gletscher, after which we began again ascending by the rough path towards the Reifelhorn, which we passed, and descended to Zermatt in about 2 hrs. after quitting the ice. This route is longer by an hour than the other. Total, near 11 hrs. going—i.e. 4 hrs. 45 min. ascent, 6 hrs. descent.

I think the question of a pass to Macugnaga is settled. Brantschen and Damatter both assert they have passed it—the former with a traveller and another guide, the latter with two fellow countrymen. Damatter pointed out the

way, which is immediately round the corner of the Stralhorn, on a narrow shelf of rocks, and, as far as I could see—not very far—it did not appear very difficult. But this year it was unapproachable, on account of the curling drift of snow, which overhung all the crest of the pass. The unseen descent may be very difficult. Victor had reconnoitred it from Pedriolo, and could not make out how or where it was to be made.*

August 31.—Another cloudless morning. Inn at Zermatt improved: better wine, cooking; and new rooms built, excellent bed, and altogether quite comfortable.†

(*To be continued.*)

NEW EXPEDITIONS IN 1889.

Mont Blanc Group.

PIC OR AIGUILLE DU TACUL.—This was ascended three times in July last from the Glacier de Léchaud by a small tributary glacier, which has for its southern boundary the ridge on which the Capucin Rock is. This glacier is called by the authoress of 'The High Alps in Winter' the Glacier du Capucin. From the *bergschrund*, at the head of it, the route is straight up the rocks to the peak, without touching the snow couloir leading to the Col du Tacul, described in the abovenamed book. About 6 hrs. from the Montanvers suffices for the ascent, and the descent may well be made by either of the well-known routes. This variation, which does not seem to have been recorded, is strongly recommended, as both the glacier and rocks, without being difficult, are decidedly of a more interesting nature than those leading direct from the Lac du Tacul or by way of the Glacier des Périades; it also affords a greater variety of scenery, including a near view of the Capucin Rock.

The first of these ascents was made by Messrs. J. W. Wicks and E. W. Henderson on July 19.

* [It may be well to recall here that Mr. Malkin, in his notes sent to these pages in 1880 (see *Alpine Journal*, vol. x. pp. 44, 45), points out that Damatter's route would have led to Mattmark and not to Macugnaga. Dr. Schulz thinks that this pass lay further to the south, and would have led to Macugnaga (*S. A. C. Jahrbuch*, vol. xviii. p. 179), but Mr. Conway's view (*Alpine Journal*, vol. xi. p. 202), that it was really the Rofel Pass, seems to be the true solution of the puzzle.]

† [Mr. Malkin sent a revised copy of his notes on the passes he crossed in 1843 to the third edition of Murray's *Handbook for Switzerland*—published in 1846—and it is well worth while comparing the two versions, which correct and supplement each other.]

Dolomites.

CIMONE DELLA PALA (10,450 feet).—On July 22 Messrs. H. H. West, A. C. O'Sullivan, and G. Scriven, accompanied by Michele Bettega and G. Zecchini, of Primiero, left San Martino at 2.15 A.M. and followed the path for the Cima di Rosetta till 3.45; bearing then to the left, they reached a small col to the N. of the Rosetta pass at 4.30, and the rocks below and to the N. of the Travignolo pass at 4.45, where they halted till 4.55. Climbing these rocks, which are everywhere easy, they arrived at 5.45 on the small snow plateau on the W. face of the Cimone della Pala, which is just visible from San Martino, and lies below two conspicuous rock towers on the S. arête. Here they halted for breakfast till 6.20, and then climbed round the base of the second (or northern) tower on to the E. face of the Cimone. Here the rocks are very rotten, owing apparently to the presence of iron, which seems to be percolated through the Dolomite by water, producing the patches of bright red colour, so conspicuous on some of these peaks. (Croda Rossa exhibits this remarkable phenomenon in great perfection on the precipice facing Schluderbach, where it has been suggested that a giant pig might have been killed, so crimson are the stains. On this mountain, too, the corroding effects of the iron-saturated water are very apparent in the production of some extremely crumbling rocks.)

Traversing the E. face horizontally for a short distance, they soon saw on their left the deep nick in the S. arête (conspicuous from San Martino) whence Herr Darmstädter (who had made the first ascent* by this route a few days before, and had very kindly given full instruction to Dr. Scriven's party) had climbed to the crest of the arête. Owing to some misunderstanding they passed this little col and, continuing across the E. face of the mountain, came to a narrow rock gully running up towards the arête, and of most tempting appearance at first sight. They found, however, that it was completely filled with ice, and that much time would have to be spent in attempting to ascend it. Probably, later in the season, when this gully would be free from ice, it would prove the shortest and safest way of gaining the S. arête. Finding this route impracticable, there was nothing for it but to make the best of their way up the precipices of the E. face. Here, for more than 2 hrs., they scrambled up very steep rocks of various degrees of rottenness, peppered over so thickly with loose stones, that it required extreme caution to avoid dislodging showers on the heads of those below; for, from some mysterious reason, Michele insisted that all five should be together on the rope, a fashion by no means conducive to comfort in such a place. At last, to their great relief, they reached the arête at 8.50, and at 9.15 stood on the summit. Here, as usual in the Dolomites, a delightful hour was spent; though distant views were much obscured by mist, beautiful glimpses of the San Martino valley were to be caught, and the eye seemed to look down the chimneys of the hotel.

* See p. 161.

In descending they determined to follow Herr Darmstädter's instructions better, and accordingly kept along the arête to the edge of an almost vertical rock-wall, which faces S.E. and descends to the little col passed in the morning. Here Zecchini, who was leading, spent a long time in searching for a way down the rocks, which he at length found; and by the aid of 120 feet of rope they descended, one at a time, to the rocks just below the W. side of the col. Michele, who came last, had great trouble in getting down safely, though minus his boots, as the last 20 ft. was very difficult. Each of the party was 7 min. in descending this 120 ft. of rock, which is decidedly the most difficult part of the route, though by no means so dangerous as the E. face. The little col was left at 12.50, the San Martino side of the Cimone reached at 1.10, and the hotel at 4.10 P.M.

Norway.

GJURATIND FROM EIKIDALSVAND.—This fine peak, which was first ascended by Mr. W. J. Napier, in 1884, from the Isfjord side, was climbed for the first time from Hoem on Eikidalsvand by the Rev. F. M. Beaumont, and Messrs. A. Bill, R. B. Caldicott, and R. A. Rotherham, on July 29, 1889. The ascent was made by the southern arête, which gave some good climbing.

They were delayed by mists, and obliged to descend the same way, but it would be easy to descend either to the Isfjord or to Utigaard. Aslak Overaas (from Overaas) and Christopher Vike (from Vike) accompanied the party, and will both make excellent guides.

Kristian Vike (from Overaas), a lad, who asked to come for pleasure, was also with them, and climbed very well.

ALPINE NOTES.

LEPONTINE ALPS.—Mr. Archibald J. Mackey writes, 'It was my good fortune, in company with my friend Mr. H. F. Dickens, to spend a few very fine days in August last in walking from the falls of Tosa, by way of the Neufelgin pass, the Colle di Vanin, Alpe Devera, and Alpe di Veglia, to Isella, on the Simplon route. It is a beautiful and interesting walk, well suited to the middle-aged pedestrian, but too long for such a person to accomplish in one day. We therefore—I at least belonging to the class of walkers just mentioned—spent the night at Al Ponte, on Alpe Devera, a spot of great beauty in itself and surrounded by alps more beautiful than any I know elsewhere. Al Ponte would be a delightful spot for a sojourn of some days or weeks for ladies and others who are not ambitious of doing high work, but still want walking. Even the "emeritus" division of the Alpine Club would, I think, find plenty of moderate and interesting climbing in that district among the mountains which stretch from the Ofenhorn to Monte Leone; but, alas! there is no comfortable hostelry. Baedeker, in his latest edition, stars an inn at Al Ponte, but after spending a night there we felt justified in writing to Herr Baedeker and telling him

that by starrng the house, or rather cabin, he might be misleading people into the belief that they might get comfortable accommodation there, to their serious inconvenience. The inn was apparently a four-roomed building, if one may dignify the various compartments of it by the name of rooms. There were two double-bedded rooms, shabby and mean in the extreme and not altogether clean, while on the floor below them was, on one side of the passage, an ill-furnished kitchen, and on the other a room with a fixed wooden table, and two forms and an open fire-place. In fact, it in no way differed from the kitchen, except that it was not used for cooking. The fare was coarse and scanty. The host was very civil, and did what he could for us as far as his small means permitted. The accommodation of another sort was filthy. What is wanted is a clean, comfortable inn, not an hotel. Is it possible to get the Italian Alpine Club to take the matter up? Alpe di Veglia is also a pretty spot. There is an inn there (Roja's, I think), better than Al Ponte by many degrees, but nasty in sanitary matters and wanting even in the least luxurious description of furniture. Hardly could a lady stay at Alpe di Veglia. But perhaps things will be altered *there* some day, for, unless I mistake, the Simplon Tunnel is to have its Italian mouth there, so that first there will be a navvies' encampment and town; then, when the railway is open, several fashionable hotels, with lawn tennis and golf and theatricals, &c.; and, lastly, it will be the haunt of the personally-conducted. But Al Ponte should have a better lot.'

WINTER ASCENTS.—On Feb. 27 the first winter ascent of Piz Palu was made by Mr. W. H. Bulpett and Mr. J. H. Wainwright, with the brothers C. C. Grass and H. C. Grass as guides. Leaving the Bernina Häuser at 3 A.M., they reached the summit of the E. peak at 3 P.M. As it was then too late to traverse all the peaks, they returned by the same route, and regained the Bernina Häuser at 8.45 P.M. There was much step-cutting and some difficulty with the crevasses, which were very open. The weather was fine, but intensely cold all day, with a bitter wind.

A few days previously the same party (with the addition of Mr. Sandeman) crossed the Diavolezza, which they found almost as easy as in summer—taking, with long halts, less than nine hours from the Bernina Häuser to the Morteratsch Restaurant.

WE are informed that Mr. W. M. Conway proposes to issue, in time for the forthcoming Alpine season, the first portion of a new edition of 'A Climber's Guide Book,' intended to replace the 'Zermatt Pocket Book.' The new guide book will be in two volumes, similar in form and size to the 'Zermatt Pocket Book.' The first volume, which is about to be issued, will describe all ascents and passages of peaks and passes lying between the Great St. Bernard and the Theodul Pass. The second volume, to be issued next year, will cover the area between the Theodul and the St. Gothard.

THE WEISSMIES AND THE FLETSCHHÖRNER.—There has been a great deal of confusion about the names and heights of these peaks, so that the publication of sheet 504 (Simplon) of the Siegfried map—which finally settles the question—may serve as an occasion for giving to the

world the following table, in the hope that it may be of some use to those investigating early Alpine history. The peaks are enumerated in order from south to north.

—	Old names	Dufour map	Swiss Alpine Club map	Siegfried map	Names current in 1876 ('Alpine Journal,' vol. viii. p. 151)
1	Laquihorn * (12,431 Swiss feet) Laquinhorn † (? 4,038 mètres)	Weissmies (4,031 mètres)	Weissmies (4,031 mètres)	Weissmies (4,031 mètres)	Weissmies
2	Grouped under the name	Fletschhorn (4,016 mètres)	Laquinhorn (4,061 mètres)	Laquinhorn (4,005 mètres)	Laquinhorn (Simpeln) Fletschhorn (Saas)
3			Fletschhorn (Rossbodenhorn) (3,917 mètres §)	Fletschhorn (4,001 mètres)	Fletschhorn (Simpeln) Rossbodenhorn (Saas)
	Fletschhorn ‡ (12,395 Swiss feet, 4,025. and 3,917 mètres)	(3,988 mètres)			

The names by which they are ordinarily known to mountaineers are:—(1) Weissmies; (2) Laquinhorn; (3) Rossbodenhorn.

THE POINTE DE BASEL AND THE COL DE LA TSANTELEINA.—When describing certain excursions in the Graian Alps which I made on August 29 and 31 last, || I expressed some doubt as to which of two peaks near the Col de Rhêmes had been climbed by Signor Troya's party on August 7, 1881, and I also claimed to have made what was apparently the first passage of the Col de la Tsanteleina. Signor Troya has published, in the February number of the 'Rivista Alpina Italiana' (pp. 73-5), a long letter describing his route in 1881, and his statements make everything clear. Coming from the direction of the Col de la Goletta, he made that day what is undoubtedly the first complete traverse of the Col de la Tsanteleina, though I may plead in my defence that until his letter, dated February 12, 1890, no mention of or claim to this expedition had ever been made—at least publicly—by him. He then circled round the N. foot of the peak 3,446 mètres (Italian map) or 3,443 mètres (French map) to the Col de

* See Müller's panorama, as reproduced on Engelhardt's map, and the latter's 1852 book, *Das Monte-Rosa- und Matterhorn-Gebirg*, pp. 50, 181, 195.

† Ziegler's name and Berchtold's height (*Peaks, Passes, and Glaciers*, First Series, pp. 202, 521).

‡ For the names see the above references, that in *Peaks, Passes, &c.*, p. 521, supplying the further information that Studer names it the Laquinhorn. The heights in Swiss feet are taken from Müller and Engelhardt, those in mètres from Berchtold (*apud Peaks, Passes, &c.*, p. 521).

§ These figures do not seem to refer to quite the highest point, which has none at all.

|| See *Alpine Journal* for November last, pp. 489, 490, 492.

Rhêmes, whence, by very much the same route as I described—viz. up the E. face to the N. ridge—he ascended that peak (my Pointe de Bazel) which lies W. of the col, returning to the pass by the same route, but having left only a few stones heaped together on the summit—scattered, no doubt, by the winds long before 1889. I gladly, therefore, give publicity in these pages to the facts that the first passage of the Col de la Tsanteleina and the first ascent of the peak W. of the Col de Rhêmes (which I propose, for reasons I have given, to name the Pointe de Bazel) were made by Signor Troya on August 7, 1881. I may, perhaps, be allowed to add that his description of the nature of the ground on both expeditions seems to me to be somewhat inaccurate, and I say this not merely on the ground of my recollections of 1878 and 1889, but of photographs taken in 1889 by my friends M. Henri Ferrand and Signor Bobba, now lying before me. The glacier on the W. side of the col is *not* 'horribly crevassed,' while the slope on the E. side is of very moderate inclination and the couloir is non-existent. I also fail to understand why Signor Troya, who had made the ascent of the peak late in the afternoon, and was desirous of rejoining his friends on the pass as soon as possible, did not save time by descending the gentle snow slopes on the N.W. flank (down which we went), and then round back to the col, particularly as he had been able to study them attentively on the way from the Col de la Tsanteleina. Nor is it intelligible why he took the long route to the Soches chalets along the Ghiacciaio di Centelina, at the E. foot of the Granta Parey wall, instead of the direct and short route from the Col de Rhêmes, which we took up and down on August 31. As to Signor Troya's statement that he had not the time to climb the peak E. of the col de Rhêmes, and besides thought it looked too difficult, it may suffice to say that on August 29 I took $1\frac{1}{4}$ hour from the col to the peak W. of the col, and on August 31 40 minutes from the same col up the lower peak to the E. In neither case were there any difficulties, but the latter ascent was both shorter and easier than the former. I think it best to make these remarks, in order to avoid any confusion in the future, as the so-called difficulties are not any more likely to disappear than they were to appear, the glaciers there being very gently inclined and not subject to any violent alterations.

I have only to add that I am quite unable to accept Signor Troya's nomenclature. He rests it on the alleged fact that the Col de Rhêmes of the Italian Government map is known to the natives of the Val de Rhêmes as the Colle di Calabre, and then draws the natural conclusion that the peak to the W. of the col should be called Punta Calabre. In my notes already referred to I have discussed the whole question of the names of the peaks and passes of this ridge, and while not in the least wishing to force them on anyone I still think my conclusions are more reasonable in themselves, and better supported by historical evidence, than those of Signor Troya, from whom I beg leave to differ respectfully and good-humouredly, but quite decidedly.

The following slips in my notes should be corrected:—On p. 490, line 5 from top, for 'N.' read 'W.,' and on p. 493, line 28 from top, for '3,341' read '3,457, the lowest point of the ridge.' W. A. B. COOLIDGE.

THE ACCIDENT TO MR. WATSON ON THE BILDSTÜCKL JOCH.—The date of this misfortune seems to be somewhat uncertain. Mr. C. E. Mathews put it at 1865 in his paper entitled 'The Alpine Obituary.*' In the following number of the 'Alpine Journal' I corrected this to 1860, † my information being derived from a very good authority, and being, I believe, quite accurate. I was much pleased to find Mr. Butler adopting 1860 as the date in his paper on the Oetzthal, ‡ and flattered myself that he had seen my correction, so that I was much surprised to see that in the February 'Alpine Journal' § he corrected it back || to 1865. I understand that my correction had escaped his notice, and I am led to repeat and endorse it by the fact that Signori Fiorio and Ratti in their recent work, 'I Pericoli delle Alpi,' which displays an exhaustive knowledge of the literature of their subject, have also overlooked it (see leaf of errata at the end of the volume), not having been able to discover whence Herr Emil Zsigmondy had obtained the date 1860, which I believe to be the right one.

W. A. B. COOLIDGE.

CORRECTIONS.—Some errors, not perhaps of a very important kind, but still inconsistent with absolute accuracy, have been pointed out in two of the 'Alpine Notes' of the February number. The Editor regrets that these should have occurred, and takes this opportunity of reminding those who are good enough to contribute to this portion of the Journal that they no longer have to deal with a living encyclopædia of Alpine dates and facts. He begs, therefore, that correspondents will verify these matters so far as they can, or will notify him when they have been unable to do so.

The points to which attention has been drawn are these: Mr. W. E. Corlett writes, with reference to Mr. R. F. Ball's ascent of Sgurr-nan-Gillian (p. 71), to say that, though one of the party who traversed the ridge and climbed the tooth in August, he can lay no claim to be the first who made that expedition. 'The route to the top of Sgurr-nan-Gillian by the gully between the two highest peaks, and thence along the west ridge to Bealach-am-Bhasteir, was climbed by Sheriff Nicolson many years ago. . . . The ridge from Sgurr-nan-Gillian to Bealach-am-Bhasteir was descended by Messrs. Stocker and Parker in 1886.'

The other correction is made in the 'Rivista Mensile' of the Italian Alpine Club, vol. ix. p. 119, and refers to the ascents of the Vernel, which in Capt. Utterson-Kelso's note (p. 79) seem to have got a little mixed. The first 'touristic' ascent was made by Herr Merzbacher and Signor Tomè, with B. and G. Bernard, in 1879; Herren Zsigmondy and Purtscheller went up without guides in Aug. 1884; and Herr Euringer, with B. Bernard, a few days later. We may add that, from the account given by Herr Merzbacher ('Zeitschrift des D.Oe.A.V.' 1880, Heft 2, p. 314), it seems doubtful if G. Bernard had previously been to the top.

* *Alpine Journal*, vol. xi. p. 87.

† *Ibid.* vol. xi. p. 192.

‡ *Ibid.* vol. xiv. p. 457.

§ *Ibid.* vol. xv. p. 100.

|| [An inadvertent and over-hasty following of Mr. Mathews. There is no doubt whatever that the true date is 1860, as a reference to the *Annual Register* for that year will show.—A. J. B.]

REVIEWS AND NOTICES.

The Flora of Switzerland, for the use of Tourists and Field-botanists. By A. Gremli. Translated from the fifth edition by Leonard W. Paitson. (London: David Nutt, 1889. 8vo. Pp. xxiv, 454. Price 7s. 6d.)

THIS book by Herr Gremli (originally issued in 1867) is well known to all who take an interest in Swiss botany, for it popularises the results of many special researches, and arranges them in a very convenient fashion for summer travellers and others who are not specialists. The sixth German edition has now appeared, and Mr. Paitson (who dates his preface from Davos) has translated the fifth, incorporating many later additions and corrections made by the author himself in the 1885 French translation, and in another work of his. A short introduction describes the main features of the Linnean and 'Natural' systems, and the outline of the arrangement according to the latter scheme which has been adopted in the book. Then come tables for determining the genus (forty-nine pages) and the species (385 pages) of any plant which may be gathered, while an appendix enumerates those which are not now to be found, or only doubtfully, in Switzerland. A full index completes this very handy edition of a standard book, which, we may mention, does not contain a single illustration or diagram from beginning to end. It will probably be used by many travellers, who will be very thankful to the author and translator for all the pains they have taken to produce this portable volume, which, according to the title-page, was printed at Zürich.

Winterbilder aus der Schweiz (La Nature Suisse en Hiver). (Zürich: Orell, Füssli & Co. 1889. 64 francs.)

The contrast between winter in England (at least in the midland and southern counties) and winter in Switzerland has been dwelt on repeatedly. It is now admitted by everyone that, while the higher mountains in Switzerland lose much of their picturesqueness in winter and are much dwarfed, the valleys at their feet gain much, particularly in the way in which the frosted pine-trees and buildings are relieved against the white expanse around them. Thus trees, and to a certain extent houses, are the most striking feature in a winter's view, and they form the principal objects in the very beautiful series of thirty-two views before us. They are enclosed in a sort of portfolio bearing the simple title transcribed at the head of this notice, and represent various scenes in the cantons of Zürich, Glarus, and Graubünden. Some represent roads winding through villages, and everyday events in their winter setting; others bring before our eyes the monarchs of the forest, silvered with the snow which weighs down their branches, and standing out grandly against the pale blue winter sky (*e.g.* 13, 14, and 15); others again show us gaunt rock faces encrusted with snow, which bring out the fissures and wrinkles in them. The distant views in the Engadine and the portrayal of waterfalls seem less successful than the others. No. 24, a chalet near Davos, is very pretty, and so is the tangled Glarus forest with the glimpses of sunshine shown in Nos. 30 and 31.

As a whole, the series seems the best collection of winter views that we have yet come across, reproducing the very startling and vivid contrasts of light and shade, while the inevitable monotony of a uniform white surface is agreeably diversified by some figure or building, and the marvellous brilliancy of the sky is excellently rendered. Those who know Swiss scenery in winter will recognise the truth of these prints (which it should have been stated are reproduced in colours), while to others they will convey part of the indefinable charms of a winter in the more alpine parts of Switzerland.

Zeitschrift des Deutschen und Oesterreichischen Alpen-Vereins, vol. xx. 1889.

This volume is larger than any of its predecessors. It extends to no less than 556 pages, of which the larger half has but little to do with mountaineering, though relating to the Alps. This is a source of congratulation to those who regard the earlier stage of devotion only to mountains and glaciers as the glacial period and rejoice that the dwellers in the Alps are receiving at last some attention. Let us pass from the late to the early period. Thus Dr. Freiherr v. Stengel writes on 'Alpine Economy and Tenant Right' more with the object of suggesting modes of collecting materials than of fully discussing so complex a subject; Carl Freiherr v. Gumpenberg on the 'Drama' amongst the peasants of South Bavaria and Tyrol. These performances seem to have been formerly much more common. As we find them now at Oberammergau and Brixlegg, they can only be regarded as survivals, and would probably ere this have disappeared, but for the attention and curiosity of tourists. Professor H. v. Ritter writes on 'Music in the Alps'; Dr. R. Wehmer on the treatment necessary in case of illness or accident in the mountains; a kind of ambulance lecture which all might study with advantage; Dr. Heinrich Noë on 'Bathing Establishments in Tyrol and Carinthia.' Those who are only acquainted with the modern luxury of Levico or the Brenner will be surprised to hear that there still exists a 'Bad' where the patients have themselves to heat the water by placing hot stones in it, and that the virtue resides in these stones, which are of a species of *Grauwacke*. This is the Karlsbad (1700 metres=5577 feet), under the Königsstuhl in the Murthal.

We now leave the inhabitants and come to natural phenomena. Three articles are devoted to meteorology. Herr F. Auerbach writes on 'Weather Stations'; Herr J. Hann on the 'Meteorology of the Sonnblick'; Herr A. v. Obermayr on 'Electrical Displays' (*Elmsfeuer*) in the Alps. Austria has the greatest number of mountain stations, the highest, and the oldest. That on the Hoch Obir (2141 metres = 7020 feet) was established in 1846, though only completely fitted up in 1879. The highest in Austria is that on the Sonnblick (3100 metres = 10,165 feet), which was built and fitted up in 1886 at a cost of nearly £500. Twelve instruments have to be observed three times daily, though some of these are self-registering. The height of this observatory has afforded great facility for observing the displays of electricity which occur frequently in these elevated regions. The highest station in

Switzerland is on the Sentis (2503 metres = 8215 feet), opened in September 1882. This cost £2,400, and is kept up at an annual cost of £280. The highest in France is on the Pic du Midi du Bigorre (2877 metres = 9373 feet). This is the most expensive and elaborate of all the stations, having cost £12,000, and involving an annual outlay of £1200. It is accessible by a good road, whilst that on the Sentis can only be reached by a mule track, and that on the Sonnblick only on foot with difficulty. The still more elevated station on Pike's Peak (4300 metres = 14,100 feet) has been abandoned. All these high stations, including that on Ben Nevis (1883), are of too recent a date to give any valuable results.

Herr M. Neumayr takes us over much old ground on the subject of 'Mountain Eboulements.' However great are the disasters of later times, they seem to have been much surpassed by prehistoric cases. Thus the débris of the fall at Goldau is estimated at 10,000,000 cubic metres; that at Elm at 15,000,000; and that of the Diablerets at 50,000,000; whilst the débris of that of Flims extends in breadth from the 'mayens' of Flims to Versam, and in length from Ilanz to Bonaduz, and its mass is estimated at 15 cubic kilometres (15,000,000,000 cubic metres). Herr Ratzel writes on the 'superior limits' of natural phenomena in the Alps. Dr. Carl Moser describes the ice-caves of the Tarnovaner and Birnbaumer Wald. Herr F. Seeland contributes another chapter (No. X.) to his study of the Pasterze Glacier. Prof. E. Richter reviews the Alpine literature of the past year. Dr. H. Finkelstein introduces us to the group of the Mte. Fresone (2673 metres = 8769 feet) lying E. of Breno, between Val Canonica and Giudicaria; Herr Julius Pock to the little-known districts of the Mte. Lessini (13 Comuni). Both the regions here described are almost completely unknown to tourists.

Herr Otto v. Pfister having lost his favourite guide, Kederbacher of Ramsau (who has undertaken the charge of the Watzmann Haus), had to content himself with a tour between the Ill and the Inn, in the course of which he ascended the rarely visited Hennenkopf (3033 metres = 9951 feet), between the valleys of Samnaun and Paznaun.

The new hut erected by the section Amberg in the Sulzthal (Oetzthal) enabled Herr Pallocsay to effect the first ascents of the Schwarzwanter (3066 metres = 10,059 feet), of the Weisskogel (3282 metres = 10,768 feet), and others. Dr. S. Finsterwalder in the course of his measurements of the Vernagt Ferner made several new ascents, amongst which were that of the Hintergrasls Spitze (3325 metres = 10,909 feet) and the Platteikogel (3428 metres = 11,247 feet). Dr. Ludwig Darmstädter made some interesting ascents in the group of the Geissler Spitzen (Grödenthal), particularly that of the Gran Odlä, and an attempt on the very difficult 'Punta delle cinque Dita.' In these the guide Stabeler of Pfersch especially distinguished himself. Dr. W. Strauss, in 1886 (September 7-14), ascended four of the principal summits of the Bernese Oberland with the guides Kederbacher and R. Kaufmann. Considering that all these are ascended by well-known routes, he seems to have met with exceptional difficulties, due partly to the time of year when the ascents were made. Herr R. v. Lendenfeld

relates an excursion in the Alps of New Zealand, in 1883, with an ascent of the Hochstetter Dom (2840 metres = 9317 feet), the only high summit of these Alps ascended up to that date, though Mr. Green, in 1882, nearly attained the summit of Mount Cook. Bergschrunds of enormous size (*e.g.* 70–90 yards wide, with the upper edge 40 yards above the lower) formed the greatest difficulty the party encountered. Perhaps the most interesting paper is the account of the tour of Dr. Carl Diener and Herr Ludwig Purtscheller in the Val de Bagnes in July 1888. Along with the guide Preiz (Punz), of Ramsau, and without any local guide, they made from the Hôtel Gétroz (2150 metres = 7050 feet) seven ascents in eight days. Several of these were, both as regards ease and difficulty, in marked contrast to previous ascents. The concluding and most arduous expedition was the ascent of the Grand Combin by the Col du Sonadon, and the Combin de Valsorey. Leaving the Hôtel Gétroz at midnight on July 29, the Col du Sonadon was reached at 5.30 A.M., and the final rocks of the Combin de Valsorey at 9 A.M. These were in the worst possible condition, every hollow and crevice being filled with fresh snow, whilst a raging storm hardly allowed them to advance. More than an hour was spent in the passage, and the Aiguille du Croissant was then reached at 11 A.M. Here the storm allowed them to remain only a few minutes. Wishing to avoid the rock passage, they endeavoured to circumvent the Combin de Valsorey and descend to the Col des Maisons Blanches, but were driven back. The descent of the rocks (though not much exceeding 100 metres) took 1½ hour. The Col du Sonadon was reached at 4.10 P.M., and the Hôtel Gétroz at 10.30 P.M. In all these ascents Herr Purtscheller was the leading spirit, and his study of the Alpine literature of the district was more complete than usual. His notice of previous ascents of the Grand Combin extends to no less than eight closely printed octavo pages. This volume besides numerous illustrations in the text has a coloured frontispiece by Mr. E. T. Compton, of the Hinter-Sulzthal. In the folding-case are also several panoramas and a map of the Karwendel mountains on a scale of $\frac{1}{80000}$.

Mittheilungen des D.Oe.A.V., 1889.

In this fortnightly publication are recorded the doings of the sections of the D.Oe.A.V. and the principal expeditions made by their members. In many cases the same expeditions are mentioned over and over again as made by different tourists. More than twenty winter ascents are recorded. The Schreckhorn was ascended four times and the Mönch once. Dr. Walter Schulze's paper on the glacier passes in Switzerland which were commonly used in old times has been already noticed in the 'Alpine Journal.'* Amongst new or notable expeditions may be mentioned the following:—The first ascent of the Kleine Falbon Spitze, in the Rosengarten group, was made by Herr Johann Santner (Botzen) alone on September 6, 1888.

Dr. Carl Diener with Veit Innerkofler on June 7, 1888, made the

* *Alpine Journal*, vol. xv. p. 75.

first * ascent of the 'Terza Grande' (2586 metres = 8479 feet), and on June 9, that of the 'Croce dell' Oregione' (2420 metres = 7940 feet), both in the Sappada group. The Dachstein was ascended from the south side by Herren R. Schmitt and Fritz Drasch on July 14, 1889, and the Klein Zwölferkofel by the latter alone from Sexten on July 31.

In an ascent of the Eisthaler Spitze (Hohe Tatra) in July 1888 Mr. John Ball's card was found on the top with the date 1840.

The Drei Schuster Spitze was ascended from the Innerfeld Thal on August 1, 1888, by Herren Zilzer and Schmitt with Pietro Dimai. The ascent by this route had been unsuccessfully attempted by Herren Purtscheller,† Schulz,‡ and Zsigmondy, and by the late Herr Winkler alone. On the third attempt the party took the precaution of sending a guide to the summit by the ordinary route, who directed them how to proceed in the final part of the ascent.

In the Zillerthal group the first ascent from the west of the Olperer (3489 metres = 11,447 feet) was made by Lieutenant Claus and Herr G. Heischmann on July 11, 1889. From the Ochsen Hütte in Alpein they ascended the Wildlahner Ferner and gained the ridge near the Olperer by a steep and partly glazed Rinne with much difficulty. The Fuszstein (3380 metres = 11,090 feet) was ascended from the Ochsen Hütte by Herren K. Schulz and O. Knorr with the *senner* Franz Ofen on July 19, 1887. This had been before effected by Herren Purtscheller and Zsigmondy on August 8, 1881, by a much more difficult route. The passage from the Olperer to the Fuszstein, mainly along the ridge, was effected by Herr F. Dyck with the guide Hans Horhager on August 28, 1887. This passage took only 2½ hrs., whilst Dr. G. Lammer, who made the traverse the reverse way and alone, keeping more closely to the ridge, took no less than 6 hrs.

Dr. Ludwig Darmstädter, with the guides Stabeler and Luigi Bernard, besides making several new ascents in the Rosengarten and Geissler Spitzen, found on July 9, 1889, a new route up the Cimon della Pala free from the danger of falling stones. This was made from near the Travignolo Pass by the north-east face of the Cimon. The climb, however, seems in parts to be much more difficult than by the ordinary route. This ascent was repeated on July 22, 1889, by Messrs. Scriven, West, and O'Sullivan.§

* [The pinnacle reached by Dr. Diener seems to be, at present at all events, higher than that climbed by Mr. Holzmann in 1880 (see *Alpine Journal*, vol. x. p. 106). Judging from Dr. Diener's sketch in No. 292 (March 15, 1890) of the *Oesterreichische Alpen-Zeitung*, the difference can hardly be more than a very few feet; and it might easily happen that a sharp frost would dislodge enough stones from the higher to put it into the second place. Would Mr. Holzmann then be able to claim the 'first ascent,' or would it be necessary for him to repeat his climb if he wished for that honour?—Ed.]

† This gentleman, after his ascent of Kilimandjaro, has just returned to Europe. On February 27 and 28 he was welcomed at meetings of the Technical Club and the Alpen-Verein (section Botzen).

‡ Herr Schulz complains of some remarks on his passage of Monte Rosa from Macugnaga, but it must be understood that his statement as to the absence of danger in the expedition referred only to the conditions of weather and snow under which he made it.

§ See *ante*, p. 151.

No less than twenty accidents are recorded, in which twelve lives were lost. Some of these are hardly to be classed as mountaineering accidents, but arise from illness and other causes. Some again ought almost to be regarded as suicides, notably that of Herr Kanitz on the Rax Alp on March 25, 1889, who refused to be roped in the dangerous (at that time) descent of the 'Teufels Badwanne.' J. S.

Geologische Uebersichtskarte der Alpen von Dr. Franz Noë. (Wien, 1890. Eduard Hölzel. Price, with folds guarded, 10 m.; whole mounted on linen, 14 m.)

A geological map of the whole Alpine chain, on a moderately large scale, has long been required by students, but the task of preparing it has presented formidable difficulties. So far as regards the secondary and later deposits, there is a general agreement, but authorities differ widely over the crystalline rocks. To attempt even a petrographic map of them—that is, one which simply records the main varieties of rocks as they occur in the Alps, without regard to theories of geologic age—is very difficult without a personal acquaintance with the rocks themselves, because it is necessary, in order to harmonise the maps of different districts, to know exactly what the authors mean by their various types. We are disposed to think that Dr. Noë's map shows some traces of this want of personal knowledge, which occasionally causes him to confuse rocks that are separable, and to distinguish those which in reality are identical. Still, instances of this, fortunately, are neither numerous nor serious, so that his map, on the whole, appears to give a very fair idea of the distribution of the leading types of those crystalline rocks which in the Alpine chain form the foundation of the comparatively unaltered sedimentary masses. In regard to the latter also we think that Dr. Noë's subdivisions may be criticised sometimes for a want of symmetry; for example he divides the Trias into three parts, but does not separate the Neocomian from the Cretaceous.

The scale of the map, 1 in 1,000,000, or roughly 16 miles to the inch, reconciles as far as possible the antagonistic requisites of distinctness of detail and handiness of size. Its value is greatly increased by the extension of the colours to the Jura, to the Dalmatian Alps as far as Spalato, and to a little of the left bank of the Danube; but, unfortunately and rather inconsistently, the colours stop a short distance west of Savona, though a large piece of the Apennines falls within the sheet. We trust that in future editions this defect may be remedied, though we admit that this complaint is rather like 'looking a gift horse in the mouth.'

A short descriptive pamphlet accompanies the map, including a preface by Professor Suess.

Though, as has been said, we think one or two matters of detail open to criticism, we are none the less sensible of the great merits of Dr. Noë's work, and feel sure that all students of Alpine geology will owe him a debt of gratitude for the result of so much conscientious labour, which, we may add, can be obtained at a price surprisingly small.

T. G. BONNEY.

Mountaineering in Colorado. By Frederick H. Chapin. (Boston, 1889.)

This handsome little volume is in part a republication of several papers contributed by Mr. Chapin to *Appalachia*, the journal of the Appalachian Mountain Club, with the addition of much new matter. We are inclined to believe that its appearance coincides with the commencement of a new epoch in American mountaineering, and that the exploration of the central ranges of the United States, hitherto conducted by the admirably organised Government surveys, will in future be undertaken by individual enterprise or by clubs similar to our European Alpine clubs. Should this anticipation be justified, its realisation will in no small degree be due to the precept and example of the author of this book. That the exploration of the interior ranges of the Rocky Mountains, and the ascent of some of the more important peaks, should have been almost exclusively the work of the members of the several surveys is no matter for surprise. Of course a few of the more prominent summits of the front range of Colorado, being near to the plains and to settled-up districts, had already been ascended before the organisation of the surveys; but until quite recently the difficulties of approaching the more remote ranges and the attendant expense of transport rendered access possible to few. No stations existed except near the outside ranges, and these afforded no convenient base of operations except to the neighbouring peaks. It was necessary to obtain outfit at Cheyenne, Denver, or Pueblo, and the costly and vexatious accompaniment of a pack train was indispensable, even for a comparatively short campaign. The rivers were at times a serious obstacle, compelling many a tedious *détour*, indeed, at times causing the failure of the expedition. With the rapid extension of railroads in this region during the past ten years many hindrances have vanished, but in all cases where tents are requisite, which is often, a small pack train will still be necessary.

Mr. Chapin has made other ascents in various parts of the Rocky Mountains, but his present volume is exclusively a record of excursions and ascents made in the summers of 1887 and 1888 in the extreme northerly part of the East Colorado or front range, which here encloses Estes Park on the north, south, and west, comprising Long's Peak and the mountains northward, until they begin to sink down to the plateau crossed by the Union Pacific Railroad. It may be mentioned in passing that Mr. Chapin is in error in attributing the correct determination of the height of Long's Peak (14,271 feet) to a later date than 1879. This altitude was fixed by Hayden's Survey in 1873 and 1874, and is found in the map accompanying the report of the latter year. Unfortunately the memoir is not provided with a map—a serious omission—and as access to the maps of King's and Hayden's Surveys is not always to be had, and in these only two of the peaks described are indicated, it is difficult and at times impossible to trace the various routes with any degree of accuracy.

Apart from this defect, the book is a distinct gain to mountain literature. It is pleasantly and simply written, with a complete

absence of exaggeration, and it is clear that Mr. Chapin is a careful observer. The illustrations, which are both numerous and good, are reproductions from photographs taken by the author, who has been exceptionally fortunate, both in the nature and selection of his subjects. Two of these are quite unique: one, of three mountain sheep, whose unusual curiosity rendered a near exposure possible, and the other a 'grizzly,' whose nearer approach was not much desired. Both incidents are well told. The excitement of photographing such subjects clearly surpasses that of hunting them. It is unfortunate that the bear, a large one, comes out small in the photograph. He could not be taken nearer than 200 feet—possibly quite as well for the operator, as the arms of the party comprised nothing more formidable than a shot-gun and a knife.

Although glaciers have almost vanished in the Rocky Mountains, there is no district where their former extension can be so plainly traced. The scanty rainfall is favourable to the preservation of the ancient moraines, whose size and form have, in many instances, been only slightly altered by subaërial erosion. These remains of old glaciers are well exhibited in the district described in this book, but are on a larger scale in the more central parts of Colorado, while in the Wind River Mountains of Wyoming lateral moraines of 1000 feet and upwards are found, some of them grassed over, but preserving their original shape, the glaciers which formed them having shrunk back 18 or 20 miles into the recesses of the range.

Mr. Chapin has given much attention to these phenomena and describes a few small glaciers which had not previously been known. The origin of the largest of these he attributes, not to direct snowfall, but to accumulation by the constant drifting of snow over a wide depression of the ridge. It is hardly doubtful that more important glaciers will be discovered in the more central parts of Colorado, especially in the Elk Mountains. The working out in detail of this 'massif' will present many features of interest, and since the recent extension of the Denver and Rio Grande railroad system its exploration should now be comparatively easy.

A detailed list of the plants found in the Estes Park district—the work of Mrs. Chapin—is an appropriate ending to this interesting volume.

J. E.

I Pericoli dell' Alpinismo e Norme per evitarli. Da Cesare Fiorio e Carlo Ratti. (Turin: for the Italian Alpine Club. Price 2.50 lire.)

Signori Fiorio and Ratti, with the modern Italian affection for statistics, have compiled a table of nearly all the fatal accidents which have occurred in the Alps since 1856, and have prefixed to it 210 pages containing a discussion of the causes of danger in general, and of the best means of counteracting them. That the ground over which they travel is pretty wide will be seen when we mention that short sight has a place among the former and diet among the latter, so that the book might almost be called 'The Climber's Universal Adviser.' It is, indeed, a mine of interesting chat on nearly every subject connected with mountaineering, from the short trousers

called *knickerbockers*, which are much worn 'nelle grandi stazioni estive,' but regarded by the authors as a trifle ostentatious, to the ever fresh subject of mountain-sickness; as to which they take, in the main, a common-sense view, holding that the best antidote is training and a reasonable attention to food. It is pleasing, by the way, to learn that the disorder is known in Central Asia under the name of *Tunk*. Though the 'phonetic degradation' is considerable, we may surely recognise in this a familiar, if undignified, ailment of our own land. Winter expeditions and guideless expeditions also come in for discussion. The book, though it appears to have been compiled with care, is not free from slips. We do not know what authority the authors have for saying that Prof. Balfour and Petrus 'fell from a crest of ice in which they were cutting steps.'* In the table of fatal accidents we miss any mention of those by which Mr. Royds on Mte. Salvadore, and Mr. Douglas in Vorarlberg, lost their lives. *Per contra*, by the insertion of *e* between his Christian name and surname, the guide, Cyprian Granbichler, killed on the Hochjoch in November 1868, is made into two people. The accident to Mr. Watson is wrongly dated 1865 (see p. 156).

The chief reflection, however, to which this book gives rise is: Have we not had almost enough books about the dangers of the Alps? We are not always writing on the dangers of fox-hunting, football, archery, golf, and other favourite exercises. It must be said, indeed, that these books are chiefly written by natives of countries where exercises admitting of the element of danger are not much practised; not, of course, from any want of courage, but simply because it is not 'their way.' So, perhaps, when they do take up an amusement in which that element undoubtedly exists, they are more apt than we to dwell on it and make it the subject of treatises. For Englishmen, Mr. Stephen's chapter on the 'Dangers of Mountaineering' may be taken to have said all that is necessary on the matter. As a test of the practical benefit likely to ensue from the compilation and study of these treatises, it is perhaps sufficient to point to the melancholy irony of fate which has linked the name of one of them ('Die Gefahren der Alpen') with that of Emil Zsigmondy.

Tirol, Südbaiern und Salzburg. Von Th. Trautwein. (Augsburg: Lampart. Pp. 538.)

Illustrierter Führer durch die Oetzthäler und Stubaiäer Alpen. Von Heinrich Hess. (Vienna, Pest, Leipzig: Hartleben. Pp. 270. Price 3 fl. = 5.40 m.)

Kleiner illustrierter Führer durch Salzburg. Von Julius Meurer. (Same publishers. Pp. 142.)

Campiglio, Arco, Riva, und Garda-See. Von Julius Meurer. (Vienna, Austrian Tourist Club. Pp. 160.)

We must not leave these books unnoticed any longer, but space will not allow us to do much more than draw attention to them. Herr Trautwein is an old friend. The present (1889) is the eighth edition of his guide-book, in some respects, perhaps, the most practical in existence. It is, of course, intended for the pedestrian rather than for the mountaineer, but all mountain routes are duly noticed, and the

* See *Alpine Journal*, vol. xii. p. 532.

regulation labels of 'beschwerlich,' 'schwierig,' 'gefährlich' affixed with discrimination. The maps are clear and, for the most part, accurate, though *Franzenshöhe* on the Helvis is called *Franzensfeste*; a name which belongs to a very different place. We cannot agree with Herr Trautwein's advice to shut the window when passing through the Arlberg tunnel. Our experience is that the passage of the tunnel—smoke being shut off and good ventilation maintained—affords the only chance of a breath of clean air between Bludenz and Landeck.

In the case of the other three books on our list, the names of the authors are a guarantee that the information contained in them may be trusted. Herr Hess and Herr Meurer probably know the Eastern Alps as well as any man. Both, too, are practised mountaineers, so that, while the easy-going tourist will be content with his Trautwein or Baedeker, those who wish for a guide to the higher regions will seek rather to Meurer and Hess. The Oetzthal guide of the latter is about as complete as a guide-book can be. Of course there are a few slips, which will doubtless disappear in the second edition. The Sonklar Scharte has three different heights assigned to it in the space of four pages. On p. 249 a rather serious error is made as to the position of the Oberetten-Jüchl* (this, in spite of local nomenclature, seems now to be fixed as the name of the pass), which has been quite correctly given on p. 240. In the map of the northern part of the Stubai group, following p. 184, the new Amberger Hütte is marked considerably too far up the Sulzthal. It is interesting to learn that there is still a corner of the group which is 'touristisch unbekannt.'

Of Herr Meurer's two little books the first deals with a district which, for the most part, belongs to the region below the snow-line. The northern slopes of the Venediger (12,000 ft.) are within the frontier of Salzburg and some part, though not the highest, of the Glockner group. The most important peak wholly within the limits of the province is the Wiesbachhorn (3577 metres = 11,736 ft.), which, by the way, is oddly called Wischbachhorn in the map appended to this volume. But the limestone ranges to the north offer a good deal of 'fine confused' climbing, and the country is generally interesting. We would ask Herr Meurer whether it is not a pity in a guide-book, and especially an Alpine guide-book, to take any account whatever of political boundaries. It is poor comfort to the tourist who is crossing from, say, the Pinzgau to the Zillertal to be told in effect, 'Now you are in Tyrol. You have got three hours more to go before reaching your night quarters; and you may find the way for yourself.' Both this and the last-mentioned book are copiously illustrated, after the fashion of Austrian guide-books. The Campiglio guide-book, by the same author, contains short directions for all the principal expeditions to be made in the Presanella and Brenta groups; some account of the geology, botany, and zoology of the district; the guides' tariff; and a number of very pretty phototype illustrations, much above the average in merit. The map shows the extent in this district of the 'Wegmarkirung,' which, like other aids to the incapable tourist, is becoming far too common in the German Alps.

* See *Alpine Journal*, vol. x. p. 104.

MOUNTAIN PICTURES OF THE SEASON.

In no recent year have the exhibitions contained so few Alpine pictures. There is positively not one view of the Wetterhorn from Rosenlauri. In the Academy is only a single 'Matterhorn,' a moonlight view, by M. Albert Gos. The Jungfrau is likewise only once depicted, though then on a large scale, in the ambitious, but not wholly successful, picture by Mr. E. T. Compton. A very poor picture of Mont Blanc, from the valley of Chamonix, by Miss Bearn, is the only representation of the monarch of mountains. A small, almost monochrome view of Monte Rosa from the Moro, by Mr. Collingwood, is the solitary example of Alpine art at the Grosvenor, and is poor at that. In fact the only good Alpine picture in any of the exhibitions is Mr. Alfred Williams' 'Finsterarhorn,' at the New Gallery. Mr. Arthur Croft sends two pictures to the Academy, but one is a view of the rapids above Niagara, and the other is a study of autumn colouring in the Rhone valley, so that neither is properly Alpine. A winter scene in the Engadine, by Mr. H. H. Robinson (R.A. 380), is neither true in effect nor beautiful in conception; whilst the less said the better about Mr. Nowell's creamy 'Lucerne' (R.A. 554) with the carbuncle sun in the midst of it. Charming landscapes by Signor Costa (New Gall. 209) and his follower, Mr. Corbett (R.A. 233), contain distant views of the mountains of Carrara, as seen from the neighbourhood of Bocca d'Arno. A feeble view of Etna (R.A. 708) is altogether unworthy of Mr. MacWhirter's brush. These complete the catalogue of foreign mountain pictures.

The pictures of British mountain scenery are a far finer set, and each of the galleries has a good example to show. The winter scene in North Wales, 'Idwal's Glory,' by Mr. A. J. Black (R.A. 244), is certainly fine. The scheme of light is bold and original, and the artist, by suppressing all unnecessary detail, has attained an effect of size so generally missed by mountain draughtsmen. Mr. H. Coutts' 'End of the Sheep Fair at Eskdale' (R.A. 1344) is another winter study in the mountains, where sunlight illumines the yellow-brown moor and the snowy crest behind. The same painter's 'Bleak Hillside' (R.A. 1261) is likewise a praiseworthy work. Mr. Colin Hunter sends two Scotch mountain views (R.A. 384 and New Gall. 67). Of these the 'Hills of Morven' is the most impressive, representing, as it does with some originality, a fine mountain wall, crested with soft clouds of finely varied forms. Sunset effects among the Highlands, where the sky is full of wild mist and the rocks are ruddy with the last rays of evening, form the subject of several pictures, notably of Mr. Peter Graham's 'Departing Day' (R.A. 190), in which the foreground is too green, and of one (Gros. 384) by Mr. C. Stuart. Finer and truer than these are Mr. C. E. Johnson's 'Last Light' (R.A. 687) and Mr. Frew's 'Summer Evening' (R.A. 480), in both of which the scene is laid in a barren upland valley. Mr. Inglis' 'Highland Corrie' (R.A. 183) remains to be mentioned, but with no special praise. A portrait of a distinguished member of the Alpine Club (R.A. 504) scarcely falls within the category of mountain pictures.

To sum up, the feeble quality and trifling quantity of the Alpine pictures of the year may be regarded from two points of view. They mark the close of an epoch of Alpine art, and may mark the opening of a new epoch. The noticeable fact is the increase in quantity and excellence of English mountain views as compared with Swiss. Painters must live among the scenes they habitually depict. We have produced a certain number of artists who year after year lived for several months together in the Alps. They were the companions of climbers—were often climbers themselves. They looked at mountains as things to be climbed. Their ideal was accuracy of form and truth of detail in foreground and distance. Now, however, a new ideal begins to reign, and a new art results from it. Artists are paying much more attention to atmospheric effects than ever before. They are painting the atmosphere, with figures, houses, trees, mountains, or what not for background. Details thus shrink into insignificance. Apparent inaccuracy of detail seems to obtain. Much of what we used to like is thus lost, but certain new qualities of size are now attainable, and by some artists are attained. Not impossibly artists of the new school may devote themselves to mountain landscape. Some known Alpine artists show signs of looking at the old scenes with new eyes. The old art is at any rate passing out of fashion and ceasing from the walls of our exhibitions. Alpine landscape will either no longer be painted or it will be painted on new principles. We await the development of the next few years with interest, and not without hope.

W. M. C.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held on February 4, 1890. Mr. HORACE WALKER, *President*, in the Chair.

MES^{RS}. G. G. GROEGER, T. A. NASH, and G. A. SOLLY were balloted for and elected members of the Club.

THE HONORARY SECRETARY and TREASURER presented the accounts for the year 1889, which were, after some remarks from Mr. Freshfield, unanimously adopted.

MR. C. T. DENT read a paper on the 'History of the Search Expedition to the Caucasus.'^{*}

At the conclusion of the paper, the PRESIDENT commented on the great sagacity with which the search had been conducted, and without which it would have been quite impossible to bring it to such a successful issue. He then introduced to the meeting Mr. PHILLIPPS WOLLEY, for whose endeavours to ascertain the fate of the lost party in the autumn of 1888 the Club would always be grateful. Mr. PHILLIPPS WOLLEY made some remarks with regard to the search instituted by him, which had been unsuccessful owing to the lateness of the season and the absence of guides; he had gone to the Caucasus for purposes of sport only, and not with a view to mountaineering; he also referred to the character of the natives, which had, no doubt,

* *Alpine Journal*, vol. xv. p. 26.

greatly changed for the better since he first visited Suanetia; it was, however, well to remember that the Suanetians must still be considered a dangerous people.

Mr. HERMANN WOOLLEY said that in a private letter, an extract of which was published in a daily paper entirely without his knowledge or consent, he had expressed the opinion that the accident had taken place on the north side of the eastern ridge of Dychtau. This impression arose from noticing from the Ulluauz Pass, on the day the bivouac was found, a series of long overhanging snow cornices on the northern side of the arête, and, at the time, it seemed not unlikely that the party might have chanced to pass on to a similarly corniced portion of the ridge. A few days later, on becoming better acquainted with the mountain, he changed his opinion, as it became evident to him that there was no necessity for a party ascending Dychtau by the eastern ridge to travel along that section of it which had appeared to be the most dangerous.

Mr. DOUGLAS FRESHFIELD said he would shortly have to give elsewhere a full account of the search (see Royal Geographical Society's 'Proceedings' for May, 1890), but he desired to speak briefly on one or two points. It had been suggested that the search might have been pushed farther. There were only two ways conceivable to him in which this might have been done: first, by conveying a regiment of diggers to the upper névé of the Tutuin Glacier; this was impossible. The other was by attempting to follow in the track of Mr. Donkin's party across the face of the cliffs under the eastern ridge of Dychtau; this, *in the condition the rocks were in at the time*, would have been very dangerous. He did not desire to impute intentional rashness to the lost climbers; a month later in the season, at the end of August, there may well have been less ice on the rocks. It is possible these rocks may be crossed at some exceptionally favourable moment; it is very improbable that any discovery will result. Whatever falls on that face falls far, and is either at once received in the Bergschrund at its base, or speedily shrouded in the snows that are perpetually sliding down the gullies to the Tutuin névé. He had gone to make certain how his friends had met with their death, and that their remains had received natural burial—not to disinter them. He did not wish to moralise on the catastrophe, but he felt it a duty to state concisely three axioms for Caucasian mountaineering based on his own experiences. These were: select travelled guides; reconnoitre carefully beforehand the peaks or passes you mean to attempt from a distance whence a general view is obtainable; start very early for great expeditions. By travelled guides he meant guides who had been employed outside their own districts and called on to undertake expeditions which were new to all members of their party. Without such experience no guide was competent to be a leader in the Caucasus; and, in his opinion, some amateurs were better leaders, so far as selecting a line of ascent goes, than all but a few of the very best guides.

The PRESIDENT announced that Mr. Willink had presented the Club with his beautiful drawing of the bivouac, made from a sketch taken on the spot by Captain Powell, and the best thanks of the meeting were expressed to Mr. Willink for his valuable gift.

The proceedings terminated with a most cordial vote of thanks to Mr. Dent for his admirable account of the Expedition.

A GENERAL MEETING of the Club was held on March 4, 1890. Mr. F. A. WALLROTH, *Vice-President*, in the Chair.

Messrs. Theodore Cornish and G. F. Woodroffe were balloted for and elected members of the Club.

Mr. M. CARTEIGHE read a paper on the 'Ascent of the Dom from Saas.'

Mr. W. M. CONWAY read a paper on the 'Ascent of the Dom by the Domjoch.'

At the conclusion of the papers Mr. PUCKLE made some remarks with regard to his ascent of the Dom—the first by the eastern face, by a route slightly different from that followed by Mr. Carteighe.

Mr. SCHUSTER said that the papers had made it sufficiently clear that it was by no means necessary to follow the ordinary, somewhat monotonous, route up this beautiful mountain. He thought that the ascent by the east face might often be very dangerous, owing to the huge cornice which frequently overhangs it, and he called attention to another way by the Kien glacier and the western arête.

Mr. BROOME said he had made the ascent by this route last season, and thought it a most interesting expedition.

Mr. P. W. THOMAS said he was one of the party who had made the first ascent by this route in 1878,* and he could also recommend it strongly, but he could not go so far as to call it the best route up the mountain, because he thought that under certain conditions the rocks above the Kien glacier would be found impracticable.

Mr. RICKMAN said he was one of the party referred to by Mr. Carteighe as enjoying themselves on the summit while the latter was still engaged in his climb; but he could not plead guilty to the charge of having thrown stones down on to the ascending party.

Mr. CARTEIGHE briefly replied, and said that the ascent by the eastern side should certainly only be undertaken when there was no cornice.

After some remarks from the Chairman, a hearty vote of thanks was accorded to Messrs. Carteighe and Conway for their interesting papers, which had been illustrated by a large drawing kindly lent by Mr. Alfred Williams. The proceedings then terminated.

A GENERAL MEETING of the Club was held on April 1, 1890. Mr. HORACE WALKER, *President*, in the Chair.

Messrs. R. F. Bevan and C. A. Macdonald were balloted for and elected members of the Club.

The PRESIDENT announced that the Committee had decided, if possible, to re-edit 'Ball's Alpine Guide,' as the most fitting tribute to the memory of the first President, and in order to rescue a most valuable work. It was known, however, that the book had not been a financial success, and it would be necessary to raise the sum of £750 before the work could be proceeded with. A circular, giving further particulars, would be sent to the members of the Club in due course.

* *Alpine Journal*, vol. ix. p. 110.

He further called attention to Professor Tyndall's letter, which had appeared a few days before in the 'Times,' on the subject of the destruction by fire of the village of Gampel, and expressing his readiness to transmit any contributions that might be sent to him to the proper authorities.

Mr. H. S. KING announced that, while recently at Darjeeling, Mr. A. W. Paul, the Deputy Commissioner, requested him to inform the members of the Alpine Club that he would render every assistance in his power to any expedition which might be organised for attempting the ascent of the Himalayas from that side. Mr. Paul said he would undertake to make arrangements by which regular supplies of provisions should be brought to a point lying at the edge of the snow-field leading up to Kinchinjunga, 14 days' march from Darjeeling, and promised most cordial co-operation on behalf of himself and other officials in the district. At the same time he pointed out that the cost would be considerable for the hire of the coolies necessary for the maintenance of such extended communications. In Mr. Paul's judgment the best time for the expedition to arrive in Darjeeling would be about the middle of September, and this would enable the party to reach the snow by the end of that month, when good weather might usually be expected.

Mr. HERMANN WOOLLEY read a paper on the 'Ascent of Dychtau.'

Mr. DOUGLAS FRESHFIELD pointed out that Mr. Woolley had made the ascent by the slope between the S. and E. ridges, which had been noticed as a possible line of attack by Mr. A. W. Moore and himself in 1868, and which he had indicated to Mr. Fox. It avoided altogether the cliffs on the eastern ridge. He was of opinion the peak could also certainly be climbed from the Mishirgi Glacier, but the ascent would be quite as arduous, and possibly more so, than that from the Tutuin Glacier. Mr. Woolley, by his thorough exploration of the southern and eastern flanks of Dychtau, as well as by his ascents of Mishirgi Tau and Koruldash, had completed our knowledge of the central group, and enabled the map he hoped shortly to publish, based on the labours of Messrs. Jukoff and Bogdanoff, to receive its final corrections. The first ascent of Dychtau was a feat of perseverance and endurance which would always hold its place in the story of the exploration of the Caucasus.

The question which had been asked as to the expenses of travel in the Caucasus was not quite easy to answer, and naturally depended on the number of guides and impedimenta taken. Roughly speaking £50 to £60 would be the cost of the journey there and back for each member of the party; once in the country the expense would be comparatively trifling. Mr. Freshfield further stated that the two peaks of Ushba had now been measured, and according to the surveyors the unclimbed peak was 4 feet higher than Mr. Cockin's peak, and the summit of Janga was 6 feet higher than the point reached by Mr. Cockin in 1888; and he concluded his remarks by saying that the idea that the Caucasus was exhausted was very erroneous and that a number of great peaks were still unclimbed and important groups entirely unexplored.

Mr. DENT desired to congratulate Mr. Woolley most heartily on his magnificent expedition, and on the admirable account of it he had given to the Club. The narrative had been told so modestly that many might carry away the idea that there was no special difficulty in the ascent. This was far from being the case; indeed, if the whole circumstances were known, it would be found that Mr. Woolley had to overcome many serious obstacles before he was even able to start for the climb. The truth, too, was that these great Caucasian peaks were only accessible at all under exceptionally favourable conditions. Probably in most seasons there were not more than a dozen days on which such an ascent as that of Dychtau was feasible at all. If, for instance, the upper slopes were of pure ice, or if, as was so often seen in the Caucasus, the gullies giving access to the ridge were ice-bound, no one could possibly succeed. Time would fail. It had been said that these mountains were not difficult; such was far from being the case. If they were in bad condition the traveller would not succeed in reaching the top at all; it was only when the rocks and snow-slopes were in fair order that success could be hoped for. Even then the soundest judgment was requisite and great perseverance was needed. The expenses of a tour in the Caucasus had been over-estimated. There was plenty of information in the pages of the 'Alpine Journal' on the subject, though, perhaps, that was not the most likely place for members to search for it. Messrs. Cook could inform anyone as to the cost of getting to the country; once there, and in the mountains, the expenses depended on the intelligence of the traveller. Sour milk had been criticised as an article of diet; he desired to say a word in its favour. It was much more agreeable as a drink than seemed commonly to be supposed. The guides spoke ill of it, as they did of most of the food that was not of their native country. The milk was very interesting, too, from the physiological point of view; it was decidedly nourishing, though it had a tendency to beget a thoughtful frame of mind in the consumer. The evidence resulting from Mr. Woolley's ascent furnished conclusive proof of the correctness of the previous views held by the search party with regard to Donkin and Fox's expedition.

On the motion of the PRESIDENT a vote of thanks to Mr. Woolley for his excellent paper was carried by acclamation, and the proceedings terminated.

The paper on this occasion, and Mr. Dent's paper on Feb. 4, were illustrated by a large map and several beautifully-executed panoramic sketches by Mr. Alfred Williams, kindly lent by the Royal Geographical Society, and by a series of photographic views by Messrs. Donkin, Woolley, and Sella, shown on a screen by means of a lantern.

Errata in last Number.

Page 22, last line, for feet read metres.

Page 57, line 30, for Derboren read Derborence.



Almanac Bureau, Washington

DYCH-TAU from above KARAU.

H. Montague, Dec. 1889.

THE ALPINE JOURNAL.

AUGUST 1890

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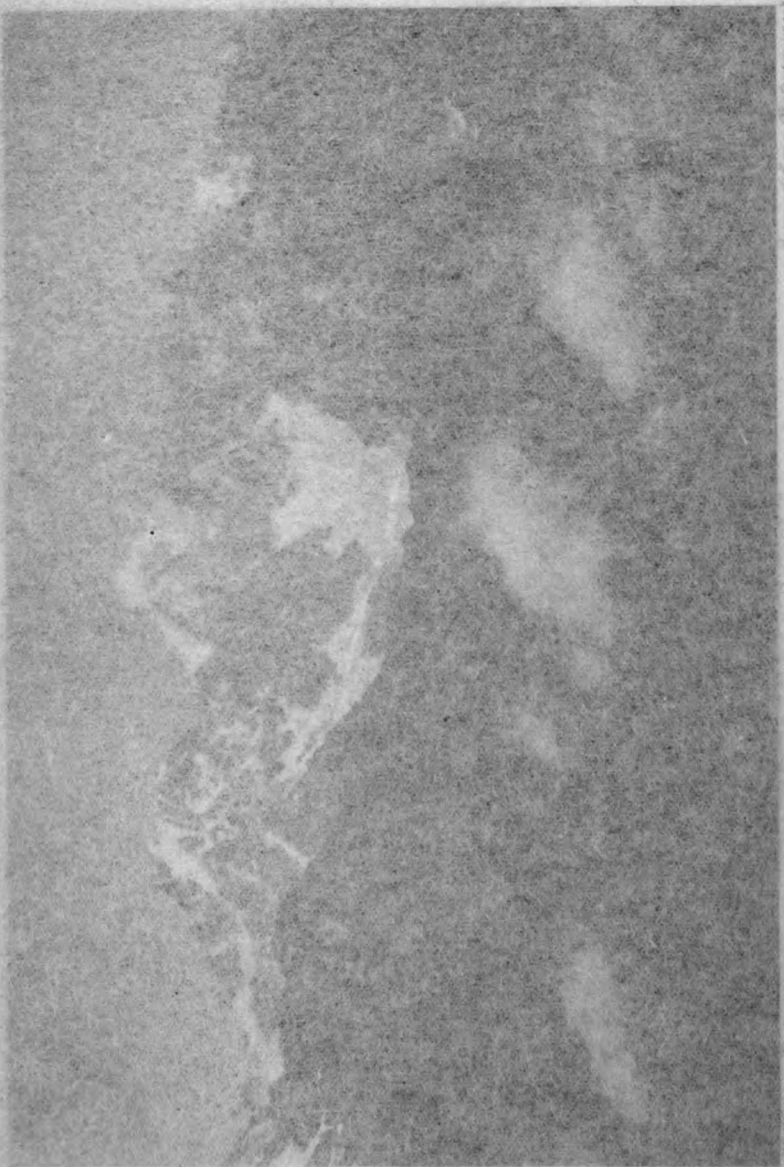
Publishers and Stationers, Amen Corner, E. C.

PERHAPS the only railway in the world which is not in a thickly populated district, and which is not a branch of a more important railway system, is the little line which runs from the station at St. Gall to the summit of the more than 14,000 feet snow-capped mountain range of the Bernese Alps.

The main problems of the railway are the steep gradients and the short and narrow gauge. The line is only 11.7 miles long, and the steepest part, between W. and S. Compagny, is only 1.5 miles long. It has a maximum gradient of 1 in 10, and a maximum curve of 100 feet. The railway is a masterpiece of engineering, and is a fine example of the art of building a railway in a mountainous district. The railway is a fine example of the art of building a railway in a mountainous district. The railway is a fine example of the art of building a railway in a mountainous district.

The opening of this peak in each direction is in the morning, and with regard to its history, the railway is a fine example of the art of building a railway in a mountainous district. The railway is a fine example of the art of building a railway in a mountainous district. The railway is a fine example of the art of building a railway in a mountainous district.

As, however, the latter has not yet been published, I will
VOL. XV. NO. CIX.



THE
ALPINE JOURNAL.

AUGUST 1890.

(No. 109.)

THE ASCENT OF DYCH-TAU.

BY HERMANN WOOLLEY.

(Read before the Alpine Club, April 1, 1890.)

THE traveller by railway, journeying northward from Vladikavkaz on a clear day, has a rare treat provided for him in the delightful panoramic view of the mountain chain of the Central Caucasus, which gradually unfolds itself before his eyes. On starting, the rounded dome of Kazbek is seen in the S. towering above all other summits; while more to the W. rise the snowy ridges of the hitherto unscaled Gumara Khoch.

As the train proceeds the clustered mountains of the Adai group open out; and then a sharp Weisshorn-shaped peak still further W. becomes conspicuous, and, surpassing its neighbours in majesty and apparent height, continues for more than an hour to be the most striking object in view. Although 50 miles distant, the rocks and even the schrunds below the eastern ridge are in fine weather distinctly seen with a field-glass, and passengers may be noticed pointing the mountain out to each other as that on which the Englishmen lost their lives in 1888.

In writing of this peak an embarrassment occurs at the very outset with regard to its name. By a singular mischance it is styled Dych-tau in the Russian 5-verst-to-the-inch map, and consequently has become known by that name to most travellers; but the Tatars living at its base in the Tcherek valley, and the Russians who see it from Vladikavkaz, more than 70 miles away, call it Koshtan-tau, which name seems to have been adopted in the new survey.

As, however, the latter has not yet been published, I will

adhere in this paper to the name Dych-tau, which has hitherto been used in the 'Alpine Journal' to designate the mountain.

Readers of the 'Journal' will remember that Dych-tau is a peak about 16,900 feet high, standing 44 miles S.E. (or more nearly E.S.E.) of Elbruz, not on the watershed, but forming one of the Koshtan-tau group. This lies to the N. of the main chain, and is connected therewith by the ridge separating the sources of the Bezingi and Dych-su Glaciers, of which ridge the Shkara Pass is the lowest point. Dych-tau has four principal ridges radiating approximately N., S., E., and W., and of these the northern and eastern are seen from the railway.

Up to the present time two high passes have been discovered over the main ridges—the Mishirgi Pass across the northern, and the Ullu-azuz Pass across the eastern—both being made by Messrs. Donkin and Fox in 1888. Some day the Khrumkoll Pass at the foot of the short western arête may be added to these, and may prove a useful route for mountaineers wishing to cross from the Mishirgi Glacier to the Dych-su basin. Possibly a way across the southern ridge—completing the circuit—may also be found; but the precipices on the western side of this spur do not look promising, and such a pass would probably be more laborious than useful.

The glaciers which have their sources in the hollows formed by the four main ridges are:—

1. The Kundium Mishirgi, or eastern branch of the Mishirgi Glacier, between the western and northern;
2. The Ullu-azuz, or Dumala Glacier, between the northern and eastern;
3. The Tutuin Glacier, between the eastern and southern; and
4. The Eastern Khrumkoll Glacier, between the southern and western spurs.

The first and second of these ice-streams drain into the Bezingi valley, the third into the Tcherek, while the fourth is a tributary of the Dych-su Glacier.

During the visit of Mr. Holder's party to the Bezingi valley in August, 1888, longing eyes had often been cast—from a distance—at Dych-tau; but various causes had prevented any attack from being made on the mountain, and I well remember the regret felt by Holder and myself as we drove away from Naltchik one September morning (still in ignorance of the catastrophe which had just occurred),

obliged, as we were, to leave the noble peak behind us without even attempting its ascent.

Accordingly, finding myself last July at Karaul on the conclusion of the labours of the search expedition with a tent, sleeping-bags, and plenty of provisions, and with two guides (Christian Jossi and Johann Kaufmann, both of Grindelwald), I determined to take advantage of the opportunity, and not to leave the district without making an attempt, or if necessary a series of attempts, to attain the summit.

The other members of the search party left for Bezingi on August 1; but, before departing, each one had afforded me most welcome and valuable assistance. Captain Powell had obtained for me, through the mediation of Anzor Aidebuloff, Starshina of Balkar, a most suitable native chamois-hunter as porter; Mr. Freshfield had given me copious information about the neighbouring mountains, and had explained what was known of the topography of the Dych-su basin; while Mr. Dent had steered Kaufmann through an attack of dysentery, and had left instructions for his further treatment. This timely service from the ex-President was perhaps the saving of my expedition, for without his advice and aid my anxiety at Kaufmann's condition would not improbably have prompted me to take the latter straightway back to Switzerland.

At the outset I had by no means decided what route to choose in attacking Dych-tau. In 1888 our party had seen the northern ridge from the shoulder of the Bezingi Koshtan-tau, and it had then appeared to offer a promising line of ascent from the Mishirgi Glacier. But it was a far cry to the latter place from Karaul, and before moving round to that side of the mountain, I was disposed to try to gain the northern ridge by crossing Donkin and Fox's Ullu-azuz Pass on the eastern arête, and traversing the highest plateau of the Ullu-azuz névé; for this had seemed feasible to Freshfield, Jossi, and myself the day we were on the col in question. There was, however, another course open. As we were returning down the Tutuin Glacier after the discovery of Donkin and Fox's last bivouac, Dent drew my attention to the slopes at the head of the ice-basin, and suggested that a route might be found in that direction.

Before acting on this suggestion I decided to reconnoitre the mountain from the S.W. in order to ascertain if there were any chance of attacking it from that side, either by the

southern ridge or in any other way. This plan had also the advantage of giving Kaufmann an extra day or two to recover strength, as he was not yet fit for hard work.

Accordingly, on August 4, accompanied by Jossi and the native porter, and taking three days' provisions, I started on a voyage of discovery up the Dych-su Glacier. The whole of the first day's walk was one of unceasing interest, as, with the exception of M. Bogdanoff, of the Russian Survey, probably no stranger had as yet passed up the great ice-stream, and every mile we advanced revealed hitherto unknown and unsuspected splendours. At 11 A.M. we arrived at a hunter's kosh on the left bank of the glacier, directly opposite to the singularly beautiful peak previously pointed out by Mr. Freshfield as Koruldu, or Koruldash,* which so fascinated Jossi that he offered to start for its ascent there and then.

It was at this point that we discovered that the camera had been left behind; so the native was sent back to Karaul for it, while my companion and I continued our route. Directly after leaving the kosh we passed the mouth of a side-glen, down which a tributary glacier poured from the north, and, looking up this valley, we beheld at its head, a little E. of N., a great peak, which could be none other than Dych-tau. By a curious coincidence it appears that on the same day, and about the same time, Mr. Freshfield and Fischer were examining the N.W. face of the mountain from the Mishirgi Glacier.

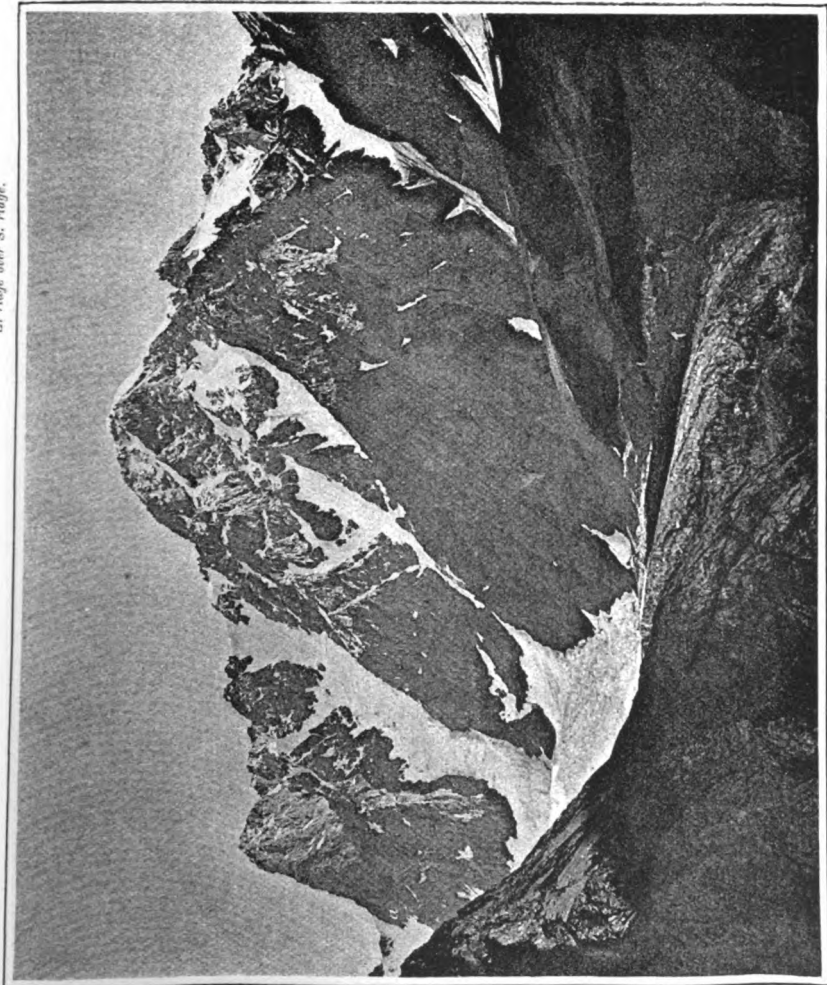
Resisting the temptation to explore this new ice-stream, which, as I afterwards learnt from M. Bogdanoff, was called the Khrumkoll Glacier, we passed onward towards the head of the Dych-su Glacier, and early in the afternoon reached a point on the left moraine commanding views of Shkara to the W. and of Mishirgi-tau to the N.W. Jossi at once shifted his affections to Shkara; but, mindful of Mr. Mummery's experience with only one guide on a mountain requiring endless step-cutting, I decided to undertake in preference the rock climb up the southern face of Mishirgi-tau, hoping to obtain from that peak a near and instructive view of the west side of Dych-tau.

Crossing a depression in the ridge which separates the upper reaches of the Dych-su from the western branch of the Khrumkoll Glacier, we passed the night on the right bank of the latter amidst snow scenery of imposing grandeur, and next day, in spite of a late start, were successful in reaching

* M. Bogdanoff gives to this mountain the Turkish name 'Ailama.'

W. ridge.

E. ridge over S. ridge.



H. WOOLLEY PHOTO.

DYCHTAU and the KHRUMKOLL GLACIER

From the Dychsau Glacier.

a. Gap leading to Mishirgi Glacier. — *b.* Gap leading to Tutuin Glacier with E. ridge beyond it.

the point of Mishirgi-tau at which we aimed (about 16,400 feet), only to find that it was not the highest peak of the mountain.

During this expedition we saw enough of the southern ridge of Dych-tau to be able to conclude that once upon it we should have a good chance of success; but the formidable appearance of the precipices which fall on the western side of the arête to the Khrumkoll Glacier deterred us from attempting the ascent from this side. Nor were we favourably impressed by our inspection of the western ridge, which in several places seemed excessively steep. Consequently on August 6 we returned to Karaul, with the intention of carrying out Mr. Dent's suggestion—namely, to make for the head of the Tutuin Glacier. Here I hoped to find a couloir leading to the final peak, or at any rate to the upper portion of the southern ridge of Dych-tau, and so to avoid altogether the ill-omened eastern ridge.

On arriving at Karaul we found Kaufmann much better, and, on hearing our plans, he asked to be included in the party. The Balkar hunter was also to accompany us as far as he could, to help to carry the sleeping-bags and other impedimenta.

Kutché Djanibergoff, for this was his name, merits a few words of description. He was 30 to 35 years of age, rather short for a Tatar, but wiry and enduring as they all are. His countenance, more of the Teutonic than of the Tatar type, wore an unvarying expression of kindly good-humour, and was a good face for a low comedian, for he always looked as if about to say something facetious. He never did, however; and if he had done so, the best of jokes expressed in Turkish would have been quite wasted on us. Dressed in the usual lambswool cap and a long tcherkeska, or outer coat of grey homespun, he never went abroad without his flint gun in its sheepskin case ('Lumpenbüchse' Jossi contemptuously called it) and his bâton, the latter a ponderous implement, which began like an alpenstock and ended like a fire-poker, being shod with an iron bar about a foot long. It was a durable-looking staff, and will probably serve the Djanibergoff family for several generations before being worn out.

In disposition Kutché was gentle, patient, and obliging, and would carry any burden we gave him without grumbling; and although not such a good climber as the Bezingi hunter Byaslán, he was a much more satisfactory man to employ. The only occasion on which he showed signs of discontent

was when the professional agitator appeared in the shape of M. Bogdanoff's Tatar interpreter, who was introduced to the search party as a prince or son of a prince of Balkar. This worthy represented to me that Kutché was being underfed, and demanded more food on his behalf. There did not appear to be much justice in the complaint, but in order to restore satisfactory relations I told the guides to serve him out a good meal on the spot. Kutché did not, however, reap all the benefit, for the reputed prince immediately invited himself to dine with his client, and the two Tatars, squatting by the camp fire, shared the feast. Still everyone seemed to be satisfied, the strike was averted, and we had no further trouble with our man.

The next day, like most 'off-days' at Karaul, was spent in bathing and washing clothes in the Tcherek, putting fresh nails in our boots, cooking meat and toasting bread for the next expedition. This last operation, a practice introduced by Freshfield, was performed on a gridiron, and had become a regular custom with us, as the bread of the country was not half baked, and generally disagreed with us unless well toasted.

On these off-days my afternoons would, as a rule, pass in writing up notes and lounging on the green sward, few places in the Caucasus having such soft velvety turf as the little delta formed by the junction of the Dych-su and Tcherek torrents; and when the epoch foreshadowed by Mr. Dent, of Caucasian cricket and lawn tennis, arrives, there will be no difficulty in finding a suitable wicket on which the local team may meet the eleven who will no doubt cross the Shkara Pass to uphold the credit of Bezingi.

Towards evening, when the shadows of the lofty crags which guard the entrance to the Dych-su gorge began to creep across the valley, M. Bogdanoff with his cossacks would gallop home over the Tcherek bridge, and after supper a pleasant hour would be spent in inspecting the day's work on the plane table, comparing sketches, and discussing, so far as my very slender Russian vocabulary permitted, the names of the various peaks and glaciers.

Sometimes the cossacks, who came from the neighbourhood of Ekaterinodar in the Kuban district, would sit up singing in chorus round the camp fire; but generally by eight or half-past we had retired to our tents, and all sounds were hushed except the occasional booming of some great boulder pounding its way down the rocky bed of the Dych-su torrent.

On Thursday, August 8, having put all our heavy baggage inside the tent and tied up the door, our party left Karaul at 5.30 A.M., crossed the bridge over the Dych-su, and set out down the valley by the rough bridle-path which leads on the left bank of the Tcherek to Balkar. A leisurely walk of an hour and a quarter brought us to the mouth of the Tutuin Glen, where we deposited our egg-box in the bushes, making signs to Kutché to take it to Balkar, on his descent, to be refilled.

Toiling up the close oven-like side-glen by the indistinct path worn by shepherds and hunters on the right bank of the Tutuin-su, we passed through the delightful wooded ravine in which the stream lingers before beginning its last headlong descent to join the Tcherek, and entered the more open valley beyond. At this point the track, such as it was, ceased, and, walking westward up the rough floor of the valley, stumbling incessantly over the stones which lay concealed in the rich long grass, we came about half-past nine to the highest cluster of trees, not far from the end of the Tutuin Glacier. This could now be seen descending from the N.W., between precipitous rocks, in one great ice-fall of over 2,000 feet; while peeping over a jagged ridge in the background appeared the snowy summit of Dych-tau.

After halting here for our second breakfast the guides collected a plentiful supply of firewood—Jossi's sheet-anchor on glacier expeditions—and when we started again at 11 o'clock each man carried a large bundle of it on his pack. Crossing the lower end of the long moraine, we ascended the valley as far as the kosh, near which the search party had passed two nights about ten days before. The kosh was now occupied by two young goat-herds, who had secured the fine collection of empty soup-tins which had been left behind at the sleeping-place. Their amazement at our arrival was increased when we declined the sour goat's-milk they offered to us, for to a Tatar sour milk seems to be the sum of everything man can desire in the shape of refreshment. Leaving the kosh, we mounted the rocky buttress on the right bank of the ice-fall, in order to gain the level at which the search party had crossed to the left bank; and then it became necessary to relieve the native of his load and to send him back, for we dared not take him further.

When Kutché saw us preparing to cross the ice-fall he was obviously much impressed by the gravity of our undertaking, and showed his solicitude in various ways. First he

asked me to give him a portion of his pay; then he produced his untouched breakfast (rye-bread and cold mutton), and pressed us to take it, plainly giving us to understand by signs that in a few hours he would be in the lap of plenty at Balkar, while we up in the regions of snow and ice would require all we had with us, and more besides; finally, he shook us each by the hand, making, for him, a long speech in the Tatar dialect, which we took to be a parting benediction; and after our departure he sat for a long time on a hillock watching our progress with evident misgiving and disapproval.

Kutché's behaviour on this and other occasions fully confirmed all that has been written as to the inability of the natives to reach the place where Donkin and Fox bivouacked. Though the Tatar chamois-hunters climb splendidly on rocks, whether firm or loose, they have as yet, as far as my experience goes, made very little progress in what has been called ice-craft.

On attaining the point where the search party had begun the passage through the séracs great changes were found to have taken place during the nine days which had passed since the last visit. A collapse of considerable extent had occurred in the glacier, and we were completely cut off from the route which had then been taken. Before we could gain a footing on the ice, it was necessary to climb along the rocks flanking the glacier to a much higher level, and in so doing to ascend under an overhanging mass of sérac. This looked so unstable that during the passage Jossi, who was last man, displayed unwonted intolerance of delay, and urged us on both by word and deed. If there was any place on the mountain at which we were obliged to 'give a chance,' as the cricket reports have it, this was the one, and the only one; but even in this instance, as was subsequently proved, the risk was by no means so real as it appeared to be.

Once on the ice, we found a sort of terrace, and passed along it unchecked till more than half-way across the glacier; then trouble began. The men, heavily laden as they were, could only move slowly, and the rucksacks had repeatedly to be taken off and to be lowered into crevasses or hauled up chimneys in the ice. At one time it looked as if we were pounded, but at last a way was found, and at 5 o'clock we were safely across.

The passage of the Tutuin ice-fall had occupied 3 hours (an hour longer than on the previous occasion), and when there was time to look around it was seen that masses of

clouds had followed us up the valley and were quickly overtaking us. We therefore hurried onward up the left margin of the glacier, and in another hour had gained the plateau, where the main ice-stream receives a smaller tributary from the N.E. before plunging down the gigantic staircase into the Tutuin valley.

By this time the view of Ghiuliuchi, Fastach Khoch, and the other eastern peaks was blotted out, and as we advanced westward up the great rock-bound trough the clouds closed in and completely filled it, hiding from us the crags on either hand. On our right were now the precipices descending from the eastern ridge of Dych-tau, and as spurs or gullies occurred in them we kept gaining or losing sight of the steep and rugged cliffs, which presented through the mist an exceedingly weird and evil aspect. We were beginning to lose faith in the weather; our cheerless surroundings and the sad associations of the place were not calculated to enliven us; and we were but a melancholy band as we plodded on through the dreary waste, with nothing visible but occasional glimpses of the rocks on our right, and no sound breaking the mournful stillness save the monotonous hissing of the rope as it trailed through the wet snow.

As darkness fell, an argument arose as to whether or not we had passed the snow gully below the Ullu-azuz Pass. Everything looked so changed in the mist that it was difficult to recognise the landmarks, and the question remained still unsettled, when, at half-past seven, a halt was made at a projecting buttress which seemed to promise shelter. Climbing a little way up the rocks, we soon found a ledge large enough to accommodate the whole party, but with no protection from rain or snow, and very little from wind.

The height of this bivouac was a little less than 13,000 feet above sea-level.

While the guides were struggling with the damp firewood and melting snow for the soup, I kept up my circulation by building a shelter-wall, levelling the floor, and laying down a sort of mattress of loose stones to sleep on; but the supply of material ran short, and at this moment I can distinctly remember the shape and position of one angular outcrop of granite, which, protruding through the superposed stratum, effectually 'spoil the average.'

The reflection of the warm glow of the fire soon made our surroundings look more cheerful; supper placed us on better terms with ourselves, and as the moonlight began to break occasionally through the clouds, we became more hopeful as

to the morrow. Our quarters were so conveniently arranged that after supper I was able to deliver from the depths of my sleeping-bag, in the 'dormitory,' a short address to the guides, who were smoking in the 'kitchen,' on the importance of making an early start, instead of oversleeping ourselves as we had done under Mishirgi-tau; then, having fixed 1.30 as the hour of rising, I proceeded to spend the greater part of the night in executing a series of contortions in the but partially successful endeavour to adapt my bodily attitude to the inequalities of my resting-place.

Next morning we were up to time, and at 2.40 all was ready for starting; but Jossi being unwilling to cross the schrunds which lay in our course till the light became better, it was not till 3.50 that we descended from our rocks on to the glacier. The morning was starlight and frosty; still a hazy, watery look in the sky caused us some uneasiness as we passed at a quick pace up the frozen snow towards the head of the great corridor. Before going very far a tempting-looking snow couloir in the rocks on our right was passed, and Jossi seemed inclined to try it; but being determined to have nothing to do with the eastern ridge, to which it led, until all other routes had been tried, I discouraged the proposal, and we continued in the original direction.

As all prospect of success depended on what would be found at the head of the glacier, we looked eagerly out as one buttress after another was passed; and I was pleased to notice that the guides were as excited as myself. At length we rounded the furthest rock promontory (where, by the bye, a sleeping-place would easily have been found the evening before had the light allowed us to advance so far), and on taking in the view of the cirque or basin forming the head of the great trough in all its details, we were at once relieved and delighted to find just what we wanted.

To the W., directly in front, rose the southern arête of Dych-tau, presenting steep ice-slopes below and steeper rocks above; on our right were the equally abrupt precipices of the eastern arête; but running up into the angle between these two ridges, at not too great an inclination, was a slope of snow or ice—we did not yet know which—leading apparently, and as we then believed, to the very foot of the final snow-cone of the mountain. Moreover, jutting out through this slope, and extending in the right direction for us, were two ribs of rock which would save much step-cutting in case we encountered ice.

There was no cause now for hesitation; Jossi crossed the accumulation of avalanche ice at the foot of the incline, and led up to the first rocks. These presented no difficulty, and at half-past five we were at the top of the lower rib, at a height of rather over 14,000 feet. Then came a check. The slope above was of hard ice, and although another chain of rocks lay at some distance on our left, the guides considered that these would lead us too far out of our course; we therefore went straight upward, and for the next hour and a half were all hard at work, Jossi cutting small steps, which were enlarged by Kaufmann and myself in order to provide for the descent. Progress was painfully slow, and when at last the next group of rocks was gained, there was further delay, as one of my feet was slightly frost-bitten, and the usual remedy—rubbing with snow—had to be employed. During our halt for this purpose we noticed that although not yet half-past seven, clouds were steadily rising in the Tutuin valley, and the eastern peaks were already partly obscured. Consequently, fearing to be fogbound before getting high enough to select the best route to the summit, we lost no time in scaling the scattered rocks, and soon came to the next slope.

Matters now assumed quite a different complexion, for, to our great delight, the snow proved to be deep and in good condition, and we began to gain height with such rapidity that our confidence soon returned. Steadily the great ridge on our left sank lower and lower; soon glimpses of Shkara began to appear between the rock teeth with which it was fringed, and shortly after half-past eight we were close below its crest.

As the result proved, our best course would now have been to scale the ridge at once; but Jossi, suspecting—if I remember rightly—a snow cornice, preferred to traverse the rocks just below it. This was a mistake. Before proceeding very far we came to the head of a very steep couloir with about a foot of snow in it. I must confess that it did not appear very formidable to my unpractised eye, but the guides seemed to be certain that the snow rested insecurely on ice, and regarded the combination with profound distrust. Access to the ridge above was now barred by a huge cornice, so, being unwilling to retrace our steps, it was decided to cross the gully.

We had with us 90 feet of light cord; doubling this and knotting it to our rope we were able to pay out 100 feet of line to Jossi, who carefully made steps across the couloir,

and was followed by myself and then by Kaufmann. This manœuvre, which consumed more than half an hour, brought us to the foot of an upright rock chimney, and as the leader was clearing a way up it through the frozen snow there was ample time to reflect that one or two more such obstacles would be quite enough to ensure our defeat, for it was already nearly ten o'clock.

We seemed to be an age in this chimney, but at last Jossi moved up on to the ridge, and immediately exclaimed something about 'eine schöne Spitze.' What particular peak excited his admiration I forgot to inquire, for on scrambling after him, a view which struck me as the most magnificent I had ever seen suddenly burst on me. The aspect of the slopes from below had somewhat deceived us, and instead of finding ourselves, as we expected, below the final peak, we had hit the southern arête of Dych-tau, just at the foot of a great comb of rocks, which breaks the continuity of the snow ridge.

To the E. and S.E. the view was limited by haze, but elsewhere everything was clear and bathed in sunshine. Southward, beyond the Dych-su Glacier, were seen the snowy cap and dazzling ice-cliffs of the graceful Koruldash. N.W. of the latter stood that parent of mighty glaciers, Shkara, a noble peak, presenting on this side a far more picturesque appearance than when seen from the W., and fully justifying Mr. Freshfield's description of it as a 'triumph of mountain architecture.' Over Shkara's northern flanks appeared the crest of Djanga, and further W. the 'Saddle Peak,' which I suppose we may now call Katuin-tau. Turning more to the N., the eye rested on the steep black crags of Mishirgi-tau, whose two peaks still seemed to be of equal height; and, lastly, close above us to the N. were the final snow-slopes on the east side of Dych-tau, to which the way was not yet visible, being hidden by the rocky ridge along which we had still to climb.

While I was admiring this splendid panorama, Jossi pointed out to Kaufmann our route on Mishirgi-tau and the rocks on which we had slept by the Khrumkoll Glacier, now far below us, as we had reached a height of 15,000 feet.

When challenged both men had to admit that they knew no view, even in their beloved Oberland, equal in grandeur to that before us.

Long before there had been time to do justice to the scene we began to climb northward up the rocks which crowned the arête. It was perhaps the most anxious time

of the whole ascent, for we knew that at any moment we might be stopped by some rock-tower or deep cleft in the ridge; but after clambering over several projecting teeth a position was gained, from which we observed with satisfaction that, for some distance at least, no formidable obstacle lay in our course.

The next 45 mins. were spent in the most delightful rock-climbing one could desire. The ridge rose steeply, and was piled with granite blocks, towers, and slabs of every imaginable form; but however extraordinary the combination, there was always some crevice to squeeze through, some chimney to creep up, or some slab with a neat hand-hold just in the right place. The work was so enjoyable that doubts and fears were forgotten, and we went scrambling along in high spirits, looking keenly ahead each time a commanding point was reached, and taking advantage of every pause to snatch another glance at the glorious view on our left.

Shortly before eleven o'clock, after surmounting an unusually long ridge of rock, Jossi turned to me with a knowing look on his broad good-humoured face, and said, 'Wir haben gewonnen.' This announcement came so unexpectedly that for a moment I could find no words to reply; but my thoughts, like those of the historical parrot, were none the less significant. On joining Jossi, however, I certainly did not at first fully share his hopefulness.

It was true that the rocky crest along which we had been climbing now gave place to a snow-ridge extending up to the eastern arête, and quite free from difficulty; but just at the point of junction of the two ridges stood a great rock tower with precipitous sides, and against this the snow-ridge abutted. To reach the final peak it was plain that we should have to climb round to the left of the tower. Could we do so? The rocks looked unpromising, and the steep slopes below them were certain to be cased in hard ice, as they faced the afternoon sun.

To the west of the tower was an excessively steep ice-gully, and beyond this the S.W. face of the mountain, consisting of a series of precipices descending about 4,000 feet to the eastern Khrumkoll Glacier. But with these we should have nothing to do. Once round the tower and past the head of the gully, our account would be with the easy-looking snow-slopes on the east side of the peak.

Jossi was confident of success, and we advanced along the broad snow-ridge, which was corniced on our right but fell away in steep cliffs on the left. Before going very far, how-

ever, Kaufmann, whose strength had been overtaken by the climb up the rocks, was obliged to give in. I was extremely sorry to leave him behind. Having worked hard on the previous day, carried a heavy load across the ice-fall, and overcome with us the chief difficulties of the ascent, he fully deserved to share our success; but there was no alternative; so dividing the food, and leaving him in a perfectly safe position within easy reach of sheltering rocks, Jossi and I continued our route.

For some distance we were favoured by soft snow, but as the ridge became steeper this gradually gave place to ice, and steps had to be cut all the way to the tower, where we turned to the left, and began to climb round its base. At this stage of the ascent one might be seriously delayed if there were much ice; but, fortunately for us, the rocks, though not as firm as those below, were quite free from ice, and at a quarter-past one we had passed round to the west side of the tower, and were standing on a short narrow neck or ridge of snow-laden rocks connecting the tower with the foot of the final snow-slopes already mentioned.

Here, for the first time, we were able to look down on the north side of the mountain; indeed, the neck is so narrow that a person sitting on it could send a stone either on to the Khrumkoll Glacier on the S., or down precipices of ice and rock on to the névé which feeds the Ullu-az Glacier on the N. But this is possible only for a length of a few yards, beyond which the neck becomes merged into a broad snow-ridge, which in turn soon expands and unites with the northern arête to form the conical summit of the mountain.

Ascending the snow-ridge in a north-westerly direction, we were soon high enough to turn and look back over the tower on to the eastern ridge. This no longer appeared so formidable as it had when seen from the Ullu-az Pass; still it looked difficult enough. Prophecy in such matters is, of course, imprudent; but apart from the dangerous character of the arête, of which there is, unhappily, ample proof, its great length, considering the arduous nature of the climbing involved, seemed to Jossi and myself sufficient to defeat any attempt on the peak by this route.

There is little to describe in the rest of our ascent; all the excitement had gone out of it, for the result was no longer uncertain. The mist which had now closed round us hid the view, and the monotony of the way was increased by the necessity for step-cutting. It was clearly a case for crampons,

and no doubt a Tiroler in his steigeisen would have walked up the cone in less than half the time consumed by us, as there was a thin layer of frozen snow on the ice-slope.

In using the term cone, I should explain that it is only from the E. and N. that the summit of Dych-tau appears perfectly conical; on the S. and S.W. it is escarped, and falls away in rocky precipices; and in order to avoid the exertion of making steps, we now betook ourselves to the loose and treacherous rocks which fringed the edge of this escarpment, and, following its irregular outline as far as possible, picked our way slowly upwards. At 20 min. past 3 we arrived at the foot of the snow-mound, which for the last hour had been tantalisingly in view, and, exchanging congratulations on the termination of our labours, we put on a spurt and quickly gained its top.

I cannot easily forget the pained and injured look which chastened my companion's countenance as he turned to me at this point. Above us rose yet another cone, very similar in appearance to the one just surmounted. We had, in fact, arrived at that peculiar fold or crease in the névé which, lying below the summit of the peak, and being plainly seen from the E., gave rise to Dent's remark that the apex of the mountain appeared to have been cut off and carelessly replaced.

Realising for the first time how exhausted Jossi was with the labour of step-cutting—he had been leading ever since we left our bivouac—I took his place for the comparatively short remaining portion of the ascent. The usual exasperating experience was repeated—a few yards of snow, then hard ice—and with many a vicious hack at our stubborn adversary, we slowly won our way upward, till at length the slope became more and more gradual, and at 47 min. past 3 we walked on to the summit.

Whatever may have been the custom elsewhere with regard to first ascents, there is, I believe, no precedent for singing patriotic songs on Caucasian summits, and certainly we were in no mood to introduce innovations; for nothing takes the swagger out of a man much more effectually than a long ice-slope. Therefore, waiving all pomp and ceremony, we seated ourselves on the snow and opened the provision bag. We were in the middle of an almost level snow-ridge, about 20 yards long and a yard or two broad, running nearly E. and W., and during our repast there was plenty of time to examine what little view remained, as it was more or less cloudy in every direction. Shkara, looming through the

haze, looked more colossal than ever; the three peaks of Djanga were also visible; but the only summits quite free from mist were those of Mishirgi-tau and the Bezingi Koshtan-tau. The view of the vast snow-clad precipices, which we could now see on the northern faces of these mountains, must be striking under any circumstances; but on this occasion the gloomy, threatening sky and driving masses of cloud gave to the scene a peculiarly impressive character of wildness and desolation.

Our meal being ended, we walked to that side of the summit from which we could look down the northern arête. This was for the most part a snow-ridge, and our impression was that it might be ascended without great difficulty from the Kundium Mishirgi Glacier on its western side. The upper portion of the arête would be easily passed; such obstacles as may exist would be found in the slopes between the glacier and the lower part of the ridge.

As there was no stone on the summit with which to make a cairn, we now descended on the eastern side to the nearest rocks. No doubt this was the spot where, weather and time permitting, Messrs. Donkin and Fox would have left a stone-man, had they gained the summit on their second attempt. But we were unable to discover anything of the kind, so collecting the fragments of pale granite which lay near, we hurriedly built a small cairn, placed in it our sardine-box containing a card with our names, and at once began the descent; it was already half-past 4, and we were anxious to rejoin Kaufmann. Making our way carefully down the border of loose rocks, we soon caught sight of him, through a break in the mist, sitting contentedly far below on the southern ridge, from which the steep ice-gully separated us. Having passed the neck, we were able to improve our pace in circumventing the tower; but the time thus gained by no means compensated me for the woful havoc inflicted by the sharp splinters of granite on my only jacket, which from that time lost what little show of seamliness it had hitherto retained.

Below the tower caution was still needful, and, hurrying down the snow-ridge, we joined Kaufmann at a quarter to 6, finding him fairly comfortable, but considerably perturbed by the avalanches of stones which, he told us, had been descending the couloir during our absence. Indeed, he hinted, the disturbance had been so great, that he had begun to wonder not only *what*, but *who* was coming next.

As we had really not dislodged much stone from the edge

of the precipice, Kaufmann's statement, taken together with the fact that the Khrumkoll Glacier carries down an extraordinary quantity of débris, strengthens my impression that the rocks of Dych-tau and of its southern ridge are loose and unsafe on the Khrumkoll side, and that in the afternoon the lower slopes are probably swept by falling stones.

By the time our reunited party were again moving the clouds had once more surrounded us, and the wind became so cold that we were glad to scramble as quickly as possible down the rocky comb in order to get under the shelter of the ridge. To do this, after leaving the rocks, we continued for a short distance along the snow-arête without meeting the slightest difficulty, and so avoided the tedious passage of the couloir, which had delayed us so long on the ascent.

Below the ridge our traces in the soft snow were soon found, and we began to descend rapidly into the Tutuin basin, now a gloomy cauldron of surging mists. The rocks gave more trouble than before, much of the débris which had been firmly frozen in the morning being now loosened; but on coming to the long ice-ladder the darkness proved a serious hindrance, as the steps, so laboriously made, were now difficult to distinguish, and often nearly effaced. Fortunately, just when most needed, the moon began to shine through the mist, and lighted us down the rest of the ice-slope, and by the time the glacier below was gained one of those atmospheric surprises peculiar to the Caucasus had occurred; every cloud had vanished as if by magic, the dreary hollow had become a beautiful fairy scene, and the jagged ridge on the south side of the glacier showed clear and sharp against the sky, with every snowy ledge and furrow gleaming in the moonlight.

At 20 mins. past 10 we regained our sleeping-place, and as plenty of wood was left, a cheerful fire was soon blazing under our kettle. The soup was a brilliant success, and before long we were wrapped in sleep, sound enough in my case to defy even the sharp ridges of the miniature Schreckhorn, which formed such a prominent feature of my couch.

The next morning was beautifully fine, but the night had been very cold, and there was some trouble with our frozen boots before starting. Shortly before seven o'clock we quitted our ledge, and immediately discovered that it was situated at the very foot of the snow-gully descending from the Ullu-anz Pass. We had, therefore, slept about 1,000 feet below Donkin and Fox's last bivouac, which was almost directly above us. There was some excuse for not

recognising the place before, as so much snow had disappeared from the couloir since July 29 that its appearance was much altered; moreover, this was the first time during our second visit that we saw the spot by daylight. Of the articles which had fallen from the bivouac on the day of its discovery not a trace now remained; even the sleeping-bag, which had been left lying on the steep snow-slope below the rocks, had vanished, probably by sliding with the melting snow into the bergschrund below.

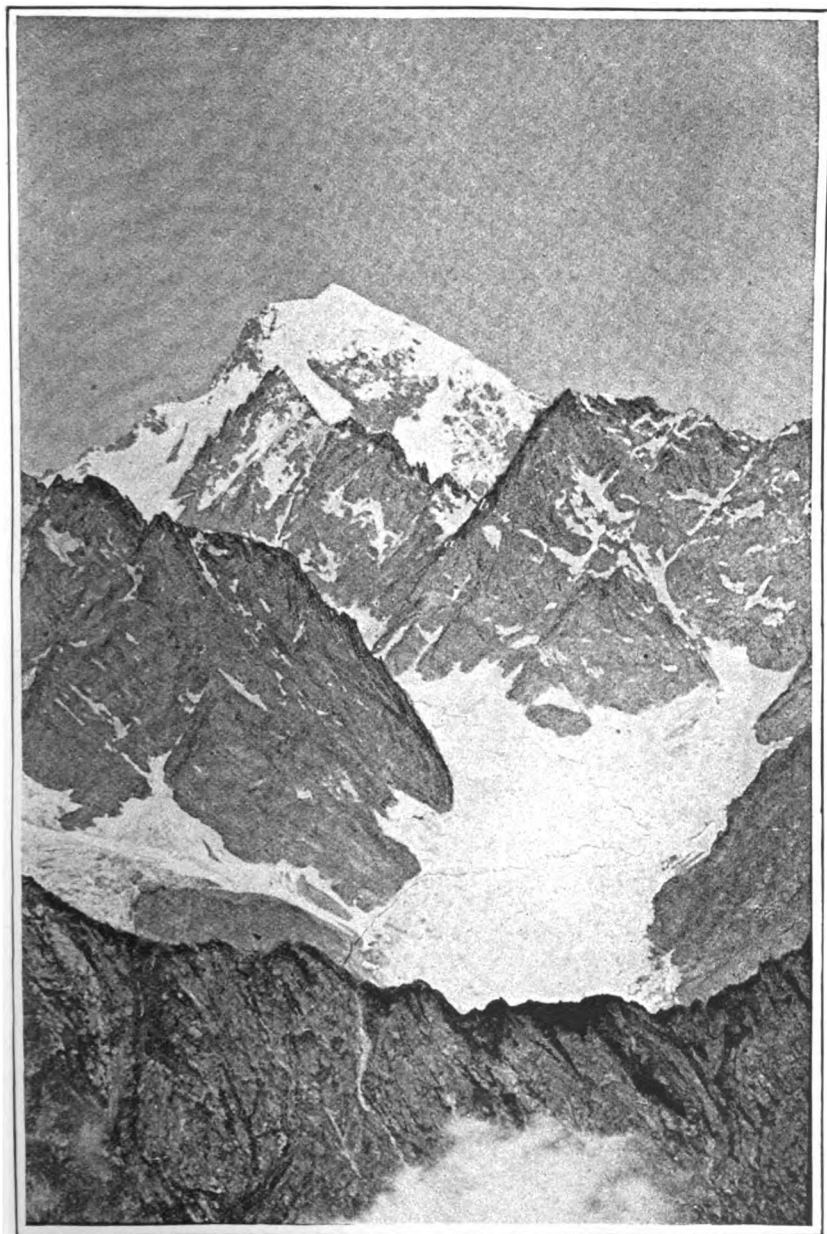
Leisurely descending the glacier, we had by 10 o'clock crossed to the right bank of the ice-fall. To our surprise, the greater portion of the leaning ice-tower was still standing; but it was so evidently in the last stage of decrepitude that we were glad to leave it behind and to begin the descent of the rocky buttress overlooking the valley. Here we were welcomed by the warm breeze from the pastures below, laden with the perfume of flowers, which smelt doubly sweet to us after our two days' exile from the regions of vegetation.

Regaining the kosh, we found that the goatherds had moved their quarters to a spot farther down the valley, on reaching which we threw ourselves on the grass, and took our second breakfast. As there was no more climbing to do, we ventured to wash down our meal with draughts of sour milk, and then lay till noon in the rich herbage smoking, and absorbed in admiration of the wonderful ice-fall above us.

It is entirely beyond my power to describe the fascinating beauty of the scene; but the view of that great frozen cataract hemmed in between mighty walls of granite, its thousands of fantastic séracs continually assuming fresh shapes as the light clouds floated above them, will not soon be forgotten.

When at length we resumed our journey it became evident that sour goat's milk was to us as a snare and a stumbling-block. Whether the innocent-looking goatherds possessed the secret of brewing something richer in alcohol than the ordinary fermented milk, or whether the luxuriant herbage of the valley imparted narcotic properties to the beverage, I cannot say. The fact remained that our legs almost refused to carry us down the valley, and Kaufmann there and then swore off the insidious fluid, and, moreover, kept his pledge till he left the country.

By the time the end of the open valley was gained we had walked off the effects of our libations, and, taking a farewell look at the snowy summit of our peak, we descended the hot Tutuin glen for the third and last time. The walk up the



H. WOOLLEY PHOT.

DYCHTAU from above KARAOUL

a. Bivouac. — *b.* Ullnauz Pass.

The N.-E. buttress is seen over the E. ridge. Mr. H. Woolley's route leads up the snowslope between the E. and S. ridges.

The faint line shows the route through the icefall of the Tutuin Glacier.

Tcherek valley seemed as endless and wearisome as ever ; but at last M. Bogdanoff's white tents came in view, and at 4 o'clock we threw down our rucksacks on the green terrace at Karaul, and so ended one of the finest and most exciting expeditions I had ever enjoyed.

We had found the ascent laborious, but, after crossing the ice-fall, free from special difficulty and danger. The rocks encountered had been easily climbed, and not a single falling stone had crossed our track. The discovery of the route taken by us was in a great measure the result of the operations carried out by the search party, as the expedition to Donkin and Fox's bivouac suggested the possibility of gaining the southern ridge from the head of the Tutuin Glacier. But for that expedition I might not have found this approach to the peak without considerable waste of time. Success was ultimately won, mainly by Jossi's patience and endurance ; but Kaufmann, though he did not gain the summit, rendered me invaluable service by helping to carry wood and provisions across the ice-fall, where no native could be taken.

The exciting feature of the ascent was the long-continued uncertainty of success ; for from the moment of leaving the sleeping-place till the tower was turned and the final slopes were won, we were never able to foresee the issue, and during the greater part of the climb our fortunes seemed to be continually hanging in the balance.

Being all in indifferent condition, our pace was slow ; from sleeping-place to summit we occupied 12 hrs., one hour of this time being needlessly wasted, chiefly by an injudicious choice of route. Had the upper portion of the slope under the southern ridge been also of ice, 12 hrs. would not have been excessive ; but with all the snow on the mountain in good condition, it would be quite possible to reach the summit in 8 or 9 hrs.

The disadvantage of our line of ascent lies in the necessity for bivouacking above the ice-fall, and in the consequent labour of conveying wood and sleeping-bags so far without porters. Those, however, who follow the route I have described may be assured that they will be amply rewarded for the trouble of ascending the Tutuin Glacier by the grandeur of its scenery, and that if the summit, or even the southern ridge of Dych-tau, be gained early in the day, in anything like good weather, a view will be enjoyed of such splendour as few peaks can command.

AN ASCENT OF THE WEISSHORN FROM ZINAL; AND SOME
NOTES ON WINTER CLIMBING.

BY THEODORE CORNISH.

(Read before the Alpine Club, May 6, 1890.)

MY feeling of satisfaction at being elected a member of the Alpine Club was soon damped by a communication received from my friend the secretary, couched, I may almost say, in terms of menace; and reminding me that membership of the Club entailed not only privileges but responsibilities, and sternly demanding of me a paper, to be read at the Club meeting in May, on my ascent of the Weisshorn last summer. Remonstrances were useless, I felt, to such a stern mentor as the secretary, and with much fear and trembling I began to prepare for my task. A second letter from the same authority, while it brought some baln, rather increased my apprehensions. I was told by him, who must be obeyed, that I must not only be instructive (save the mark!) but also amusing. In despair I turned to a faithful friend who had accompanied me, as a non-combatant, on this my first summer season in the Alps, and asked his advice. He boldly offered to write the paper himself. No doubt he would have been highly instructive and infinitely amusing; but unfortunately he had never even seen the Weisshorn, except from the valleys of Randa and the smooth slopes opposite Zinal; and therefore I felt bound to courteously decline this kind but unavailing offer. His second suggestion was that I should study and incorporate in my paper the thrilling descriptions contained in the 'Tramp Abroad,' but on searching this new and revised Baedeker I found that its fascinating pages did not include any reference to the subject of my paper; so that plagiarism from that quarter was out of the question. I had, therefore, now nothing to do but desperately to set to my task and hope that the members of the Club who condescended to hear me would be indulgent to my weak efforts and remember the straits in which I was placed. I, however, inwardly resolved that never again must I venture up a first-class peak, especially by anything but a well-trodden path, and except in company with a type-writer, a professor of descriptive letterpress, and a photographer. If it were my fate or privilege, by whichever name you may call it, to be called upon to read a paper again, my list of passes

should contain nothing more hazardous than the Stalden Joeh, and my peaks nothing more thrilling or noticeable than the Riffelberg! However, as I have said, I found some balm in my second instructions from headquarters; namely, the permission to incorporate in my paper some account of my Alpine wanderings, under a winter sky, in the Bernese Oberland. In this I felt that I gained two advantages. First, with the exception of the untiring late editor of the 'Alpine Journal' and one or two others, I had no rivals in this field, and therefore could claim to speak with some special knowledge of mountaineering in winter; and, secondly, and as a corollary from the first, I might perhaps safely indulge, should I so wish it, in wild and thrilling descriptions of the Alps in winter without fear of contradiction, and might proudly disdain any heckling that might come after from those who had never been fortunate enough to know the glories of the topmost Alps in January. The incredulous might disbelieve, but they could not contradict what did not fall within their experience. With these few observations in passing, wrung from one on whom an unsought honour has been thrust, I must pass to the more direct subject of my paper, 'An Ascent of the Weisshorn from the Zinal side.'

Now, I know from personal observation and the many letters I have received on the subject that the Weisshorn has a special charm and attraction for Alpinists. I am quite aware, as of course you all are, that to the general public, and especially to the lady portion of that public, it has no such charm. You go up, or are pulled up, as the case may be, the Matterhorn, and, to the school-girl mind at least, you are a hero for ever. You plough along the weary slopes up Mont Blanc, and spend a fortune, *en route*, at the Grands Mulets, and you are at once exalted far above ordinary men, and need never lack a patient and admiring listener. But the charms of the Weisshorn are for the initiated only, and it has been from a knowledge of this fact that I am led to believe that some account of the way up it, if not entirely over new ground and a virgin ascent, yet by a route only once or twice at the outside ever successfully attempted, may have some interest for my professional hearers. The route from Zinal has, as I have said, been but once or twice successfully attempted; but I know that it has always been the dream of climbers, and only bad weather, or other unavoidable cause, has led to its abandonment. Otherwise, I should now not boast the proud title of having been the

third to accomplish it, and my patient hearers would in that case have been spared my paper. *Dis aliter visum.* An attack on the Weisshorn from this point was one item in a rather formidable programme drawn out for my first summer season by a too kind Alpine friend. Another project, the Dent Blanche from the same side, had to be abandoned, owing to the quantity of snow on the rocks. On the next day, after an ascent of the Rothhorn from the Mountet hut—a climb which, during the last two hours on the rocks, has, to my mind, few equals, and during which we had anxiously prospected the Weisshorn, and especially its south-western ridge, where I expected to make an assault—we started from Zinal, on a glorious hot afternoon early in August, to essay our big peak. Our party consisted of Ulrich Almer as leading guide, his brother Hans as second guide, and myself. A porter also, with one of the best telescopes I have ever seen, accompanied us as far as the châlet on the Arpitetta Alp, where we were to spend the night. I shall never forget that châlet! Cows, pigs, mules, every kind of living creature, besides peasants, seemed to make their habitation in that one small hut, and the smells were something unbearable. However, we had to put up with all this, as I felt we were too heated to sleep out in the open air; but it was a bad preparation for a big climb. I hardly slept a wink, and was quite glad to be roused up for breakfast at two o'clock. I ought to have mentioned that you get delicious milk at the châlet, to make up for its other nameless terrors. There had been a brilliant starry night and cloudless sky, and everything had pointed to a fine day. Well for us, as I now think, that it was so. If we had been belated by bad weather, or any such cause, on our ascent, it would have gone hard with us. I know that some persons believe that there is nothing difficult or dangerous, and that it is only the vanity of the narrator, or some fond delusion fanned into flame by constant repetition of his adventures, that lends its horrors to his expedition. This may or may not be the case. At any rate, in representing this route up the Weisshorn as a both difficult and dangerous climb I am endeavouring to confine myself strictly to the impressions formed on the spot, deeply imprinted in my mind at the time, and confirmed by comparison with other peaks ascended later on; so that if hereafter some one should make a similar ascent, and call in question its supposed dangers, all I can say is that I conscientiously believe it to be a very dangerous business, and

that human judgment is at best only fallible. The first hour we proceeded by lantern light, apparently along the slopes of the Arpitetta, till we arrived at some loose shingly or shaly moraine heaps. Having traversed these with little trouble, we got on to the glacier, and luckily found the snow bridges firm enough across the many crevasses. My impression is that later in the day these would have been impassable. After traversing the glacier we arrived at a rather nasty bergschrund between the glacier and the rocks. (I am speaking from memory and not from notes, as I unfortunately took none at the time, not being in the least aware of the real importance of the climb or of its dangerous nature.) This we crossed with considerable difficulty, which brought into play Almer's great qualities as a guide. I must here mention, as I ought to have mentioned before, that we had abandoned the idea of forcing a way up the S.W. arête, and had determined, after a careful survey of the western face through a telescope, to make an ascent in that direction.

Arrived on the rocks, our work was at once cut out for us, and though it was fine it was bitterly cold, and it was unpleasant work. Those rocks gave us some tremendous collar work. They ran in a kind of ridge up towards the centre of the west face, trending from S.W. to N. I don't remember that they were much covered by snow, but the rocks themselves were exceedingly difficult, and not only that, but they afforded a constant source of danger from their brittle nature. I never saw such rotten and friable rocks; but it takes some time to realise this, and only constant and stern warnings from Almer prevented my trusting to them like ordinary rock. We had the greatest difficulty in circumventing this ridge; we had to use all kinds of artifices, standing on one another's shoulders, helping the first man to plant himself, and then the last man to join us, when we had surmounted some particularly nasty bit. It was slow and toilsome work. We had calculated on reaching the top at 12 o'clock, perhaps earlier, and here we were contending with this hateful ridge and laboriously struggling on, with only the easiest part of our work accomplished, and it was already 9 o'clock! At the end of the rocky ridge there was a short snow arête striking away towards a columnar pile of rocks in about the centre of the face, surmounted by a cairn of stones. This afforded no great difficulty, owing to the good condition of the snow, and at the cairn, where we rested, we found a letter left by

some guides who had ventured thus far in the preceding summer, in vain search after the body of the Austrian, Herr Winkler, who had madly ventured on the mountain alone. Here we took a fairly long rest and refreshment, and from here onwards for another 6 hrs. came the really difficult and dangerous part of our ascent, bad though the rest had been. Up steep snow slopes hung at an almost impossible angle; liable, as we saw, but luckily did not experience, to be raked by falling stones, under certain circumstances a very likely and pressing danger; compelled to traverse these precipitous slopes when the ice or *névé* became too hard to make a vertical ascent; these traverses often having to be effected where smooth and crumbling slabs of rock dovetailed into the snow; when the rock itself was impossible, cutting precarious steps in the thin layer of glazed ice that covered its surface—steps so shallow and resting on such weak foundation that the third man nearly broke them down, and I feel sure a heavier party than ourselves could not have passed them in safety. I am not nervous, and do not know what it is to be giddy, but this was perilous enough to satisfy the veriest glutton on climbing. I have vivid recollections of the rocks themselves, and of our attempts to get over them—bare smooth slabs, frightfully steep, horribly crumbly—and I can well recollect one place where Ulrich got into difficulties. Hans tried to get past me to help him. I myself was in a position of most insecure tenure, and we all seemed to be slipping together. Below us a great abyss, above us rocks which refused a foot- or hand-hold. Once, I don't mind confessing, I thought it was all over with us, and it was a most curious sensation. How we righted ourselves in our perilous position I cannot well remember, but at last we got on, and rested about an hour below the top, under some rocks. I can't help saying that those are the only occasions when I feel any qualms, when your guide stands in front of you apparently on nothing, with his back to the precipice, ministering to your wants. We were all very much exhausted at this point. My legs had got very cramped standing in the steps, when we were occasionally nonplussed while trying a traverse; and the rocks themselves had strained all our energies. From the shelter of these rocks we struck off to make the N. arête at no great distance from the summit, and, experiencing no further difficulty, as far as my memory serves me, we reached the actual summit at 4 o'clock P.M., 13 hrs. from the start.

Right glad we were to be at the top and to have crowned our labours with success. It was late; nearly half-past four. Returning by the same route was out of the question; the guides said it was 'too dangerous'; they would not go the same way again for a thousand pounds. It was too risky; we could not face those rocks again, and the snow part would certainly have altered for the worse. So we gave this idea up, and it was, I feel sure, a wise determination. We therefore decided to make for Randa in the Zermatt valley, and we accomplished this with ridiculous ease; a party had lately been up the arête on the Randa side, so we found steps ready cut, and we had not the least difficulty with the rocks. We almost raced down, and, taking one long rest, we got down to Randa by 10 o'clock, the last 2 hrs. being spent in stumbling along those never-ending 'paths' which intersect the slope below the Weisshorn hut, and which so baffle the traveller in the darkness. The whole descent was tiring, but I saw nothing on the Randa side of the Weisshorn in the least approaching in difficulty or danger to that western face. After our experiences of the latter, the other dwindled into nothing.

When we reached Randa we had been out for nineteen hours of hard toil, not unaccompanied, as I have said, by danger; but some soup and a warm bath soon restored me, and I felt as fresh as a lark the next morning. Standing on the steps of the hotel the next morning, being wonderfully arrayed in a check shirt and enormous Gladstone collar belonging to some one connected with the hotel, I got into conversation with a young lady who had been absent from England for two years, and was evidently much astonished at the style of collar apparently in fashion there, till I reassured her on the point and acknowledged its origin. On hearing of our traverse of the Weisshorn she flattered me ~~very much~~, by going into ecstasies at fate having at last permitted her to see a real mountaineer in the flesh. She had often heard of one, she had often read of one, but she had never seen a real live specimen before!

We got back to Zinal next day by the Besioch Pass, which is interesting, and the Col de Diablons, which, under a burning sun, is the most intensely trying glacier walk I have ever been. On looking back on our climb of the Weisshorn on the west face, which I have tried, however feebly, to bring before you, one or two observations will not perhaps be out of place. Our success was due, I think, to three main causes.

First, we had a lovely day, not much wind, but that wind cold enough to keep the snow in good condition. Almer laid great stress on this latter point. In bad weather or with the snow in bad condition, I feel that an ascent on this side would be practically impossible and exceedingly dangerous. There are quite enough dangers in fine weather.

Secondly, I had the good fortune to possess splendid guides. Difficulties such as we that day experienced simply proved opportunities for testing and drawing forth Ulrich's magnificent qualities, his ready judgment and unflinching skill, combined, as it so rarely is, with that important quality on a long expedition, unflinching good temper. Also, Hans has great strength, together with other qualifications, and these stood us in good stead on several important occasions. Theirs is all the credit of the climb. I was merely learning a lesson from good masters of art.

Thirdly, we were a light party. Both Ulrich and myself are small and slight, only Hans being at all big. This proved, I think, our safety and ensured our success.

Finally, whether I have unconsciously magnified the dangers or not, I think it must be evident that it is an expedition of some moment, and I think it is too dangerous ever to become a regular route, and I certainly cannot recommend it. And *lastly* (to use a preacher's licence), whether our route for the last six hours of the ascent was new, or perhaps merely a variation on one of the routes previously taken, I am unable to say. If I had taken accurate notes it might have been different. At the time both the Almers and myself were under the strong impression that we were making an untrodden path.

I have been asked what kind of view we got from the top. It was a splendid one, but as I reminded my inquirer, a view from a summit is the same from whichever side you make the ascent; so that it is not necessary to climb from Zinal to get a view which is attained with much less fatigue and peril from Randa. With regard to the danger of the rocks on the west face, I was soon in a position to compare them with other rocks, notably those on the Italian side of the Matterhorn. These, in a passage we made a few days later, we found very difficult; but I never felt conscious of any real danger, as they were good and firm. Taking another illustration from the Matterhorn to show how the difficulty of ascents or descents differs with the weather or the state of the snow, I may mention that we took nearly eight hours to get down to the Italian hut from the summit, owing to the

state of the snow, though the ascent by this route, I believe, under different conditions, might only involve four or five hours.

As an illustration also of the difficulty of making out by what exact route you have ascended a mountain, unless you take careful notes at the time, and have this object especially in view, I may mention our ascent of the Dent Blanche the same season. At the time we did not know that we had not been up the ordinary route, by the Blatten rocks (though we were puzzled by not experiencing any difficulty on any point such as might answer to these rocks); but, on comparing notes afterwards, I am much mistaken if the route which we adopted, and by which so many followed in our footsteps, was not in the main features the same route as that discovered so many years previously by Mr. Frederick Gardiner. I merely mention these points to show how easily mistaken one may be as to a route when one is simply intent on the climbing, and how widely circumstances vary conditions. Who, a few years ago, would have believed me if I had said that we had found the Dent Blanche one of the easiest and shortest of our expeditions, and that we had sat on the summit an hour smoking our pipes and revelling in the sunshine?

I now come to the second part of my paper, 'Mountaineering in Winter.' I am afraid I have already trespassed heavily on your patience, and have not left as much time as it deserves for this subject. It has a great fascination for me, and I think this feeling is shared by those who are acquainted with the Alps in winter.

I well remember how I was first inspired to try winter climbing in Switzerland. Some winters ago I used to spend a few days in January each year pottering about on the hills in the Lake District. On one such occasion I climbed Helvellyn, which was then deep in snow, and was surprised by a mist on the top. I was rather proud of my achievement, and had, I believe, written a thrilling account of my exploit for a local paper. On the last of these occasions I was electrified by the news, recorded in a London paper, that Mrs. Jackson had succeeded in crossing the Jungfrau. This at once fired me to try other scenes for my winter work. My resolution was still further confirmed by a charming account which appeared in the pages of the 'Guardian' of the delights of the social life enjoyed by the writer during a short winter sojourn at the hospitable

‘Bear,’ at Grindelwald. So the January of 1889 found me comfortably settled in those pleasant winter quarters, and I expect many a succeeding January will find me haunting the same spot. Those who only know Grindelwald in the summer have little knowledge of its charms in winter.

Those who have been there under a winter sky will readily recall to their minds the cheery welcome on arrival, after an exhilarating sleigh-drive from Interlaken, the ceaseless attentions of those princes of hospitality the Bosses, the indescribable appearance of that great hall in the winter-house, with its famous log-fire, the social afternoon teas amid a strange surrounding of dogs (big and little), boots, gaiters, ice-axes, alpenstocks, photographic apparatus, and what not; chess in one corner, whist in another, kindly sociability everywhere; the quiet pipe enjoyed without reproof, and an air of sweet negligence all round. This is a picture that must not be omitted in any description of mountaineering in winter.

Nor is mountaineering the only attraction held out there. I have seen grave members of the Alpine Club playing wild games of hockey on the ice, to the intense delight of the villagers. Last winter also there was skating for those who would on a sheet of ice which, I am bound to confess, realised to my mind more than anything else my idea of an inclined plane; and space and time alone forbid me to enlarge on that most fascinating of all pursuits, tobogganing. At Grindelwald it is not reduced to a science as it is at S. Moritz, but everyone goes according to his own sweet will, and, like Mazeppa, urges on his swift career, regardless of the consequences! Nor would it be in place here to describe what the summer visitor cannot realise—the vision of the whole place under a carpet of snow, and those marvellous pinnacles of icicles on the Lauterbrunnen road. But I have digressed. I said that the January of 1889 found me arrived at Grindelwald intent on climbing. To the general mind, at any rate at that period, a winter in these parts suggested nameless terrors. Many people, I really believe (I am bound to say that I myself at one time shared the delusion), laboured under the idea that in the shadow of the Bernese Alps in winter the inhabitants hibernated like dormice, only to reappear with the summer sun. This is the only way in which I can reconcile the warnings I received before starting, as though I were about to plunge into some Siberian region. I left England amid grave remonstrances and anxious partings, and yet a week later,

while England was sunk under fog and mist, we in this supposed Arctic zone were strolling up the Faulhorn under a brilliant sun and clear sky, all too hot, as we found it. I should mention that the winter of 1889 was an exceptional one in this one respect. No snow fell till late in January. This was how it came to pass that on our first ascent, that of the 'Schreckhorn,' we were enabled to follow the summer route as far as the Schwarzegg hut, and were enabled to do so without much difficulty. As a rule the walk up to the huts forms a far too prominent feature in winter climbing, as we found to our cost in getting up to the 'Bergli' in the succeeding winter. This alone constitutes an important difference from summer climbing.

Never shall I forget that New Year's night at the Schwarzegg. The hut was nearly full of driven snow; it was icy cold; and there we sat shivering, shaking, bundled up in the few wraps we possessed, devouring our New Year's dinner. Those who only know the huts in summer, comfortless though they may then be, have little notion of the discomforts in winter. However, the next morning, after a sleepless night, amid the roars of constant avalanches, after struggling into our half-frozen boots and gaiters, and hastily swallowing some hot tea, we prepared to start. Our party consisted of a friend and myself, the two Almers, and Jossi, who had come as porter to the hut, and insisted upon accompanying us to the top. We started at 3 o'clock, and for the first 3 hrs. or so over the snow-slopes we had to go by lantern-light, as there was no moon. This constitutes another serious difficulty of winter ascents, namely, the shortness of the days. I am not going to describe our route exactly, though I believe it differs somewhat from that adopted in the summer. In going up a great snow couloir we were unpleasantly reminded of unseen dangers by two snow avalanches at no great distance off. The next day another party had one, I believe, in still more dangerous proximity. The cold all this while was intense, and that great bugbear to winter climbers, frost-bite, seemed at times inevitable. In my case, however, I think it was effectually staved off by watching the vigorous measures which the guides adopted with my friend. I concealed my feelings, and, like the late Lord Derby, 'I preferred the gout'! A little later on we were rewarded for our toil by the most magnificent sunrise I ever beheld. We could not see the sun, which was on the other side of our mountain, but gradually our numbed limbs and weary frames were in-

spirited, as peak after peak, clearly cut and snow-clad, was bathed in the rich pink hues of the unfolding morn. With renewed energies we pressed on till we were just below the saddle, and after getting successfully past some difficult rocks we made a halt for rest and refreshment. Hitherto, though the cold had been intense, there had been no wind, or we had not felt it. Our serious difficulties were now to begin. On reaching the saddle or ridge leading up to the final rocks, we found ourselves swept by a terrific wind and blinding snow, blown up from the great snow-slope on the other side. The arête was hard snow or ice, and necessitated a great deal of step-cutting; this in the face of the wind and snow, and with the thermometer, I suppose, down to zero! My heart sank, and I thought we must give up our cherished peak. However, owing to the manly conduct of the guides we managed to press on, and after a long struggle we at last made the final rock ridge leading to the summit. Arrived there, we just wrote our names on a card, 'as a guarantee of good faith,' and lingered a minute and a half enjoying, as best our numbed faculties would permit us, the glorious view. The valleys were all a rolling sea of fog; the peaks, however, like giant islands, stood out grand and sharply cut above this sea. Ah, those winter views! There is nothing like them. Our descent at first down the arête was extremely hazardous, as descents, I think, always are, especially when attended, as in this case, by a cutting wind and blinding snow. However, arrived on the saddle, we had thenceforth no great difficulties, and our journey back to the hut was only remarkable, I think, for the unorthodox way in which my friend and myself descended the rocks, causing sad havoc to our garments. We took 9 hrs. to the summit, and 6 hrs. for the descent. Arrived at the hut, we found another party there to share our scanty supply of rugs, and to climb in our footsteps next day. Undaunted by our 15 hrs. of hard work, Ulrich and I essayed to get down the glacier and return to Grindelwald that night; but the fates were not propitious; it was dark and windy; our lanterns went out; we were constantly chasing after our hats, which blew off; and, finally, a fall into a crevasse convinced us that discretion was the better part of valour, and we returned discomfited to our friends and the hut.

After this ascent of the Schreckhorn, which I now felt justified in familiarly calling the 'Shreck,' our next expedition was the 'Wetterhorn.' This I did without my friend, but with the same faithful guides. Our chief difficulty, I

think, was getting up to the hut (the Gleckstein) on the first day. It took us 8 hrs. of continuous toil, not unaccompanied by danger. After signalling our safe arrival by rockets from the hut, we slept there fairly comfortably, though the wet was trickling from the hut roof all night, and as Jossi slept with his mouth open he probably got more than his share. We had intended to start early so as to do the Mittelhorn as well, but the elements were unpropitious, and we only started at 9 o'clock, under the strong impression that we should have to turn back, as there had been a fall of snow in the early morning, and there was a good deal of mist about. Luckily, however, our forebodings were not verified, and, following the summer route, though experiencing severe cold at times, we made the summit of the Wetterhorn by 2 o'clock, 5 hrs. only from the start, and, finding it unexpectedly warm there, we were enabled to rest for 20 mins. on its razor-like summit. We were back at the hut about 5.30, and after cleaning up we determined to use the parish lantern, which was fortunately shining, and after a very quick but somewhat risky descent we were in the warm hall of the hospitable 'Bear,' receiving a hearty and cheery welcome, at 9 o'clock. A further project, the ascent of the Eiger, had for this year to be abandoned, as the weather had broken, and we had to content ourselves with tobogganing.

Encouraged by my success in 1889, the January of 1890 again found me out in Grindelwald, bent on fresh conquests. But the scene had somewhat changed. Heavy snowfalls in December had made the conditions rather different from the previous year, and a week's 'Föhn' wind made mountaineering at first impossible. So soft was the snow that it took us 8 hrs. to get up the Faulhorn, which we had done the previous year in a little over three. Everything comes, however, to the man who waits—even mountains—and on January 6 our patience was rewarded by a change of weather, the precursor of as brilliant a week, I should think, in point of weather, as was ever seen at Grindelwald in winter. Still, cold, sunny weather—just the conditions most desired for climbing; and we made good use of it. We had several objects in view at starting: if possible, the Eiger from the Bergli side; failing this, the Jungfrau and the Gross Viescherhorn. The first, on nearer inspection from the hut, we found, to our intense disappointment, just impossible from that side; but we succeeded in our attempts on the Jungfrau and the Viescherhorn. Owing to the soft state of

the snow, we found the first day's walk up to the Bergli, adopting the route by the Zäsenberg, a most toilsome business, and we took 10 hrs. over it. The hut itself was very damp, and our stove-fire melted the frozen roof, so we passed a wet and comfortless night.

Starting at 4 o'clock the next morning, by the light of a glorious moon, our feet were several times nearly frost-bitten, especially when we got into a long tract of soft powdery snow below the Mönch Joch. Ploughing through this was irritating work, but we reached the Roththal Sattel in about 6 hrs., without any mishap, and another two hours' hard step-cutting on the hard snow slope saw us on the summit of the Jungfrau. It was a glorious day, very little wind, and the view was superb. The valleys were clear of mist, the mountains to the furthest distance wonderfully clean cut against the sky, and the familiar peaks around the Zermatt district seemed at our feet. After a prolonged halt to enjoy the view we descended to the Sattel and made our way back to the hut, after an absence of 14 hrs. The next morning the guides overslept themselves, and we did not start for the Viescherhorn till the late hour of 8 o'clock. We had magnificent weather, and, working round till we got to the western snow arête, our climb was pleasant and uneventful. We stuck to it very hard and reached the summit in a little over 4 hrs.: our only difficulty being with the arête, which necessitated much step-cutting. We stayed on the top a full hour enjoying our lunch and the well-earned pipe, and revelling in such a view as would reward twenty such climbs. This, remember, was on January 8: about 3 hrs. found us again at the hut, but we did not reach Grindelwald itself till past 10 o'clock that evening, the descent in the dark, and the crossing of the glacier proving most toilsome and wearying. This closes my record of winter climbs, and while thanking you for the patience with which you have listened to me, I will end my paper, already, I fear, too long, with a few observations on the results which my experience of winter mountaineering seems to suggest. In the first place, I think the actual climbing is often easier than in the summer. There is as a rule more snow, and this would render some of the rocks more feasible—I mean by their being covered over. The air is exhilarating, and you gladly miss the often extreme and enervating heat of summer. Also, if that be an advantage, you have everything your own way, and there is no crowding out, or, what I deprecate most, racing. Without further particularising, I feel sure

there are many advantages, besides the superiority of the views gained, on the side of the winter mountaineer. But it would be affectation to deny that a winter climb involves very serious drawbacks. First and foremost, an almost insuperable objection arises in the increased, the enormously increased, chance of frostbite. I am obliged, rather reluctantly, to testify to the force of this objection. Secondly, as of course you know as well as I do, the days, the time wherein you can work with safety, are in winter terribly short. If any hitch arose or any accident delayed a party, one trembles to think of the possible consequences. The rocks too, where they are bare, are of course very much glazed with ice, and this means slow progress. The huts are indescribably uncomfortable. If you think the game worth the candle you must be prepared for all this, and you must go thickly clad. '*Nudus ara, sere nudus*' may do for agriculture, but it is not a wise maxim for winter climbing. Above all, take plenty of gloves.

In conclusion, when fresh from an ascent I feel inclined to preach caution and dissuade from mountaineering in winter; but it has a charm of its own; distance of time and space throw a glamour over its difficulties and dangers; one is apt to ignore or try to forget them, and, after all I have said, I do not feel at all sure that the winter of 1891 will not see me again disregarding my own croakings and again essaying some Oberland peak.

LEAVES FROM THE DIARY OF THE LATE MR. A. T. MALKIN.

1856.

Zermatt and Saas, with Reminiscences of former Visits.

August 19. Monday.—Visp was wonderfully knocked about by the earthquake last year; half the houses are more or less damaged, and the church is evidently the worse, but, like the Phoenix or an old coat, it is reviving—better than new. Indeed, throughout the country much improvement and activity are visible, and the click of the mason's hammer is heard everywhere. . . .

At St. Nicolas there is now a comfortable little inn

To good walkers bound down the Valais from Zermatt I recommend a lofty and laborious pass [Jung pass, about 9,843 feet], north of the great Weisshorn group, direct from St. Nicolas to Tourtemagne. The first climb up the

mountain-side behind St. Nicolas, past a series of pilgrimage stations, is highly picturesque; higher the pass becomes very wild, with grand views, then over snow slopes, but no glacier to cross. The ascent took me near 5 hrs., and the descent to Tourtemagne about 4. It is remarkable that in the whole Turtmanthal there is (as I was told) no permanent habitation till you reach the sides of the Valais. There are summer villages, but all in the upper part of the valley; the lower part is a mere gorge, very long, very narrow, very steep, and very grandly wooded. This route is almost unknown. I walked, in 1843, in a day from Zermatt to Tourtemagne, but it is 13 hours' heavy work. Now that there is an inn it is better to sleep at St. Nicolas.

To Zermatt—4 hrs.—the valley widens and shows more of the mountains. . . . One interesting object—the hotel on the Riffelberg—is visible far down, but I was slow to make it out. Indeed, I took it for a stone; nor was the mistake a very foolish one. There is a bigger hotel at the Mattmarksee, and a stone lying hard by which is bigger than it. . . .

Zermatt, when I was there 17 years ago, was just rejoicing in the dignity of an inn—*chez* Madame Lauber, who had tacked on to her wooden house a wooden outhouse, accessible to expert and strong-headed climbers. There I made my tea in a shaving-pot, and washed my hands in a slop basin, and, as in the days of the patriarchs, had a sheep killed for my refectation. Sore displeased was madame that I did not stay to eat it out, so little did she anticipate a succession of guests. But she was good-tempered and obliging, and I hope that she retains a profitable interest in the 'Hôtel Mont-Rose,' which now stands on the site of her humble tenement. There is another larger hotel, the 'Mont-Cervin,' and between them they probably make up 100 beds, which are often all full. As the valley produces nothing eatable by Englishmen except meat, dairy produce, and potatoes, everything else has to be brought on horseback from below. This should be an excuse for high prices, did they exist; but at our quarters, the 'Mont-Rose,' everything was cheap, and good, and comfortable, as far as the exigencies of a limited establishment would allow. The service is performed by women—one of them a very pretty girl from Sion—and that with a grace and courtesy which should reconcile anyone to such tardiness or slight deficiencies as may occur. The small inn on the Riffelberg is an annex of this hotel.

August 20.—By making a *détour* of half an hour we all

visited the foot of the Gorner Glacier on our way to the Schwarzsee. It is a singular and beautiful spot; the ice is advancing, so there is no waste and ruined ground; trees, turf, and ice are in immediate contact. . . .

We had not mounted far above the St. Théodule road when rain drove us home . . . and I lost the opportunity of refreshing my recollection of the difficult pass across the Col d'Hérens and the great Zmutt Glacier, by which I crossed from Evolena to Zermatt in 1843. Travellers should descend from the Schwarzsee on that side, so as to return by the Zmutt ravine, which is unsurpassable in its kind.

August 21.—Clear and bright; ascended the Riffelberg and went on to the Gornergrat, the middle portion of that subordinate chain of hills which, springing out of the great sea of ice between Monte Rosa, the Weissthor, and the Saasgrat, divides the Gorner and the Findelen Glaciers. Ladies can ride nearly to the top, 2 hrs. beyond the Riffel hotel. An hour farther of pretty hard and rough walking is a higher point, the Hochthäligrat, probably near 10,000 feet above the sea. . . . The two views are substantially the same; the Hochthäligrat nevertheless commands the grander and more perfect panorama; and it is one unequalled in its kind. . . . it is a perfect specimen of a view, not over, but in, the mountains. There is no valley visible, and no distance; the circular sweep of the main chain from the Cima di Jazi to the Cervin, the lateral chain thence to St. Nicolas, and the Saasgrat form a complete enclosure of snowy peaks from 13,000 to 15,000 feet high. We slept on the Riffel, intending to reach the Cima di Jazi next day. Weather prevented us, but I may recommend the excursion as involving little difficulty beyond fatigue. The view towards Italy is of extraordinary sublimity, and for a point exceeding 13,000 feet in height [according to the Swiss map it is 12,527 feet, and according to the Italian 12,300] it is singularly easy of access. This I know, having formerly made the excursion from the Findelen chalets, before the Riffel hotel was built [in 1854].

August 22.—At 9.45 A. and I set out for the St. Théodule, and in 20 min. reached and descended the rocks to the Gorner Glacier. . . . Crossing the trough of the glacier, which lies in large and beautiful waves of pure ice, we mounted the opposite slope towards a chain of rocks which here maintains the glacier descending from the St. Théodule, at a much higher level than that which we were on, which descends from the Little Cervin, and after a good stiff climb

entered for the first time upon the *névé*. New snow fallen in the night rendered it laborious; otherwise the upper part of the route presents no difficulties; formerly I had ascended with horses and ladies from Zermatt. . . .

Mr. Wills, in his charming volume of Alpine adventure [*Wanderings among the High Alps*, pp. 210-213], tells a touching story of an old man whose great aim in life was to build a little hospice on this his favourite pass. He had got together some money, and was travelling to collect subscriptions, when he disappeared—murdered, it is supposed, for his little treasure. Some one, more fortunate, has accomplished his wish, for here, on the top, 11,000 feet high, is a snug little stone cabin with a stove, not the less welcome to me for the recollection that 17 years before, when I accompanied the first two ladies (as I believe) who ever mounted the *St. Théodule*,* they had to sit on a rock and eat a cold luncheon on a day not much warmer than this. As we had no view to Italy we kept comfortably by the stove. There is no water within many hundred feet perpendicular; if you want any you scoop a saucepanful of snow and set it on the stove to melt. I suppose there must be a man in the establishment, but we saw only two lasses from the *Val Tournanche*; they sang merrily with our guides, and more merrily as we passed round a jug of hot kirsch and water, which seemed to be received with an enthusiasm like that of the young Chinese who discovered roast pig, described by *Elia*. Backward as these valleys are, surely it was not left for me, A.D. 1856, to introduce toddy! in that case I deserve to be deified as the *Caledonian Bacchus*. After an hour's stay we all returned together to Zermatt in 2 hrs. 45 min.—very fast. While we were yet in the wilderness the sun broke through a rift in the dense clouds, with a singular and beautiful effect; it was a *sepia* landscape, touched with gold.

August 23.—Short day to *St. Nicolas*. Met there and warmly greeted by *Victor Tairraz*, now one of the best guides of *Chamounix*, with whom *Paccard* and I last passed this way.

August 24.—Short day to *Saas*. . . . Note half-way a

* [*Herr C. M. Engelhardt*—the chief frequenter of Zermatt in the thirties and the forties—gives a detailed account of an excursion to the *St. Théodule* from Zermatt and back which he made with his wife and her sister on July 28, 1836 (see his *Naturschilderungen*, pp. 228-243). But Mr. Malkin's ladies were undoubtedly the first English ladies to reach the pass.]

superb group of two or three old larches, which grow out of the precipice between the road and the river; their position has saved them from the axe. They bear the same relation to the larch of our plantings, despised of Wordsworth, that a Scotch fir on Icklingham Heath bears to a Braemar pine. . . . Pass a large church, which, however, is not the church of Saas; there is a solidity and sumptuousness of internal decoration, and superfluity of number, in the churches of this sequestered valley which testifies both to the piety and wealth of its inhabitants.

There are now two inns—the old one, formerly kept by Moritz Zurbrücken, and a handsome, new, unfinished hotel built by a company. I believe there is some community of interest between the two houses.*

August 25. Sunday.—A glorious morning, and a great concourse of people at Mass, well dressed and well-looking; the women's caps were gorgeous, and the music and singing very good. We sat outside the church, which was crowded, for a long time, looking and listening. Afterwards I walked to the little valley of Fee, distant half an hour, a lateral glen recessed in the Saasgrat; it is another half-hour, or rather more, to the foot of the glacier, beyond the village. There is not a lovelier spot in Switzerland—emerald meadows set in frosted silver; for the valley is almost encircled by a brilliant amphitheatre of glaciers descending from the Alphubel- and the Mischabelhörner, which rival Monte Rosa itself in height. Returning, I varied the way by a steeper and more picturesque descent; it leads past a series of pilgrimage stations.

August 26.—In the afternoon we all went up the valley to a new-built [1856] hotel at the head of the Mattmarksee. To Almagell the ground is level and the scenery cheerful; higher it grows ever wilder up to the Allalin Glacier, which, like the Brenva, crosses and blocks up the valley, and rising high against the opposite hill, which has to be scaled, by an excessively steep and bad path. Our Visp attendants and horses had never been so far up, and were considerably disgusted. . . . Nothing can be drearier than the head of the valley. The inn is cold, half-furnished, and incomplete; but it is a privilege to have an inn in such a place.

Our purpose was double in quitting the fleshpots of Saas for the howling wilderness of the Mattmarksee. L. and A.

* [See Mr. Wills's humorous account of this community of interest, 'Wanderings among the High Alps,' 1st edition, p. 119.]

were bent on a great exploit—the ascent of the Strahlhorn, a mountain point at the southern end of the Saasgrat, above 13,000 feet high [13,751 feet according to the Swiss map], commanding one of the finest views in the Alps. . . . Besides Christian we took for the Strahlhorn the Saas inn-keeper, Andenmatten, a first-rate guide, and his brother; but they only arrived in the night, having been engaged all day in climbing with the curé and a party of English a peak called the Fletschhorn, between Saas and the Simplon. [This was Mr. Ames's ascent of the Laquinhorn (see 'Peaks, Passes, and Glaciers,' 1st series, pp. 209–221).]

August 27.—At starting we rounded the head of the lake, passed the chalet where Mr. Wills slept before he crossed Col Imseng, as he has named ['Wanderings,' p. 157] what seems usually to be called the Adler Pass, and followed his route first up a very steep buttress of the mountain, then along a precipitous path high above the Schwarzenberg Glacier. We then turned up a steep stony slope towards the north, at the top of which we should have overlooked the upper basin of the Allalin Glacier and commenced the glacier work of the day; and we were already among the lower snow patches when the guides, who for some time had been ill-disposed to proceed, insisted on going no farther. We had started before sunrise in a lovely morning, but mists soon began to creep up the valley, and gradually rose and increased so as to preclude all hope of a successful ascent. Having done one half, and that perhaps the most laborious, certainly the least interesting, and reached a height of perhaps 10,000 feet, we had to return, and before we reached the bottom our mist converted itself into a drizzle, and we got cold and damp to our cold, damp inn. . . . The weather being very unpromising, we faint-heartedly returned to Saas in the afternoon.

August 28.—A most brilliant morning, suitable above all others for the Strahlhorn.

By advice of the curé A. and I started for a point called the Latelhorn [10,526 feet according to the Swiss map, 10,480 according to the Italian], as yet unknown to travellers. At Almagell we began to ascend the hillside towards a lateral valley, the Furggthal, through which a mule path formerly led to Val d'Antrona, below Domo d'Ossola. The highest chalets are 45 min. above Almagell, at the entrance of the Furggthal, which is bare, dull, and uninhabited. From these to the foot of the glacier is about $1\frac{1}{2}$ hr., pretty level. At the moraine we began to ascend rapidly, crossing and recrossing

the ruined zigzags of the former mule road, one of those early passages, formerly maintained with much cost and labour, for commercial intercourse with Italy. There was a similar road over the Moro, which has also fallen into decay, but the Saas people talk of re-establishing it. Nothing but a practicable mule road to Macugnaga is needed to make the Saas valley one of the most attractive in the Alps.

After reaching the level of the glacier we kept northwards, not on the ice, but over gently inclined snow-beds, to the rocky ridge of the Alps, and looked down into the depths of the Val d'Antrona. The mountain-side is so nearly a precipice that but for the evidence of the old paved road it is difficult to conceive that mules can ever have passed this way. We continued mounting along the crags to the foot of the horn, which was our destination, and this, perhaps 200 feet in height, is the only part of the excursion which approaches to difficulty; but the rocks are sound and good and there is no danger.

In climbing up there is not much view; your back is turned on Monte Rosa, and your attention is likely to be engaged in the choice of hand- and foot-hold; not to say that there is a natural tendency to keep away from the side which commands the view and at the same time drops 4,000 feet into Antrona. So it came to pass that I saw but little until I reached the narrow summit, and then I literally screamed. From the Simplon to the Ortler Spitz, in the distant Tyrol, every peak in the Alps was in clear and distinct view. Close to us on the north the Weissmies hid the high points over Saas and the Bernese Alps, and the Monte Leone the nearer and lower portions of the Valaisan chain. Next came the heights of the Gries, the Grimsel, and St. Gothard; behind them ridges which we could not identify, but conclude to be the heights of Uri, Glarus, and the Grisons. Eastward the serrated chain of pale blue hills and snowy peaks swept round, enclosing a nearer but indistinct and shadowy mass, consisting of the inferior mountains which divide the valleys of the Italian lakes, above which rose, brilliant and clear in the sunshine, two great glacier groups, those of the Bernina and Ortler Spitz. To the south shadow and darkness on the horizon. I believe the rugged chain between Antrona and Anzasca conceals more distant objects in that direction, but the eye rests not there, but sweeps westward to Monte Rosa, the many-crested, the Weissthor, Cima di Jazi, Strahlhorn,

Rympfischhorn, and all the horns of the magnificent Saasgrat, which in their turn disappear behind the nearer ridges of the Weissmies. Such is the horizon. The middle view is filled up by the desolate Furggthal to the west, to the east by the broad, deep glen of Antrona, less sterile, and relieved by a blue mountain pool. Far away, a long straight stretch of the Simplon road, a village, and a glittering reach of the river Tosa; no part of the Lago Maggiore is visible. I have tried to fix the impressions and preserve the details of this wonderful view while fresh in my memory; but it is hardly credible to those who do not know it by experience how imperfectly, even with an hour's earnest attention, the observing powers take in and retain the features of so vast a scene. The day was almost perfect—bright, calm, and warm. We lay for an hour in the nooks of the stones, for the top of the horn is only just large enough to hold four or five people comfortably. This and the Strahlhorn (which must command substantially the same view) are to the Eastern what the Mont Vélan is to the Western Alps; he who has ascended both has seen, in two views, the entire chain from Mont Pelvoux, in Dauphiné, to the Ortler Spitz, which appear to be distant from each other about 250 miles in a straight line, and much more, following the sinuosities of the mountains.

Exclusive of stoppages our ascent took $4\frac{1}{2}$ hours of moderate walking, the return to Saas rather more than 3. I know no point so commanding that can be reached so easily; the height probably does not exceed 10,000 feet, and horses can go at least to the foot of the moraine, which is within $1\frac{1}{2}$ hour of the top.

One cannot but observe the peculiarity of the names of the district—Almagell and Zumécran [? = Zermeiggern] of villages; Allalin, Alphubel, Mischabel of mountains. The Moro itself gives some colour to the notion that there was in early times a Saracen settlement in the valley.* On the following day I was obliged to return to the Lower Valais, leaving much unseen. The adjoining valley of Almagell appears to be more picturesque than the Furggthal; there is a pass [two; Portien Pass and Mittel Pass] through it to Antrona, the descent of which looks extremely steep and difficult; and another to Gondo by the Zwischbergen Pass, which, as seen from the Simplon road, promises scenery of the grandest character. North of the Fletschhorn there is another

* [See *Alpine Journal*, vol. ix. pp. 208–213, 277–285; vol. x. p. 274.]

route to the village of Simplon, also, I believe, of much interest [Rothhorn Pass or Rossbodenjoch]. In short, the environs of Saas are little inferior in interest to those of Zermatt, and may be most strongly recommended to the leisurely pedestrian.

Ascent of Mont Vélán.

Two or three days after my return to Bex from Saas M. [Gottlieb] Studer, the distinguished savant of Berne, arrived, on his way home from a tour in the Savoyard and Piedmontese Alps. He mentioned the view from the Mont Vélán as one of extraordinary magnificence, and in such terms as made me greatly desire to ascend the mountain. [See his narrative of his ascent of August 30, 1856, in 'Berg- und Gletscherfahrten,' first series, pp. 65-105.] Unluckily a fall of snow took place, followed by cloudy weather, which put a stop to all excursions among the high mountains, and on Tuesday, September 9, after a day of heavy rain, M. and I set out to cross the Simplon, sleeping that night at Martigny. The evening turned out so fine, and so like settled weather, that I could not resist the temptation of engaging a Chamounix guide, named Edward Tournier, and walked up the Entremont valley the next morning.

Each of the four great glens which lie on the S. side of the Valais—the Val d'Entremont, the Eringerthal, the Einfischthal, and the Vispthal—forks into two large and principal branches, divided by a spur (itself a mountain chain of considerable extent) projecting northwards from the Pennine Alps. I do not know whether geologists have found anything to notice in this; it appears remarkable that this similarity of structure should prevail over so large a tract. On the Italian side there is nothing like it, nor, indeed, as I believe, throughout Switzerland, Savoy, and Piedmont.

September 10.—Our way lay up the western branch of Val d'Entremont; the eastern, called the Val de Bagnes, is long, dull, and very little visited. It contains, however, two practicable passes across the main chain in the Valpelline. The Col de Fenêtre, 9,213 feet in height [9,226 feet according to the Italian and 9,141 according to the Swiss map], though two glaciers have to be crossed before reaching it, is not itself, properly speaking, a glacier pass. The other, called by M. Studer, in his excellent map of the S. side of the Valais, Col des Crêtes Sèches, crosses the great glacier

of Chermontane [Otemma or Hautemma], and, as I conjecture, is of great height, great interest, and some difficulty; but I never saw any account of it, nor conversed with anyone who had crossed it. [Mr. Malkin crossed it himself in 1860. Its height is 9,505 feet according to the Italian map and 9,476 according to the Swiss.] There are also glacier passes into the Val d'Hérémeuce [the Col du Mont Rouge and the Col de Seilon], the western portion of the grand Eringerthal. The Mont Combin, the giant of this portion of the chain (14,200 feet high) [it is 14,164 feet according to the Swiss map], is said to have been ascended—this year, for the first time—by two Englishmen, guided by two chamois hunters of the valley, named Felley. This I read in a Lausanne newspaper. [The report was erroneous, for on August 18, 1856, Messrs. W. and C. E. Mathews did not reach any point of the Grand Combin proper, but the lower summit to the north, called the Combin de Corbassière, 12,211 feet (see 'Peaks, Passes, and Glaciers,' first series, pp. 91-6).] It is also said that a hotel has been established at Chables (proprietor, Perrocin), and it is probable that, notwithstanding the reported dulness of the lower part of the valley, many of the hardier class of pedestrians may be henceforth attracted into this seldom-visited region.

The junctions of the Val de Bagnes at St. Branchier and Val Ferret at Orsières are the most striking portions of the route to the St. Bernard; it is inferior in interest to most passes. At Liddes, 1½ hr. above Orsières, there is good hotel accommodation; at St. Pierre, 1 hr. higher, there is also a hotel, but rougher; still 1 hr. higher is the Cantine, a house of refuge, where a family is maintained by the Government throughout the year, situated in the Plan de Prou [Proz], a sterile mountain basin. This is the last dwelling: it is still 2 hrs. below the Hospice, and about 6,400 English feet above the sea [5,909 feet according to the Swiss map]. Rough as it looks it gave me coffee, a good bed, and in the morning excellent chocolate, which is a good breakfast before hard work. Here and elsewhere the sérac, which is something between curd and cheese, may be advantageously taken instead of butter, which is almost always bad.

De Saussure says ['Voyages dans les Alpes,' vol. ii. p. 474] that in the early times of Alpine exploration, in 1779 [August 31], the Mont Vélan was ascended 'avec des peines, et à travers des dangers difficiles à imaginer,' by M. Murith, a scientific monk of the St. Bernard. [See M. Murith's original account in Bourrit's 'Description des

Alpes Pennines,' 1781, vol. i. pp. 81-93.] This seems to have been forgotten; at least according to the traditions of the Cantine the mountain was supposed to be inaccessible until the present landlord discovered a practical way about the year 1825, since which he himself or his sons have acted as guides in every ascent. The father is now aged; he made six ascents; the elder son has made five, mine being, according to his statement, the 11th that has been accomplished. He was born and has always lived on the spot, is a keen chamois hunter, and for several years performed, winter and summer, the daily service of the post between the Cantine and the Hospice. The other son has also ascended, and would no doubt be an efficient guide; it is, however, the elder who takes the lead, and no better need be desired. Familiar with every kind of mountain difficulty, good-tempered and obliging, he had a helping hand always ready, and materially lessened to me the heavy labour of the ascent. Twenty francs is the sum demanded for the day's work, and compared with the Chamounix tariff it may be called reasonable. He was reluctant to go without a third guide, but consented on the assurance that I was accustomed to glacier excursions. His mother was more strongly opposed to our going without two guides of the country, and intimated that Tournier's two or three ascents of Mont Blanc were no qualification for Mont Vélan. However we overruled the opposition, which was probably dictated by maternal care more for the pecuniary interests of her second than for the neck of her eldest son. Two guides ought to be enough, for the principal difficulty is on rocks, where more than two can rarely be of any use.

The name of the family is Dorsot [Dorsaz]; the son's Christian name is, I believe, André, but 'le fils de la Cantine' is the appellation under which he seems to be best known. The promise of settled weather, which tempted me from Martigny, was not kept. Wednesday afternoon became suspicious before we reached St. Pierre, and the night was not encouraging. However we started on the morning of Thursday, September 11, at 3.15, after a good chocolate breakfast, by the path to the St. Bernard, which we soon left to strike across the pastures to a path leading up to a chalet on the Montagne de Prou. As the night was dark and more than an hour elapsed before twilight began, our progress at first over the stony pastures was slow. Above the chalets the ascent became steeper and more direct until, passing under a bluff rock which forms the summit of the Mon-

tagne de Prou, we traversed nearly on a level a large rocky corrie and then mounted by zigzags the shoulder of the hill, retracing to the south our course, which had been northerly from the time we quitted the plain. This part of the ascent is rendered easier by traverses cut by the old Cantine-keeper to enable mules to ascend, but the path has not yet been made practicable below, so that the labour is wasted. By this time it was light, for 2 hrs. had been occupied in ascending leisurely. Quitting the pastures we traversed a stony slope to a slight depression which separates the rocky top of the Montagne de Prou from the Vélán, and passed at once into a new scene, a deep and sterile basin filled by a glacier which descends towards the plain of Prou. Filing eastward along the precipitous hill-side, we reached the edge of this glacier, near its upper end, in 3 hrs. from the Cantine.

Until we reached the little col just mentioned the way had been tolerably dull; the view was not very fine to the north, while the Montagne de Prou hid all the south and west. But at the col a wonderful view burst upon us, wonderful even encumbered with clouds, as it was that morning. The whole Chamounix chain was seen in profile, the Aiguille d'Argentière and Aiguille Verte most prominent to the north and east. More distant, and above everything except Mont Blanc, the Grandes Jorasses stood up, a pyramid of black rock, beautifully set in the snowy background of Mont Blanc itself, which rose still higher behind and to the left; while the mass of the Dôme du Gouté stood out over nearer objects on the right. The Piedmontese mountains were in mist. A single tall silver peak rose in view, which Dorsot called the Mont Iséran, but which I conjecture from its form to have been either the Chaffe Quarre [Mont Pourri] or Aiguille de la Vanoise [Grande Casse]. Deep in front lay the glacier, encircled at its head by a mural precipice, which is the Mont Vélán itself, and bounded on the side opposite to us by a ridge of rocks, which is the crest of the Alps, the boundary between Switzerland and Italy. In that direction a short cut might be found towards Etroubles and Aosta; the height of the col most probably exceeds 9,000 feet [Col de Mouleina or d'Annibal, 9,859 feet]. Three couloirs of snow streak the black wall of the Mont Vélán; but these are too steep to be ascended, unless by the tedious process of cutting steps, after which, indeed, there might probably be impassable obstacles in the rocks and glacier above. Our way lay straight across the glacier to the foot of the farthest

couloir, then up the rocks between it and the ridge of the Alps. Dorsot asked me, as we entered on the glacier, how long we should be in crossing it. I said a quarter of an hour. He laughed, and answered that it would be more like an hour, and so it proved; so easily may an eye, not unpractised, be deceived in distance where surrounding objects are at once so simple and so vast. The slope is easy, and the glacier only moderately crevassed and free from snow; so that no difficulty occurred till we reached the *Bergschrund*, as the German-Swiss name the dividing crevasse which almost invariably occurs between the ice on a steep mountain-side above and the comparatively level glacier below, and which often presents considerable difficulty, especially to the descending traveller. Here it was broad and deep, but choked at the foot of the couloir by old avalanches, so that we passed quite easily. But the friendly avalanche, once we were over, turned into an enemy; it was a mixed mass of stones, earth, and snow, steep and smooth, and at this hour frozen as hard as a brick. Neither the foot nor the *bâton* could make impressions, and even the axe would scarcely touch it; so freely was slaty rubbish intermingled with the snow that to cut a staircase was hardly possible. How Dorsot got up I don't know, but he did; it must have been by something like the naval operation of hanging on by the eyelids. The distance was something like 100 to 150 feet, double the length of our rope; beyond were rocks with good foothold. He stopped halfway, sent down the rope, and pulled up first me and then Tournier, after which he went on to the rocks and repeated the operation. From this point to the top of the rocky wall was 2 hours' hard climbing, winding gradually round to the Italian precipice, along the edge of which the crags are easiest of ascent. About halfway is a small point of overhanging rock, giving something like shelter, which Dorsot calls *Aiguille du Déjeuner*. Here we stopped 15 min. and refreshed accordingly. Before quitting the ice below Dorsot had carefully fitted us with strong gaiters, to keep out the fresh snow; an attention, I may observe, which I never received from any other guide; in truth, especially earlier in the year, it is rarely necessary. In spite of this, however, Tournier suffered much from the cold; his feet had been partially frozen in a recent ascent of Mont Blanc, and were still very tender, so that he gladly availed himself of the halt to put on a second pair of thick socks, which I had brought in case of need. This may help to show that the ascent of the Chamounix lion is rather

different from the walk along Cheapside, to which people who have not been up have compared it; in truth, after forty, though they may be tempted by the pay, the guides are not anxious to undertake it, not from fear of danger, but on account of the fatigue.

Shortly after resuming our route there was a hog's back to cross, resembling, except in length, the celebrated *mauvais pas* on the Weissthor—on one side the precipice into Italy; on the other the glacier, many hundred feet below, and not more than room to set foot on the top of the ridge. Here, however, the length, as far as I recollect, does not exceed 20 to 30 yards, and the fresh snow was serviceable; in ascending the rocks it had added much to the difficulty and fatigue. Dorsot, always careful, threw the rope round me as we crossed, and my head stood it well. The rest of the ascent presented no special feature; it was stage after stage of almost perpendicular rock to climb, or be pulled up by the guide's *hâton*; for Dorsot went first, and as he got a good resting-place above stretched down his pole for me to catch hold by. And in truth I made free use of it; for I was thoroughly blown, long before we got to the top of the rocks at 10 A.M. Here is the 'bureau,' a small rock projecting out of the snow, where we left our names in a bottle. The top of the mountain is a plain of snow, somewhat saddle-shaped; we took 20 min. in crossing it, very leisurely, to the highest point, which is at some distance to the east. M. Plantamour, the astronomer of Geneva, ascended a year ago, and determined the height at 3764·3 mètres, equal to 12,339 English feet—a greater elevation than is assigned, trigonometrically, to it by De Saussure.*

Unfortunately the clouds, never down on the mountain so as to impede our progress, were so thick as to shut out all distant views in the latter part of the ascent and during our stay on the summit. To the E., separated only by a narrow valley, rose the Mont Combin, a dark mass, streaked with snow and partially veiled with cloud; no glacier of any size was visible on his sides. To his right the Pennine chain, as far as Monte Rosa, should have been seen; but this, and the adjacent mountain ridges and plains of Piedmont, were lost in vapour. Below us, to the N.E., a brilliant and extensive glacier, which we were to descend, swept down from our feet; its rock-fringed edge

* [According to the Swiss map it is 12,353 feet, while the Italian map makes it 12,294 feet.]

cut sharp against the pastures of Val d'Ollomont, which, with the lower part of the Valpelline, were visible nigh 10,000 feet below. Westward the lake and white Hospice of St. Bernard glittered in sunshine, between the dark Mont Mort and the Pointe de Dronaz. To the N. we saw only the mountains on the other side of Prou, of no great height or beauty, which divide the valley to St. Pierre from the Val Ferret. A small instalment this of a view which should have extended from Mont Pelvoux, in Dauphiné, the monarch of the French Alps, to Monte Rosa, and from the Apennines to the Jura. In fact it is the complement of the view from the Latelhorn, near Saas, which I had seen a fortnight before, in perfection. That extended from the Ortler Spitz to Monte Rosa, this from Monte Rosa to Mont Pelvoux and Monte Viso. M. Studer, who ascended ten days before me, on a perfectly clear day, stayed four hours on the top, and made a panoramic view of the entire horizon, which I had the pleasure of seeing at Bex. It is to be desired that it should be engraved and added to the number of published Alpine panoramas. [This wish expressed by Mr. Malkin does not seem to have been fulfilled, so far as we can ascertain.] It was a great feat for a man advanced in life; for the wind, Dorsot said, blew strong from the N. and it was bitterly cold.

As we had it pretty cold also, and our case was hopeless, we only stayed 20 minutes; a drift of hail came on and the guides were fidgety. Our descent was to be by the Valsorey, opposite to the side by which we mounted. The first three-quarters of an hour, like the ascent, was still on the sharp backbone of the Alps, between the glacier and the precipice, the ice being always nearly on a level with the edge of the rocks. So close to the precipice and so steep was our way that a case of eye-preservers which I had lent Tournier, falling out of his breast pocket as he craned over an ugly bit, took a journey into Val d'Ollomont, far beyond recovery. A thousand feet, perhaps, below the summit, having passed the first great fall of the glacier, which sweeps, steep, smooth, and glittering, from the mountain-top, we left the rocks, traversed obliquely up a slope of snow inclining towards Italy, and having crossed the ridge struck downwards diagonally across a glacier, which for purity and grandeur of feature is not surpassed by any which it has been my good fortune to see. Our descent was rapid and easy, the névé only moderately crevassed and in good walking order; the direction transverse, to reach the

opposite bank a little higher than the second great icefall. At first we had below us, on the right, between the Vélán and Combin, two beautiful sugar-loaf hills, white and sparkling as sugar, about the bases of which a practicable pass, as I conjecture, might be found from St. Pierre to Val d'Ollomont.* On the opposite side, towards which our course lay, the glacier is enclosed by a lofty shoulder of the Vélán, a mural precipice crested by pure ice cleft into huge cubical masses, in the manner they call at Chamounix *en sérac*. A more magnificent object I have hardly seen.

This stage of the glacier occupied $1\frac{1}{2}$ hour, without difficulty, except that just before reaching the rocks we had to cut steps for a short distance along a rapid slope of hard ice. Dorsot had intimated that there was a *mauvais pas* here; it did not seem much after what we had done. However the descent of the rocks parallel to the icefall, from the second to the lowest basin of the glacier, is very steep and long, and the footing shaly, slippery, and rotten—very bad to ascend. But there are no precipices, and it is only needful not to slip and go down with an undue velocity.

I believe it took near half an hour, during which I was often glad to get hold of Dorsot, who maintained his perpendicularity with a steadiness which, I regret to say, I was far from equalling. We then had the usual slight difficulty in returning to the glacier, and found ourselves below the névé and with a good hour's walk still before us on the solid ice. This was easy and pleasant, the footing good and the crevasses rarely too large to leap. In the lower part of the glacier there is a remarkable reservoir, visited and described by De Saussure † under the name of Gouille à Vassu. It fills in the winter, and usually discharges its contents through fissures in the ice about the beginning of July. When this takes place suddenly and rapidly much damage is sometimes done by inundation, the contents being calculated at more than 18,000,000 cubic French feet. M. Bourrit speaks ‡ of the extraordinary beauty and extent of the ice galleries at the foot of the glacier, produced, probably, by these rushes of water. I had not, however, heard of these phenomena; and, in truth, the day's work was sufficient without long deviations. Half a mile or

* [This is probably the Col de Valsorey, crossed on July 14, 1866, by Messrs. C. E. Mathews and Reilly (see *Alpine Journal*, vol. ii. p. 364).]

† [*Voyages dans les Alpes*, vol. ii. p. 466.]

‡ [*Nouvelle Description des Glacières*, vol. iii. pp. 284, 285.]

more above the foot of the glacier we crossed the moraine, and after 9 hours on ice and rock stepped gladly on a beautiful green knoll. Rounding this, we stood above a precipice, through a couloir of which a rough steep staircase, rather than path, connects the upper and lower pastures, and soon reached the first chalet. From it there is a good view of the foot of the glacier, which is of great height, and too steep to be descended.

Another hour of rapid descent brought us to St. Pierre. The footpath is good, the scenery not particularly striking. In places the course of the river is grand, and near St. Pierre there is a fine waterfall, visible from the path.

Our excursion had occupied $13\frac{1}{4}$ hrs., of which about $1\frac{1}{2}$ hr. was spent in meals and on the summit. Dorsot's estimate was 5 hrs. to ascend and $3\frac{1}{2}$ to return to the Cantine, exclusive of stoppages. The descent by Valsorey is much longer; it is also much more interesting, except that it does not command the distant view; in truth, though the ice-fields of Chamounix, Monte Rosa, and the Oberland are much larger, I have never traversed any glacier where the objects are better disposed for picturesque effect. We were obliged to go slow in the first $1\frac{1}{2}$ hr. of darkness, and for the last $2\frac{1}{2}$ hrs. the fresh snow added much to the fatigue; between the steepness and the elevation I was pumped out long before I got to the top. But that kind of exhaustion soon goes off. We arrived fresh and merry at St. Pierre, and after swearing eternal friendship with Dorsot over a couple of bottles of bad wine Tournier resumed my knapsack, which, to save fatigue, had been sent down from the Cantine by a child, and we walked briskly for another league to Liddes, where we found comfortable quarters at the 'Hôtel de l'Union,' well pleased with our day's work—I because, though the view had failed, the scenery was magnificent and the excursion something of a feat for an elderly gentleman; Tournier because no Chamounix guide had ever been up the Vêlan; he thought it important enough to obtain a certificate of his having made the ascent. He said more than once, after we were down, that, except as to fatigue, he would rather go up Mont Blanc, but then his theory, like many Chamouniards', is that you can come to no harm on the ice. Dorsot, like the Saas men, had a decided preference for the rocks. I believe Tournier, if ever he goes up again, would rather stick to the steep snow slopes all the way from the summit than redescend that first 1,000 feet of arête, as to which I entirely disagree

with him. To those who are not equal to the ascent of Mont Vélán the Valsorey glacier offers a very charming day's excursion; the adventurous may take local counsel and try for a new route to Aosta. Either Liddes or St. Pierre furnishes accommodation; the latter, though inferior, should be good enough for pedestrians. I heard that there was *one* guide there *up* to the Vélán, but as his name also was Dorsot I am in doubt whether the 'fils de la Cantine' be not the person meant. Of the hundreds who pass to and from St. Bernard probably nothing like one per cent. visit the Valsorey, which, except for the dogs, is infinitely more interesting. Between Liddes and the Val de Bagnes the mountains are entirely undescribed, at least in English books; they are very lofty, abound in glaciers, and can hardly fail to contain very interesting excursions.

ALPINE NOTES.

ALPINE RAILWAYS.—We take the following from the *St. Moritz Post*:—

'Now that the railway from Landquart to Davos is on the eve of completion, the promoters are concentrating their attention on the extension of the railway to the Engadine. To connect Landquart with Chiavenna by railway, via Davos, Samaden, and Maloja, has always been part of the scheme, which, as a whole, is to cost 43,000,000 frs., or nearly 1½ millions sterling.

'There are, of course, as in all mountain railways, certain natural difficulties to be overcome. In the present instance the Scaletta Pass has to be pierced by a tunnel five miles long, and the blocking of the line from snow or avalanches has to be avoided. The first, we presume, is more a question of money than of engineering difficulty. On the second point the engineers, who have surveyed the proposed route, assert that, with snow-galleries and sheds and a sufficient rolling-stock of snow-ploughs, the line is perfectly feasible. We understand the present position to be that the company find a difficulty in accepting the conditions insisted on by some of the Engadine Communes through whose territory part of the line must pass.'

'Long life and stiff necks to the Engadine Communes,' most mountain-lovers will say.

We further learn that the Swiss Federal Council have granted the concession for the Jungfrau Railway to the engineer who built that up the Pilatus. He proposes pneumatic tubes, by which he intends to blow seventy persons to the top in *fifteen minutes* from Lauterbrunnen.

THE DOM FROM THE KIEN GLACIER.—In the account of the meeting on March 4 I am made to say, in reference to this route, that 'under certain conditions the rocks above the Kien Glacier would be found impracticable.'

This is not so, as the rocks are quite easy; but what I do think is that it might not be always possible to traverse the steep snow-slopes above them. Provided the mountain is in good condition, I should certainly recommend this route, as for those who are not in search of any special difficulty this is probably the best way up the Dom from Randa, and it deserves to be better known.

PERCY W. THOMAS.

GRINDELWALD AND ZERMATT IN THE OLDEN DAYS.—In numbers 41–47 of the interesting little local paper, called 'Der Gletschermann,' which is issued by Pfarrer Strasser, of Grindelwald, we have a very valuable contribution to the history of that well-known valley. It used formerly to be the custom (and, to some extent, still is) in many families there to keep a sort of diary or annals of the chief events in their little world. So far as early times are concerned, these annals are all copies of one original text, the compiler of which is unknown; later they vary according to the individual taste of the family chronicler. J. R. Wyss (1817) and Ober (1854), in their respective works, had already made mention of these chronicles. Herr Strasser has examined most of those which are extant, and now publishes a complete copy. There are four entries (1096, 1349, 1356, and 1393) before the sixteenth century, but it is only after 1564 that they are at all consecutive, and the latest is 1887. The local dialect is used, and the events recorded are mainly local, such as the weather of the year, pestilences, accidents by avalanches or falls, &c., which enable one to reconstruct the daily life of these dwellers among the mountains. Amongst other entries we find notices of the deaths of Mr. Penhall, Mr. Latham, and Peter Egger; while the first winter ascents of the Wetterhorn and Jungfrau (both 1874) are mentioned with expressions of amazement. This valley chronicle fills twenty-five small folio pages, and its publication is the latest of the great services which Pfarrer Strasser has rendered his adopted home.

Professor Andreas Heusler, of Basel, has just published the text of the 1571 regulations of the Commune of Zermatt as to the common lands within its territory. This may be found in vol. ix. pp. 150–4 of the 'Zeitschrift für Schweizerisches Recht,' or more conveniently on pp. 374–8 of the work entitled 'Rechtsquellen des Cantons Wallis' (Basel, C. Detloff, 1890, pp. 493–8 fr.), in which Herr Heusler has collected his various contributions to the history of the institutions of the Vallais. This work is simply a treasure-house for anyone who is interested in the local history of the valley. Six hundred sets of statutes, manorial rolls, &c. are calendared and several printed at length; while the introduction gives, for the first time, a trustworthy account of the remarkable institutions of the Vallais, which lasted down to the French Revolution, and of the main characteristics of the constitutional history of each of its side-glens and 'Zehnden.'

W. A. B. COOLIDGE.

FROM THE CAPANNA GNIFETTI TO ZERMATT OVER THE ZUMSTEIN-SPITZE (4,573 m. = 15,004 ft.) AND DUFOUR-SPITZE (4,638 m. = 15,217 ft.)—It may not be too late to record, for the benefit of visitors to Zermatt during the present season, that a useful and very fine route from the

Val Sesia lies over the Zumstein-spitze, the Ost-spitze, and Dufour-spitze of Monte Rosa, closely following the main or boundary ridge from the Zumstein-spitze to the Ost-spitze, and from the latter point the short broken western ridge which connects it with the Dufour-spitze. No part of the expedition is new. Mr. Conway ascended the Zumstein-spitze by its northern ridge from the Grenz-sattel, or Zumstein-sattel, as it is sometimes called, in 1886,* and the ascent of the Dufour-spitze from the same saddle, by way of the Ost-spitze, has been several times made.† But the expedition as a whole was probably first made by Mr. Bode and myself, with our guides, last year (1889). It presents no serious difficulty, but from the Zumstein-spitze to the Dufour-spitze is by no means without interest from a mere climbing point of view; while for the grandeur of the views it affords, the expedition is probably unsurpassed by any in the district. Taking it in very leisurely fashion, but favoured by some useful glissades in the descent from the Dufour-spitze, our party took rather less than twelve hours, inclusive of all halts, from the Capanna Gnifetti, which should be made the starting-point, to the Riffel-haus. Anyone disposed to hurry through such magnificent scenes could no doubt very materially shorten this time.

J. A. LUTTMAN JOHNSON.

MOUNTAIN CLIMBER AND MOUNTAIN GYMNAST.—In connection with Mr. Conway's excursus in the last number (p. 108) on these types, some remarks by Herr Josef Rabl, in the 'Oesterr-eichische Touristen-Zeitung' for April 1, may be interesting. After pointing out how the old enchantment of the Alps and the old charm of Alpine literature have departed, he proceeds: 'The Alpine world was then larger and wider, not in actual space, but to the imagination. Wherever, in those fortunate times for tourists, a man put his foot on the steps of the high peaks he found himself in presence of the unknown and new, the thrilling, the unsolved; wherever he had successfully climbed a summit, new problems stood around him, a crowd of new questions surged up. Thus the narratives contained the thrilling charm of travels of discovery, they opened out a mental view of widely extended regions, and, even though what was then problematic has ceased to be so for us, the thrill remains, and it still interests us to-day to read how they reached the goal of their protracted efforts, and made the discovery with which we have long been familiar. . . . The heroes of those narratives did not merely climb, they roamed; and, as it makes a great difference to our mood whether a poet takes us to the petty affairs of daily life or transports us to the scene of great deeds, so does it make a difference whether a narrative of an excursion shows us the hero performing gymnastic feats up gullies and on walls, creeping along ledges and slabs, or we with him roam through a wide region full of a rich variety of scenes where Nature is grand and exalted. Past, indeed, are the days of the great Alpine problems; but this is not the sole reason why the majority of modern narratives have no longer power to enthral. The sympathy of most readers is choked off by the narrowness of the stage on which most of these stories take place

Alpine Journal, vol. xiii. p. 163.

† *Ibid.* vol. viii. pp. 338, 400.

now-a-days, and by the minute description which selects for its subject, not landscape or mankind, but "the technical difficulties of the ascent."

A CORRECTION.—With reference to the notice (on p. 160) of the account of Dr. Diener's and Herr Purtscheller's tour in the Val de Bagnes, from the 'Zeitschrift' of the D.Oe.A.V., the 'Oesterreichische Alpen-Zeitung' points out that Dr. Diener, and not, as might possibly be gathered from some expressions in our notice, Herr Purtscheller, was the author of that account.

ACCIDENTS.—Already several fatal accidents are reported from the Eastern Alps. At Whitsuntide a young man named Schnetzer was killed on the Gottesackerwände in Allgäu. He was with his brothers, and, staying behind to botanise, fell over a precipice known as the Rothe Wand.

At the same season Herr Christian Schöllhorn, of Munich, in ascending the Watzmann from St. Bartholomä, slipped in crossing some ice-covered rocks, and lost his life. He was accompanied by the well-known guide, Preis (called Punz), of Ramsau; and the slip seems to have occurred while Preis, having directed his Herr to remain still, was engaged in clearing the ice from the rocks. The rope does not appear to have been in use.

The Rax Alpe, near the Semmering, which seems to exist chiefly in order that tourists from Vienna may break their necks on it, has already claimed another life. In descending from that mountain, on June 4, by the 'Gamseck' (a route which is considered quite free from danger), Herr Josef Kronberger, aged 19, fell from the path at a point where a ladder has to be passed, and was taken up dead. In this case, it must be said, the cause of the fall seems to have been a sudden giddiness arising from a weak or deranged heart; for a moment before, the party having halted for a few minutes' rest, Herr Kronberger had been standing and talking quite cheerfully to one of his companions.

On Thursday, June 19, Herren Emil Böhm and Z. Pallausch, of Vienna, started to ascend the Planspitze (2117m. = 6260 ft.) in the Ennsthal. They did not get off till 1 p.m., and the weather was very bad. By 9 they were still short of the summit, and had to pass the night, in a storm of wind and rain, on the rocks. In the morning Herr Böhm, though much exhausted, was persuaded by his companion to proceed with the ascent, of which only a small portion remained to be accomplished. Almost immediately he missed his footing, and fell, apparently no great distance, on to a steep slope of *geröll*, where he lay helpless, but supported by the rope. Herr Pallausch, being unable to draw him up, made the rope fast, and went in search of help. He reached the valley in about 5 hrs. and despatched three men, with instructions as to the spot where he had left his friend. He himself was not in a fit state to go up the mountain again. Late at night they returned, having failed to find the unfortunate tourist. It seems to have been too hastily assumed that he had recovered strength enough to descend by himself, and, instead of the search being at once renewed, nothing more was done till the Sunday, when Herr Pallausch returned with a

guide to the spot, and found his friend lying dead in the place where he had left him. A more pitiful story has never been told in the history of mountaineering.

WINTER ASCENTS.—Piz Margna (3156m. = 10,355 ft.) was ascended from Maloja on March 5 by Mrs. Main and Mr. Bulpett accompanied by Martin Schocher and Martin Weibel, both of Pontresina. The party left the Maloja Kulm at 6.30 and mounted for some time over grass and heather. The ordinary summer route was followed throughout. The northernmost end of the summit ridge was reached at 1. The snow was everywhere on the Maloja side in magnificent condition. The rocks were free from ice, but from their peculiar formation gave little hold.

The long arête connecting the first point with the second and higher one was quickly traversed; and a warm and sunny spot having been discovered on the southern slope an hour was pleasantly spent there, till at 3 P.M. the return was commenced, the party deciding to go down on the Val Fedoz side. The snow on the glacier was firm, and the hollows in the rocks below were so well filled up that the descent was rapid and easy, and before five o'clock the valley of Fedoz was reached.

The Margna was ascended some years ago in winter, but we understand that the party on that occasion started from and returned to Sils. This is believed therefore to be the first time that anyone has been up the Maloja side at this season.

The first winter ascent of the Presanella was made on March 13 by Signor Orazio de Falkner and Count Armandi Avogli, from the *rifugio* in Val Nardis. Leaving this at 7.15 they reached the summit at 12, and were back at 3. The snow in the lower part was soft, but near the summit very hard.

ALPINE JOURNAL BACK NUMBERS.—A few more of these have recently been acquired, and the following numbers may be obtained on applying to the Hon. Secretary at the Alpine Club Rooms, 8 St. Martin's Place, W.C.

31, 36, 39, 40, 46, 51, **53**, 62, **64**, 65, 69, **70**, **71**, **72**, 73, **74**, **77**, **78**, 83, 84, **85**, 87, 88, 89, 90, 91, 92, 93, **95**, 97, **88**, **92**, **100**, **101**.

Those indicated by black type are out of print.

REVIEWS AND NOTICES.

Im Hochgebirge. Wanderungen von E. Zsigmondy. (Leipzig: Duncker and Humblot. Pp. xvi, 360. Price 36s.

This is a remarkable book in many ways. It is a pleasure to look at it. It fulfils Mr. Ruskin's conditions. It is beautifully printed. The type is large and clear, the paper excellent, the margin wide and inviting, and, above all, Mr. E. T. Compton's illustrations are quite first rate. It is almost a measure of human progress, the difference between these beautiful and accurate drawings and the dear old coloured plates of the peaks, passes, and glaciers of our youth. There are more than two hundred illustrations, of which perhaps the Ortler,

from the Hochjoch, is the best, though it is hardly fair to the rest to say so. There are no back-slapping, flag-flying, *hoch*-shouting enthusiasms on the tops of peaks; and if one or two of the mountain gymnastic vignettes put the human form into positions which would ensure its speedy destruction, and one gentleman is attacking a wall of icicles with the expression of Christian in his last dash at Apollyon, these are but small blemishes, and not Emil Zsigmondy's fault; and to make up for them we have one or two correct mountain attitudes, and two or three young ladies rather airily dressed—symbols perhaps of the facility with which at some of the Alpine centres permanent engagements have been entered into.

The book is a selection from Emil Zsigmondy's diary, with a preface by Dr. Schulz, and an account by the same gentleman of one or two expeditions in Dauphiné in the year of Emil Zsigmondy's death. It is good not to forget our dead, and Emil Zsigmondy seems to have had a singular power of attaching his friends to him. He was born in 1861, was very successful in his school and medical student life, and was beginning his career as a doctor under the brightest auspices, when his life came to a sudden end by a fall down the terrible southern precipice of the Meije on to the Glacier des Etançons in August 1885.

He had not reached his twenty-fourth birthday. His record of peaks is tremendous for so short a life, and ranges from heights such as the Matterhorn: or the Meije to climbs on the less ambitious tops among the Ennsthaler or the Zillertaler groups. Vienna is a glorious city to live in for a hard-working professional man with the love of the mountains in him, and Emil Zsigmondy began his climbs very early in life. At the age of thirteen he was already learning to scramble with his elder brother Otto and other friends, and year after year he was continually in the mountains, gaining experience occasionally with guides, but far oftener without them. Climbing without guides may be more dangerous than with them, but there is no doubt that it is the way to make a man a good mountaineer. Emil Zsigmondy was a first-rate mountaineer. He seems to have possessed both the instinct and the science of the pursuit, and to have developed it by the most varied and self-reliant experience.

The book contains accounts of the ascents of twenty-six peaks, selected from a list of a hundred and fifty or more. There is no mention of either the Chamonix district or the Oberland; but the tours range from the Oedstein, in the Ennsthal, to the Meije. They include ascents in the Tauern, the Dolomites, the Pennines, the Zillertal, the Ortler, the Adamello group, the Engadin, and the Stubaijerferner. To cross the Matterhorn from Zermatt without guides and get down safely to Breuil, after becoming involved in such thick mist and snow that nothing could be seen, is a feat to be proud of. The climb up the Croda del Lago and especially the fight with the lowest peak of the Dreizinnen show remarkable powers of rock-climbing and facility in retracing a difficult track. The Ortler, from the Hochjoch, is no child's play; and, lastly, the passage over the arête from the Pic Central to the western peak of the Meije will always remain one of

the very grandest bits of climbing ever done in the Alps. It is true that in a few days after this Zsigmondy was dashed to pieces in attempting to climb the southern face of the Meije; but he says himself that the glories of mountaineering are worth an occasional human victim, and perhaps a man has no right to complain if he becomes a special instance of his own general maxims.

There is a small point of mountaineering morality in regard to which the world still wants a prophet. We allude to the habit, which some climbers have developed, of taking the card of the last climber of the mountain from the bottle in which he has presumably left it as a record for the eyes of an admiring posterity. There it ought to remain in addition to the general stock of human knowledge; but these sinners take it out, put it in their pockets, and carry it away to grace a private triumph. This is a crime against society. It is amusing to watch Emil Zsigmondy's conscience in this matter. One or two cards he carried away. Mr. Freshfield's, I was glad to find, he left in the bottle. On another peak being short of a bottle, he transferred the cards to a preserved meat tin. At last he does, what everyone ought to do, who carries off a card, he leaves an accurate copy of it in its place.

In the February Number of the *Alpine Journal* for 1886* is a review of a book of Emil Zsigmondy's on Alpine dangers. The present book is a running commentary on his views. His 'form' differs from English 'form,' principally in the use of *Steigeisen* and variations in the use of the rope. The irons in our author's opinion are evidently to save step-cutting. The reviewer holds that good balance will give you everything that irons will give you, and conversely that the use of irons will spoil your balance. There may be some truth in this, but there are certainly instances in this book where much time and hundreds of steps were saved on hard snow by t'eir use. After reading this book one would feel inclined to give them a trial. We do not think that Emil Zsigmondy ever seems to have grasped the idea that the rope can give moral support as well as physical. For instance, on the south side of the Matterhorn the two Zsigmondys and Herr Purtscheller were on a slope of ice-covered rocks, very steep and not one of them had any hold. In such a position a slip of one destroys all. He, or rather in this instance Dr. Schulz, observes that the use of the rope was only justified by the shortness of the traverse. He implies that if the distance had been longer, each member of the party ought to have shifted for himself and taken his own risk. This is exactly opposed, and I hope always will be opposed, to the English feeling on this point. If a party decide or are forced to cross such a place, the risk of one ought to be the risk of all, and the risk of each is certainly lessened by the moral support. On the other hand these Austrian climbers have developed to a great extent on difficult rocks the art of *Abseilen*. They use either a ring and catch or simply double the rope round a projecting bit of rock and then let themselves down it. In the climb along the arête of the Meije this plan was often and most skilfully employed.

* Vol. xii. p. 472.

Emil Zsigmondy's imagination is said to carry him away. After reading this book I am not inclined to think that the charge is true, or, rather, I do not think it does so more than it has done many of us. Compare, for instance, his account of the ascent and descent of the Matterhorn with, say, Professor Tyndall's accounts, or with Mr. Crawford Grove's. They are all three graphic and suggestive of smash; but it may be questioned if the Austrian account is more curdling than the others, and it must be always remembered that the Austrians were without guides, and had never been on the Matterhorn before, and were in a thick mist.

The question of guideless climbing cannot be passed over in a review of this book. It is never insisted on, and it is never, or hardly ever, boasted of; at the same time it pervades and gives a special flavour to the whole book. For those who, like the present writer, have done a good deal of it, there can be no question whatever about one point. It is far the most enjoyable climbing: also, it may fairly be held to rank higher as a sport, just as in yachting it is a much more difficult and fascinating pursuit to sail and navigate your boat yourself than to have it sailed for you by the best professional in the world. Granted this is so, there are two questions to ask: Is it more risky? and, if so, Is the extra risk worth running for the sake of the greater pleasure and the higher sport? The first question cannot be absolutely answered; but, granted first-rate guides and first-rate amateurs, we cannot but admit that it is more risky; but, on the other hand, the combination is not always one of first-rate amateurs and first-rate guides; but of second-rate guides and *n*th-rate amateurs who occasionally attempt climbs far beyond their united power, and most men would rather be third on a rope with two first-rate amateurs than a part of such a combination.

There are dangers enough and to spare in this book, and the party occasionally got into places where, with guides who knew the ground, they would certainly never have found themselves, and only escape by a mixture of luck and good climbing; but even first-rate parties get into such places by accident, or chance then in order to secure a longed-for peak or pass. Read Mr. Forster's 'Descent of the Aiguille de Midi,' 'The First Passage of the Tiefenmatten Joch,' 'The First Passage of the Bies Joch,' and many others, where the climbers put themselves into very unjustifiable places indeed. We do not think that any position described by E. Zsigmondy is worse than these. It is true he was killed at last, but he is not the only one, and probably all of us can remember times when we ought to have been killed—when we have chanced a stony couloir or an ice-swept slope, and have been neatly missed.

The enthusiasm and imagination in this book are the enthusiasm and imagination of a young and vigorous and gifted man. It has in it the freshness and the energy of youth, and few readers will close the book without a feeling of sorrow for Zsigmondy's death; those to whom he was personally unknown will further regret that they did not know him, and never enjoyed a climb with him.

J. STODDON.

Statistica delle prime Ascensioni nelle Alpi Occidentali. Da Luigi Vaccarone. (Torino: Tipografia L. Roux.) Pp. 179. 3 lire.

Signor Vaccarone's list of first ascents, from the Col di Tenda to the Simplon, has reached a third edition. The term 'first ascent' is construed pretty widely, as it is taken to include not only first ascents in the strict sense, or ascents made by routes different from those previously taken, but even ascents made by a route which has been previously taken when the subsequent descent was new. It is, perhaps, needless to say that in all kinds Mr. Coolidge is first—we may almost add, the rest nowhere! It is, of course, impossible to be quite satisfied with an arrangement according to which peaks, like votes, are 'numbered, not weighed,' and the 'first ascent' of the Aiguille du Fruit (3,056 ft.) or the Bec de Trudière (3,070 ft., and a 'signal' found on the top!) ranks with that of Mont Blanc or the Matterhorn; but Signor Vaccarone will say that his business is statistics, and to the statistician one item is as good as another. Moreover, as setting forth clearly what still remains to be done in this region, the book will, no doubt, have its use.

Guide du Haut-Dauphiné—Supplément. Par W. A. B. Coolidge, H. Duhamel, F. Perrin. (Grenoble: Imprimerie Breynat et Cie.) Pp. xii, 90. 2 fr. 50c. (post free).

Climber's Guide to the Central Pennine Alps. Part I. By W. M. Conway. Pp. viii, 156. 10s.

Illustrirte Führer (Hartleben):—*Durch die Dolomiten.* Von Julius Meurer. Pp. xii, 321. 3 fl. = 5.40m. *Durch Mittel-Italien.* Von J. Oberosler. Pp. xviii, 442. 4 fl. = 7.20m. *Durch Saalfelden im Pinzgau.* Von Hans Blank. Pp. viii, 78. 1.20 fl. = 2.25m.

Südbaiern, Tirol, und Salzburg. Von Karl Bädeker. Vierundzwanzigste Auflage. Pp. xx, 500. 7m.

Relief-Karte von Tirol, Südbayern, &c. Von R. Leuzinger. (Augsburg: Lampart.) 5m.

It might have been thought that the original 'Guide du Haut-Dauphiné' * hardly admitted of any supplement, so thoroughly did it cover the ground with which it dealt, and so perseveringly had this been worked by the authors and others. A close observer might, however, have observed here and there after the name of a peak the significant word 'vierge.' Whatever theologians may hold, this is not a state which mountaineers regard as deserving of any honour in the case of peaks, and consequently several additions to the 'Guide' have been rendered necessary in the course of the past three years. Then, again, the virtue of a peak can be invaded in more ways than one; or, to drop the somewhat risky metaphor (for which, after all, we are not in the first instance responsible), 'new routes' can be made. Not only have all these to be recorded, but also reference must be made to the literature, in periodicals and elsewhere, to which they have given rise. Even so, however, and although there are ninety-three headings, including accounts of sixty-five new expeditions, a good part of the new hundred pages consists of old matter. Where, for example,

* See *Alpine Journal*, vol. xiii. p. 277 sqq., for notice of this.

by the discovery of a new route, that given in the original book has become only an alternative, the whole description of this is re-written (as in the case of No. 187, 'Aiguille des Arias'), in order that a '1° *Par le Versant so-and-so*' may be inserted at the head of it—a practice which savours of prodigality. The only real fault we can find with the book is that it seems almost too dainty to be carried in the pocket of a climbing-coat and consulted in a snow-storm. We are requested by Mr. Coolidge to add that M. Duhamel's five maps appeared a year ago, and may be obtained from the publisher of the original 'Guide,' M. Alexandre Gratier, Grande Rue 23, Grenoble. The 'Supplément' must be ordered of the printer.

The 'Zermatt Pocket Book' has been in existence three times as long as the 'Guide du Haut-Dauphiné,' and deals with a far more frequented district. With very few exceptions, moreover, the routes which it describes lie entirely among the ranges whose waters go in part or wholly to swell the Visp. For most of them Zermatt is the starting-point. It was, therefore, almost a matter of course that sooner or later the work would require extension; and (later, as some may think) Mr. Conway has undertaken to give it what must, for the present geological period at least, be its definitive form. Nothing short of a new ice age (setting aside cataclysmic theories) would seem to be required in order to make further instructions necessary for reaching any point of the earth's surface in that neighbourhood to which anybody can conceivably want to go. The present instalment covers the ground from the Great St. Bernard to the Theodul, Mr. Conway having (as he with perhaps somewhat brutal frankness admits) divided the book at the latter point in order to make it necessary for climbers settled at Zermatt to buy both volumes. The method is much the same as that of the original 'Pocket Book,' except that more attention is paid to bibliography, wherein we may doubtless see the hand of Mr. Conway's collaborator; the arrangement is somewhat altered. Formerly it was by districts; now it is rather by ridges. Thus Mont Collon and the Aiguille de la Za, which once came into the same section, are now divided. In its present form, in short, the book treats rather of the ways in which to reach given points, than of the point to be reached from a given place; and so far may be regarded as illustrating the author's sentiments in regard to 'centres.'

The only criticism we have to make is that no apparent principle seems to govern the order in which the various routes under any head are given. To take instances at random, or nearly so. The routes up the Weisshorn are in the following order:—S.E., W., N., E.: Mont Collon; S., S.E., E., N.W.: Pigne d'Arolla; S.E., S.W., N., N.E.: Wellenkuppe; E., N., W. In a book which takes account, as this does, of the history of exploration, a chronological order (as in the Dauphiné Guide) would seem the most appropriate. Perhaps, too, some exception may be taken to the author's practice of giving as 'times' the fastest recorded. If this does not foster the pernicious habit of 'record-breaking' we shall be surprised.

The time has hardly come for the settling of Alpine names on scientific principles; but we can hardly believe that a glacier could

ever have been named 'of the Red Lyre'; and 'Mittleres Collonjoch' is surely an unjustifiable bit of Teutonic encroachment.

Herr Meurer, by no means faint, pursues steadily his task of expounding the Austrian Alps. In the present volume he has strayed across the frontier, and described the important portion of the group which lies in Italian territory. Nor has he confined himself to the district which, it is to be feared, is alone suggested to English readers by the name of 'The Dolomites'—viz., the country about Cortina and San Martino—but has conscientiously pursued the formation across the Adige. Herr Meurer's name is a guarantee for accurate and thoroughgoing work, and the tourist who may use his book will find little to grumble at, unless it be the weight of the volume. The text has, however, been so arranged (as in the recent editions of Bädeker) that this can be divided into four parts without cutting into the sheets. A feature of the book is the greater fulness with which directions are given for passes as compared with peaks. This, the author tells us, is done on the assumption that for the latter guides will be employed, while, at all events in the case of easier passes, the traveller will trust to his own resources, supplemented by a guide-book. How far this is the case we are not prepared to say. We should have thought, however, that since the ascent of a peak is consistent with returning to the point of starting, while a pass necessarily involves the transport of baggage, the latter was less likely than the former to be attempted by the unaccompanied traveller. At any rate, the doctrine will hardly approve itself to the 'gymnast.' But he, in his most developed form, probably dispenses, or will dispense, with map and guide-book no less than with guides. In the style of Mr. Wemmick he will say, 'Hullo! here's a peak. Let's go up it'; and will not care what its name may be, or how others have gone. Even for the old-fashioned climber these large guide-books are rather out of place. What is wanted is the small handy book, like those of Mr. Coolidge and Mr. Conway, for the expert, who after all, if he has a decent map, scarcely wants any directions for three-fourths of the excursions described in Herr Meurer's book and its fellows; while the larger volume should be reserved for such matters as 'bequemere Reisende' may desire to be informed upon. It should be added that Herr Meurer's book contains a map, on the scale of two miles to the inch, of the Dolomite country east of the Brenner line. It is, like the *Generalstabskarte*, on which it is based, too full of lines; but as it embodies the results of the last survey it will be very useful.

The Guide to Central Italy only calls for notice here in respect of the accounts which it contains of the ascents of Gran Sasso d'Italia, the Carrara mountains, and one or two others. Even these are described rather from the picturesque than from the mountaineering point of view. There is a Cimone (not to be confounded with its Dolomite namesake) something over 7,000 ft. high, to be reached from Pistoia, on the summit of which travellers may, and are strongly urged to, pass the night, and see the sunrise.

Saalfelden, in the Pinzgau, is a convenient headquarters for the exploration of the wild limestone region known as the *Steinernes Meer*,

lying south-west of the Königs-See. The peaks of the Hochkönig (2,938 m.=9,640 ft.) and Watzmann (2,714 m.=8,905 ft.), though not strictly included in the area which bears this name, may be regarded as the chief summits of the group. Herr Blank's little guide to the district in question may be used with advantage by others besides climbers. He has something to say about the history, customs, &c. of the various places which come under his notice. At the same time, he gives a fair quantity of mountaineering information, and a convenient map on the scale of 1 : 50000.

The twenty-fourth edition of Büdiker's 'Südbaiern,' &c. demands little more than a recognition of its existence. Its qualities are too well-known to need any fresh estimate. The present issue contains precisely the same number of pages as that of 1888; but, by a judicious retrenchment of the index (effected mainly by means of the omission of the names of streams synonymous with their valleys and the like) and some alteration of the Salzburg section, twenty-seven pages have been gained, of which the lion's share goes to South Bavaria. Maps and plans of towns remain the same as in the last edition, except that there is a new map of the Glockner group, the map of the Adamello and Sarca district is on a larger scale, and the plan of *Trient* is substituted for that of *Triest*. The description of the latter town, also, is now relegated to the 'Guide to Austria.' We rather regret that Herr Büdiker, in his recent editions, has omitted the convenient table of metres and feet (English, German, and French) which his book used formerly to contain. It took up little space, and afforded a harmless occupation for a wet day.

- So-called 'relief'-maps are pretty to look at, and give a fair general idea of a country, but they are not of much practical use. Herr Leuzinger's is no exception to this rule. The scale, 1 : 500000, is too small to make it of any service to the tourist, and it is hardly as full as it might be even with its limitations. Important peaks like the Weisskugel and the Langkofel are not named, and in several cases peaks which are named have their heights incorrectly given. Still, it enables one, more perhaps than any ordinary map can do, to realise what an up-and-down country Tyrol is. Switzerland has its lowlands and plains; no place in Tyrol is less than 1,500 ft. above the sea until we get to Meran and the 'Etschland,' and there we are only at the bottom of a mountain valley.

Picturesque Wales: Handbook of Scenery accessible from the Cambrian Railways. Officially published. Edited by Godfrey Turner. Price 6d.

This little book (whose title, by the by, seems to exclude the possibility of any Welsh picturesqueness other than that accessible from &c.; but this is no doubt intentional) is much better than most of its class, and is disappointingly devoid of amusement accordingly. There are no ridiculous rhapsodies, and there is a good deal of interesting, if scrappy, reading. It is not a mountaineer's book, in that it contains less about mountains than about most other things. Nor is it an artist's book, though its illustrations are never exaggerated, and sometimes not unpleasing. The maps are sufficient for their purpose, the

isothermic charts of air temperature especially. The book is really just about what it professes to be, a pleasant little handbook for a railway tourist; but it would fulfil even this function better if it gave some information about the history of its own railway, *à la* Acworth. It ought also not to omit systematic reference to hotels, prices, time-tables, driving, steamers, distances, and other prosaic details important to travellers. We are bound to state, however, that the reader is duly referred to the company's time-tables and guide-books on these points.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING was held on Tuesday, May 6, 1890, at 8.30 P.M., Mr. F. A. WALLROTH, *Vice-President*, in the Chair.

Messrs. W. Parry Haskett-Smith and William Maude were balloted for and elected members of the Club.

The CHAIRMAN announced that Mr. F. A. Chapin, of Hartford, Connecticut, had presented the Club with an album containing a large collection of photographs of the Rocky Mountains, and the thanks of the Club were voted to Mr. Chapin for his handsome present.

Mr. THEODORE CORNISH read a paper on 'The Ascent of the Weiss-horn from Zinal, and some winter expeditions in the Oberland.' After a brief discussion, in which Messrs. TROTTER, MEAD, and the Rev. A. FAIRBANKS took part, the CHAIRMAN moved a vote of thanks to Mr. Cornish for his interesting paper, which was carried unanimously, and the proceedings terminated.

An interesting collection of water-colour drawings, by Mr. C. J. Way, of mountain scenery in various parts of the Alps was on view during the meeting and on the following day.

A *General Meeting* was held on Tuesday, June 3, 1890, at 8.30 P.M., Mr. S. F. STILL, *Vice-President*, in the Chair.

Captain C. H. Powell, Messrs. G. Hastings, G. H. Rendall, and H. J. T. Wood were balloted for and elected members of the Club.

Mr. DOUGLAS FRESHFIELD read a paper on 'The High Level Route of the Caucasus and the Forest of Abkhasia.'

At the conclusion of the paper Mr. DENT remarked that he felt sure some members would go to the Caucasus again this summer, and that he hoped more attention would be paid to the Adai Choch group, where very little had hitherto been done. The Skatykom valley had not been touched, and would probably well repay exploration; there must be most magnificent passes between the Caragam and Ceja glaciers, and only one peak in the group, and that by no means the most important one, had been climbed. The maps hitherto published of that district were not to be trusted. His advice to future explorers, who were also climbers, was to give their whole attention to single groups, and not to endeavour to cover a great deal of ground. With regard to the Saluinan Chiran Pass, which had been so well described by Mr. Freshfield, he felt most strongly that, if crossed at all, it should only be taken from west to east, and not *vice versa*, as their party had

done; the best line of attack on the west side probably lay rather north of the route adopted by them.

Mr. HERMANN WOOLLEY said that the only portion of the country described in Mr. Freshfield's paper with which he was well acquainted was that lying between Bezingi and Karaoul; and he was convinced, from the magnificence of its scenery, that this district would always be one of the most popular with climbers in the Caucasus. Mr. WOOLLEY also referred to the great difficulty he had experienced at Betscho in finding provisions; Mazeri, close by, would probably prove a better provided base.

Mr. MUMMERY thought it ought to be quite possible to cross from Misses Kosh to Karaoul in one day. An alternative high-level route to that beginning with the Saluinan Chiran might be made by crossing from the Zanner to the Thuber, and from there to the Gvalda glaciers.

On the motion of the CHAIRMAN a cordial vote of thanks was given to Mr. Freshfield, who proceeded to exhibit and explain a most interesting series of lantern-slides; and the meeting, which was very numerously attended, came to a close.

The Annual Summer Dinner was held at the Queen's Hotel, Richmond, on Thursday, June 5, the *President*, Mr. HORACE WALKER, in the Chair. Upwards of thirty members and guests were present.

THE following circular has been issued to members of the Club, and others likely to be interested in the matter to which it relates:—

Alpine Club, 8 St. Martin's Place, W.C.,
May 19, 1890.

PROPOSED REPUBLICATION OF BALL'S 'ALPINE GUIDE.'—As already announced, the Committee of the Alpine Club have decided to endeavour to bring out a new edition of Ball's 'Alpine Guide' as the most fitting tribute to the memory of the first President of the Club, and in order to retain for the work its place in the front rank of Alpine Guide books.

The first edition of the book, appealing as it did, especially at the time of its appearance, to a limited public only, was not a success from a financial point of view, and the Committee have, after careful examination, come to the conclusion that it will be necessary to raise a fund amounting to 750*l.* before the work of a second edition can be taken in hand.

They therefore now appeal to the members of the Alpine Club, to the friends of Mr. Ball who desire to perpetuate his memory, and to all who take an interest in the Alps and in Alpine literature, for promises of subscriptions towards that fund. Such subscriptions will be payable when the aggregate sum promised amounts to 750*l.*; should that sum not be reached the entire project would have to be abandoned. It is intended that subscribers of 1*l.* 1*s.* and upwards shall receive a copy of the entire work free. The fund and the superintendence of the work will be under the control of the Committee, for the time being, of the Alpine Club.

If any profits should arise from the publication, it is intended that

they shall in the first place be devoted to the remuneration of those who have assisted in the work, and the balance will be disposed of in such manner as the Committee shall decide.

The Editor of the 'Alpine Journal' has consented to undertake the duties of Editor-in-Chief.

Messrs. Longmans, Green & Co., the Publishers, have expressed their willingness to assist the Alpine Club in any way they can in bringing out this new edition, and to place the book including the existing plates of the maps at the disposal of the Club for this purpose.

Intending subscribers are requested to address their communications to the Hon. Secretary at the Alpine Club Rooms, 8 St. Martin's Place, Charing Cross.

HORACE WALKER, President.

FELIX O. SCHUSTER, Hon. Sec.

A list of subscriptions promised up to July 10 will be found on a separate leaf.

Errata in Last Number.

Page 106, line 24, for 'us' read 'up.'

" 152, line 15 from bottom, for 'Neufelgin' read 'Neufelgtu.'

" 166, line 2, for 'Helvis' read 'Stelvio.'

	£	s	d.
Ball, Mrs. John.	50	0	0
Ball, Albert J. A.	25	0	0
Ball, N. A.	25	0	0
Walker, Horace	10	10	0
Dent, C. T.	10	10	0
Freshfield, D. W.	10	10	0
King, H. S.	10	10	0
Schuster, F. O.	10	10	0
Butler, A. J.	5	5	0
Wallroth, F. A.	5	5	0
Still, S. F.	5	5	0
Thomas, P. W.	5	5	0
Mortimer, A.	5	5	0
Coolidge, Rev. W. A. B.	5	0	0
Bonney, Professor, F.R.S.	5	5	0
Cayley, W.	1	1	0
Dees, R. R.	5	5	0
Finney, J. D.	1	1	0
Holzmann, M.	10	10	0
Short, A.	1	1	0
Watson, P.	1	1	0
Eccles, Jas.	10	10	0
Liveing, R.	5	5	0
Powell, Legh S.	1	1	0
Strutt, George H.	2	2	0
Lord, Robert	2	2	0
Bircham, F. T.	1	1	0
Brocklehurst, Frank D.	10	10	0
Majendie, Rev. H. W.	1	1	0
Morshead, F.	2	2	0
Smith, Heywood	1	1	0
Prothero, G. W.	1	1	0
Hopkinson, S.	2	2	0
Wagner, H.	1	1	0
Wilson, Dr. C.	1	1	0
Powell, W. W.	2	2	0
Utterson-Kelso, W. E.	1	1	0
Slater, P. L., F.R.S.	1	1	0
Winterbotham, W. H.	1	1	0
Arnold, E. P.	1	1	0
Lloyd, J. E.	1	1	0
Ewbank, L.	2	2	0
Topham, Alfred G.	1	1	0
Mills, F. C.	1	1	0
Jackson, James	5	5	0
Solly, G. A.	1	1	0

Carried forward . 268 16 0

	£	s	d.
Brought forward			
Holmes, E. G. A.	268	16	0
Freshfield, Wm. D.	5	5	0
Wills, Sir Alfred	10	10	0
Foster, G. E.	10	10	0
Macnamara, A.	2	0	0
Mathews, W.	5	5	0
Heelis, James	10	10	0
Cockburn, Henry	2	2	0
Carr, Ellis	1	1	0
Tatton, R. G.	1	1	0
Cullinan, F. I.	3	3	0
Barrington, R. M.	1	1	0
Marshall-Hall, Capt.	1	1	0
Bowyear, Henry	5	0	0
Hart, H. J.	1	1	0
Wall, T. W.	1	1	0
Barrett, Howard	1	1	0
Heberden, C. B.	2	2	0
Smith, Geo. Adam	1	1	0
Scott, Rev. C. A.	1	1	0
Marindin, G. E.	1	1	0
Jones, Daniel	1	1	0
Carlisle, A. D.	1	1	0
Quincey, E. de Q.	5	5	0
Carteighe, M.	5	5	0
Willink, H. G.	5	5	0
Loppé, G.	5	5	0
Hort, Rev. F. J. A.	3	3	0
Woolley, H.	5	5	0
Vardy, J. A.	2	2	0
Monk-Bretton, Lord	3	3	0
Henderson, H. W.	3	3	0
Pollock, Sir F.	1	1	0
Blackstone, F. E.	2	2	0
Carson, T. H.	5	5	0
Leman, J. C.	2	2	0
Johnson, J. A. Lutman	2	2	0
Beaumont, Rev. F. M.	1	1	0
Beachcroft, R. M.	5	5	0
Morse, Geo. H.	3	3	0
Burnell, W. A.	1	1	0
Leman, R. E.	1	1	0
Bull, T. Williamson	1	1	0
Taylor, Dr. C.	2	2	0
Wilson, R. D.	1	1	0

Carried forward . 404 19 0

	£	s.	d.		£	s.	d.
Brought forward	404	19	0	Brought forward	451	19	0
Wicks, J. H.	3	3	0	Stibbard, G. D.	3	3	0
RowSELL, Edmund P.	2	2	0	Stirling, H.	2	2	0
Hopkinson, Chas.	1	1	0	Seymour, H. Sydney	1	1	0
Whigham, L. R.	1	1	0	Thomas, Christopher J.	1	1	0
Broome, Edw. A.	5	5	0	Tuckett, F. F.	5	0	3
Crossman, Alex.	1	1	0	Heathcote, C. G.	1	1	0
Brown, Ernest W.	1	1	0	Rolland, J. H. W.	1	1	0
Tucker, C. Comyns	3	3	0	Prendergast, A. H. D.	1	1	0
Duhamel, Henry	1	1	0	Fowler, J. G.	10	10	0
v. Mojsisovics, Dr. E.	2	0	0	Churchill, G. C.	2	2	0
Mummery, A. F.	2	2	0	Sowerby, Rev. J.	1	1	0
Maude, Wm.	1	1	0	Burden, R. H.	1	1	0
George, Rev. H. B.	2	2	0	Club Alpino Italiano, Rome	1	1	0
Greene, W. A.	1	1	0	Section 'Austria' des			
Puckle, W. B.	2	2	0	deutschen und öster-			
Pilkington, C.	5	5	0	reichischen Alpenvereins	2	0	0
Harris, Walter S.	1	1	0	Broke, George	3	3	0
Abercromby, D. J.	3	3	0	Club Alpino Italiano, Turin	1	1	0
Mennell, H. T.	2	2	0	Fisher, John	1	1	0
Philpott, T. H.	2	2	0	Milman, Arthur	2	2	0
Allbutt, T. Clifford	1	1	0	Trotter, W.	5	5	0
Arkle, R. N.	1	1	0	Macmillan, G. A.	1	1	0
Arkle, C. J.	1	1	0				
Carried forward	451	19	0	Total	497	19	0

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VIEW FROM THE LEILA TO THE N.W.

(FROM A PHOTOGRAPH BY SIGMUND SELLA.)

1880

ALPINE JOURNAL.

NOVEMBER 1880.

(No. 119.)

THE SCULPTURE OF ABBASIA.

BY
SIR N. DE MEYER, HONORARY SECRETARY OF THE ALPINE CLUB,
OF DORSET'S WALK, BRISTOL.

Communicated to the Alpine Club, June 1880.

I confess with some reluctance that I have been asked to write myself for our alpine public. I should have preferred to write from these pages in favour of members, but I have been asked by the younger generation. But secretaries are not easily disobeyed, even should they treat an old man as a dog. My dog-keeper treats his goat—serve him up in the end of the season, when other provisions run short, and he is a fine chamois. If I grumble, however, I do not expect the Briton's birthright because I have nothing to say. My difficulty is rather over-abundance, and my subject matter. The artist, we are truly told, writes what he sees. But then, unluckily, not only an imagination but a habit of imagination as are so many of our modern alpine writers; I have not even any pretensions to be an artist. All my friends credit me with is a taste for topography. That taste is a picturesque exaggeration, which is popularly known as the distinction of alpine literature, has been shown to me once only, and that by a not very dexterous hand.

The taste of the Club, one of its recent officers inclines nowadays towards a detailed account of a 'class' expedition. I might find something to say to gratify this taste; yet I do not care to do so, I describe one rockwall or set of ice cliffs, and I may illustrate, if I may, the infinite variety of the scene. I have grown to love by leading you a

Over hill, over dale,

Thorough bush, through thicket,



THE
ALPINE JOURNAL.

NOVEMBER 1890.

(No. 110.)

THE SOLITUDE OF ABKHASIA.

WITH SOME NOTES ON THE HIGH-LEVEL ROUTES OF THE CAUCASUS.

BY DOUGLAS W. FRESHFIELD.

(Read before the Alpine Club June 5, 1890.)

IT is with some reluctance that I once more present myself before the alpine public. I should prefer to retire from these pages in favour of members belonging to a younger generation. But secretaries and editors must be obeyed, even should they treat an old member as the Swiss innkeeper treats his goat—serve him up at the end of the season, when other provisions run short, and call him chamois. If I grumble, however, I do not exercise this Briton's birthright because I have nothing to say. My difficulty is rather over-abundance than any lack of matter. The artist, we are truly told, is known by his omissions. But then, unluckily, not only am I no gymnast or humorist, as are so many of our modern alpine writers; I have not even any pretensions to be an artist. All my friends can credit me with is a taste for topography. That talent for picturesque exaggeration, which is popularly believed to be the distinction of alpine literature, has been attributed to me once only, and that by a not very dexterous flatterer.

The taste of the Club, one of its recent officers tells me, inclines nowadays towards a detailed account of one 'first-class' expedition. I might find something among my material to gratify this taste; yet I do not care to settle down to describe one rockwall or set of ice slopes, I would rather illustrate, if I may, the infinite variety of the country I have grown to love by leading you a dance

Over hill, over dale,
Thorough bush, thorough briar,

by carrying you into those forest solitudes which Moore and his companions skirted in 1874, and which no traveller besides has ever seen.*

I have, perhaps, a better excuse than a personal inclination for taking this course. I am glad, at any time, to do what I can to link mountaineering with travel, and to hinder the specialisation of mountain-climbing as an inferior branch of gymnastics, to be taught by Swiss professors. One such professor—sometimes called a guide—it has been lately rumoured, I know not with what truth, already undertakes to enable any candidate (not over fourteen stone) to pass the ordeal of your committee in a single season for the moderate fee of two thousand francs! I should not be sorry to spoil this trade, and I shall sincerely rejoice if, by illustrating the vast extent, novelty, and many-sidedness of the Caucasian chain, I succeed in inciting others to carry on its exploration, I will not say to completion—for that time, happily, must be many years distant—but so far that we may know the characteristic features of each of its districts from Novo Rossisk to Bakou, from the western crags that look down on the Black Sea to the snows of Basardjusi that catch a glimpse of the eternal fires of the Caspian shore.

I shall therefore for the present relegate to an appendix a subject that I may possibly take up elsewhere—the High-Level Routes of the Central Caucasus—and pass over in a few sentences one of the most charming expeditions I have ever made, the first ascent of the Leila, south of Suanetia, in order that I may give a more detailed account of our journey across the great forests of Abkhasia from Suanetia to Sukhum Kaleh.

Last year, Captain Powell and I were delivered from the scant hospitalities of Betsho by the kindness of Prince Atar Dadish Kilian, the representative of the old princely family who were once the rulers, and, under Russian rule, are still to some extent the feudal lords of Suanetia. The prince, who has travelled much and speaks French, received us as his guests in the residence he has fitted up in one of the hamlets of Ipari, a few miles west of Betsho. Here we enjoyed the luxuries of a Persian couch and abundant fare, and saw and learnt much that was interesting of native life.

* With the doubtful exception of Mr. Spencer, an Englishman who more than fifty years ago took a part in the Circassian struggle. (See his *Travels in the Western Caucasus*, London, 1837). Mr. Littledale crossed some years ago from the Baksan to the head of the Neskra Valley and returned.

On Sunday there was service at the ruined church; there were revels on the green, where boys and bears tumbled and the loving-cup went freely round, followed by songs and dancing by the women of the locality in the prince's hall, where they were entertained at midnight with a substantial supper. Such revelry was not the best prelude to an early start for the beautiful peaks of the Leila, which shone on us invitingly from beyond the deep bed of the Ingur. Captain Powell and I had already made one expedition to their base, up an exquisite valley of forests and flowers which opens opposite Latal, where yellow lilies with fourteen blossoms on a single stalk grow within a few yards of the ice avalanches that tumble from a fine glacier cirque. We had been enchanted by this lovely scenery and the most romantic of all sunset views of Ushba, but bad weather had prevented us from pushing farther, and we had seen enough to feel sure that the north-western angle of the range was a better point of attack on the highest peaks. By this ridge we ascended the western peak, which, though 13,400 ft. high, is as easy of access as the Breithorn or Titlis. Owing to delays beyond our own control we were late and did not go on to the central summit, which is perhaps 100 ft. higher, and equally easy of access. Signor Sella visited it a few weeks later. As in the case of the Wetterhörner, the outer summit is that conspicuous from the valley, and commands the finest view—a panorama of the southern side of the Caucasus probably unrivalled. Suanetia, during the ascent, clothed in the green of its forests and the gold of its harvest, its crumpled ridges and hollows lit and divided by the slanting rays of the morning sunshine, its castled villages clustering along the valleys, is a picture that lives in my memory as the fairest of all mountain views. And what a fence of peaks girdled this luxuriance; from the rock comb of Otur, on the W., past the enormous dome of Elbruz, the twin towers of Ushba, the granite pinnacles round Tiktingen to the cold shadowy crests of Tetnuld and Shkara! Surely Suanetia will one day be one of the sights of the world. The travellers of that day will bring their advantages with them, but will they enjoy the same thrill as those who first saw Ushba and Tetnuld, unknown peaks, break the clouds and charge into the upper blue?

It is, perhaps, desirable to add that the native hunters who undertook to conduct their prince and us to the Leila misled him, so that, to our great regret, he could not join us on the summit, and would have misled us too had we

followed them. They made for a high glacier pass, occasionally used by natives, which passes immediately south of the three peaks, and descends to the Skenis Skali at Lentechi. Mountaineers could easily climb the peaks from this pass, but the ground was new to the natives, and they would not venture on it.

The morning after our ascent of the Leila broke unclouded. We had got back very late. But I could not loiter away contentedly the cloudless forenoon, when so much was within easy reach out-of-doors. The short walks in Suanetia are exquisite. The sunshine was hot, but the mountain air was fresh. So I set out to stroll alone up the long shallow glen behind Ezeri to the grass-pass at its head, over which we had seen Ushba from the church three days before.

When the climb became steeper, the track became flowery. In about $1\frac{1}{2}$ hrs. from the Prince's house I looked down a steep hillside on to the towers of Mazevi, while full opposite the S.W. peak of Ushba raised its tiers of precipices into the air. A little track among the rhododendrons zigzagged up the down on the right. It led to a broad meadow, the highest point of which was marked by an engineer's signal of heaped-up turf. The grass was ablaze with gentians, forget-me-nots, and pyrethrums. This spot is one of the loveliest in Suanetia, and deserves a visit from all who rest at Betsho or Ezeri. It commands a perfect view of Western Suanetia.

I should like to have spent the day where I was. But we were to start the same afternoon for the forest. We had succeeded, through the Prince, in obtaining information as to the native route to the Kodor, which I had failed to get two years before. The paths were steep, disused, hardly practicable; we were recommended rather to cross the main chain to the land of the Karatchai, W. of Elbruz, and return by another pass. None but hunters and outlaws knew the forest tracks, but two such hunters were promised us, should we require them.

Two mules were provided for our journey, a third was to be found at the last village, Lashrash; with them came the two hunters, rude children of nature, barbaric in speech and gesture, who were to be our guides. Before starting, the Prince took me aside and made two separate requests—first, that we would keep together in the forest, lest some outlaw, ignorant of our quality as his guests, should be tempted to lay violent hands on a straggler; next, that we would not

take the hunters down as far as Sukhum Kaleh, as they were in great terror of fever. In any other direction they were to follow our bidding.

The shadows were lengthening fast as we crossed the spur that encloses the Ezeri basin and began to descend towards Pari. Pari had in 1868 been the seat of Russian government, and my companions and I were then entertained by the Cossacks quartered there. The place had not changed, the old castle of the Dadish Kilians still lay in ruins; the house where we had lodged looked only a trifle more dilapidated. On the steep ascent beyond, one of our mules gave us the first foretaste of their temper by kicking off his load. Interminable delays followed, and we were glad to halt and pitch our tents at the next small hamlet, where the few inhabitants were very friendly, and supplied us with milk, bread, and eggs.

The morning was fine and warm. We wandered round the steep hillsides, and in and out of the deep bays worn in the soft soil by the torrents. The last before Lashrash comes from a very small glacier high on the bold rock-peak that rises in the S.W. bend of the horseshoe that holds the head of the Betsho glen in its hollow, and turns its convex side to the Nakra. It would be well worth climbing. The Leila peaks look insignificant, but the gorge of the Ingur backed by the broad peak behind the Nakra, so conspicuous throughout Suanetia, is imposing. There is the breadth about the landscape that is characteristic of the southern slopes of the Caucasus. It was very warm as we climbed up the last zigzag into Lashrash. We sat in the shade of a barn and bargained for provisions, while our horsemen (as we trusted) looked for the promised mule. The people were inquisitive and saucy, upsetting some eggs we had bought, and refusing to make good the breakages.

We could not get milk at first. But Maurer went foraging, and discovered some very good women who had milk and cheese to offer at discretion. We found seats in a courtyard, where we were kindly entertained. None of the crowd about the barn followed us. Why money should fail to procure what was to be had for nothing a hundred yards off, why we should be first mobbed and jeered, and then quietly entertained, was one of the varieties of travel common in the Caucasus, and which serve as puzzles to the traveller.

In the midday blaze we walked up to the bare slope that leads to the crest overlooking the Nakra, where we were to leave my old track to the Dongusorun Pass. The descent

was long and lovely, the path pleasant among meadows and copses, where wild fruits delayed us, and past trickling streams. Frequent parties of haycutters were at work. We went down some 2,000 ft. to the bridge, about 3,500 ft. above the sea. There were log-huts and fields of Indian corn by the water. A rough track started up the opposite hill into the beech forest.

The steep hillside was built up with roots. Such a bank one finds often in our own island. Imagine the Bisham woods above Marlow turned into a mountain 5,000 feet high, and that you have to drag two ill-tempered mules and a reasonable but inadequate jackass up them. But if there is one subject that is a weariness as much to the reader as the traveller it is surely the behaviour of baggage animals!

Slowly we struggled up the mountain under the welcome shade of superb beeches and pines. In time the track entered a niche in the hillside, and we climbed beside a foaming torrent. On the edge of a snow avalanche, in a garden of golden blossom, we made our halt. The first climb had been steep, but the next was steeper and harder; by a track a man could hardly walk up without use of hands. The beasts somehow or other heaved on our goods. Where the ground was steepest a fallen trunk often came to add to our difficulties. Still this first day we made on the whole steady progress. We topped the pines, and came into the beautiful upper fringe of birch and cream rhododendron; the view—long hidden—lay beneath, or rather behind, us. We wandered knee-deep, sometimes waist-deep, in grass and flowers, first over moist level pastures, then across unown slopes. On a high platform, an hour short of the pass, we pitched our camp. The landscape from the tent door was, perhaps, the noblest I have ever enjoyed from a bivouac. Suanetia was spread below. The gorge of the Ingur lay on our right. The valleys were fenced in by high snow mountains. Nearest were the Leila, crowned by the double crests, from between which streams its large western glacier; Ushba rose, a grim rock castle, opposite; farthest away, but every peak clear, shone the central group, Koshtantau showing its rocky comb behind the snows of the watershed.

While we looked dark clouds swept up the Ingur, and settled on the Leila, which became a Sinai of darkness and forked lightning. We prematurely congratulated ourselves on the course of the storm. We had hardly settled for the night, when another storm that had crept up from the S.W. unseen behind the hills burst on us. For the next hour our

little shelter was assailed by all the fury of the elements. First a gale; then a perpendicular downpour; then blinding sheets of flame and crackling discharges; then renewed onslaughts of wind, which rushed furiously against the side and ends of the tent. On the top of the storm came hailstones, which made deep indents as they struck the canvas, and filled every hollow in the ground with several inches of ice.

Our Suanetians had borrowed a *bourca*. But even the famous *bourca* was not enough for such a storm as this, and they pushed inside the tent-doors, screaming in broken Russian, like the babies they were, 'We are lost! lost! lost!' at each fresh blaze and volley of the sky's artillery.

We fell asleep to the patter of rain. When I untied the tent curtains at dawn a lovely and unexpected effect greeted us. The Leila stood out clear and cold against a sky swept of all its vapours, the peaks of the central group showed deathly white against the black skirts of the retreating storm-cloud, still fitfully flashing, and its upper edge cut sharp against the amber of the sunrise.

It was but a gentle and pleasant ascent over pasturage to a wide gap between the southern spurs of Borkushel [the Otur of Signor Sella]. The pass was marked by three blocks of stone set on end. A herd of oxen were pasturing about it. Powell attempted to record the outline of a bold glacier-streaked rock-peak in the west. In this direction the view was interesting and picturesque, but without the grace and sublimity of Suanetia.

A short glen led down towards the Neskra, whose forest depths were hidden; beyond it was a rocky snow-clad peak comparable to the Uri Rothstock; south of this stretched a wide expanse of grassy heights and hollows, over which our future path must lie. How near, and yet how far, they looked, separated from us by the deep dark valley of primeval forest!

A track fairly marked led, not down the tributary glen, but under and then over its southern ridge. Among the first pines heavy rainclouds from the S. met us, and we sheltered while our hunters went off to find some Abkhasian shepherds they saw afar off. They returned with fresh milk and a fine young goat. We declined the goat at the high price at which it was offered, and, the rain ceasing, went on our way, descending very steeply among beautiful timber and flowers. The forest grew denser, and the fallen trees and roots often checked the mules. The trees were so thick we could see little or nothing even of the sky, while we

descended the valley along the top of a curious ridge running parallel to the torrent, but many hundred feet above it, possibly an ancient lateral moraine. In a dark hollow the donkey, which we had trusted, abandoned us. Its owner, it seemed, had not, as we understood, agreed to be at our service for our journey, but had only done us a turn for company's sake, and was now going on some mysterious business of his own down the Neskra. All our goods were put on the two mules, and they were then invited to climb, poor beasts, a wall of rocks and pine roots a laden man could hardly master. 'Naturally mules, baggage and all, were very soon 'confusedly hurled' down to the bottom.

The goods were hauled up, and the tedious process of reloading began for about the sixth time within two hours. The ill-conditioned hunter was making difficulties, when I suggested he might carry something himself, whereon he flung the saddle-bags to ground again and indicated he would desert us. I put my hand on my revolver, and he drew his dagger, and indulged in a torrent of words which signified he would see us no farther. Powell did his best successfully to soothe this savage, and we got on again and made our way down a wall of pines to the lowest depth and the Neskra torrent.

The stream flowed in a water-worn cleft between rocky walls linked by a bridge. On the farther side the forest was very dense, and there was no track. We descended into the bed of a small tributary, beyond which we were met by an impassable fence of fallen trees, destroyed, partly at least, by fire. I waited in charge of the mules while our men made a way into a clearing. Powell followed them and found a log-hut and a field of maize. Three natives of uncertain origin, Abkhasians, I believe, were inhabiting this lodge in the wilderness.

Our men declared it was too late to attempt the ascent, that the mules could not manage it unaided, and that next morning the foresters would help us for a small fee. So we camped by the water.

No two camps could have possibly been more dissimilar than this and our last. In place of the wild landscape and high open pasture, we were in a deep dell, surrounded by gigantic pines and tall alders, which formed so dense a canopy that the sky was invisible, and the weather comparatively indifferent. We beat down the thick carpet of ferns and made a glorious fire, round which we toasted some of the pods of maize our neighbours had brought us, and

baked some thin loaves. While thus engaged, the noisy horseman came to me and made a speech to the effect that Englishmen and Suanetians were brothers, and that if he had drawn his dagger it was only because I had laid hands on my revolver. The little storm did some temporary good, and for forty-eight hours, till we finally lost our way in the forest, his behaviour was less boisterous.

It was a grey dawn when we set out, and the patter of rain was heard on the tree-tops, though little came through to us for the first hour or two. Path for long there was next to none. We wandered now along a torrent bed, now in and out between the enormous prostrate tree-stems. Then came the great climb to the pasture region. It was steep beyond all alpine conceptions of a horse-path; the animals got up it by hard climbing. At last we emerged from the glen the sides of which we had been scaling, and followed the undulating crest of a spur towards the upper pastures. When these opened before us we halted under a moss-draped pine, and sent a deputation to get milk and buy sheep of a shepherd whose flocks were not far off. When we were starting again one of our horsemen set fire to the moss on our pine, and in one moment the tree was in a blaze of flame from top to bottom. The mischievous knave capered with delight at his handiwork. Fortunately the tree stood apart, and the conflagration soon fell, leaving the tree singed rather than burnt.

Difficulty was now for the time over. The broad pastures afforded an easy ascent to a high platform, under which lay a small clear tarn. Just before reaching it our walking mutton gave Maurer the slip. He stalked it unsuccessfully, and it finally went off over the hills at an easy pace in the direction of its fellows, followed by its late leader.

We had nothing to do but wait. The afternoon was fine, and the prospect beautiful. We were as exactly as possible on a level with the pass of the day before. Ushba could still be seen behind it, and the Leila peaks were prominent beyond the Ingur. To the south spread a most interesting landscape, the deep valleys that converge to the gorge of the Ingur, dark in forests, out of which rose the fine edges of grassy spurs; on either side the gorge was guarded by two clusters of bold peaks, probably limestone, in the hollows under which spread small glaciers, comparable to those of the Marmolata in South Tyrol.* The nearest to us, that W. of

* On the N. side of the Caucasus the limestone rises in a continuous

the Ingur, was united to our standpoint, or rather to a ridge still a mile in front of us, by a very long, smooth, grassy crest, the water-parting between the Ingur and Kodor basins. As yet we could see nothing of the latter, and the main chain north of us was hidden by a snowy block close at hand. Earlier in the day we had had glimpses of the glacier of the Nakra, and should doubtless but for cloud have seen the snows of Elbruz over its head.

The hours passed, and when at last Maurer returned with his captive there was only daylight enough left to go on a few hundred yards to a sheltered hollow, where rhododendron enough could be found to make a fire. The fuel was too scanty for heavy cooking, and our sheep was reprieved. I may as well confess with what result. At starting next morning the animal grew very restive, and Maurer, in a fit of temper, cut the rope, and we saw our chops scamper off for the last time.

It was a cold, exquisite morning, with the eastern breeze that in the Caucasus is a sure sign of fine weather. Our men now confessed to knowing no more of the road. We followed a faint track to the gap nearest the rock-peaks. A glorious landscape met our eyes. At our feet stretched for thirty to forty miles the basin of the Upper Kodor—once the fertile district of Darl—a valley as great as Val d'Aosta, one vast forest fenced round by lofty mountains, not, indeed such giants as hang over Suanetia, but broad glacier crests and abrupt, if blunt, granite crags and pinnacles: mountains bearing the same relation to those of the central group as the Titlis and Galenstock range bear to the Bernese Alps. It was not so much any individual peak that fixed the eye as the glory of the whole landscape—the rolling leagues of forest, the broad hills bright in the early sunbeams, the flashes of light in the depths, here a cliff, there a sinuous reach of river, nowhere any sign of human habitation. Great poets often imagine scenery transcending ordinary experience. Shelley, I think, would have been pleased to introduce the Kodor, as it lay in its primal loveliness on that summer morning, into his 'Prometheus,' and would have found it difficult to add to its splendour.

There was no track visible leading down the glen below us, but a thousand feet below sheep were feeding. We

line, broken by gorges parallel to the main chain; on the S., in isolated blocks, more or less in a line, but not continuous. The same arrangement exists on the two sides of the Alps.

found three shepherds, Abkhasians, with a primitive, half-Greek air—as Greeks may have been 3,000 years ago—who were communicative. There was no way at all, they told us, from where we were down into the valley; we must return to the crest, and keep along a lofty spur level, or nearly so, for a long distance, which ran parallel to the main valley of the Kodor. We promised one of the shepherds a knife and a reward if he would take us down to the river. He insisted on being paid beforehand, and, remembering the good faith of our foresters on the previous day, I rashly consented. We remounted to the crest. The walk along it was enchanting. Flowers at our feet—crocuses and gentians—space and sunshine on every side, below the rolling leagues of forest hemmed in by the high fence of peaks and glaciers, except to the west, where the blue spurs fell towards the Euxine. As we advanced the source and upper glen of the Kodor were added to the view. The pines and birches ceased some miles below a small glacier that flowed from under a blunt castellated rock-peak. The largest glacier in sight was W. of the Kluchor Pass, a broad sheet of ice we saw afterwards very clearly from the Black Sea, somewhat similar in character to the Adamello glaciers, and very accessible. Between the Nakra and the head of the Kodor rose a cluster of rough granitic summits some 12,000 feet in height.

After about two miles of this high terrace-walk our crest fell more rapidly, the first trees—noble firs and beeches—were met, and a few hundred yards lower we were buried in the forest again. The path disappeared, the ground was steep, but there was no difficulty for man or beast in reaching the banks of a stream, a slender tributary of the Kodor, which had long flowed through a glen on our left. We lunched in a lonely dale beside its water. I retired to bathe, and on my return found the shepherd had disappeared. We had already had to argue rather forcibly with him to induce him to keep his promise, and now he ran, leaving us to find or miss the bridge over the Kodor. The abrupt appearances and disappearances of Caucasians in their native wilds often remind one of the behaviour of Homeric deities.

We were close to the main valley, and a level, well-marked path led us down its left bank, under the deep shadow of beech and pine, until it trended uphill, where a tributary stream had laid bare a broad track with its floods. It was natural enough the path should cease in the torrent bed, and beyond it we recovered something of a forest track. Here and there we came on rude hunters' lairs. There was just

encouragement to push on. 'Niet daroga.' 'There is no road; the horses are lost—we are lost!' howled our Suanetians. 'Jest daroga.' 'Here is the road,' we exclaimed from time to time with a confidence we did not feel. We crossed with very great difficulty the deep bed of a second stream. We fought on through thorns and bracken waist or shoulder deep. We literally hacked away with axes and daggers through the brushwood, until we were brought to a standstill by ground too rough for animals.

At last, as dusk drew near, we came to the river brink, where a steep impassable cliff fell directly on the water. Further advance was impossible; to scale the hillside was a tiresome task for a well-girt unladen man, out of the question for an ill-saddled laden horse. We sent Maurer to use the remaining daylight in prospecting. He came back despondent. We camped in a dingy dell, above a tangled copse of elders, where there was hardly room for a tent among the rauk growths. It was not a nice camp, and I was very stiff and tired, not from distance, for we had only walked downhill all day, but from the ceaseless worry of the pathless forest. There were insects flopping about in everything. However, we slept till dawn. The Suanetians were keen on bridging the river. Powell, too, favoured and energetically laboured to carry out the proposal. An hour or more was passed in cutting down a tree, flinging it nearly across the boiling torrent, and then seeing it carried down.

That plan having failed, we resolved to return to the spot where the good path had failed us the previous afternoon, and search thereabouts till some way over the water was found. The five-verst map indicated a crossing, and though it had proved thoroughly untrustworthy since we left Suanetia, it was possible that here in the Kodor it might be right, at least in this indication. The forest was so intricate that we found it no easy matter to retrace our steps, but we succeeded. In three hours we were back at the path. At first we searched in vain for any crossing among a labyrinth of water channels and islets; but after some time, guided by a clearing, which was probably an old track half overgrown, we came on a bridge formed of a single monstrous trunk concealed behind a thick-grown island. How were the mules to get over? The Suanetians made a mad attempt to lead them over the trunk, but the wiser beasts declined, and roped with our alpine rope they swam the swift waters most pluckily. While the luggage was reloaded we halted in a very delightful spot, under an enormous beech, beside the

dancing Kodor, a bright stream to which glaciers do not contribute enough to discolour its waters.

What sort of track we should find on the right bank of the Kodor was now the question. After more than one steep little fall and rise in and out of the gullies of streamlets a path barely discernible led along the brow of the high bank overhanging the river, and under the shadow of a vast beech forest. So long as we were under the beeches our way was smooth and easy. But after two hours the track, such as it was, descended to the side of the torrent, and was from time to time effaced by its vagaries or smothered in dense copses. Boughs flapped in our faces, while loose stones turned under our feet. It was very warm and wearisome. The junction of the valleys where we should join the paths from the Kluchor and the Nachar seemed to recede as we advanced. At last the track went up among fallen trunks that had to be turned somehow by our mules. We crossed a meadow, where the shoulder-high flowering grass was shaded by walnuts and wild fruit trees, and rich in raspberry bushes. A rude hunter's shanty was the only trace of habitation. Another short climb, and we began to drop through the thickest hazel copses. We had crossed the tongue of the hills, and were approaching the Klutch torrent.

We came suddenly on its brink, where it flowed in swift eddies between high banks, a broad bridgeless stream, too deep for a man on foot to wade easily. While we were taking counsel a train of unladen baggage horses came in sight on the opposite side, conducted by two natives, picturesque figures, in bright-coloured clothes, and with bashliks (draped like a Phrygian hood) over their heads to keep off the hot sunshine. We shouted to them to bring over their animals for us to cross on, and one came over. But hardly had he engaged in conversation with our wild guide, than the latter managed to convey some insult, which resulted in the horseman shouting out, 'Suanetian asses' in Russian for our benefit, and plunging back into the stream. This was more than I had patience for, and I jumped hastily into the water and arrested him. A little further parley sufficed to arrange matters, and we all rode over the water in turns. No sooner had we arrived on the other side than our wild men began to grumble again, and express their intention to go back. 'We want to go home. We are lost; the mules are lost! Here is Kodor.' That was about as far as their Russian carried them. We disregarded this talk, and got off again. Our troubles from the absence of path were now brought

to an unexpectedly sudden end. We found a good narrow cart road, obviously constructed by engineers, running along a broad and open valley. We rode for many miles over gentle slopes and level meadows, varied with wild flowers, and covered with fruit-trees—pears, golden and purple plums, and cherries. But nowhere was there a sign of any inhabitant. All this wealth of forest and pasture, of fruit and flower, was wasted on a few bears or the rare passer-by, the Tartar from the Karatchai, who fills his sheep-skin hat as he passes with the plums that drop from the branches and colour the ground beneath them.

Below a step in the valley, as the sun sank behind the western hills, we pitched our camp. It was a gorgeous evening, and the folds of the mountains were rich with southern bloom. High on the W. some crags bore snow, but the landscape was no longer that of the central chain. The reach of the Kodor we were in might answer to the basin of Aosta with respect to the Pennine ridge. The mosquitoes were very troublesome. Next morning in less than 2 hrs. we were at the long-expected Shkaltra. But before reaching it we enjoyed an exquisite vista up a long glen to the S.E., densely forested, and closed by a glacier and a fantastic rock-castle, the last of the isolated limestone snow-peaks, lying between the basins of the Ingur and the Kodor. A few horses were seen grazing; then a field of Indian corn came into view, and at last, of a sudden, a stone-built house of one storey and two rooms. This was the much-talked-of Shkaltra, where we had been led to expect Cossacks, post-horses, and 'good accommodation for man and beast.'

The house was well enough in itself, but its only occupant was an unfortunate Georgian who could hardly walk twenty yards, so reduced was he by malarial fever. There were no horses procurable, and now, suddenly, our horsemen struck. The mules were hardly unladen when they roared out in more determined tones than ever, 'Home we go!' We represented that they were sent by their Prince to go where we ordered, at all events as far as the spot where we could find substitutes, and that they would have no present until we reached such a spot. But this time the men were in earnest. It was clear they were in an honest fright; whether of fever, or of civilisation, or of the unknown generally, who shall say? At any rate, they acted promptly and with great decision.

I saw what was coming, and hastily decided that it might be dangerous, and was certainly not worth while to

oppose force if the men chose to ride off without money or food into the wilderness. Of course the presence of the Georgians' packhorses aided us in coming to this decision. A minute or two later the Suans leapt on their mules' backs and rode off at a hand gallop, shouting and screaming in triumph as they passed out of sight round the first corner. It was the last we saw of them. They had no food, for our meal was exhausted. Doubtless, however, they did not starve. The Caucasian, in the first place, can travel on less than most men; and they would first rob the maize-fields and fill their pouches with pods and plums, then beg milk and cheese from the shepherds, who live the whole summer through without tasting bread.

The peace that succeeded the departure of our grunting, grumbling savages was at first a relief; but our feelings became more mixed when the facts of the situation were fully revealed. Powell, knowing no native tongue, had been able hitherto to hold but very imperfect communication with the Georgians; else, indeed, our journey might have taken a different turning.

Now, through the sick solitary of Shkaltra, who talked Russian, we learnt that the Georgians had no intention, or indeed power, of descending further, for they were under a contract with a working-party of Russian officials engaged in continuing the mule-road over the Kluchor Pass into the Teberda, and were bound to start on their return the same night. Had we known this earlier, we might have gone to the camp, and made it a base for mountain excursions.

Our position was awkward. The Russian moved about listlessly, expecting his next fever bout; the Georgians lay on their backs, and scarcely deigned to utter monosyllabic gutturals between their yawns. There was nothing for it but to tramp on to Lata, 5 hrs. down the valley, and trust that it might not prove a second Shkaltra. We set out in the heat of the day, yet I never felt heat less at so low an elevation (about 2,000 feet). Whether it was the dryness of the air, or the beauty of the landscape, or the frequent shade of the western hillside along which the path was cut, we did not suffer, and kept up a good pace despite a heavy pack which Powell good-humouredly carried more than two-thirds of the way, Maurer and the rest of the luggage having been left behind at Shkaltra.

The straight upper basin of the Kodor ends at Shkaltra. Henceforth the river bends more to the S., and runs in a winding course through a narrow valley or open gorge,

wooded to perfection, for some 15 miles, until, bending west again, it opens out as Lata is approached.

Two miles short of our destination we met a party of Suans mounting into the hills. The leader wore a very handsome dagger, which attracted our notice. He told us he was one of the Dadish Kilians' retainers, and Powell thought it a good opportunity to send a note to the Prince reporting the manner of our horsemen's departure. He had just finished writing it, and was holding it out to the Suanetian, when an evil-faced Mingrelian, who was walking with, but not one of, the party, suddenly stepped forward and, snatching the piece of paper, tore it into a hundred fragments. On the Suanetian remonstrating he drew his thin dagger, which glittered like a snake's tongue in the sunshine, and stood scowling. The Suanetian carefully kept between him and Powell, and nothing more came of this curious incident. We could not make it out, nor could the Russians to whom we told the story explain this man's unaccountable but obviously very real passion, except by the suggestion that he had eaten too much of the intoxicating wild honey which is said to be found in these valleys. Possibly the Mingrelian thought the paper contained some evil charm? It was written, I should say, in French, and the natives had no clue to its contents.

At Lata, again, there is no town. The station consists of two cottages in a common enclosure, a ruined barrack, and a rough shanty where the Cossacks and natives attached found shelter. A field of gigantic maize lay at the rear. Elsewhere nature had resumed her rights; vines ran wild, fruit-trees poured their red or golden crop into the lap of the earth unregarded, the broad clear river danced along over its stony bed through impenetrable thickets, while beyond it the hills rose in such wooded slopes as poets dream of and landscape gardeners caricature. Far away to the W. the white crags of a limestone gorge marked the gate of the hills and shut out this earthly paradise from any sight of the sea.

A topographer—not, however, one of those attached to the new Survey—was living in one of the cottages, and as soon as he returned from his work entertained us hospitably. In the meantime we were taken charge of by a good woman, the wife of a subordinate in charge of the post, whose husband was also away. He had but lately recovered from a bad fall caused by his horse shying on meeting a bear suddenly while coming home late one night from Sukhum.

But a few paces further, and he would himself have been thrown over the precipice and killed.

Our object was now attained. The mystery of the great forest, which Grove, Moore, and I had so often talked over, was at last solved. I had learnt what truth underlay the strange tales current in the Caucasus. If we had not met with the wild men of the woods living apart, without villages, clothes or firearms, clad in skins and feeding on berries, of whom M. Jukoff had repeated to us the legend, we had visited the secret lodges of the wilderness and their denizens. If we had not been as fortunate as Mr. Spencer, who saw chamois looking down on him from every crag, as numerous as the squirrels in an English park, we had had frequent proof of the proximity of bears. If we had ascertained that the forest paths were not impassable—when found, we had learned well the difficulty of finding them. Between Suanetia and Lata we had spent six days. With competent guides Shkaltra might be reached from Lashrash in three days, and Sukhum Kaleh in five days. This entrance to Suanetia may be of service to travellers, like ourselves, anxious to vary their route out of the mountains, or to link the Western with the Central Caucasus. The valley of the Kodor is beautiful and unique in its desolate richness. The Kluchor pass opens a fresh group to explorers. Mountaineers may use its road and that of the Maruch pass, farther west, as bases. It is possible to cross with horses from one to the other on the north side of the main chain. M. de Dechy has photographed in one of the northern valleys, and his views show peaks and scenery well worth attention. Still further west lie the unknown wilds of the Zelentshuk, where Mr. and Mrs. Littledale, the adventurous pursuers of rare game, who have lately traversed Central Asia, went three years ago in quest of the Aurochs—an animal which seems always to put at least one mountain between itself and its admirers.

Lata is notorious for fever. Here my friends, the party of 1875, believed they caught the illness which, in one case at least, inflicted an injury that was never repaired. The Russian barracks were deserted partly on account of the loss among the men quartered in them.

We were kept at Lata two nights, and then made a forced march (or in my case ride) of 56 versts to Sukhum Kaleh and civilisation, lunching on the way at Zebelda with two hermit monks who now occupy the deserted fort.

The next morning a steamer, on which I found more than one English acquaintance, took us to Batum. The voyage

on a cloudless day under the seaward skirts of the great chain, the peaks and glaciers of which are visible from ship-board, was most enjoyable. At Batum I parted with much regret from Captain Powell, whose knowledge of Russian and genial companionship—to say nothing of his energy and experience in camp—had been of the greatest value to the search-party, and above all to myself on my farther journey.*

The High-Level Routes of the Caucasus.

Early explorers soon learnt that the horse-passes N. of the Central Caucasus are many of them dull. High-level routes were greatly wanted, and have now been found. Taking Karaoul, accessible from the S. by easy passes, as well as from the N. valleys, as the most central spot in the chain, high-level routes W. may be made as follows:—

- I. (1) The Dychnu (or Shkara) Pass to the Bezingi Glacier.
- (2) The Zanner Pass to Mulach in Suanetia.
- (3) Mr. Mummery's Pass from the Thuber Glacier to the Gvalda Glacier.
- (4) The Cheteen Tau Pass to the Shichildi Glacier, the upper Baksan, and the foot of Elbruz.

Travellers who wish to keep above the tree-level may combine with the Zanner a pass from the upper névé of the Zanner Glacier over the spur of Tiktingen to the Thuber, discovered by Mr. Cockin this year.

- II. (1) The Ullu-az Pass from Karaoul to Dumala.
- (2) The Mishirgi Pass to the Mishirgi Glacier.
- (3) A pass to be made N. of our Saluinan Chiran Pass† to the Chaourtu Glacier and Chegem Valley.
- (4) Either of the passes recently made to the Adyrsu; thence to Urusbieh, or over
- (5) A pass, easy but new, to the Adylsu and Elbruz.

A high-level route E. from Karaoul may be made as follows:—

- I. (1) The Stule-vsek (horse pass) to Styr Digor.
- (2) A *new* pass from the Karagam Glacier to the Cea Glacier.
- (3) Our pass from the Cea Glacier to Mamisson Road.

Or—

- II. (1) Karaoul over Pasi Mta to Rion and Gebi.
- (2) Over Gebi-vsek to Styr Digor or Gurdzie-vsek to Karagam Glacier, and on as in first route.

* A very interesting article on 'The Abkhasian Insurrection' will be found in the late Mr. Gifford Palgrave's *Essays on Eastern Questions*. The writer was vice-consul at Sukhum for a short time. Sukhum is now a station of the Anglo-Indian telegraph, and two English telegraphists are stationed there. It has a fair hotel.

† I consider this pass, which I described in detail to the Club, too hazardous for general use—at any rate in the direction in which we took it—owing to the constant fall of stones on the W. side.

It seems to me nearly time for a skeleton guide-book for mountaineers in the Caucasus to be prepared. It would be a suitable piece of work for an energetic craftsman content to lay foundations for others to build on. I am not without hope that one of the yearly increasing band of Caucasian climbers may be found before long to act on this suggestion.

An official guide-book to the Caucasus has recently appeared in Russian; but, according to M. de Dechy, the mountains are left out—at least, from a mountaineer's point of view.

Note on Illustration.

The prominent mountains comprised in the panoramic view (from right to left) are Dongusorun, Elbruz, the Ciubikevi peak (a rock-tooth), and Otur, immediately below which, just outside the plate, lies the first of the forest passes. Some of the valleys of Lower Suanetia may be distinguished in the right-hand lower corner. The rock-ridges that meet in the Ciubikevi peak surround the head of the Betsho valley; the N. joins the main chain W. of and close to Dongusorun. This tract was grossly misrepresented in the 5-verst map. Between the Ciubikevi peak and Otur lies the Nakra Valley.

The rocky ridge in the foreground is a long spur which divides the western glaciers and valley of the Leila from the valley of the Ingur.

EXHAUSTED DISTRICTS.

BY W. M. CONWAY.

To give room for wandering is it
That the world was made so wide.

CARLYLE *after* Goethe.

ON August 13, 1890, I and my guide, Joseph Marie Lochmatter, were staying at the Montenvers Hotel. We were to cross the Col des Hirondelles next day in company of others eastward bound. Every one in the hôtel was sick to death with the *ennui* that pervades all 'centres.' Two or three fine days, and then one bad day: a succession of this kind of thing drives the 'centrist' distracted. First-rate peaks (as they are called) will not come into condition under such circumstances, and the second-rate have no charms for the centrist. So he sits and swears till he can endure it no longer; and sooner or later comes the day when he, knowingly and of malice prepense, starts off to climb rocks which in such weather no one ought to touch—

thereby unwisely risking his own life and the lives of his guides. 'Centrism' thus becomes one of the most insidious and fatal of Alpine dangers.

On August 13, as I have said, the Montanvers crowd was sick to death of itself and of the place. The beauty of the Mer de Glace had ceased to charm. We had come to loathe the sight of Dru, Jorasses, and Géant. We wanted to be doing something; we needed to be off. But your true centrist, when he has to move, likes to go straight and to fly high. So we were to be driven over the Col des Hirondelles, and seemed doomed to travel from Courmayeur along the old roads, so well known, leading from centre Montanvers to centre Zermatt, there, finally, after a few hours of settling down, to begin railing at the weather once more. Great was my discontent at the prospect. I could make no converts to saner views, and so must have yielded myself, had not the kind night brought relief. Down came the rain and snow with determined persistence, and, to my joy, the Col des Hirondelles, the Dru, the Géant, and all 'first-rate' things were rendered inaccessible for at least a week to come. Now was the chance for the 'ex-centric.' His little plans began to be not wholly without interest for the haughty centrists. They were received into consideration and ultimately adopted, to the no small disgust of the centric guides.

Your famous guide nowadays is almost always a centric guide. He hates travel. He pines away if taken for long from his accustomed haunts. The flesh-pots of Zermatt and Grindelwald and the tariffs of 'first-rate' peaks have ruined him from the ex-centric's point of view. The centric guide likes to climb three first-rate peaks and to pouch three first-rate tariffs weekly. In the intervals between climbing he likes to be put up for a nominal charge in a comfortable hotel, where he is fed on the fat of the land, and has plenty of his fellows to talk to. In bad weather he willingly helps his employers to swear, or amuses them by riding in mule races up and down the street, or otherwise playing the fool. He begins life as a centric porter, and ends it as a centric guide. He makes his reputation by doing a few hare-brained new routes up the wrong sides of 'first-rate' peaks. He learns nothing about the Alps as a whole, and nothing about travel. He never acquires the varied crafts of his predecessors, who could make their employers comfortable anywhere, and had some cunning of cookery. The modern guide can open a tin of preserved meat, and there his powers end.

He knows nothing about maps, nothing about mountains visible on the far horizon. He is a highly-developed gymnast, a kind of prize-fighter with the mountains, a Professional such as the true British Philistine creates to help him in all his sports.

Therefore it was that, when my converts—Mr. Ellis Carr and Mr. F. M. Davies—sent off their luggage with mine, and started with me (at ten in the morning of August 14) for an eight days' wandering, our guides Lochmatter and Kaufmann were not enthusiastic. But we went forth gladly in the gorgeous morning, along grass paths and amongst fields and trees and all manner of pleasant lowland places, with the free and careless delight of boys let loose from school. Some miles of high-road, even, did not dull our spirits, for the escape from the laws and hours and twaddling-talk of a centre into the untrammelled freedom of the wanderer's life is a change worth experiencing. Your perfect wander must be in the main without plan or rule. You must have a goal, a few days ahead, at which to meet your luggage, but you must not be certain where you will sleep or what you will climb in the meantime. You must not have your mind set upon anything or you may be disappointed. You must provide no material for disappointment to be made out of. Your pack must be light on your back and you must be in good training. Your one object is to see things you have not seen and to enjoy the unexpected and the unknown. In fact, in a mild way, you must go exploring. To make the fun complete you had better write a guide-book beforehand to the district you are going to explore. When your descriptions turn out right you will be surprised, when wrong you will be amused. Both sensations are pleasant. You never have to blame yourself. The published accounts you abstracted afford you plenty of materials for sarcasm.

So exploring we went, and the first place we lit upon was the Lac de Champey. It used to be well known to climbers thirty years ago, but, since the coming of Centrism, the *Fin de siècle* gymnast has experienced no attraction to its neighbourhood. The place is merely beautiful, with a rare and wonderful beauty; but who will admit that he cares, or, at all events, climbs for beauty, except, indeed, in the form of "a pretty bit of rocks?" A little lake, framed in trees and embosomed in hills, with all the snowy glories of the Grand Combin mirrored in its calm waters and shining beyond it against the clearest sky, formed a picture that we,

who saw it upon a day of faultless perfection, shall not soon forget. That night we slept at Bourg S. Pierre, having made all preparations for mounting a second-rate peak on the following day.

Mont Vêlan is a second-rate peak now, but it once had a first-rate reputation for the doubtless inadequate reason that it commands one of the best panoramas in all the Alps. The neighbouring hills are curiously ill explored, and though we put a good many observations on record, there still remains much to be done. Starting from S. Pierre we ascended through the Valsorey, and in 2½ hours' walking we reached a convenient breakfast-place by the right moraine of the glacier. Thence we beheld the sunrise bathing half the Mont Blanc range in the fiery glory which even centrists have sometimes quitted *table d'hôte* to watch. Facing south towards the Col du Valsorey, we now had the Vêlan on our right hand and the Grand Combin on our left. All the peaks that intervene between these two were at that time wrongly described, and most of them were unclimbed.

From inquiries we instituted it appears that the real names and order of the peaks are as follows :—Reckoning from West to East the first considerable hump (3,406m., Italian map) after the Vêlan on the frontier ridge is said to be called Tête de Cordon; then comes the Chamois Pass, to be mentioned presently. Next is M. Capucin, which is marked M. Cordina, but probably M. Cordina is the Tête de Cordon. The Col du Valsorey follows, and then a long ridge of extremely precipitous aiguilles, none of which has ever been climbed; they extend all along the East side of the Valsorey glacier, and are called Aiguilles du Valsorey. The first of them, adjacent to the Col du Valsorey, is a three-headed group called Les Trois Frères, or Tre Fratelli (3,270m., Swiss map; 3,269m., Italian map). Some distance further North is a peak with a big hole in it; this is M. Percé, or the Fenêtre du Valsorey (3,262m., I. map). These are the only two of the Aiguilles du Valsorey that have names of their own; they have never been climbed. Continuing along the frontier ridge you come to another three-headed peak (3,418m., I. map), wrongly marked M. Tre Fratelli by the Italian surveyors. Its right name is Aiguilles de Luisettes; it is connected with the Combin du Valsorey by a depressed ridge, over which the Sonadon glacier makes its great fall. These peaks were also unclimbed. East of them is a col, the Col de Luisettes, then a peak (3,467m., I. map),

which is the westerly of the two Aiguilles Vertes du Valsorey. The Col Vert divides the twin Aiguilles Vertes. The East Aiguille Verte is doubtless the peak unsuccessfully attacked (August 30, 1888), by Mons. E. Rossier with the guides Biselx and Genoud. He describes the summit as consisting of a 'moving rock pinnacle, which could not be climbed.' He left a bottle as near to the top as he could go, and he remembers the ascent as very difficult. He approached from the North. The col east of this peak is best called Col d'Amianthe. It is followed by a peak variously marked Amianthe (3,600m., S. map; 3,584, I. map) or Mont Sonadon. The name of Gran Testa di By, given it by the Italian surveyors, is a blunder. The Col du Sonadon comes next, and then the Grand Combin. I may as well here complete what has to be said about the nomenclature of the frontier ridge as far as the Col de Fenêtre. The col east of Mont Sonadon is called Col de By (not Col d'Amianthe), but as there has been a blunder made on the maps about this name it is best to call it the West Col de By. Then comes the true Tête de By, or Testa Bianca (3,422m., S. map; 3,421m. I. map), then the East Col de By (3,164m. S. map), and, finally, Mont Avril and the Col de Fenêtre. So much for names—a first instalment.

After dawdling over breakfast as long as we comfortably could we started up the Valsorey glacier. Soon we saw chamois in a great couloir in the face of the Mont de la Gouille on our right. This peak, by-the-by, has never been ascended. The chamois ran up to the top of the couloir and disappeared, but later on in the day we found that they had followed a well-marked track, which had likewise been trodden by other parties of the same beasts. In fact, they were on a regular chamois route, which, so far as I know, has not been followed by travellers. It forms a good pass into Italy from the Valsorey. Having by the couloir reached the upper rocks of the Mont de la Gouille, the chamois traverse rocks to the south, and then descend on to the upper névé of the Valsorey glacier above the seracs. They cross the glacier horizontally, thereby avoiding its many great crevasses; thus they reach the Chamois Pass, which lies between the Tête de Cordon and Mont Capucin. The descent on the south into the Val d'Ollomont is made either by a couloir or by easy rocks near it. Travellers taking this route would then have to cross some rock *débris*, below which they would join the ordinary Col du Valsorey route. The Col du Valsorey is likewise called Col des Chamois, but this

name should be reserved for the pass which these animals actually use.

Our ascent of the Vélán showed me that the routes numbered 2 and 3 in the 'Climber's Guide' are merely variations of a single route. The upper level of the Valsorey glacier has to be reached by turning the seracs by the right or left bank. From the névé the final ascent may be made by either arête, or, in certain conditions of the snow, you can walk straight up the face to the top. We went to the S.E. arête (overlooking the Val d'Ollomont) and there left our packs, ascending by it to the summit in 20 min. We enjoyed a faultless view, plainly seeing the end of the Lake of Geneva. In the far distance we saw the Val Tournanche mountains, and a single glance at them sufficed to solve the mystery of the Colle Budden, which had puzzled me for years. Corona's 'great snow saddle' was unmistakable, even from so great a distance. The route we followed into the Val d'Ollomont has been described under 'New Expeditions.' I need only add that we were enveloped in cloud on our way down, and so did not pick out the best line of descent. We ought to have followed the central couloir from top to bottom. We should thus have saved time. The couloir is from 4,000 to 5,000 feet long and tolerably steep. We saw no signs of falling stones in it except such as we started ourselves or the masses brought down by winter avalanches. At the foot of this face of the Vélán there are stone débris covering at least a square mile. We followed an obvious path to Valpelline, but the inn there looked so bad that we only waited to engage the single village vehicle, and then, leaving the guides behind, drove off to Aosta to sleep.

Next day we returned to Valpelline and walked up the valley, intending to sleep in the huts by the great By Alp. They were closed, so we were obliged to cross the broad flat basin of the old lake, which now affords such excellent pasture land, and to take shelter in the huts called Zeneco about 20 min. away. We reached them just in time to escape a thunderstorm. The alps at the head of the Val d'Ollomont fill a vast basin, or series of basins, shut in by a very noble set of mountain ranges. We were particularly struck with the great wall of rock on the east, which divides the Val d'Ollomont from the Valpelline. The cowherds called it *Les Monts de la Balme*, but it is marked on the Italian map as *M. Faudery*, *M. Morion*, *M. Clapier*, and *M. Berlo*. After seeing both faces of this range we were not surprised to hear that all the peaks on it are still unclimbed.

The following morning was fine, and we were enabled to carry out our plan of exploring the northern portion of the frontier ridge between the Aiguilles du Valsorey and Mont Sonadon. Carr crossed the Col de Luisettes and made the first ascent of the three Aiguilles de Luisettes (wrongly marked M. Tre Fratelli on the Italian map). Davies and I crossed the Col Vert. We had the shorter job of the two, and so reached the Sonadon névé first. We wandered across it and made our way to the Col du Sonadon. Carr presently descended on to the Sonadon névé, where he joined our tracks and followed us to the Col. The object of our exploration was to find a way from By to the Grand Combin. We are now able to say that that mountain can be ascended from Italy just as easily as from Bourg S. Pierre. The Col Vert gives a better access to it than the Col de Luisettes; not improbably the next col east of the Col Vert would be better still for this purpose. I intend henceforward to call this third col the Col d'Amianthe. Our respective routes having been already described, it suffices here to say that we slept at the Chermontane chalet and that there was a great thunderstorm that night also.

Next morning (August 19) we left Chermontane at 6 A.M. in most evil-looking weather. We went by a roundabout way to the Hautemma glacier, and presently rain commenced, and damped our spirits as well as our bodies. Still we continued to follow the usual Col de Chermontane route, hour after hour, up the extraordinarily level glacier highway; so the rain yielded, and the weather cleared beautifully. But Davies, not to be balked of a ducking, jumped over a narrow crevasse, and 'landed' in a deep glacier pool on the far side—to our edification, if not to his own. Half an hour later he was as dry as a chip again.

Our goal was the Col de Blancien, which Mr. A. Cust crossed in 1879. If anyone will carefully read his account of that pass,* and will then compare with it his account of the passage of the Col d'Hautemma in 1881,† carefully noting on the large scale map the two routes thus described, or, still better, following them by aid of one of Beck's photographs, which may be consulted in the Alpine Club library, he will find it absolutely impossible to escape the conclusion that the two passes crossed by Mr. Cust were one and the same, and that he had actually forgotten in 1881 what he had done and written in 1879. Accustomed as I

* *Alpine Journal*, vol. ix. p. 365.

† *Ibid.* vol. x. p. 492.

am to alpine misdescriptions, this was a confusion so far beyond the average that I felt extremely desirous to investigate the locality, and, if possible, find out the secret of the mistake. We eventually reached the upper level of the side glacier which descends from between the Bec de la Sciozza (called Oule Cecca on the Swiss map) and the Bec de Blancien. Thence I saw in front of us the two cols with a crest of rock between them, just as they appear on Beck's photograph. It was not till we were quite high up that the mystery solved itself. Cust's two cols proved to be different. The east col is the Col de Blancien, the west col the Col d'Hautemma. Cust in 1881 reached the very point 'marked on the Federal map (original survey)'—i.e., the S.A.C. map—Col d'Otemma. But having reached it, he thought he was not there. He thought he was in 'a gap E. instead of W. of the rocky point'—my *crest of rock* above—'shown on the map in the centre of the snowy ridge between the Bec de Blancien and La Sciozza.' But this description of his describes the Col de Blancien, and that only. As a matter of fact, he actually was on the Col d'Hautemma. Moreover, from the col he did actually ascend the real Bec de la Sciozza. He says: 'We ascended the eminence W. of the col under the impression that it was the highest summit of the Sciozza, but an adjoining eminence further W., though lower, appears to be that so called.' There, again, he is wrong. There is no eminence W. of the col, but only N.W. or S.W. The N.W. point is on a side ridge, and it was this point that he mistook for a point on the main ridge. The col between it and the Sciozza, which connects the névés of two branches of the Hautemma glacier, was the col he mistook for the one marked Col d'Otemma in the S.A.C. map. I was as glad to clear up this confusion as I should have been to discover a new pass; but to think of the hours of waste labour that it has caused me, the letters I have had to write about it, the puzzling over maps, the journeys to the Club library to hunt up photographs, and all because of a false description! I again take the opportunity of repeating that, in my opinion, a route undescribed is as if it had not been done, one ill-described is little better.

From the pass we descended to Prerayen by the great couloir of the Col de Sassa. We can highly recommend the Col de Blancien as a most noble pass, superior in scenery and other attractions to the Col d'Oren (de la Reuse de l'Arolla). It is, therefore, an important stage in that High-Level Route, which, once so famous, has become almost

abandoned in these centrist days. The new Prerayen Inn is a very simple place indeed. It is much ruder than Mattmark; but the beds are good, and so is the wine, and there are tinned meats in tolerable abundance. Moreover, there is no danger of its becoming a 'centre.'

The following day (August 20) we intended to cross the great range of peaks which runs southwards from the Dent d'Hérens and divides the Valpelline from the Valtournanche. There has been, and still is, so much confusion about the nomenclature of this ridge, that I was anxious again to study both sides of it and to make inquiries on the spot. I will briefly mention the results arrived at.

Starting from the Dent d'Hérens, the wall of rocks which shuts in the M. Tabel Glacier on the W. is called Les Grandes Murailles. Over this goes the Col des Grandes Murailles. The point from which a ridge juts out to the E., forming the S. boundary of the M. Tabel Glacier, is the Punta des Cors (3,855m.). Close to it comes a very sharp nameless aiguille, climbed by an Italian party last summer for the first time. The Valtournanche Jumeaux (Punta Giordano and Punta Sella) follow, and then the Becca di Guin (3,805m.). South of this is Signor Corona's Colle Budden, and then the Becca Créton (3,637m.), which is wrongly named Becca de Guin on the Italian map. The next point (3,583m.), called Becca Créton on the Italian map, should be named Tour de Créton. Our Col de Créton follows, and then a low point, which one guide at Breuil told me was sometimes called Mont Blanc de Créton. The name is useful, and the peak is white on the Prerayen side. South-west of it is another pass called Col du Château des Dames, and west of that is the Château des Dames itself. Of the succeeding Fontanella group, I know nothing fresh. The point (3,355m.) at the very head of the Cournera valley is named Dôme de Cian—not M. Redessau. The situation of the latter remains a mystery to me. The Col de Cian separates the Dôme de Cian from the Punta de Cian.

The Colle Budden must be a very fine pass indeed. The views we had of it, however, from various points enabled us to clear up the many obscurities in Corona's description, so that we felt free to pursue our investigations in another direction. Accordingly we ascended to the head of the south branch of the Grand Glacier Bellaza, and thus obtained easy access to the Col de Créton. The ascent was steep and most agreeable, and the views were superb; but clouds narrowed around us on the top, and all we could see thence

was the great precipice which falls away on the side of Valtournanche. We were not prepared for this, as the Italian map marks a wide snow col, giving access to a small glacier on the E. side. We expected to cross this to the south, and thus eventually to reach the Vofrède glacier, and descend by one of the ways to the Château des Dames. The little glacier proved to be some distance away to our right. A great couloir led down from our feet, and invited us to try it. Down that we accordingly started without delay, for a thunderstorm was gathering, and the wind was cold. We had a steep scramble at first, involving short traverses and the like amusements. After a time things improved, and then we perceived a great overhanging rock on our left. The storm was clearly about to burst, so we made for the rock, and lunched beneath it while the great guns of heaven fired a royal salute. The sight was a fine one, and we were able to watch the storm without discomfort. After an hour's rest we started again, and went straight down the snow of the couloir. We passed below the snout of the little glacier, which drains into the couloir, and then we hurried quickly on, lest stones should overtake us; but none fell, and we saw the furrows of no recent falls upon the snow. Breuil was reached without further incident, and ten minutes later the storm broke in real earnest.

Next day we crossed the Theodul to Zermatt, a howling wind preventing the attempt upon a novelty which I had in view, and which I leave the Zermatt centrists to discover for themselves. I spent just twenty-four hours among the central flesh-pots, and then walked down the valley to St. Niklaus, where Coolidge was awaiting me with young Christian Almer. Carr and Davies stayed at Zermatt, and took on young Lochmatter, with whom we were all well pleased.

My plan for August 23 was to wander up to the village of Grächen and there find the site of the house in which Thomas Platter was born. But I was ruthlessly dragged from bed at an early hour, and forced forthwith to start ascending the infinite wall of rocks that shuts St. Niklaus in on the west. Every one who knows this district knows how hopelessly vague is our information about the peaks and passes which lie on the ridge that divides the Turtmann and St. Niklaus valleys. From the Bruneggjoch northwards all is utter confusion till you come to the Augstbord Pass. This is partly the fault of the published maps, which are

absurdly bad in this district, and partly it is due to the incomprehensible descriptions of ascents made hereabouts, which are all we have to go by. The sheet of the Siegfried map representing this district is not yet issued, so its place has to be supplied by the Dufour and S.A.C. maps.

These mark with tolerable correctness the Inner and Äusser Barrhörner, and the southern half of the Stelli glacier; but further north they do not resemble anything that exists in nature. The results of our day's expedition, which was both successful and enjoyable, were as follows. The two Barrhörner are perfectly distinct, and cannot be mistaken. They are connected by a ridge, over which there lies, and can lie, no pass, for the E. face of it is a practically vertical wall of rock, several hundred feet high, and not broken by any couloir that we could see. The Stelljoch and the Barrjoch exist, but not as described in the 'Climbers' Guide.' North of the Äusser Barrhorn is a cluster of aiguilles, of so peculiar a character that no description of an ascent of any of them could possibly be mistaken for that of an ascent of any other peak in the neighbourhood. Perhaps the name Gässispitzen belongs to them. It is clear that they are virgin peaks. North of them come two higher peaks, something like the two Barrhörner. It is certain that Mr. J. S. Anderson* ascended the most northerly of the pair, and mistook it for the Äusser Barrhorn. We ascended the other one, and found no trace of a previous ascent. Both peaks are built of limestone, and look solid and firm from the distance; but Mr. Anderson described his as utterly rotten, and we found ours to be the same. Pending the discovery of their true names (if they have any), we call them the Inner and Äusser Locker Spitzen. North of Mr. Anderson's peak, the Äusser Locker Spitze, comes the Gässijoch, crossed by the same gentleman in the year 1882.† We were unable to carry our investigations further north than this. Our peak was, perhaps, 100 feet lower than the Äusser Barrhorn. We enjoyed the most superb views of the Mischabelhörner and the Dom. We returned to St. Niklaus, and so I slept for two consecutive nights in the same bed—a thing I had not done since leaving Chamonix. Next day we went down to Stalden, big with plans; but the weather turned frightful, and as, after two days, it did not clear up, we went round to Berisal by road and rail. We

* *Alpine Journal*, vol. xi. p. 118.

† *Ibid.* vol. x. p. 96, and vol. xi. p. 118.

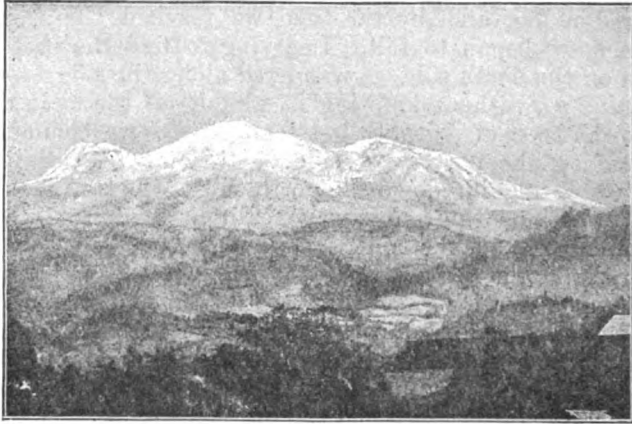
slept there the night of August 26, and next morning walked up the Wasenhorn, the easy rocks of which, choked with deep snow, were very laborious to mount. Some distance below the top we entered a thick cloud, and never emerged from it again till we reached our inn. We missed our way on the top, and so blundered down a new and very interesting route. Of course it ended by landing us in yet another almost infinitely long couloir, the very ditto of the couloirs on the Vêlan, the Col de Blancien, and the Col de Créton. Then I felt happy, for I had luck in couloirs all the summer.

We reached the little Veglia Inn wet through and right glad to be under shelter. Thereupon it rained and snowed all next day and the day after, so Coolidge and I sat down and wrote a guide to the Lepontine Alps, thus making the time pass quickly enough. Fortunately, I had a volume of MS. notes with me, and Coolidge had all possible maps, so we were able to do the work as well there as in London. On the 30th the weather cleared, but too late to permit our starting for the ascent of Monte Cistella Alta, a peak I have always much desired to climb. I thought it was a virgin mountain till someone assured me there was a hut on the top! Not to waste the day, we set out after lunch to get the view of Monte Leone from the Avino lake. The glorious scenery attracted us to loftier wanderings, and eventually we found ourselves on the top of the Pizzo Valgrande di Valle (2,530 m.). Seldom have I seen a nobler point of view. On the one side is the mighty cirque of Monte Leone surrounding the cold Avino lake; on the other a sudden precipice falls away in perfectly vertical walls for some thousand feet or more, and the slope below droops steeply down to the depths of the Val Cairasca. A clear view all around enabled us to solve certain topographical difficulties which had long puzzled us. We identified the couloirs in the E. face of the Stichelgrat, by which Monte Leone is ascended from the Avino lake, and we found that the Italian map is wrong in the nomenclature of this ridge. The Pizzo Fnè is the point 2,880m.; the Passo Fnè and the Passo Loccia Carnera are one and the same, the col (2,740m.) being situated a short distance west of the Pizzo Valgrande (2,858 m.). We returned to Veglia by a path leading down from near the Avino lake and over a beautiful ancient wooded moraine, a kind of Brianza in miniature, whence we beheld all manner of lovely views, the foreground being always picturesque and full of variety.

Next day the weather was again most unpromising, but we could not spend the rest of our lives at Veglia. Moreover, our letters and luggage were awaiting us at Binn. So we buckled on our packs and started off to cross the Ritterpass, a passage already only too well known to us. We soon entered a fog, and, by the time we reached the frontier ridge, snow began to fall. In trying to find the best way down on the north side we wandered along the ridge to the west and so, without knowing it, we got off the main ridge on to the crest of its south buttress. Then we commenced descending the north-west side of this buttress, thinking that we were going down the north side of the frontier ridge into the Binnenthal. We were really going down into the north-east bay of the Mottiscia glen, as we ultimately discovered when it was too late to return. The storm presently broke upon us with great fury, with hail, snow, and driving wind, and we had to run before it for shelter as fast as we could. We followed the path by the valley-torrent and, to our disgust, arrived in due course, not at Binn but at Veglia again, wet through, hungry, and dispirited. The storm continued all day and all the following night, and we awoke on September 1 to find the whole Veglia Alp buried some half-mètre deep in snow. All the sky was black with clouds of snow, blown from the peaks around and whirled about the air. It was clear that climbing was hopeless for at least ten days, so we fought our way out of the wintry region and went down the valley with 500 starving cows. That night we slept at Domo d'Ossola. We then went wandering amongst the hills that form the setting of the Italian lakes, but ascents of the Sasso di Ferro and the like are not matters of interest to the Alpine Club. The wonderful clearness of the next few days enabled me, however, to make one or two observations worth record. From the summit of Monte Nudo, near Luino, we saw the peak of the Finsteraarhorn poking over the ridge of the Lepontine Alps; a week or two later I saw the same peak from Neuchâtel. From the Sasso di Ferro we saw Monte Viso and all the Maritime Alps. From the steamer on the lake of Lugano, at a point just east of Castagnola, I was fortunate enough to have a clear view of all the summits of Monte Rosa. Lastly, I was surprised to find that, from the railway train a short distance outside Bellinzona station on the west, one catches a brief glimpse of the Dom, Domjoch, and Täschhorn.

ASCENT OF 'IZTACCIHUATL.'

BY H. REMSEN WHITEHOUSE.



IZTACCIHUATL FROM THE WEST.

TWO snow-covered giants are visible from the city of Mexico: 'Popocatepetl,' 18,750 feet; and 'Iztaccihuatl,' 'the woman in white,' as she is called, on account of a supposed resemblance to a female figure stretched at full length with hands crossed on the breast.

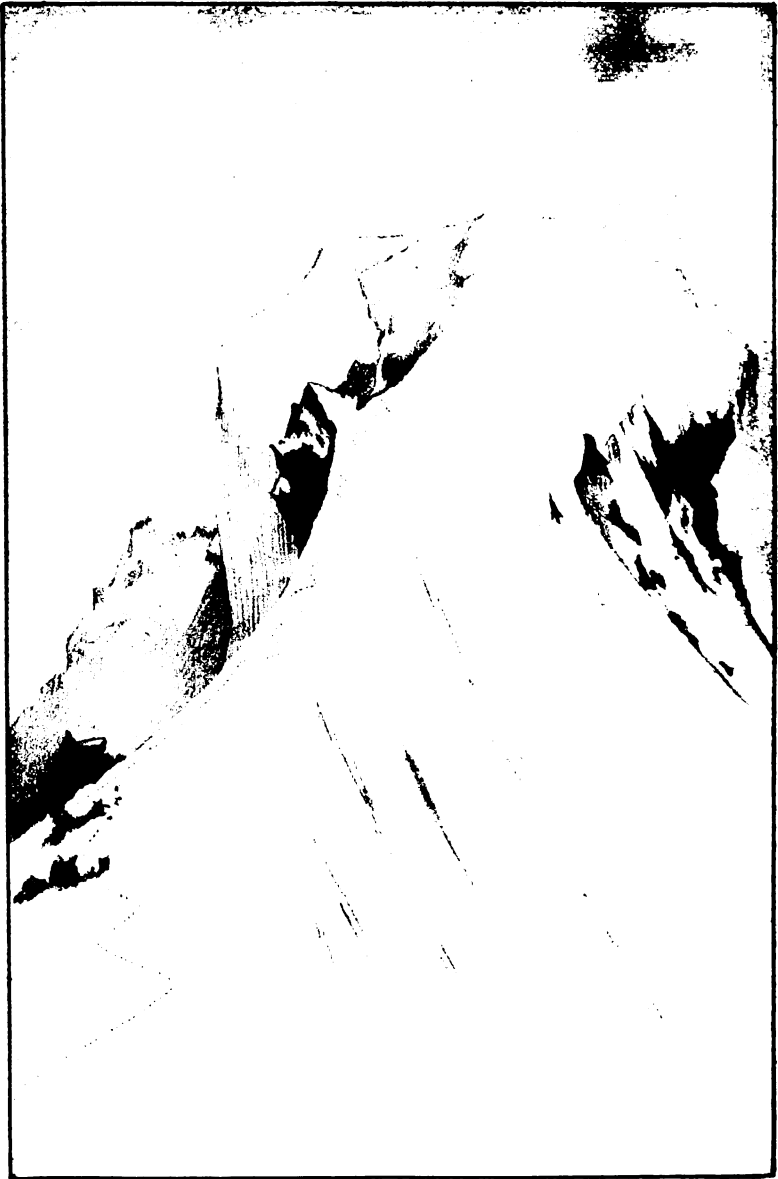
I am not aware of the exact height of Iztaccihuatl, but should estimate it at some 200 or 250 feet lower than Popocatepetl—say 18,500 feet.*

The ascent of Popocatepetl is frequently made, and presents no obstacles beyond the tedium of a long snow grind; up to last autumn Iztaccihuatl was generally supposed to be inaccessible.

I have long intended to attempt the ascent, and have several times fixed upon a day for my departure, but my diplomatic duties have invariably interfered, and only on November 8 of last year was I really able to start on the expedition.

Just five days too late, however. To my intense disappointment, I learned, when starting, that Mr. James de Salis, a Swiss climber, who has been after the virgin 'lady in white' for the last two years, had at last placed his con-

* See note at end of the article.



"Iztaccihuatl"

Looking from Col. summit on left of sketch, overhanging
ice + snow on right, arête of hard snow with
cornices + precipice on left, + very steep slope on
right. dotted line our tracks. The ice slope where
so much stop cutting was necessary is below Col on
left hand of sketch. summit is due North of Col.

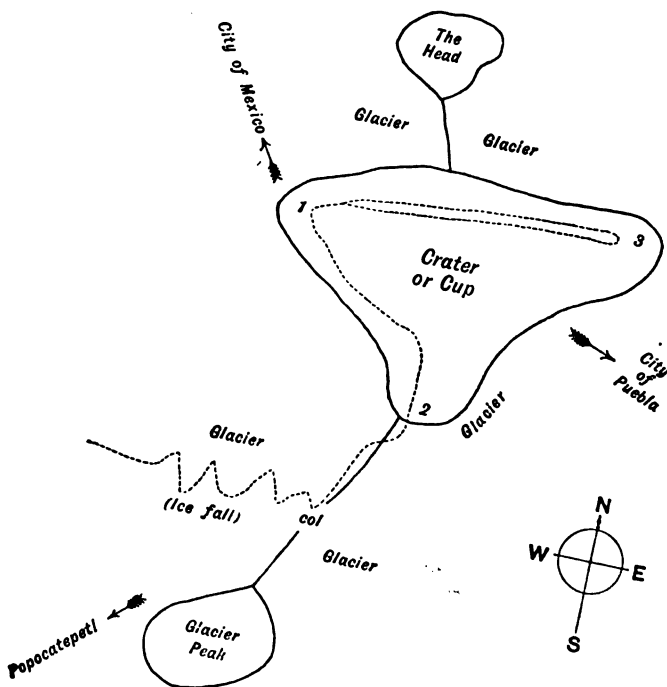
quering foot upon her breast. Although I was inclined to disbelieve the story, the presence on the summit of a bottle containing a paper with an account of his ascent in English and Spanish was overpowering evidence. However, it would be ungracious to grudge the honour of the first ascent to so persevering a member of the brotherhood, and I here offer tribute to my successful rival, whose pluck in overcoming serious and numerous difficulties commands respect.

Accompanied by my friend Baron von Zedtwitz, German Minister to Mexico, and his servant, I left Amecameca, a town situated at the foot of the glaciers, at about noon on November 8. Our intention was to ride up to the foot of the principal glacier, where the natives go daily to fetch ice, and to camp in a cave we had been told about. Two 'peons' accompanied us as guides, and brought us before dark, after a steep scramble over ground, where nothing but a Mexican pony or a chamois could hope to keep its footing, to a large cave. Here we made ourselves exceedingly comfortable, the cavern being large enough not only to accommodate ourselves, but the ponies as well. By a generous use of firewood we kept the temperature inside at about 55°, while it stood at 22° outside. We were here just below the snow-line, and at an elevation of nearly 14,500 feet.

After a most comfortable night, we started at 4 A.M., and, by the light of a particularly brilliant moon, made our way to the foot of the largest glacier, flowing down on the western side of the mountain from the saddle between the summit proper and a lower peak. We kept to the right of this glacier on the moraine as long as possible, and then struck up in zigzags to the first ice-fall. Although there were no really serious difficulties, it required considerable care not to get entangled in the labyrinth of huge crevasses and séracs, and to steer clear of the ice and stones falling from the precipices above our heads. For three hours we worked up a series of steep slopes of almost solid ice, creeping over the snow-bridges spanning the great schrunds. Step-cutting was no sinecure, as we had nothing but an ordinary wood-axe for the purpose, and the steepness and condition of the ice required continual cutting all the way up. My arms ached sadly by the time I led my party over the cornice to the saddle between the peaks, and we also suffered considerably from the cold. The sun met us, however, as we stepped on the arête, and a bite of chocolate and a pull at the flask soon made us ready to attack the arête leading from where we stood to the summit. This arête, although

narrow, and dangerous on account of the over-hanging cornice of rotten snow, presented no difficulties. Before nine o'clock the summit was safely reached, and the unwelcome bottle and card which M. de Salis had left five days before was found.

The view is similar to that from Popocatepetl, but the surroundings are infinitely grander. On all sides gigantic ice cliffs (the largest I ever remember to have seen) hang over the glaciers below. The arête we climbed would appear to be the only practicable route to the summit. Some 800 or 1,000 feet below us, and separated by a wide glacier-filled



1. Highest summit, 18,500 feet (?).

2. Summit (perhaps 20 feet lower).

3. Summit (perhaps 20 feet lower).

Crater, or cup, at greatest depression is hardly more than 50 or 100 feet lower than summit, and is a large field of névé.

. Our tracks.

chasm, rises another peak which forms the head of the reclining woman as seen from Mexico. The sharp summit would seem to offer special attractions to the lover of a steep rock climb, alternating with knife-like arêtes of ice, and

I have promised myself the pleasure of a scramble there at an early date.

Iztaccihuatl is undoubtedly an extinct volcano, and the crater, although entirely filled with ice and snow, is clearly distinguishable, forming a cup with gently sloping sides between the three almost equally high summits, from one to the other of which one could drive a four-in-hand. I doubt if it would be possible to reach the summit or summits by any other route than the one we took, as on all sides, as far as I could discover, there were sheer ice walls and precipices.

We remained about an hour on the summit, and then began to carefully retrace our steps. The climb down from the saddle to the moraine was long and tedious, and not unattended with danger, as the ice was in a particularly nasty condition, and the snow-bridges most unsafe. However, we safely reached our cave, and after a good meal, to which all did ample justice, we mounted our beasts and commenced the break-neck descent to civilisation. A few hours after dark we entered Amecameca in triumph.

Note on the Heights of the Mexican Peaks.

The third ascent of Iztaccihuatl was made in April last by Professor Angelo Heilprin and Mr. Mark C. Baker, of the Philadelphia Scientific Commission. They were prevented from reaching the actual summit by two enormous crevasses, developed since Mr. Whitehouse's visit, which 'completely crossed the crest of the mountain.' In the first report of this ascent it is stated that barometric observations gave a height of 17,150 ft., or some 25 ft. less than Popocatepetl. This estimate seems, however, to have been subsequently much reduced, Popocatepetl being set down at 14,700 ft., and Iztaccihuatl at about 14,450 ft. Upon this Mr. Whitehouse remarks as follows:—

'Here we have a mountain covered the year round with snow running some 2,000 or 3,000 ft. down its sides (according to exposure), and situated within the tropics, set down as lower than Mont Blanc!

'Iztaccihuatl is probably some 250 ft. lower than Popocatepetl, or say 14,450 ft. high, according to the Professor's calculations, and would consequently be more than 1,000 ft. lower than Mont Blanc. And yet here is a peak, situated in the tropics, from which glaciers descend, some nearly two miles long, presenting the same features as the Swiss glaciers, and broken by crevasses, seracs, and ice-falls.

'The climate of the city of Mexico, perched on a level with the Riffel Hotel, nearly 8,000 ft., is warm and pleasant the year round. Snow never falls there, and during the coldest winter nights there is rarely even a slight frost. And yet we are asked to believe that over

yonder, across the semi-tropical vegetation of the valley of Anahuac, that glittering ice-peak of Iztaccihuatl is nearly 1,000 ft. lower than the Swiss giant whose hoary head looks down on many dreary months of hard winter, and a few weeks of oft-interrupted summer.

'From the tropical city of Vera Cruz, situated but nineteen degrees north of the equator, and sweltering the year round, with the thermometer in the nineties, we look up at the eternal snows of Orizaba, the summit of which, the Professor tells us, is not 15,000 ft. above us.

'That Orizaba, and not Popocatepetl, is the highest of the Mexican giants, I have always been inclined to believe. Seen from the summit of the latter, at a distance of at least 80 to 100 miles, it still appears the higher, and I was struck by the same evident fact when I made the ascent of Iztaccihuatl on November 9 last.'

REMSEN WHITEHOUSE.

In April 1888 Herren J. Felix and H. Lenk, who were driven back by a storm when about 500 ft. below the peak, had measured it trigonometrically at 4,800 m. = 15,754 ft.* It is to be hoped that the White Lady is not going to share the fate which has been predicted for another North American mountain—viz., become a mere depression in the ground.

ACCIDENTS IN 1890.

THE past season has been more fertile of accidents than any since the fatal year 1882. Happily we have to deplore the loss of only one member of our Club—indeed, of only one Englishman. But the brotherhood of the mountains is not limited by speech and language; nor will the members of foreign clubs doubt that we sympathise with the sorrow which the loss of valued colleagues must have caused to them. The special point, however, which will strike everyone who reads the accounts of the recent disasters will be the almost unprecedented number of guides who have perished. Between June 24 and September 12 no less than nine guides, some of them among the very first in their profession, and at least two porters, have lost their lives—eight while actually employed, one while on his return after completing the tour for which he was engaged. Another, though with a party, was at the moment separated from them; and both these were undoubtedly due to want of precaution on the part of the unfortunate men. But the remaining seven, and the two porters, seem to have died literally in harness, with the rope round them and their sacks on their shoulders. Except in 1870, when three travellers and eight guides perished in one storm on Mont Blanc, there has never been in one year such a tale of slaughter among those who earn their bread by helping men from the lowlands to climb mountains. At the same time, we have no right to be greatly surprised. Practised mountaineers have long foreseen something of the kind—if mountain-climbing

* *Oest. Alpen-Zeitung*, No. 300, p. 166.

was to continue 'in fashion.' One does not wish to speak too severely of errors which have been so heavily atoned for; but it may safely be said that if three at least of the tourists who have, as the German euphemism has it, been 'unlucky' this year, had paid attention to the maxims which Mr. Stephen and others have inculcated, four worthy peasants would still be alive to support the families who depended on them.

The following accidents occurred above the snow-line, or in situations which place them distinctly within the category of 'Alpine' accidents:—

June 24.—Herr R. Poppe, from Saxony, ascended the Similaun (11,830 feet) in the Oetzthal, with Peter Paul Gstrein. The mountain is perfectly easy, and, as a rule, free from danger. This year, however, a cornice had formed over the N. face, which falls precipitously for some 1,500 feet to the Marzoll Ferner. It is believed that they reached the top, and that on the descent the tourist, walking too near the edge, broke through, and dragged the guide, who probably was in front, down with him. P. P. Gstrein was one of the oldest guides at Fend. His name appears in several accounts of first ascents made in the Oetzthal before and after 1870. Though never a 'brilliant' man, he was a steady guide, and knew his own district well.

July 31.—Dr. Edward Mayer, a well-known Vienna barrister, ascended the Kitzsteinhorn (10,515 feet), in the Kapruner Thal, with J. Scherenthaler, of Kaprun. He was accompanied by his son, a lad of sixteen. They were not heard of for some days. A search-party was organised, and all three were found lying dead on the Grubalm- or Schmiedinger-Kees. They appeared to have begun the descent by the eastern ridge, a route which is said to present some difficulties. Here Dr. Mayer, who was an elderly man and very short-sighted, would seem to have slipped, or his son, who was quite unpractised, may have slipped. The condition of the guide's hands bore witness to the efforts that he had made in vain to save the party under his care.

On the same day Andreas Untersteiner, of Windisch-Matrei, after taking a tourist across the Venediger from the Defregger (or, according to another account, the Prager) to the Kürsinger Hütte, started at noon from the latter spot to return by the Obersulzbachthörl and Dörferkees to his own valley. As he had not appeared by the next day but one, a party of four guides went to look for him. They traced him on to the Dörferkees, after which the tracks were lost in new snow. His body was not found, but there can be little doubt that a crevasse of the Dörferkees holds it.

August 12.—The guide Gratien Brunod, of Pré St.-Didier, accompanying SS. Carones and Rochetti, of the C. A. I., across the Col du Géant, slipped while filling a bottle with water in a couloir not far from the hut, and fell a distance of 1,000 feet on to the Glacier de Toule. Another guide who was with him caught at him as he fell, but unluckily succeeded only in holding his watch-chain. When the rest of the party reached him he was quite dead.

August 18.—Count Umberto di Villanova, with Antonio Castagneri, of Balme, Jean Joseph Maquignaz, of Val Tournanche, and two porters, left the *cantina* of Visaille to ascend Mont Blanc, it is supposed by way of the Chaut des Pesses and Dôme du Gôûter. They, too, have not been seen since. A search of the most elaborate kind has been made for them, an account of which may be read in the *Rivista Mensile* of the C. A. I. for August and September; but, in spite of one or two very circumstantial rumours of their discovery, there seems no doubt that not only have their bodies not been found, but that even the spot where they lie cannot be conjectured with any certainty. So far as suppositions go, the most probable seems to be that they were caught on the ridge between the Aiguille de Bionassay and the Dôme by the fearful storm which raged on Mont Blanc during August 18 and 19, and (possibly) hurled by it on to the Glacier de Bionassay.

Of Castagneri Mr. Coolidge has written on another page. Maquignaz, born in the same year as his friend J. A. Carrel, was equally well known, especially in connection with early ascents of the Matterhorn. But there were few regions of the Western Alps which he had not visited, often in company with Castagneri. He was great at winter expeditions, and had ascended at that season Mont Blanc, Monte Rosa, the Lyskamm, the Grand Paradis, and others. He also led the first victorious party to the top of the Dent du Géant, an achievement specially gratifying to the patriotic pride which seems to have been one of his most marked characteristics.

August 25.—Jean Antoine Carrel died of exhaustion after bringing Signor Sinigaglia down in safety from the hut on the Italian side of the Matterhorn through a terrible snowstorm. The story is told in full by Mr. Whymper in another part of this number.

September 13.—Herr Goehrs, a young man from Strasburg, started at 3.30 from the new Matterhorn hut to ascend the peak. His guides were Alois Graven, of Zermatt, and Joseph Brantschen, of St. Niklaus, both young men also. Not far behind them was another party, Herr Dames, of Frankfort, with Fridolin Burgener and Peter Knubel. Towards 9 o'clock Herr Goehrs and his guides had reached the shoulder, and met the full force of a northerly gale which was blowing. Unable to face this, they decided to turn back. The lower party seem to have come to the same decision about the same time, and to have halted or gone slowly to let the others overtake them. A quarter of an hour later, Burgener, who was at a little distance from his companions, heard a clatter, and saw Herr Goehrs and his guides falling through the air within one hundred yards of him. Their bodies were found on the Furggen glacier. The cause of this accident will never be known, but it seems probable that the party were descending too fast for safety, that a slip took place (whether, as has been suggested, owing to the photographic apparatus which the guides carried, or from whatever cause), and that all three lost their hold. Herr Goehrs seems to have been almost entirely devoid of experience in Alpine work; and the guides, though said to be promising young

men, can hardly have been properly qualified to take a beginner up the Matterhorn.

Of accidents below the snow-line, the most noteworthy to Englishmen will, of course, be that by which Mr. Macnamara so unhappily lost his life. Mr. Cornish has given a full account of it. On June 24 the Abbé Lombard slipped and fell into a torrent-bed on the Croix de Belledonne, near Grenoble, while gathering flowers; and on August 3 Herr Ferber, a post-official of Pontresina, fell over some rocks on Piz Languard while running after his hat, which had blown off. Any of these three accidents might, as has been said, have happened in Wales or the Lake country.

THE ACCIDENT IN THE MADERANER THAL.

I FELT that it would be fit and proper that my version of this accident, whereby the Alpine Club lost a valuable member, and many of us personally a good and loyal friend, should be reserved for the pages of the 'Alpine Journal.' Several inaccurate and misleading accounts and comments have appeared in the papers, but, with the exception of a letter addressed to the 'Times' to correct some glaring misstatements, I have not taken any notice of them. Anyone who has been similarly circumstanced will know how peculiarly painful a discussion in the newspapers is at such a time. I regret, however, that I did not at once correct an unintentional error which occurred in the first announcement. The statement that we were 'running down a grass slope' unfortunately gave rise to the natural impression that the accident was due to carelessness on our part. This was not the case. We were working as carefully at the time of the accident as at any other time during the climb, and I can testify that Macnamara was a very careful climber. I am not writing as an apologist for climbing without guides, but I wish in the first place to distinctly disavow any idea of bravado on the part of my poor friend or myself in going without guides. Our original summer programme, settled long previously, was to attempt the aiguilles near the Montanvers with first-rate guides. The loss of our chief guide's services, when, as it seemed to us, it was too late to secure a good substitute, led us to abandon our more ambitious projects, and to entertain the idea of doing a little guideless climbing among the lesser peaks in the neighbourhood of the Maderaner Thal, which had been recommended to us for that express purpose. In the second place, I do not think that the warnings of the landlord have anything to do with the matter. His warnings, as far as I know, exclusively referred to the mountain proper, and especially the last part of the ascent, which we found particularly easy, and which in the case of experienced mountaineers, as we both were, presented none of the alarming difficulties into which we might be supposed to have wilfully and blindly entered. The accident by which my poor friend lost his life happened well below the snow-line, and was not specially 'Alpine.' From my experience, I should say that the same thing might have easily happened on the hills in Wales or the Lake district. In a

scramble among the latter the circumstances under which we found ourselves might be easily repeated. I will now briefly narrate what happened. Macnamara and I had left the Alpine Club Hotel in the Maderaner Thal at 6 or 7 A.M. on the morning of August 16 (it was not necessary to make an earlier start), our object being an ascent of the DÜssistock, which was to be our first expedition in that neighbourhood. We took a 70-foot rope with us and a knapsack containing a few provisions. We had no difficulty in the ascent, and if we had struck the right line directly we should probably have been on the top at 12.30 or 1 o'clock; but a *détour*, in which we had to use the rope, and which proved an impracticable way, delayed us, and so we did not reach the summit till an hour or so later. We had brilliant cloudless weather, and anticipated a speedy and easy descent. As I have said, the rocks were perfectly easy near the top, and the snow part below them extraordinarily simple. After leaving the snow we determined not to return by the same way by which we had come up, as it involved a descent by some rocks which might have been difficult, but to strike straight down some grass slopes, which seemed to lead down to the beaten track now not far below us, and which appeared to present no difficulties. We worked carefully down these slopes, and finally got to an abrupt part, which necessitated our working our way in a sidelong direction along some grass ledges. These were easy enough, but at the end of one of them we found ourselves cut off, so that we must either return some way back or find a way straight down. This was about 5 o'clock, and we were about two hours from the hotel. The depth was too great to allow of a simple drop, though that seemed only just impossible, but a practicable way seemed open—viz. to work along the face of the steep part for two steps, and then to scramble down from a slightly lower point, where there seemed to be foot-hold and hand-hold sufficient. I led the way, and, with the exception of the first two steps, found no difficulty at all, as there was sufficient hold. When I was nearly down Macnamara followed, having previously rid himself of his knapsack, so as to be quite unencumbered. I watched him carefully during the first two steps, and pointed out the foot and hand holds; and when he had passed these all right I continued my descent. Suddenly he fell backward close by me with tremendous force on the rock just below, bounded from that rock on to another, and was hurled on to the top of a steep run of shale. Either he must have slipped or his hold must have given way, or he got entangled in his ice axe. It was all over in a moment. I could hardly believe my senses. The utmost danger that the place had suggested was a broken limb in case of a slip. I hurried down, and with some little difficulty was by my poor friend's side in a few minutes. When I saw him fall as he did, and the force with which his head struck the rock, I felt there was no hope, and when I arrived by his side my worst fears were realised. His face was terribly disfigured. I did what I could, and poured some brandy down his throat, but he showed no consciousness, and the doctor next day confirmed my own impression that death was instantaneous. One does not, however, like to give up hope, and I could not bear to leave him in case of any return to consciousness, however unlikely that might

seem. I therefore stayed by his body all night, shouting at intervals, in case of any help being near. Between 4 and 5 o'clock the next morning I made my way back to the hotel, the bearer of the mournful tidings to his mother and sisters, and afterwards accompanied a party of guides and others to the scene of the accident. It was, I repeat, an accident which might have occurred in any scramble down the hills in our own country. There were no difficulties of ice or difficult rocks to contend with. I myself had had no idea of danger while going down the same place. A few moments before we were chatting brightly and cheerily together, and then came this sudden and tragic end. He was laid to rest in the beautiful cemetery near Lucerne, in sight of his beloved mountains, a wreath of edelweiss and other flowers covering his grave. It is not for me to speak here of his brilliant course at Harrow and Cambridge, or of his career at the Bar, so lately begun but full of such rich promise, cut short by such an untimely end. The Alpine Club will mourn one of its most enthusiastic and devoted members; a host of friends will sadly miss a true and loyal-hearted man. A high-minded and pure soul has been removed from our midst; but his memory will for long be green, as of one of boy-like ardour and enthusiasm, hating all things mean or ignoble, a hearty and joyous nature. Many acts of kindness will be remembered, and many a conversation cherished. He remained unchanged to the last moment, and I never knew any man more fit to meet such a sudden summons. Those whom the gods love die young. The memory that Arthur Macnamara leaves behind him contains nothing but what is pleasant to dwell on.

THEODORE CORNISH.

IN MEMORIAM

JOHN BIRKBECK.

THE death, on July 31, of Mr. John Birkbeck, of Settle, makes another gap in the list of original members of the Club. His name is probably not very familiar to the present generation of mountaineers; but to some of us it recalls many pleasant memories of the early days of Alpine adventure. I owe to the kindness of his son, Mr. John Birkbeck, jun., the main facts recorded in the following brief account of his career. John Birkbeck was the son (eldest of five children) of a banker at Settle, where he was born on July 6, 1817. He belonged to an old Quaker family. Other descendants from the same stock were George Birkbeck (1776-1841), remembered as a philanthropist and the founder in 1824 of the London Mechanics' Institution, afterwards called by his name; and William Lloyd Birkbeck, for many years Downing Professor of Law, and afterwards Master of Downing College, Cambridge. He was educated partly at Giggleswick Grammar School, and afterwards, at the suggestion of an old family friend, Professor Sedgwick, a native of the same district, was sent to Trinity College, Cambridge. As a Quaker, he was unable to take a degree, and did not compete for

examination honours. He was, however, a diligent student of literature, and though his later years were chiefly occupied with business, his conversation proved to his friends in afterlife that he had a very keen enjoyment of literary excellence. At Cambridge he formed an intimate friendship with John Ball, our first president, who, like himself, was excluded by the religious tests from academical prizes. They were both good chess-players, and used to play during their walks—a practice which I, being no chessplayer, cannot commend as a walker. Though, of course, without a board, they never had a dispute as to the position of any piece. They spent at least one vacation in a walking tour in Scotland; and they formed a society for the suppression of smoking, Ball being president and Birkbeck secretary. Two other members joined the association, whose offices and names are not on record. When the two leaders of the society met after an interval of some years, both had lapsed from their early faith as to tobacco.

Birkbeck entered the Settle bank upon leaving Cambridge. On the death of his father in 1844 he became a partner. He was senior partner when the bank was converted into a joint-stock company in 1880, and was afterwards chairman of the company until his death. His home was thus at Settle during his whole life. He was a man of remarkable business capacity, and a leader in all local affairs. He was for nearly fifty years a member of the committee of the Leeds and Liverpool Canal. For more than twenty years he was chairman of the Settle Bench. He was governor of the Giggleswick and Sedbergh Grammar Schools; and was chief manager of their finances during a time when large sums had to be raised for new buildings. He had the satisfaction of seeing them developed from small day schools to prosperous boarding schools, with numbers multiplied fivefold and placed in a thoroughly sound financial condition. He was an important man in the local politics; and, though brought up as a Liberal, he early became a staunch Conservative. He was a protectionist to the end of his life. His Conservatism was not of the solemn kind which cannot endure a joke at its own expense. I remember his telling me with a quiet twinkle of the eye how much he had enjoyed explaining to his friends upon the occasion of the Disraeli Reform Bill, not only that they were to support household suffrage in future, but that it had always been an essential part of their platform. His last exertion in politics was in support of Mr. Walter Morrison, the Unionist candidate for the district in 1886.

In 1841 Mr. Birkbeck joined the Church of England, being baptized shortly before his marriage to the daughter of Robert Stansfeld, of Field House, Halifax. By her he had two children, who survived infancy, the present John Birkbeck and Robert, who died in 1882. His strength was tried by the electioneering of 1886, and he soon afterwards lost his wife. He became an invalid and found the labour even of talking very great. After a meeting of the governors of Giggleswick Grammar School he expressed his conviction that the 'method of communicating ideas by means of speech was an invention of the devil.' He became gradually weaker, and died peacefully two days after a stroke, which left him scarcely conscious until the end.

This short statement may suffice to show that Mr. Birkbeck was one of those men who, passing their whole lives in a quiet country town, are of more use to their fellows than many who make a far greater noise in the world. It is, however, as a member of the Alpine Club that he must be most interesting to my readers. His relations to the Club were characteristic enough. He was a good walker, and in his youth had several times done sixty miles a day in Scotland. During the Swiss excursions, which were his great periods of relaxation in afterdays, he was one of the first party which crossed the Mönch Joch in 1858, and one also of the first party which reached the highest point of the Monte Rosa in July 1855. His favourite guide was Victor Tairraz, of Chamouni, cousin of his namesake who kept a well-known inn at Aosta. Among his friends and companions of those days were Charles Ainslie, the brothers Christopher and Grenville Smythe, then active founders of the first mountaineering school; and Charles Hudson, who was killed on the Matterhorn. Hudson, who was, I think, the strongest and most active mountaineer I ever met, was, by Mr. Birkbeck's desire, initiating the younger John Birkbeck into the mysteries of mountaineering in 1861; when his pupil had the astonishing escape recorded in the second series of 'Peaks and Passes,' after a fall of greater vertical height than, I should imagine, has ever been survived by its hero. I had the pleasure of meeting Mr. Birkbeck for the first time in the summer of 1859 at the Aeggischhorn inn, then just started. Wellig, the landlord, was a very small and marvellously vivacious man, who was equal to all the emergencies of his post, whether you called him up at three in the morning on returning from some belated expedition, or found him struggling with an influx of guests apparently out of all proportion to the resources of his modest establishment. He met all demands with faultless good-humour; and, though I only remember him as generally present in every room of the inn at the same time, was equally active out of doors. He used to boast that he mounted from Viesch to the Aeggischhorn in an hour, which in those days we thought (I at least thought after trying to rival him) was good time. Birkbeck had taken a fancy to him; and had employed him as butler at Settle one winter in order that he might learn English—the result being that Wellig talked an amazing polyglot, in which scraps of English, German patois, and recollections of French, struggled for the mastery. Mr. Birkbeck had further, as was commonly reported—(Mr. John Birkbeck, jun., thinks that the report had some foundation)—lent money to him towards the Aeggischhorn enterprise. At the Aeggischhorn, therefore, Mr. Birkbeck was naturally at the head of the table. We felt ourselves to be almost his guests, and formed a pleasant society under his presidency. He delighted in hospitality at all times, and took a large party of us to a picnic at the Bell Alp, the inn at which place was then in process of construction, and also (as I understood at the time) with some material support from Mr. Birkbeck. If I am right, Alpine travellers have thus to be grateful to Mr. Birkbeck for promoting the foundation of two of the most popular places of resort in the Alps. A day or two later he made an ascent of the Finster-

aarhorn, though he was, I think, beginning to feel the work of climbing as excessive. Ten years later (in 1869) I again met Mr. Birkbeck, who, with his friend Ball, was staying at the baths of Santa Caterina, near Bormio. He explained to us with his usual humour how he secured a complete holiday by retiring to some remote corner of the Alps and leaving no address. Necessary letters could be forwarded to a banker at Geneva, with whom he communicated when he felt that he was equal to the perusal of correspondence. He insisted that I should pay him a visit at Settle with my family, whose acquaintance he had then made for the first time. We went there accordingly, and he received us with overflowing hospitality. I shall not forget the pleasant talks in his study, where an elderly bulldog, outwardly ferocious but most amiable in his demeanour to the human being, used to take the comfortable seat on the sofa and affably consume a stray bone or two. I remember the enthusiasm with which he read to me some of Carlyle's battle stories in 'Frederick.' He, of course, took us to the most interesting places in his wild and beautiful region; I saw Malham tarn and climbed Ingleborough; I explored Clapham Cave; but, above all, I made a grand descent. In early life Mr. Birkbeck had explored some of the curious 'pots,' or vertical shafts excavated by the streams in the limestone hills. Once he was being let down by a rope through a waterfall and his signal to be pulled up was only understood in time to save his life, the water dropping on his head having almost deprived him of consciousness. The railway from Settle to Carlisle was being constructed at the time of my visit, and Mr. Birkbeck took advantage of it by getting a timber bridge built across the opening of a ghastly chasm called 'Hellen pot,' from which a large party of guests was lowered in a basket to the bottom. A further scramble took us to a depth of 200 or 300 feet below the level, to the point where the stream was swallowed up in a subterranean channel. I prefer vertical movements in the opposite direction; but Birkbeck's delight in the proceeding made the day memorable. I had the honour, too, of attending a meeting of the committee of which he was a principal member constituted to investigate one of the strange caves in the neighbourhood where prehistoric savages apparently lunched upon hyæna bones.

Mr. Birkbeck, as I have indicated, was a thorough humourist. I could not help fancying at the time that he might have made an interesting figure in Miss Brontë's 'Shirley,' for Haworth is within reach of Settle, and Mr. Birkbeck reminded me of some of the characteristics described in the York family. Miss Brontë, indeed, had hardly the sense of humour which would have been required to do him justice; but he had the shrewdness and independence of mind, with a touch of quaint eccentricity, which marks her Yorkshire squires. His contempt for appearances was certainly conspicuous enough. I remember walking with him on a rainy night through London streets, when he was hatless, great-coatless, and umbrellaleas, with long curls descending to his shoulders, dressed in ordinary evening clothes, but without a collar, and a grey flannel shirt displaying itself instead of the spotless cambric front of civilised life. He has the credit, however, as his son tells me, of having introduced the Scottish plaid and the

moustache into his own neighbourhood. He had a strongly marked face, and told me, with some complacency, that he had occasionally been mistaken for Lord Tennyson. Though he was not a poet, he could have thoroughly relished the humour which was, rather unexpectedly to most readers, revealed by the 'Northern Farmer'; and, without drawing any parallel, I will venture to say that the Laureate need not have been offended at the comparison. Mr. Birkbeck, in spite of any little oddities, could never be taken for anything but a thorough gentleman. His courtesy, thorough kindness of heart, as well as his shrewdness, were obvious to the most casual acquaintance, and only gained a certain piquancy from the quaintness of manner and the quasi-cynical tone in which it was his humour to mask his utterances. In looking back to old Alpine days, I can recall many delightful friendships, the formation of which is, indeed, by far the greatest service rendered to me by the mountains; but I do not know that I formed an alliance with anyone more fitted to act as one of the founders of a club which, while primarily intended for a special object, has also the merit of fostering close friendships between congenial natures, and cementing them by memories of happy days passed in the most delightful surroundings.

L. S.

SIR WILLIAM HARDMAN,

who died at St. Leonard's on the thirteenth of September, at the age of 62, had been a member of the Alpine Club since 1863. At Cambridge, where, with the present French Ambassador for a fellow oarsman, he rowed in the Second Trinity boat, he was the friend of Hardy and other founders of the club, and when he went to the bar and settled in London, his house at 27 Gordon Street was often the rendezvous of Hinchliff, Ball, William Longman, Kennedy, and other mountaineers, who soon enlisted him in their newly formed body. His own achievements in the Alps were not numerous, and, indeed, consisted mainly of expeditions to the Cima di Jazi and other minor peaks near Zermatt, in some of which Professor Owen, Mr. and Mrs. Freshfield, and Hinchliff were his companions. He had, however, done a good deal of climbing in former years in Norway, including the ascent of Sneehattan, and was always enthusiastic as to Alpine matters; and when he became editor of the *Morning Post* it was at his instance, that, after consultation with some members of the committee, a report of the annual dinner of the club was regularly published in that paper. Up to 1877 the pictures and photographs collected in each December were only exhibited at the dinner, but in that year the *Post* suggested that the collection might well be made accessible to a larger section of the public, and in 1878 were instituted those afternoon exhibitions which have since become increasingly popular. Sir William Hardman became Chairman of the Surrey Sessions in 1871, a post which he occupied until his death, and in which he gained considerable reputation. He took an active part in the Surrey County Council, of which he was an alderman, and also devoted much energy to the organisation of the Primrose

League. These varied functions by day, and his editorial duties by night, were enough to wear out a constitution that was naturally strong, and last year he broke down under the pressure of over-work. His knowledge of men and things was very extensive, and his geniality and kindness were appreciated by a very large circle of friends.

H. P.-T.

GEORGE BARNARD.

ANOTHER familiar and venerable figure will be missed from our meetings this winter. In Mr. George Barnard, who died early in October, at the age of 83, the club has lost the eldest and first of those artist-members who have in many ways done it such good service.

There was a time when Barnard was almost the only Alpine artist whose drawings could be looked at with pleasure by those with any respect for truth in mountain form. Turner's example and Mr. Ruskin's preaching had fallen on stony ground, and the climber who went to a picture-show was at a loss to recognise the peaks he knew in the bulbous or umbrella-shaped monstrosities which did duty for the Schreckhorn or Wetterhorn alternately—and equally ill. The High Alps of the Watercolour Exhibitions in those days were not only individually, but generically, false; they were not only unlike the particular mountain they claimed to represent, but any possible mountain.

George Barnard had, as his books show, some scientific as well as artistic sympathies and connections; he was the brother-in-law of Faraday; and he did his best to paint the mountains in the spirit of a conscientious portrait-painter. Lovers of the High Alps, and early members of our Club—such as the late William Longman and H. W. Cole, and Mr. Tuckett and others—appreciated his efforts and encouraged him to paint snow-peaks as principal objects, and not only as accessories in the background. The best of Barnard's work done at this time has naturally long been scattered in private collections, and has hardly been seen by the younger members of the Club, although he went on painting until he was past 80, and few of our exhibitions have been without some contributions from his studio.

Barnard was never (as he puts it) a summit-climber. He did not draw the peaks as the climber-painter does, who emphasises every ridge and furrow. Possibly this Denner-like style of mountain-portraiture has been carried somewhat too far recently. It was reserved for others to catch the sudden atmospheric effects and more dramatic aspects of the snows, to represent the inner scenery of the ice-world. But the veteran artist has left behind him a number of very pleasing and faithfully-studied Alpine landscapes, pure in colour and careful in drawing—pictures of the Matterhorn and the Chamonix Aiguilles, of Monte Rosa and Val d'Aosta as well as of some more remote districts. For Barnard was by instinct a traveller. Of the extent and variety of his wanderings at an early date some idea may be formed from the lists of illustrations in his two successful works, 'Drawing from Nature' and 'Landscape Painting'—the first published in the fifties. They

show an intimate knowledge not only of the Alps, but of the Pyrenees, and include views of such then out-of-the-way peaks as 'Lang Kofel, Tyrol.'

In the chapter on Fontainebleau may be found an entertaining description of the manners and customs of the now famous Barbison School of Painters, and the village inn which they decorated with their paintings.

Mr. Barnard also published a small volume of travel called 'Switzerland.' Many of his writings were first delivered in the form of lectures to the boys at Rugby, where he held the post of drawing-master for many years, and had Adams-Reilly among his pupils.

D. W. F.

C. HANDFIELD JONES, M.B., F.R.S.

By the death of Dr. C. Handfield Jones, F.R.S., the Alpine Club has lost a senior member of whom it had every cause to be proud. Dr. Handfield Jones was a man of great scientific attainments, and one whose work and writings command the highest respect by reason of their profound research and conscientious thoroughness. He was elected a Fellow of the Royal Society (in 1850) at the early age of 31. At the Royal College of Physicians he filled numerous high offices, and was well known to many generations of students at St. Mary's Hospital as a most learned and hard-working physician. He became a member of the Alpine Club in 1877, and was a frequent attendant at the Club meetings, displaying always the keenest interest in all mountaineering matters, and listening to the papers read with as much attention as if they had been on the scientific subjects he had largely made his own. A year or two ago he thought, on the score of advancing years, of retiring from the Club, but was persuaded to reconsider the idea, and admitted then that he would have felt great regret in parting from a Club in whose aims he sympathised so warmly. He was not a little proud, indeed, of his membership. In the 'Medical Directory,' among the various scientific titles and degrees enumerated after his name, he had inserted the letters 'A.C.'

C. T. D.

ARTHUR MACNAMARA.

ARTHUR MACNAMARA'S death is a very real loss to the Club. Though he was one of our youngest members, he had served a thorough apprenticeship to the craft, and his name stands recorded in the pages of the Journal in connection with several new expeditions in the Alps. His love for the mountains, and his unbounded energy, made it probable that he would soon have reached the first rank of English climbers. His energy was apparent in every pursuit in life. On one occasion, when an undergraduate at Cambridge, he walked from Cambridge to Oxford in a single day; and I have known of his running the last six miles home after a long day's walk, in order to meet some friends at a Welsh inn. To walk from his rooms, near Piccadilly, down to Harrow for breakfast, was at one time almost a frequent

practice on his part. Indeed, his affection for his old school was very great, and he was never happier than when in his old haunts.

Physically energetic, he was also intellectually brilliant. At Harrow few boys have ever had so extraordinary a career: every school prize was there in turn won by him. At Cambridge he was a scholar of Trinity, and was placed in the first division of the first class in the Classical Tripos (Part I.); and at the Bar (where he was without family interest of any kind) his industry and accuracy were already beginning to win for him the success which his ability deserved.

Popular with all who knew him, he was loved by his friends. To them, perhaps, his most marked characteristic was his rare power of sympathy. Always cheery, always unselfish, the pleasures of his friends were as real to him as to them. Their success pleased him as much as his own could have done, and his buoyant spirits made any misfortune appear to be of small account. To most men it is not given to attain close friendship with more than the narrowest circle. With Arthur Macnamara it was different. By very many he was regarded as the one friend who was nearest and most dear, and he had become almost an integral part of many a home. By his death we have lost the best and truest of men.

G. S. B.

JEAN-ANTOINE CARREL.

Ὅταν τύχη τις εὐνοοῦντος οἰκέτου,
Οὐκ ἔστιν οὐδὲν κτῆμα κάλλιον βίῃ.—MENANDER.

ALL of the readers of the 'Alpine Journal' no doubt know by this time that Jean-Antoine Carrel, called the *bersagliere*, perished upon the southern side of the Matterhorn on the 25th of last August. He started on the 23rd from Breil with an Italian gentleman, Signor Leone Sinigaglia, of Turin, and Charles Gorret, of the Valtournanche, with the intention of crossing the Matterhorn in one day. The weather (I learn from various sources) at the time of their departure was the very best, and it changed in the course of the 23rd to the very worst. They were shut up in the *cabane* at the foot of the Great Tower during the 24th, with scarcely any food, and on the 25th retreated to Breil. Although Jean-Antoine (upon whom, as leading guide, the chief labour and responsibility naturally devolved) ultimately succeeded in getting his party safely off the mountain, he himself was so overcome by fatigue, cold,* and want of food that he died on the spot.†

* It has been stated that he was insufficiently clad. I am informed that he wore his usual amount of clothing.

† Carrel died upon the rocks which we used to term 'the little staircase.' They are the first rocks that it is necessary to climb upon the ascent of the Matterhorn. In fine weather, the descent from the Col du Lion to this place should not take more than an hour and a half. It will be seen from the following relation by Signor Sinigaglia that his party was occupied upon them from 2.30 P.M. to about midnight.

I have already related, in the *Daily Graphic*,* some of the more interesting passages in his career, and it is unnecessary to repeat them here. He was born at the beginning of 1829,† and at the time of his death was in his sixty-second year. Although a contemporary of the two great Oberland guides, his name is not associated like theirs with numerous first ascents. He arrived at middle age before his good qualities were recognised. The conquest of the Alps was nearly finished when he began to act as guide, and he had not the opportunity of distinguishing himself which had been afforded to Christian Almer and Melchior Anderegg. He sprang into notice by his ascent of the Matterhorn on the Italian side; and, even should that mountain be graded and degraded, and come to be treated like a superior Pilatus, men will not cease to wonder at the skill and courage that he displayed on this daring *escalade*.‡

Numerous correspondents say that for several years he had shown signs of age, and, from information which has been communicated, it is clear that he had arrived at a time when it would have been prudent to retire—if he could have done so. It was not in his nature to spare himself, and he worked to the very last. He was in the field throughout the summer, and on August 21, having just returned from an ascent of Mont Blanc, was engaged at Courmayeur by Signor Leone Sinigaglia, a law-student of Turin, for an ascent of the Matterhorn. He proceeded to the Valtournanche, and on the 23rd set out with him and Charles Gorret (brother of the Abbé Gorret), for the last time, to ascend his own mountain by his own route. A long and very clear account of what happened has been communicated by Signor Sinigaglia to the Italian Alpine Club, and from this the following relation is condensed:—

‘We started for the Cervin at 2.15 A.M. on the 23rd, in splendid weather, with the intention of descending the same night to the hut at the Hörnli on the Swiss side. We proceeded pretty well, but the glaze of ice on the rocks near the Col du Lion retarded our march somewhat, and when we arrived at the hut at the foot of the Great Tower, prudence counselled the postponement of the ascent until the next day, for the sky was becoming overcast. We decided upon this, and stopped.

‘Here I ought to mention that both I and Gorret noticed with uneasiness that Carrel showed signs of fatigue upon leaving the Col du Lion. I attributed this to temporary weakness. As soon as we reached the hut he lay down and slept profoundly for two hours, and awoke much restored. In the meantime the weather was rapidly changing. Storm clouds coming from the direction of Mont Blanc hung over the Dent d’Herens, but we regarded them as transitory, and trusted to the north wind, which was still continuing to blow. Meanwhile, also, three of the Maquignaz’s and Edward Bich, whom

* A copy of the *Daily Graphic*, Sept. 20, 1890, was posted to all members of the Alpine Club having addresses in Great Britain.

† The exact date seems not to be known. He was christened at the Church of Saint Antoine, Valtournanche, on January 17, 1829.

‡ See *Scrambles amongst the Alps*, and *The Ascent of the Matterhorn*.

we found at the hut, returning from looking after the ropes, started downwards for Breil, at parting wishing us a happy ascent, and holding out hopes of a splendid day for the morrow.

‘But, after their departure the weather grew worse very rapidly; the wind changed, and towards evening there broke upon us a most violent hurricane of hail and snow, accompanied by frequent flashes of lightning. The air was so charged with electricity that for two consecutive hours in the night one could see in the hut as in broad daylight. The storm continued to rage all night, and the day and night following, continuously, with incredible violence. The temperature in the hut fell to -3 degrees.

‘The situation was becoming somewhat alarming, for the provisions were getting low, and we had already begun to use the seats of the hut as firewood. The rocks were in an extremely bad state, and we were afraid that if we stopped longer, and the storm continued, we should be blocked up in the hut for several days. This being the state of affairs, it was decided among the guides that if the wind should abate we should descend on the following morning; and, as the wind did abate somewhat, on the morning of the 25th (the weather, however, still remaining very bad), it was unanimously settled to make a retreat.

‘At 9 A.M. we left the hut. I will not speak of the difficulties and dangers in descending the arête to the Col du Lion, which we reached at 2.30 P.M. The ropes were half frozen; the rocks were covered with a glaze of ice, and fresh snow hid all points of support. Some spots were really as bad as could be, and I owe much to the prudence and coolness of the two guides that we got over them without mishap.

‘At the Col du Lion, where we hoped the wind would moderate, a dreadful hurricane recommenced, and in crossing the snowy passages we were nearly suffocated by the wind and snow which attacked us on all sides. Through the loss of a glove, Gorret, half an hour after leaving the hut, had already got a hand frost-bitten. The cold was terrible here. Every moment we had to remove the ice from our eyes, and it was with the utmost difficulty that we could speak so as to understand one another.

‘Nevertheless, Carrel continued to direct the descent in a most admirable manner, with a coolness, ability, and energy above all praise. I was delighted to see the change, and Gorret assisted him splendidly. This part of the descent presented unexpected difficulties, and at several points great dangers, the more so because the *tourmente* prevented Carrel from being sure of the right direction, in spite of his consummate knowledge of the Cervin. At 11 P.M. (or thereabouts—it was impossible to look at our watches, as all our clothes were half-frozen), we were still toiling down the rocks. The guides sometimes asked each other where they were; then we went forward again—to stop, indeed, would have been impossible. Carrel, at last, by marvelous instinct, discovered the passage up which we had come, and in a sort of grotto we stopped a minute to take some brandy.

‘While crossing some snow we saw Carrel slacken his pace, and

then fall two or three times to the ground. Gorret asked him what was the matter, and he said "Nothing," but he went on with difficulty. Attributing this to fatigue through the excessive toil, Gorret put himself at the head of the caravan, and Carrel, after the change, seemed better, and walked well, although with more circumspection than usual. From this place a short and steep passage takes one down to the pastures, where there was safety. Gorret descended first, and I after him. We were nearly at the bottom when I felt the rope pulled. We stopped, awkwardly placed as we were, and cried out to Carrel several times to come down, but we received no answer. Alarmed, we went up a little way, and heard him say, in a faint voice, "Come up and fetch me, I have no strength left."

'We went up and found that he was lying with his face to the ground, holding on to a rock, in a semi-conscious state, and unable to get up or to move a step. With extreme difficulty we carried him up to a safe place and asked him what was the matter. His only answer was, "I know no longer where I am." His hands were getting colder and colder, his speech weaker and more broken, and his body more still. We did all we could for him, putting with great difficulty the rest of the cognac into his mouth. He said something, and appeared to revive, but this did not last long. We tried rubbing him with snow, and shaking him, and calling to him continually; but he could only answer with moans.

'We tried to lift him, but it was impossible—he was getting stiff. We stooped down, and asked in his ear if he wished to commend his soul to God. With a last effort he answered "Yes," and then fell on his back, dead, upon the snow.

'With broken hearts, we cut the rope which bound us to our dear, brave companion, and continued the descent. We arrived at Breil at 5 in the morning (of the 26th), having walked 20 hrs. without food or rest. Under ordinary circumstances the descent from the *cabane* to Giomein (Breil) is accomplished in 4 to 5 hrs.*

Sympathetic letters, containing spontaneous testimony to the worth of Jean-Antoine Carrel, have come in from all directions.† One member of the Club writes: 'I think that, apart from his wonderful qualities as a climber, he was an excellent guide for a beginner; his advice, delivered without reserve, did me much good. . . . My sister always speaks of him as the most courteous and considerate man she ever met.' Mr. Marindin says that 'Carrel accompanied some (lady) relatives of his several times in the last five and twenty years, and they found him as perfect a guide for their small walks as mountaineers

* In the last number of the *Rivista Mensile* (Club Alp. Ital.), it is stated by Signor Peraldo, the innkeeper at Breil, that a relief-party was in readiness during the whole of August 25 (the day on which the descent was made), and was prevented from starting by the violence of the tempest. On the 26th Carrel's body was brought to Breil, and upon the 29th was buried at Valtournanche.

† Charles Gorret, through his brother the Abbé, tells me that he could not improve the relation of Signor Sinigaglia, and that he entirely endorses it. He adds, 'We would have given our own lives to have saved his.'

did for climbing—always courteous and attentive, with, as they expressed it, a sort of natural chivalry about him.' And the ladies themselves say they have 'a grateful recollection of his care and attention. We, like all who have had to do with him, had an esteem for the man.'* Mr. Prothero says: 'Carrel acted as my guide in 1873-4, 1876, and 1879. I had the greatest esteem for him. . . . He was almost the only guide I have ever known who had real feeling for the beauty of the mountains. I remember his remarking once from the top of Monte Rosa the beautiful effect produced by some dark firs, from which the wind had blown off the fresh snow, while it still lay on the ground beneath them; and another time, from some other peak, his bursting out with, "O la bella Italia! la bella Italia!"' The Very Reverend the Dean of St. Paul's writes: 'I have known Carrel many years, and had a great regard for him.'

These testimonials would be honourable to anyone, and they are the more valuable because they are perfectly spontaneous and unsolicited. Carrel, though always poor, was never greedy of gain. His love of mountains was as pure and genuine as our own. His daring exploits compel admiration, and the manner of his death appeals yet more strongly to our sympathies and regard. It strikes a chord in hearts he has never known. He recognised to the fullest extent the duties of his position, and in the closing act of his life set a brilliant example of fidelity and devotion. For it cannot be doubted that Carrel, enfeebled though he was, could have saved himself had he given his attention to self-preservation. He took a nobler course; and, accepting his responsibility, devoted his whole soul to the welfare of his comrades, until, utterly exhausted, he fell staggering on the snow. He was already dying. Life was flickering, yet the brave spirit said, 'It is *nothing*.' They placed him in the rear to ease his work. He was no longer able even to support himself; he dropped to the ground, and in a few minutes expired.

It is, in theory, the duty of all guides to work to the last extremity for the salvation of their employers. This is what is expected from them. It is a high standard to expect them to attain; but, should a similar occasion again occur, it is to be hoped that there will be others who will be equal to it. Happy the traveller who shall be served by such men!

Carrel left a large family. Some members of it are able to take care of themselves. His widow and three young children are not provided for. His little property is mortgaged, and there are debts besides. The 'Carrel Fund' aims at clearing away these encumbrances, and raising something more.† I ask all the members of the Alpine Club

* Most of the lady contributors to the Fund have employed Carrel, and the whole use similar expressions of regard.

† It may be asked, What is being done in Italy? The Italian Alpine Club has opened a subscription for the joint benefit of the families of Carrel, Maquignaz, and Castagneri. The members of the club have recently been providing for the family of Brunod, and the present subscription is not so large as could be desired. Signor Sinigaglia has acted with liberality. The total from all sources has not yet reached the amount necessary for the accomplishment of our aims.

who have not yet done so to lend the weight of their names to this Fund; to mark an unprecedented occasion in an exceptional manner; to honour the dead, and by their contributions to relieve the necessities of the living.

EDWARD WHYMPER.

ANTONIO CASTAGNERI.

Few English mountaineers are acquainted with the valleys of Lanzo, which run up N.W. of Turin to the Alps which divide Italy and France. But the few who have visited them must certainly have been struck by the position of the village of Balme in the Val d'Ala, surrounded on all sides by steep rocky ridges, and dominated by the grand rock wall of the Bessanese (11,917 feet) which fills the head of the valley. This was the home of the great Italian guide Antonio Castagneri, who was one of the numerous victims of the fatal season of 1890.

It is rather over twenty years since he began to go as guide, and the exploration of the Italian mountains by Italian mountaineers, in which he was one of the leaders, scarcely dates farther back. In 1867 he accompanied Count Paul de Saint Robert on his famous ascent of the Ciamarella, but it was only in 1873 and 1874 that he began to make his mark by a series of ascents (mainly in the company of Signor Barale) in the Cogne mountains; besides the conquest of the Charbonel (12,237 feet), the monarch of the Southern Graians. On Christmas Eve, 1874, he climbed (with Signori Martelli and Vaccarone) the Uja di Mondrone (9,725 feet), a rocky peak above Balme, this being the first winter ascent made by Italians; and in the summer of 1875 he was the leader during the triumphal progress of Signor Vaccarone's party through the Cogne and the Levanna districts, when the difficult ascents of the Grand Paradis from the Noaschetta Glacier, and of the rock needle of the Bec de la Tribulation, were among the spoils. Since that time he has been in the front rank of Italian guides—indeed, I might say the chief of those Italian guides, who have devoted themselves exclusively to their native mountains. Most of his climbs were made among the ranges enclosing his native valley, every point of which he had ascended either for the first time, or by a new route. He knew the Cogne district well, and had also made a fine new route (in 1887) up the E. face of the Viso, which he had climbed also in the winter of 1878. But the peaks best known to the majority of mountaineers were scarcely, if at all, known to him. In 1886 he made a variation of Mr. Hulton's route up the rocks of the S. face of Monte Rosa, and the ascent of the Jügerhorn by the S.E. face; and, as we know, he perished when trying Mont Blanc by a rarely trodden route on the Italian side. He had also visited Dauphiné.

I never had the good fortune of having him as guide, but I had often met him in the mountains, first at Balme in 1883, and later nearly every summer. The last time I saw him was on the Finster-

aarhorn in 1888, in company with his friend and fellow-victim, Maquignaz, and I remember well his delighted amazement at seeing so many lofty peaks and wide-spreading glaciers, all quite new to him, while young Christian Almer was able to point out to him his own home in the green valley of Grindelwald at our feet.

A strongly built and active man, he was mainly a cragsman, gaining his experience on the steep cliffs which wall in his home; but, unlike many of his fellows, he took to ice-work with great zest, while always preferring rocks. In Signor Vaccarone's useful list of 'First Ascents' his name stands third on the list with forty-three entries (young Christian Almer and his father claiming 96 and 66 respectively), but he is far ahead of all his Italian or French rivals, Maquignaz coming nearest to him with 31 climbs.

While everyone must feel a pang of regret at hearing that a great guide has met his end among the mountains, there is a certain fitness in such a man perishing on the great hills which he had loved and climbed all his life. And though the memory of Castagneri will long be cherished by those who knew him, it is to be hoped that the 'Passo Castagneri' will preserve his name to future generations. Little did I think when from the Roche Melon Glacier I looked, just a year ago, down the steep rock precipices of this pass on to the snowfields of the Glacier de Derrière le Clapier far below, and wondered how Castagneri had managed to scale them, that I should so soon have to write an 'In Memoriam' notice of one whom his friends used fondly and proudly to speak of as 'il Toni dei Tunì'! He was 45 years of age, and leaves a young widow and four small children, all totally unprovided for. I shall be glad to receive and forward any contributions that may be offered for their relief.

W. A. B. COOLIDGE.

NEW EXPEDITIONS IN 1890.

Cottian District.

DENTS DE MANIGLIA (3,167 mètres = 10,391 feet, French map), OR MONTE MANIGLIA (3,177 mètres = 10,424 feet, New Italian Survey). *June 24.*—The Rev. W. A. B. Coolidge, with young Christian Almer, ascended this peak on the way from Maljasset to Castel Delfino. Having reached (3 hrs. 50 min. from Maljasset) the Col de Roure (the Col de Ciabriera of the New Italian Survey), they mounted due north to the foot of a steep rock wall, which was scaled by means of a gully. Thence the way to the highest crest lay over easy snow-slopes, this crest being gained in 1 hr. from the col. Two points were visited, on the more northerly of which was a ruined cairn, while on the more southerly a ruined hut and a stately cairn bore witness to what seems to be the only previously recorded ascent—that made in 1877 by Lieut. Siccardi apparently from the same direction.* Rather to

* No. 38 in Signor Vaccarone's *Statistica delle Prime Ascensioni nelle Alpi Occidentali* (3rd edition), under the name of 'Testa di Ciabriera.'

the north of the highest point are four rock teeth, which are apparently lower. The view of the neighbouring ranges was exceedingly interesting, though the very great amount of snow still lying on them was very confusing. Returning to the Col de Roure in 15 min., the party then traversed for $\frac{3}{4}$ hr. to the left across rock and grass slopes (then deep in snow) to the Colletta di Chiappera or di Bellino (2,799 mètres), by means of which the track from the Col de l'Autaret was rejoined, and Castel Delfino reached by way of the Bellino glen in 4 hrs. 20 min. The Colletta is described in Signori Martelli and Vaccarone's excellent guide-book,* but it may be added that the unwary traveller should aim at a point some way S.E. of the apparently lowest depression in the ridge, or he will find his path blocked by a great rock precipice on the Bellino side of the pass.

MONTE DI MARTE (c. 3,160 mètres = 10,368 feet). *June 27.*—The same party ascended this peak, which has hitherto been curiously ignored, though very conspicuous from every side. Starting from Castel Delfino, they reached the Col de Vallante by the usual route; then traversed nearly at a level to the north across stones (then deep in snow) to the foot of the Colle del Colour del Porco (45 min.), and thence to another hollow which leads up to M. Guillemin's Col Isايا,† between the Roccie Fourioun and the M. di Marte. A short distance below the latter col they kept to the left and climbed a band of rock, which brought them to the W. ridge of the peak, a walk up which led to the S. and lower point of the peak (1 hr. 40 min., slow), whence, by a traverse across the W. face, the N. and highest summit was gained in 37 min. (slow). On the latter point a small ruined cairn of unknown origin was found. Owing to a rapidly approaching storm the view was nearly hidden, and but a short stay was made. Descending along the W. or French side of the N. arête, in order to avoid a pinnacle on the ridge, the Col de la Traversette was reached in 25 min. by snow-slopes (probably stones later), and the inn on the Piano del Re (from which the peak is very conspicuous) in less than an hour more. The ridge between the Viso and the Traversette is represented with a certain amount of accuracy on the new Italian map, but the French map is very much astray. The peak climbed on June 27 is where the figures 3,070 stand on the Italian map, and 3,112 on the French—that is, immediately S. of the Col de la Traversette, from which no traveller should neglect to ascend it. But these figures do not represent the real height of the peak. It is considerably higher than the Roccie Fourioun, just to the S., which was climbed by Mr. Coolidge in 1888,‡ and is estimated by the Italian map at 3,113 mètres. To the 1890 party the M. di Marte seemed only a little lower than the Monte Granero (3,170 mètres §), to the N. of the Col de la Traversette, and thus the height may be provisionally put at 3,160 mètres. As the peak is not named on the maps, the designation applied to it by Signor Bossoli in his 'Panorama from the

* *Guida delle Alpi Occidentali* (2nd edition), vol. i. p. 117.

† *Annuaire du Club Alpin Français*, 1877, p. 586.

‡ See *Alpine Journal*, vol. xiv. p. 143.

§ *Ibid.* vol. xii. p. 111.

Sanctuary of San Chiaffredo* may be adopted, though his height—3,100 mètres—is too low. This ascent completes the exploration of the ridges around the Viso carried out by Mr. Coolidge and Almer during the past eleven summers.

Dauphiné District.

CORNE DES BLANCHETS (3,023 mètres = 9,917 feet). *June 19.*—The same party ascended this peak, which is important from a topographical point of view. Starting from Valloires, they followed the path to the Col de la Ponsonnière as far as the chalets of Les Mottes (2.40), then bore round to the E. over grass and snow slopes (probably rocks later in the season), and above the frozen Lac des Cerces to near the depression between the desired peak and that to the W. marked 2,887 mètres (2 hrs., slow). Thence the Corne was ascended, mainly by its N. ridge, in 2 hrs., the great quantity of snow rendering progress very slow. No cairn was found on the summit. The peak is misplaced on the French map, as it stands just E. of 2,887, overlooking at once the Lac des Cerces, the Clairée or Névache valley, and the lakes on the Col des Rochilles. The view, therefore, was unexpectedly striking and extensive. Returning in 20 minutes to the depression above mentioned, the party descended in 10 minutes to the lakes on the Col des Rochilles, passed between them, and remounted in 10 minutes more to the Col de la Plagnetta, whence Valloires was regained in 2.55 by the Combe de l'Aiguille Noire.

The French map is unusually incorrect as to the ridge between the Col des Rochilles and the Col du Chardonnet. Its highest point is a fine snow and rock point which stands just where the map places the figures 2,936, and which is distinctly higher than either the Blanchets (3,023) or even the Pic de la Moulinière (3,098), farther to the south. There is no peak in the position indicated by the figures 3,023, though they are doubtless meant to refer to the Blanchets, which is called 'Come des Blanchets,' the first word being an obvious misprint for either 'corne' or 'cime.'

PIC DE QUEYRETTE (3,183 mètres = 10,443 feet). *July 4.*—The same party, starting from Ville Vallouise, followed the Pointe de l'Aiglière route as far as the chalets of Narreyroux (1.35), and thence mounted the Combe de Narreyroux by the sheep path, which soon crosses to the right bank of the stream, and recrosses to the left above a steep rocky step. Slopes of grass and débris (then deep in snow) led to the Col de Queyrette, just north of the peak (3.50, very slow walking), which was thence easily climbed in 10 minutes. Two points farther to the west are really higher, though marked by the map as only 3,174 mètres. All three points were climbed, and the col crossed (to the Fournel or Haut Martin glen) by Monsieur Paul Guillemain and some friends on August 1, 1888.†

POINTE DE CLAPHOUSE (3,377 mètres = 11,080 feet). *July 7.*—The same party made the first ascent of this peak. It took 20 minutes

* See *Alpine Journal*, vol. x. p. 480, and *Bollettino del C. A. I.*, 1875, No. 24.

† *Annuaire de la Société des Touristes du Dauphiné*, 1888, p. 83.

only from the Col des Bœufs Rouges, but the last rocks are very steep and rotten, and at that time much encumbered by snow. The highest pinnacle is the central one, and it seemed to be very nearly as high as the eastern point of the Crête des Bœufs Rouges (3,431 mètres). A descent might easily be effected by the glacier which descends into the upland glen to the east, through which lies the way from the Col des Rouges.* A lower point, just E. of the Pointe de Claphouse, is the peak which is so conspicuous from the chalets of Ailefroide.

LE VAXIVIER, EAST SUMMIT (3,311 mètres=10,860 feet).†—On July 22, Mr. Alfred Holmes, with Maximin Gaspard, and Basil Andenmatten, made the first ascent of this, the most difficult, and one of the highest points of Le Vaxivier. They left the Glacier du Chardon at 7.15 A.M. by a broad snow couloir just below the large bergschrund, well seen from the glacier, and afterwards by rotten rocks and snow until the summit of a lower peak further to the E. was gained. Thence they descended the ridge to a depression; from the depression they turned on to the S. face, and ascended to the summit by good but rather difficult rocks (4 hrs. 25 min. from the glacier). To avoid the rotten rocks encountered in the ascent, the party chose a different way down. They descended to the depression, and then took a very steep, long snow couloir leading (in 2 hrs. 45 min.) directly down to the Glacier du Chardon. The large bergschrund at the foot of this gave some trouble.

The Point Central, which is the same height as the east peak, could be ascended from the Col de la Muande Bellone without difficulty in about an hour.

PIC DU GLACIER CARRÉ (3,860 mètres=12,658 feet).—On July 24 the same party made the first ascent of this peak. From the Vallon des Etançons they followed the ordinary Meije route to the gap between the Pic du Glacier Carré and Le Doigt. Thence they mounted by a rock gully, well seen from the glacier, and afterwards traversed a part of the S. face overlooking the glacier. A very difficult rock-climb led straight up to the lower summit. Thence the ascent was continued by the W. side until just below the top, when they turned on to the N. face. Time, 1 hr. 15 min. up from the gap, 1 hr. 25 min. down. Just after the party had left the couloir below the Pyramid Duhamel, a small ice avalanche came down and swept the track they had just left; one of the guides was hit by one of the flying pieces. From the col to the summit, 1 hr. 15 min.; from the summit to the col, 1 hr. 25 min.

PIC DES SCUFFLES, EAST SUMMIT (about 3,079 mètres=10,100 feet).—On July 28 the same party, accompanied by M. G. E. Mieg and the Rodiers, left La Chapelle en Valgaudemar at 4 A.M., and followed the path to the Col de la Vaure to below the col. They then struck N. to the foot of the small glacier which lies at the S. base of the peak. This they reached at 9 A.M., ascended it for about 50 or 60 feet, and turned to the left on to the S. face, traversed this in a slant-

* See *Alpine Journal*, vol. xiii. p. 400.

† See next page.

ing direction, and afterwards ascended by a gully to a col W. of the peak; from here they turned on to the N. face, and, after crossing two couloirs filled with snow, they went straight up to the summit by moderately easy rocks. Time up from La Chapelle, 8 hrs.; time down to La Chapelle, 5½ hrs.

The central and western are about the same height, and both about 50 or 60 feet higher than the eastern summit.

LE VAXIVIER: CENTRAL PEAK (3,311 mètres = 10,860 feet). *August 15.*—Messrs. H. Heldmann and E. de Q. Quincey, with the guides Jean Baptiste Rodier and Joseph Baptiste Turc, left the hotel at La Bérarde at 4.17 A.M.; arrived at the N. foot of the mountain at 7.46; ascended steep snow-couloir on the N. face for 1 hr., and then by the W. rock arête to the summit at 10.52. Actual walking, 5 hrs. 14 min. Left summit 12.15, descended for 1½ hr. down the steep ice-wall on the N. side of the above-mentioned arête; then crossed it at nearly the bottom of the rock arête, and descended by the route taken in ascending. Reached the Glacier du Chardon at 3, and the hotel at La Bérarde 5.4. Actual time of walking, 4 hrs. 23 min.

The rocks on the arête are mostly very bad, and one must be prepared for avalanches if the descent be made by the route described. A fall of stones, which damaged the whole party more or less, fell when they were above the bergschrund.

Probably future parties will descend by the Col de la Muande Bellone, or go over the mountain, and return by the Col du Chardon.

Unfortunately the aneroid belonging to one of the party was out of order, so the altitude could not be taken; but they have no hesitation in saying that the central peak is the highest of the group. After making due allowances the central peak may be estimated to be about 50 feet higher than the Pic Oriental, given in the French Government map (and the 'Guide du Haut Dauphiné') as of the same height as the Pic Central.

POINTE DE BALME ROUSSE (3,224 mètres = 10,578 feet). *September 9.*—Messrs. J. J. Withers and Geoffrey Howard, with Heinrich Zurfluh, of Meiringen, Christophe Roderon, of S. Christophe, and J. B. Rodier, of La Bérarde, made the first ascent of this bold rocky peak, which forms the S.W. extremity of the Flambeau ridge, and to which the name Pointe de Balme Rousse properly belongs, according to the local guides. Starting from the Carrelet club-hut at 3.30 A.M., the party followed the Col des Avalanches route for 1 hr. 20 min., and then bore N. to the base of the mountain, which was gained at 5 A.M. near a large rock at the foot of the more westerly of the two couloirs which seam the S.E. face of the peak. Starting again at 5.30, they bore left across this face towards the S.W. arête, then (in an hour) straight up the good and firm rock of that face. When these became too steep the party was forced to the right, and gained the summit at 9 A.M. by a steep snow gully, the bad rocks on its right side, and some treacherous rocks and snow. The trees just below the village of La Bérarde could be seen, but not the inn itself. The descent was effected from a point on the N.E. arête down the more westerly of the two couloirs on the S.E. face. The rocks of its right bank were followed

for 20 min., and then the easy rocks on its left bank brought them down ($3\frac{1}{2}$ hrs. from the top) to the large rock mentioned above, whence the morning's route was followed to the Carrelet hut.

The times given are slow, as the party took it very easily.

Graian Alps.

LES CROIX DE DON JEAN MAURICE (3,140 mètres = 10,363 feet). AIGUILLE DE MÉANMARTIN (3,288 mètres = 10,788 feet). *July 15.*—The Rev. W. A. B. Coolidge, with young Christian Almer, started from Bessans, and having gained the left bank of the Glacier de Méanmartin by 'Le Vallon' ($3\frac{3}{4}$ hrs.), struck across the glacier in a south-easterly direction, and by gentle snow-slopes gained the three ancient wooden crosses which look down on Bessans, and are named on the French map 'Les Croix de Don Jean Maurice' (45 min.). The origin of the name does not seem to be known. Returning to the left bank of the glacier in 15 min., the party mounted along it to the col marked 3,105 mètres (45 min.), a low rocky ridge between the Méanmartin and Roche Blanche (S. branch) glaciers. Thence the Aiguille de Méanmartin was gained in 40 min. by the long and shaly S.W. arête. A ruined cairn was found, which was probably built by the engineers engaged in the Survey, as no previous ascent by travellers seems to have been recorded in Alpine literature. The view, which was very fine, included the Dent Blanche. Descending by the easy N.E. ridge to near the Col de Méanmartin, the party traversed the upper part of the N. branch of the Roche Blanche glacier, and reached the watershed between the Arc and the Isère to the right of the Pointe de Pisset (50 min.), just where they had struck it in 1886 on the way from the Pointe de la Sana to the Col des Roches.* An easy descent down the Glacier des Fours led to the head of the Calabourdane glen, where (40 min.) the route of the Col de Bézin was joined, the village of Val d'Isère being reached in $1\frac{3}{4}$ hr. more. This route from Bessans to Val d'Isère is perfectly easy, though rather intricate, and commands a series of superb views, ranging from the Maritime Alps to the Pennines.

ROCHER DE PIERRE POINTE (3,430 mètres = 11,254 feet). *July 16.*—The same party, starting from Val d'Isère, gained the Pointe des Pattes des Chamois (3,632 mètres, French map; 3,609 mètres, Italian map) by very much the same route as in 1889, † but traversing below the Pointe du Fond, and finding the snow in very bad condition. From this peak they descended along the crest of its N.W. ridge, and in 40 min. reached the foot of the point marked 3,430 mètres on the French map, which was ascended in 15 min. more. No cairn or any other sign of a previous visit was found, and this is believed to be the first ascent. Descending a few steps along the N.W. ridge, the party struck down snowy, shaly, and stony slopes to the S.W., and in 30 min. reached the flat-topped buttress marked 2,727 mètres on the map. Thence they descended by stones and grass to the pasturages on the right bank of the Nant Cruet, which was crossed by a curious natural

* *Alpine Journal*, vol. xiii. p. 118.

† *Ibid.* vol. xiv. p. 493.

bridge near the chalet marked 2,123 mètres (1 hr.). The Isère valley was regained ($1\frac{1}{4}$ hr.) at Brévières after a pleasant walk past the beautifully situated chalets of Nasonde and Orsière.

The line taken on the descent is the proper route, the other way involving a very long round. Clouds prevented the party from seeing if it was possible to descend from the peak into the Clous glen, to the N., below the 'glacier remanié' of Plan Champ.

ROCHER DE FRANCHET (2,818 mètres = 9,246 feet); POINTE DE LA BAILLETTA (3,060 mètres = 10,040 feet). July 18.—The same party, starting from Val d'Isère (where M. Moris's little inn is now much improved), mounted by a very faint track up the savage little glen between the Pointe de Picheru and the Dôme, gaining in 1.55 a great cairn on the edge of the steep slopes up which they had come, and just S. of the point 2,878 of the Rochers de Franchet. Traversing a green shelf and countless slopes of stones to the N.W., they gained the foot of the point 2,818 of the same range (1.20), and crossing over and ascending many couloirs in the rugged and fantastically-cut rock-wall, reached the old broken cross just below the summit (1.5). This is placed at the extreme W. end of the range, which, seen from Tignes, has the air of a very grand isolated rock pinnacle. The church of Val d'Isère can also just be seen from this point. The ascent is not difficult, but quite unlike any other in the district. Regaining the foot of the peak by a rather more direct route (35 minutes), and passing near the cairn (30 min.), the party then bore to the N.E., passed by a frozen lake, and gained the col (called Col de Dôme on the Sardinian map, and Passage du Dôme on the lithographed edition of the great French map) between the Pointe de Picheru and the Dôme by stony slopes (35 min.). It immediately overlooks the Lac de la Sassièrè. From the pass both the Pointe de Picheru (2,957 mètres) and the point 2,878 of the Rochers de Franchet are easily accessible; but the Dôme (3,030 mètres), which is well seen from the Col d'Iseran, is quite inaccessible from the W., and any attempt on this very grand rock needle should be made from the E. From the above-mentioned pass the party circled round, mainly over snow slopes (later, no doubt, stones), to the north, high above the Lacs de la Sassièrè and du Santet, and gained (50 min.) the foot of the N.W. spur of the peak marked 3,060 mètres, which forms the E. extremity of the Dôme range. Rocks and snow took them to the top in 40 min., but a rapidly-approaching storm only allowed of a halt long enough to build a cairn and christen the peak 'Pointe de la Bailledda.' In fine weather it would be a most admirable belvedere whence to study the south side of the Tsanteleina. After a few steps down the E. ridge (which leads direct to the Col de la Bailledda) the party struck down the S.E. slopes of the mountain, and rejoined the Col de la Bailledda route, by which they gained Fornet, in the Isère valley, in 50 min. from the summit—a difference in level of 3,688 feet—no glissades being possible *en route*. Half an hour more brought them back to Val d'Isère.

ROCHERS DE GÉNÉPY (3,157 mètres = 10,358 feet). July 22.—The same party, starting from Val d'Isère at 9.15 A.M. only, when the weather

cleared, had a delightful walk round the N. side of the Rochers de Bellevarde (2,883 mètres), over splendid pastures, to the Col de Fresse (2,589 mètres; 2.25), not very far from the Col de la Leisse, whence they climbed to the south over the many summits of the Rochers de Génépy, to the highest point (2.25 from the col), which, like its lower neighbours to N. and S., was crowned by a cairn recently built by the cadastral engineers at work in the neighbourhood, who had doubtless come up from the Col de la Leisse. A small red and white flag was found on the N. peak. The view extended from Mont Blanc to the Ecrins. The descent was made by the E. face to the head of the Charvet glen, partly over magnificent pasturages. Val d'Isère was regained in 2.25 from the summit after a pleasant round.

TSANTELEINA (3,606 mètres = 11,831 feet) FROM THE SOUTH. *July 25.*—Monsieur Henri Ferrand, of Grenoble, with Christophe and Pierre Roderon, of S. Christophe en Oisans, discovered a new route up this peak, which is both shorter and more direct than those hitherto known.

Starting from the village of Val d'Isère at 4 A.M., the party mounted in 2 hrs. to the Quart Alp, and in 20 min. more reached the moraine of the Glacier de Quart. Following the moraine on the left bank, they attained the plateau of the glacier (1 hr. 20 min.), and crossed it diagonally in 20 min. to a rock-wall, by which (in 15 min.) the glacier of Quart Dessus was gained. This glacier was mounted without difficulties to the point on the south arête of the Tsanteleina (1 hr. 15 min.), whence there falls the great snow couloir on the E. face descended by Signor Bobba on August 8, 1888.*

Hence slopes of very soft snow were climbed to the rocks of the final peak, which led to the summit in 1 hr. 15 min. more, or 6¾ hrs. walking from Val d'Isère. With the snow in better condition an hour at least might be saved. The descent by the same route took 3¾ hrs.

Mont Blanc District.

AIGUILLE DU MOINE. *July 17.*—Dr. Claude Wilson and Messrs. J. H. Wicks, H. Wilson, Ellis Carr, and G. H. Morse completed the ascent of this peak by the route referred to on p. 78 of the Journal for February 1890. The large snow-gully on the S.W. was followed to nearly its top, and then taking to the rocks on the right a succession of steep chimneys, bearing a little E. of the direction of the gully, led on to the W. arête, about 150 feet W. of the summit. It is a climb to be recommended, as the ascent by the ordinary S. route is easy, and the expedition has the extra charm of variety.

PIC SANSNOM. *July 28.*—Messrs. Carr, Morse, and Wicks made the first ascent of the Pic Sansnom, the sharp pinnacle on the ridge between the Aiguille du Dru and the western buttress of the Aiguille Verte, which is known at the Montanvers as the Aiguille Sansnom. The ascent was made from the S. by the long snow couloir between the Pic and the above buttress, taking 5 hrs. of continued step-

* *Rivista Mensile del C. A. I.*, 1889, p. 107; *Bollettino del C. A. I.*, 1889, pp. 64-66.

cutting, and thence from the col $1\frac{1}{2}$ hr. of fine rock climb led to the top. Fearing ice in the couloir, which, indeed, proved to be the case, they slept at the lower *gîte* on the Charpoua moraine; but with plenty of snow in good order the start might easily be made at midnight from the Montanvers. They estimated the height at about 70 to 100 feet higher than the Grand Dru, and it is, perhaps, worth recording that the Montanvers Hotel is in full view from the summit.

Sixt District.

THE DENT JAUNE (3,187 mètres=10,456 feet) (one of the peaks of the Dent du Midi).—*August 13.*—Messrs. Horace Walker and C. Pilkington, without guides, made the first ascent of this peak from the Champéry side.

Starting from Champéry, they followed the route up the Col du Midi to within about an hour of the top of the pass. Here, turning to the left, they easily gained the W. arête of the Dent Jaune in twenty minutes.

Crossing the N.W. face diagonally upwards to the lower of two patches of snow or ice (probably not often there in August), they ascended them, and some very steep rocks above and to the left. Being prevented by smooth ice-covered rocks from gaining the N.E. arête, as they had intended, they were forced to climb a very difficult chimney in the left part of a conspicuous upright limestone cliff; this being the first limestone rock met with on the mountain. Skirting to the right above this cliff they struck the W. arête high up; and by it reached the top in ten minutes more.

Being caught in a violent thunder and hailstorm, they thought it prudent to descend by the same route. It took them five hours to reach the lower point on the W. arête, whence the climb had really begun, the ascent from which point had only taken three hours.

The couloir of the Col du Midi is sometimes swept by falling stones, and although the route up the Col lies on the rocks to the left, the couloir has to be crossed at the foot; this crossing, though only taking ten minutes, is unsafe in the afternoon in bad weather; the party therefore, instead of descending direct to Champéry, completed the ascent of the Col, and returned by the Plan Nevé and the Col de Susanfe, some two hours longer.

Val de Bagnes and Combin District.

LA CIARDONNET, 3,256 mètres = 10,680 ft. (Swiss map; see Conway, 'Pennine Guide,' p. 27). *July 11.*—Mr. Walter Leaf, with Clemenz Zurbriggen, of Saas, made the first ascent of this peak. Leaving Mauvoisin at 3.30, and Chermontane at 6.50, the party reached the foot of the N.W. ridge at 8.10. The ascent was made over steep but sound rock and soft snow slopes, the N. extremity of the main ridge being gained at 10.55. This ridge was followed for 1 hr., at first over rocks which gave some good climbing, then over snow slopes on the E. side. The top was reached at 12. It is easily accessible by snow slopes from the upper basin of the nameless lateral glacier on the E. The descent was effected by this side, the Glacier

d'Otemma being reached in 1 hr., and Mauvoisin in about 4 hrs. actual going. Times throughout very slow, owing to the Herr's lamentable want of condition.

AGUILLE DE BOTZERESSE, about 11,000 ft. *July 14.*—It is proposed to give this name to a bold rocky peak very conspicuous from the path just below the Pont de Mauvoisin. It lies in the ridge running N.E. from the point 3,454 in the Swiss map. (This ridge, which overlooks the Alpe de la Liaz, is called locally Les Mulets de la Liaz; but that name is wrongly given in the Swiss map to a ridge which is not even visible from the Alp, running S. from the Tournelon Blanc.) The first ascent was made by G. W. Prothero, R. L. Nettleship, and Walter Leaf, with Clemenz Zurbriggen. Starting from Mauvoisin, they mounted to the Glacier de Botzeresse, crossed it near the foot, and reached the arête on its S. side by easy snow slopes in 2 hrs. 30 min. from the hotel. The ridge and rock slopes on its left led to the top in 2 hrs. 45 min. more. The summit overhangs in an extraordinary way, a stone dropped from the edge falling for 8 sec. (about 1,000 ft.) before striking. The descent was by the rotten ribs and couloirs of the S. face, bearing always to the left. The upper grass slopes of the Alpe de la Liaz were reached in 2 hrs. 15 min., and Mauvoisin in 3 hrs. 30 min. actual going from the top.

POINTE DES PORTONS, about 3,450 mètres or 11,320 ft. *July 16.*—The same party made the first ascent of this peak. The route of the Col des Portons by the Glacier de Breney was followed from Mauvoisin to the top of the steep snow slopes of the N. side. The peak consists of a long nearly level ridge, with three summits. The E. summit was reached from the snow by a wide couloir and steep and not easy rocks. Hence the ridge was followed to the W., all the points, of which the central one is a little the highest, being climbed. The descent was made from the W. peak to the Glacier d'Otemma by easy rocks and snow slopes. Times: Mauvoisin to highest point, 7 hrs. 15 min., thence to W. peak, 55 min., descent to glacier, 1 hr. 20 min.; to Mauvoisin, with much soft snow, about 4 hrs. 30 min., all actual going.

The peak was ascended in the belief that it was the point 3509 of the map, called by Conway Pointe des Portons. It turned out afterwards that this was not the case, the point 3,509 being the next to the E., and about 200 ft. higher. The summit climbed has, however, the best right to the title Pointe des Portons, as it bears on its W. flank, the side furthest from the point 3,509, the little glacier called Les Portons. The other might be called Pointe de la Petite Lyre, after the glacier which lies between it and its neighbour. The two are perfectly distinct peaks, separated by a broad snow col.

MONT PLEUREUR, by S.W. arête; 3,706 mètres=12,161 ft. *July 23.*—The same party ascended Mont Pleureur by this route, which, it is believed, has not been previously taken, though it is probably the easiest and shortest, as well as the most direct, from Mauvoisin. The track of the Col de Seilon was followed for about half an hour beyond the Giétroz Alp, when the lower part of the Glacier de Giétroz

was crossed, and the S.W. arête of Mt. Pleureur reached without difficulty just where the grass ceases. The same point could be easily, and probably more quickly, gained, by mounting grass slopes from the Pont de Mauvoisin direct, bearing always to the right. The arête was followed, with occasional deviations on to the S. face, to the top. It presents no difficulties. Time: Mauvoisin to top, 5 hrs. 35 min. In the descent the S. face was crossed diagonally, and Arolla reached by the Col de Seilon. The route usually taken in the ascent from Mauvoisin is right up the S. face, a way not mentioned by Conway. In ordinary seasons it is an easy climb over rock and débris; this year it was a laborious slope of deep snow.

PETIT COMBIN (3,671 mètres = 12,045 feet); COL DE PANOSSEYRE (ca. 3,400 mètres or 11,150 feet). August 10.—The Rev. W. A. B. Coolidge and Mr. Frederick Gardiner, with young Christian Almer and his brother Rudolf, starting from the hut near the foot of the Col des Maisons Blanches (built by the Balleys of Bourg Saint Pierre*), crossed that col, traversed the head of the Corbassière glacier in a northerly direction, and striking the W. arête of the Combin de Corbassière (3,722 mètres) just E. of a low mound between it and the point marked 3,625 mètres, ascended the Combin de Corbassière by the usual route (4 hrs. 25 min. walking from the hut). Returning in a few minutes to the lowest point of the W. arête of the peak, the party bore N.W. across a snow basin, and by the broken rocks of the E. arête of the peak gained the summit of the Petit Combin (3,671 mètres) in 40 min. from its higher neighbour. The Lac de Champey was a very striking feature in the wonderful view. Descending by the snowy S.W. arête, the party traversed round the head of the snow basin between the peaks, and reached (in 25 min.) the opening immediately E. of the point 3,625 and W. of the mound already mentioned. Easy shale and snow led down to the N. branch of the Corbassière glacier. This was traversed to the south till near the foot of the col between 3,653 mètres and 3,649 mètres, which was attained by a short climb up snow and rocks (40 min. from the opening E. of 3,625). This col is named Col de Panosseyre on the Siegfried map (it is also known as the Col de Boveyre), but no height is there given; it appeared to be about 800 feet (250 mètres) lower than the peak, 3,649 mètres. The descent lay down the fine Boveyre glacier, the right side of which was followed without serious difficulty to the point (not far from 2,740 mètres of the map) where it turns abruptly to the W. A lofty moraine then led to its right bank (1.25 from the col), the grassy slopes of which were followed to the lower Boveyre chalets (30 min.), whence a rather intricate descent past the conspicuous lake on the Plan Mondzo (35 min.) and through a fine forest to its S.W. brought the party (in $\frac{3}{4}$ hr. more) to the highroad between Liddes and Bourg Saint Pierre, rather to the S. of the village of Allèves. Half an

* The S. A. C. Club hut, which was constructed in the autumn of 1889 a little below the W. side of the col, was carried away by an avalanche in the spring of 1890, and its relics are now scattered far and wide over the rocks leading up to the col.

hour more along this road took them to Bourg Saint Pierre after a glorious round on an absolutely perfect day.

The Petit Combin is said to have been reached from the Serey valley to the N. by a hunter.* It was certainly reached from the Combin de Corbassière (by a route similar to that described above) on July 25, 1890, by MM. Charles de la Harpe and Edmond W. Viollier (both of Geneva), with Justin Bessard, of Chables. On the paper which they left in their cairn on the summit these gentlemen state (apparently on Bessard's authority) that the local name of the peak is Mont Foulaz, the name Petit Combin properly belonging to the peak 3,649 S. of the Col de Panosseyre.

The Col de Panosseyre does not seem to have been previously traversed by travellers—at least no passage is recorded in Alpine literature.† It is more interesting than the Col des Maisons Blanches, though not so direct a route from Mauvoisin to Bourg Saint Pierre. It is figured (with the Combin de Corbassière looking over it) in the illustration facing p. 129 of the S.A.C. 'Jahrbuch,' vol. xix., and is very conspicuous from the Lac de Champey.

MONT VÉLAN by THE S.E. FACE. August 16.—Messrs. W. M. Conway, Ellis Carr, and F. M. Davies, with Ulrich Kauffmann and Joseph Marie Lochmatter as guides, having reached the summit of the Vélan by the usual Valsorey route, descended by the S.E. face into the Val d'Ollomont. The S.E. face is seamed by three conspicuous couloirs. The central couloir descends from near the summit, in the angle between the S. and S.E. arêtes. The W. couloir (that on the left seen from Ollomont or Aosta) starts down from a broad col in the main S. ridge, and presently joins the central couloir. Mr. Conway's party descended the S.E. arête for $\frac{1}{4}$ hr. They then went down the rocks, first on the left and then on the right of the central couloir, thus reaching the broad snow col in the S. arête in 1 hr. from the summit. They now descended the W. couloir, returning by it into the central couloir, and thus, in 1 hr., reaching a grassy mound at its foot. They traversed for 1 hr. a vast area of stone débris and grass to the Cordon Alp, where the route from the Col de Valsorey was joined. They descended the valley path to Valpelline, and drove down to Aosta the same evening—18 hrs. from Bourg S. Pierre.

AIGUILLES DE LUISSETTES, 3,418 mètres (wrongly named M. Tre Fratelli on the Italian map), COL DE LUISSETTES, and COL VERT.

* Studer, *Ueber Eis und Schnee*, vol. ii. p. 265.

† The notices of an expedition made by Herr Gottlieb Studer on August 12, 1858, which are to be found in *Peaks, Passes, and Glaciers*, 1st series, p. 124; Mr. Ball's *Western Alps*, p. 274; Herr G. Studer's *Ueber Eis und Schnee*, vol. ii. p. 265; and the *Jahrbuch des S. A. C.*, vol. iv. p. 576, refer to his ascent of the Pointe d'Azet (3,135 mètres) from the Sery glen, and his descent to Bourg Saint-Pierre by the Col de l'Âne, or de l'Azet, route over the pastures of Coeur and Boveyre. This peak lies a good bit to the north of the Combin de Corbassière group, while the Col de Panosseyre lies some way to the south of the same *massif*. The apparent allusion to this col in *Peaks, Passes, and Glaciers*, 2nd series, vol. i. p. 244, must be a slip, as it is really meant to refer to Herr Studer's ascent, mentioned above.

August 18.—Messrs. Ellis Carr, W. M. Conway, and F. M. Davies, with the guides Ulrich Kauffmann and J. M. Lochmatter, left the Zeneco Alp (opposite the By Alp) at the head of the Val d'Ollomont at 5.10 A.M. They mounted in $1\frac{1}{2}$ hr. to the snow-field below the Trois Frères (3,270 mètres, Swiss map). They got on to the snow, and traversed it to the N., skirting the base of all the Aiguilles de Valsorey and of the Aiguilles de Luisettes, and thus in $1\frac{1}{2}$ hr. reached an island of rock lying S. of the end of the S. buttress of the West Aiguille Verte de Valsorey. Here the party divided. Mr. Carr and Kauffmann went in $\frac{1}{2}$ hr. over the easy névé of the W. branch of the By glacier to the Col de Luisettes at its head. From the col they ascended easy snow and rotten rocks in 20 min. to the E. summit of the Aiguilles de Luisettes; thence the central summit was reached in 5 min., and the W. summit in 5 min. more. They returned to the col, and then went for a short distance eastwards along the ridge. They were forced to cross the steep N. face of the West Aiguille Verte de Valsorey, cutting steps for some $\frac{1}{2}$ hr. in blue ice, before they could reach a point whence it was possible to descend the very steep snow-wall that leads down (in $\frac{1}{2}$ hr.) to the névé of the Sonadon glacier. Here they presently joined the remainder of the party, who, meanwhile, had crossed the Col Vert. From the rock-island where Mr. Carr left them they had gone in $\frac{1}{2}$ hr. over gently-inclined snow-field to the col, which lies between the West and East Aiguilles Vertes de Valsorey. The crest of the col is formed of a ridge of very green serpentine rock. The descent to the N. was made down broken rocks and steep snow in $\frac{1}{4}$ hr. to the névé of the Sonadon glacier. The reunited party crossed the névé in about $1\frac{1}{2}$ hr. (going very slowly) to the Col de Sonadon, and descended to Chermontane. The Col Vert would probably be useful to persons desiring to ascend the Grand Combin from Italy. Both cols enable travellers to cross the Sonadon col without touching the dangerous couloir.

Arolla District.

DENT PERROC, from N.W.; 3,680 mètres = 12,074 ft. *July 28.*—Messrs. Leaf, Prothero, and Nettleship, with Clemenz Zurbriggen and Aloys Kalbermatten, of Saas, made the first ascent from this side. The N.W. arête divides halfway down into two main branches, one running nearly due N., and bounding the small lateral glacier on the N. face of the mountain; the other continuing nearly N.W. The latter branch was reached by the Zarmine Alp and easy rock and débris slopes in 3 hrs. from Arolla. It was followed without difficulty for some time, but the party were soon forced on to the face between the two branches of the arête, consisting of large sloping slabs offering arduous clambering. After 2 hrs. 45 min. from the foot of the arête the point of junction with the N. branch was reached, and it was then seen that if the ascent had been made by the latter, much time and labour might have been saved, though a fine climb would have been lost. From here the N. peak of the mountain (11,992 ft.) was gained by fairly easy but steep rocks and snow. The traverse of the arête between the N. and

central peaks took nearly an hour of stiff climbing. Time to the top, 8 hrs. 40 min. actual going. Descent by ordinary route.

It appears from an entry in the Visitors' Book at Arolla that the N. peak had previously been ascended from Ferpèche on September 1, 1886, by Mr. J. A. Vardy,* with Jean and Pierre Maître, of Evolena. Their stone man was found on the top.

DENT PERROC, N. peak, by the N. arête (3,655 mètres = 11,992 ft.). *July 31.*—Mr. Alfred G. Topham, with Jean Maître and his brother Antoine, having passed the night at the Zarmine cow châlet under the Petite Dent de Veisivi, started at 2.30 and made for the Zarmine Glacier. At the head of this is a big snow couloir, which leads to a col separating the Dent Perroc from the Grande Dent de Veisivi. They ascended the couloir in 2 hrs., about 100 ft. from the top having to take to the rocks on the left side. Later in the day this couloir would be exceedingly dangerous. The first gendarme on the arête being quite perpendicular on the N. and W. side, a traverse on the E. face led to rocks by which it was ascended. The arête is very long and jagged, and for the first half is composed of sharp teeth, which give place to steep snow up to the summit. One tooth in particular is like a knife-edge at an angle of 45° for about 120 ft., and the descent has to be made along it, grasping the edge, the feet hanging down the east face. The snow arête was found to be sharp and dangerously corniced. The route that had to be followed was alongside the cornice, and frequently under it to within a short distance of the top, when it was found practicable to get on to the top of the snow. The summit of the north peak was reached at 11.30 (4½ hrs. going along the arête). The central peak (12,074 ft.) was reached in 50 min. The ordinary line of descent could not be taken owing to the state of the mountain.

DENT DE ZALLION (3,518 mètres = 11,558 ft.). *August 13.*—Messrs. Corbett, Townley, Meares, and Echalaz (guide, Pierre Gaspoz) ascended this peak. The route was mainly that taken by Mr. A. Cust in his ascent of the Za, August 11, 1875 (see p. 90 of the Visitors' Book at the Arolla Hotel). The ordinary Za route was followed for ½ hr., when a N.E. course was taken, over grass slopes for ¾ hr., and across a moraine for ¼ hr., to some rocks (partially grass-covered on south) which descend from the Dent de Zallion towards the châteaux of Zallion. These rocks were ascended on the S., chiefly by the grass, in 25 min., and some slopes of boulder and avalanche snow traversed to

* With reference to this ascent, which has not been previously recorded in the Journal, Mr. Vardy writes as follows:—

‘On August 31, 1886, we left Ferpèche about 6 P.M., proceeded about half-way up the Mont Miné glacier towards the fall, then ascended by turf and rocks to a place just below the shoulder underneath the N. point (about 3 hrs. from Ferpèche), and slept on the rocks. About 4 A.M., on September 1, started across glacier, and ascended [the E. face of the mountain] by slopes and rather steep rocks to arête, which we reached rather south of the N. point—which point we reached between 10 and 11 A.M. We made a small cairn. We then followed the arête southwards to central peak, which we reached about 1 P.M., and from which we descended to Arolla by usual route. Saw chamois cross the glacier just below us in descending.’

the base of the mountain in further 25 min.; then straight up the rocks for 20 min., and by easy snow slopes for $1\frac{1}{4}$ hr. to the summit, which is less than $\frac{1}{2}$ hr. N. of the col reached by Mr. Cust in the expedition before referred to. No trace was found of any previous ascent. The peak commands a very fine view.

The S. arête was followed to Mr. Cust's Col de la Za,* and thence for an hour to a point (higher than the Dent de Zallion) just N. of the couloir generally used in the ascent of the Za. The highest point of the arête is a very small and sharp aiguille, severed from the main ridge by a deep cleft, but no difficulty was found in climbing it from the E. side.

The descent was made by the N. Col de Bertol, by the route usually taken in returning from the Za.

CRÊTE DE PLAN (3,396 mètres=11,135 ft). *August 16.*—The same party, with the addition of Mr. C. E. Groves (guide, Martin Vuignier), ascended the highest point, marked 3,396 on the Swiss map, of the Crête, which encloses the Glacier de Bertol on the S. side and which terminates in the Plan de Bertol. The ascent was made in about $2\frac{3}{4}$ hrs. from the usual halting-place below the Glacier de Bertol, proceeding in an eastwardly direction by easy snow slopes extending to near the final summit, which was reached by the rocks of the N. face. No trace was found of any previous ascent.

POINTE DE BERTOL (3,507 mètres=11,523 ft). *August 18.*—The same party, with the exception of Mr. Groves (with Vuignier and Gaspoz as guides), ascended the peak marked 3,507 on the Swiss map, which separates the N. and S. Cols de Bertol. Passing through the 'false' col, immediately N. of the S. Col de Bertol, they skirted the mountain for nearly 10 min., and then struck up rocks to the E. (rock) arête, which was followed to the summit. Time from leaving snow to the top, $\frac{3}{4}$ hr. The descent was made for a short distance by the same arête, and thence by easy snow slopes to the N. Col de Bertol, which was reached in less than an hour.

Though there is no record of any previous ascent of this peak, either in the Visitors' Book at the Arolla Hotel, in Mr. Larden's MS. Guide to Arolla, or in Mr. Conway's book, a cairn was found on the summit, and it was stated by the guides that previous ascents had been made by the snow slopes from the N. Col de Bertol, though not by the E. arête. The peak commands a very fine view.

THE ZOITCONDUI (3,268 mètres, 3,050 mètres). *August 20.*—Messrs. Corbett and Townley (with Gaspoz as guide) ascended these peaks, marked 3,268 and 3,050 respectively on the Swiss map, from the col connecting the Glacier de Vouasson with the very steep Glacier de Merdéré, passing along the ridge over both peaks to the Col de la Meina. The ascent to the principal peak was an easy walk of a few minutes. The passage of the arête thence to the smaller peak took about an hour, and the descent to the Col de la Meina about 20 min. The arête is a very rotten ridge of shale, but presents no difficulty. The peaks command fine views, much like that from the Pic d'Arzinol, but inferior to that from the Pointe de Vouasson.

* *Alpine Journal*, vol. vii. p. 318; vol. viii. p. 12.

There appears to be no record of any previous ascent of these peaks, but Gaspoz stated that they had been traversed by chamois hunters, and the remains of small cairns were found on the summits.

MONT COLLON BY THE N. FACE. August 13.—Mr. J. Hopkinson, with Jean Maître as guide and Antoine Maître as porter, left the Arolla Hotel at 3.30. Their route was by the arête which rises from that point of the Arolla glacier where it ascends steeply to the left, and which passes immediately to the right of a glacier two-thirds of the height of a mountain. Jean Maître had carefully studied the route for some time before, and had determined to try it with some one. The moraine of the Arolla glacier was left at 5.30. They first crossed a patch of snow lying on the face of the mountain immediately above the moraine, then got on to a ledge on the rock, and traversed to the right, leaving the ledge presently, and continuing on the rock till a somewhat rough and wide arête was reached at 6.30. They went up this arête, bending towards the left to the uppermost point of the cone of black rock as seen from the hotel, which appears from the hotel immediately below the above-mentioned glacier. The arête now bends to the right, and they followed it to a point at which it is cut, the gap being partially filled with very steep snow. This point was chosen for breakfast, and half an hour's rest taken here. They went on at 8, avoided the gap by a détour to the left, on to the glacier, and took to the arête on the other side of the gap. The arête now ascends directly; it is steep, and consists alternately of snow and rock. The snow was in excellent condition, or it would not have been wise to attempt it. The arête is finally stopped by the séracs of the upper glacier. This point was reached at 9.30. A considerable amount of ice had to be cut from these séracs to admit a passage slightly to the left. To get fairly on to the snow-fields above took till 12.15. All difficulty of moment was now over. The upper crevasse was crossed to the right, and the summit reached about 1.15. Generally the rock by this route is delightful, fairly sound, and not too easy. The snow is very steep, and would not be practicable to descend unless in perfect condition. The séracs work on this occasion was very formidable, and most exhausting for the guide.

The repetition of the route is not recommended; it is long in any case, and under some circumstances would be dangerous.

PETIT MONT COLLON (3,545 mètres = 11,631 feet from the N.W.). August 18.—The same party, with the addition of Mr. Hopkinson's son, ascended by the arête which runs out towards the Pigne d'Arolla, passed along the whole length of the ridge, and descended by the ridge running out towards Mont Collon. The rocks all along were as rotten as they could be. If climbed frequently, so that the loose stones would be kicked away, this would be a very attractive excursion.

The Valpelline.

COL DE CRÉTON (3,324 mètres = 10,906 feet). August 20.—Messrs. W. M. Conway, Ellis Carr, and F. M. Davies, with the guides Ulrich Kauffmann and J. M. Lochmatter, left the little Prerayen Inn in doubtful weather, at 6.10 A.M. They followed the main valley

path, crossed the Za-de-Zan stream, and mounted a good cow-path to the Bellaza huts. The path then becomes a goat track, and finally a chamois track, conducting to a point where the right moraine of the S. branch of the Grand Glacier Bellaza abuts against the red cliffs of its N. bank. Here there is a stinking chamois rendezvous. The place was reached in 2 hrs. from Prerayen. They now got on to the glacier and mounted it, eventually keeping close to or on the rocks of its N. bank, and thus reaching the col in about $1\frac{1}{2}$ or 2 hrs. There are two cols at the head of this glacier: the Col de Créton is the more northerly; the other is the Col du Château des Dames. They are divided from one another by a peak called Mont Blanc de Créton. North of the Col de Créton is the point (3,583 mètres) wrongly marked Becca Créton on the Italian map. Its real name is Tour de Créton. The Bec de Créton is further N. still. From the col they went a few yards N. and then commenced the descent down a steep chimney. This led into a great couloir, down which they went, or the rocks beside it, taking shelter from a thunderstorm under an overhanging rock. They descended the couloir very rapidly to the top of the great waterfall at its foot, and then they traversed (or should have traversed) continually to the left, following grass-covered ledges and crossing two or three waterfalls on the way. They thus got off the foot of the great rock wall on to the *débris* slope in some $2\frac{1}{4}$ hrs. from the col. A path was found which led in about $\frac{1}{4}$ hr. to the Bayettes Alp, whence Breuil was reached in $\frac{3}{4}$ hr.

Monte Rosa District.

OBER-GABELHORN BY THE N. FACE (4,073 mètres = 13,364 feet). July 28.—Mr. C. M. Thompson and Mr. G. Broke, with Aloys Pollinger and Adolf Andenmatten, having reached the top of the Ober-Gabelhorn from Zermatt by the ordinary route at 8.45, descended for an hour towards the Arbenjoch, but finding the N.W. face of the mountain coated with hard ice they traversed across to the N.W. arête, which they descended till above the first small patch of rocks on the N. face, just under the ridge. Finding the snow below these safe, though soft, they then went straight down the N. face, reaching the plateau at the bottom of the snow-wall at 11.10, where a halt of 10 min. was made. The seracs below this gave a good deal of trouble, but the ladder at the foot of the Triftjoch rocks was reached at 12.20, and the return made to Zermatt by that route.

The passage through the seracs presumably coincided more or less with the first part of Mr. Joss's route up the Wellenkuppe from the W.*

WELLENKUPPE AND OBERGABELHORN. August 1.—Mr. L. Norman-Néruda, with Chr. Klucker, of Sils, left the Mountet Hut at 3.18 A.M. in the direction of the Trift-Joch, at the foot of the rocks of which they turned to the right, found a way through the séracs and schrunds until good snow was reached, crossed a kind of bergschrund, got on to very hard ice, and had to cut steps for $2\frac{1}{2}$ hours to reach the base

* *Alpine Journal*, vol. xiii. p. 124.

of the snow-peak of the Wellenkuppe. The peak itself was reached at 9.3 A.M. Left at 10.1 A.M. and followed the ridge connecting the Wellenkuppe and the Obergabelhorn (which would be hardly practicable unless the snow and ice were in perfect order), cutting steps into the steep wall of snow and ice until the rocks of the Obergabelhorn were reached at 11.40. They now climbed the rocks (this part of the new route is *not* new) and reached the summit at 12.40 P.M. Left 1.5 P.M. by the same route, returning to Wellenkuppe at 3.20 P.M. Left 3.33 for Zermatt by the ordinary route. In Zermatt 7.30 P.M.

LYSKAMM FROM THE N.E. *August 2.*—The same party and Josef Reinstadler from Sulden left the Riffelhaus at 1.27 A.M., crossed the Gorner glacier, and reached 'Auf'm Fels' at 4.33 A.M. Left 5.13, following Lysjoch route for a short time. They then turned to the right and, after getting nearer the mountain, again to the left in direction of the Lysjoch. When a point straight under the summit was reached, the party again turned to the right and crossed the bergschrund at 7.45 and climbed straight upwards, over snow and ice and difficult rocks, until the summit was reached at 2.25 P.M. Left 2.58 by ordinary Lysjoch route. Lysjoch at 5 P.M. Platje at 7.25, Riffelhaus 10 P.M. This route is not to be recommended.

PORTIENGRAT (3,661 mètres=12,008 feet) BY THE W. FACE.—On August 11 Messrs. A. F. de Fonblanque and G. F. Berney, with Xaver Imseng, and Moriz Imseng, left the Almagell Alp Châlets at 2.50 A.M. Keeping left of the ordinary route the way lay straight up the middle of the Rothplatt glacier, the point made for being that where the glacier runs furthest up the W. face of the peak. The bergschrund (conspicuous from Fée) was crossed at its extreme north, and the rocks just above it were reached at 5.30, and afforded a good breakfast-place. Starting again at 6, the glacier was ascended diagonally to the right for 15 min., and the rocks of the W. face were ultimately taken to a point directly beneath the summit. The way then lay straight up these rocks, which were in places covered with snow. There were a few troublesome bits at first; but the rocks, though steep, were sound, and on the whole not difficult, and the passage of certain points which might at times offer considerable difficulty was facilitated by the snow, which was in splendid condition. The S. arête was struck a few feet below the summit, which was reached at 8. The descent was made by the ordinary route.

DESCENT OF THE TÄSCHHORN BY THE E. FACE.—On August 23 the same party (with the substitution of Theodor Andermatten for Moriz Imseng) ascended the Täschhorn by Mr. Jackson's Mischabeljoch route.*

The bivouac on the Langefluh was left at 1 A.M., the Mischabeljoch being reached at 5, and the summit at 10.15. On account of the great length of the arête and the violence of the wind on it, it was decided to make the descent by the rocks on the E. face, which appeared to offer a more direct route, and were out of the wind. These are the rocks by which Messrs. Watson and Wethered's ascent was completed,† but Mr. Wethered's opinion as to the practicability

* *Alpine Journal*, vol. viii. p. 345.

† *Ibid.* vol. ix. pp. 200-8.

of the descent does not appear to have been verified hitherto. The start was made at 11.15, and the foot of the rocks was reached in 3 hrs. The rocks (which were almost entirely free from snow) were at first very rotten, but they improved lower down, and the face was throughout quite free from falling stones. From the foot of the rocks Messrs. Watson and Wethered's route (which lies for some distance over the Mischabeljoch track) was quitted, and the party, keeping somewhat to the left, went down the Fée glacier in a N.E. direction, leaving the point 3,148 on the right, and hitting off the route from the Dom sleeping-place, not far from the foot of the Eggfluh. The descent of the glacier was tedious and somewhat troublesome, as the ice was mostly bare, and a great deal of step-cutting was necessary. The hotel at Fée was reached *viâ* the Gletscher Alp at 8.30 p.m. Judging from Mr. Wethered's account there cannot be much difference in point of time between the two routes.

INNERE LOCKER SPITZE (about 11,800 feet). *August 23.*—The Rev. W. A. B. Coolidge and Mr. W. M. Conway, with young Christian Almer, made the first ascent of this peak. It is a limestone mass, N. of the Äusser Barrhorn, from which it is separated by a group of remarkably steep little needles. The party started from S. Niklaus at 6 a.m., and reached the Walkersmatt in 2½ hrs. Thence they followed a *Wasserleitung*, and the stream that supplies it, for 2¼ hrs. to a pool on the right bank of the N. branch of the Stelli gl. There is no resemblance whatever between the true plan of this glacier and that depicted on the map. They traversed the glacier in 35 min., and so reached the rocks at the foot of the E. face, and right under the summit. They mounted diagonally to the right up the very rotten rocks, finally reaching the N. arête (1½ hr.), by means of an ice gully. They followed the arête, in 20 min., to the top. In the descent they went further down the arête (25 min.), and then turned down the easy rocks of the E. face (20 min.) to the snow. They glissaded down to and crossed the glacier (10 min) to the pond visited in the ascent. S. Niklaus was reached in 2¼ hrs. The next, and lower, peak further N. (Äussere Locker Sp.) seems to have been the one climbed by Mr. Anderson,* and described as an ascent of the Äusser Barrhorn.

Bernese Oberland.

STRAHLEGGHÖRNER. *July 11.*—Mr. Henry Bowyear, with Rudolf and Peter Almer, having slept the previous night at the Schwarzegg Hut, made what is believed to be the third ascent of the Strahlegg-horn.† Mr. Bowyear seems to have somewhat varied Mr. Schuster's line of ascent, having cut up a steep snow slope on the N. face of the peak to a point rather less than half-way up the E. arête. This snow would probably not exist in ordinary years. The descent was made

* August 5, 1882. *Alpine Journal*, vol. xi. p. 118.

† See Mr. Schuster's account of his ascent in 1888 (*Alpine Journal*, vol. xiv. p. 157), from which it appears that the peak had been previously ascended by a Swiss gentleman.

almost wholly by the N. face, the arête being touched only for a short distance about half-way down, whence the route of the ascent was followed. The ascent took about 1 hr. from the pass, and the descent nearly as long, owing to the great care necessary, in consequence of the amount of new snow on the somewhat rotten rocks. Mr. Bowyear fully confirms Mr. Schuster's account of the beauty of the view and the interest of the climb. The party descended from the Strahlegg Pass to the Grimsel.

July 18.—The same party, having been driven back from an attempt on the Finsternarhorn by the dangerous condition of the snow on the Agassiz Joch, ascended from the Finsteraar Joch by easy snow slopes to the peak of the Strahlegghörner, marked 3,488 mètres on the Siegfried map. This peak would appear to be the highest of the range, the Strahlegghorn proper being marked on the same map as 3,462 mètres in height. The party then descended by the same route to a considerable glacier basin on the W. of the peak, and thence followed a sharp snow and rock arête running in a N. and N.W. direction to the summit of the peak which immediately overhangs the Finsteraar Joch, and which rises from it by a steep rock ridge; marked 3,390 mètres on the map. The party then again descended to the glacier basin, and leaving, it is believed, the peak marked 3,453 mètres on the Siegfried map on the right, made in a N.E. direction for the next point on the main ridge, which appeared to be somewhat higher. This peak was ascended by the southern arête without difficulty. The descent was made for some distance by a rock ridge running down the west face of the mountain, and then transversely across the various ridges and couloirs on the N.W. face of the ridge, the Obereismeer being reached at a point not far from where the route from the Strahlegg Pass is joined. No traces of previous ascents were found, and small cairns were erected on each of the peaks ascended. The expedition was one of great beauty, and offered no difficulty. The views from the first and third of the peaks ascended, down the fine precipices on the E., and of the great peaks on all sides, were exceptionally beautiful, and the range certainly deserves more attention than it has hitherto received.

VIESCHERHÖRNER. *July 16.*—The same party, and the Rev. T. H. Philpott, with Christian Almer, senior, and Christian Roth, having passed the previous night at the Bergli Hut, started at 2.45 A.M. for the Gross Viescherhorn. The ascent was made almost wholly by the N.W. arête, which was struck considerably to the N.W. of the point marked 3,705 mètres on the Siegfried map, and the summit was reached about 8.30 A.M. The view was magnificent. The weather seeming favourable, Messrs. Philpott and Bowyear determined to join parties and cross the Ochsenhorn to the Obereismeer, and so descend to Grindelwald. They accordingly sent back Christian Roth and Peter Almer to take down the things which had been left in the Bergli Hut, and with Christian and Rudolf Almer descended the S.E. arête for a short distance, and then, turning to the left, made their way to the great snow-basin spoken of by Mr. Coolidge

in his account of the first ascent of the two peaks in one day.* The N.W. arête of the Ochsenhorn was followed to the summit, which was reached about 11.15 A.M. The actual summit was a tiny pinnacle of snow on the crest of a huge cornice, on which only one man could venture at a time. As clouds were gathering rapidly in the valleys no time was lost on the top. The party descended a short distance by the S.E. arête, and then turning to the left some way above the Ochsenjoch, made straight down the tremendously steep slopes and hanging glacier on the E. face, the Ochsenjoch route being eventually joined considerably below the pass. Considerable difficulty, increased by a severe thunderstorm, was experienced in finding a way down the broken glacier, which at length became impracticable. A way was, however, found by descending for some distance a very steep ridge of rocks to the right, lying almost immediately under the summit, and being apparently the northernmost of the rock ridges running down the E. face of the mountain. The line taken is believed to be in great part new, and is not to be recommended except early in the day, and when the snow is in good condition. The party reached the Bäregg Châlet at about 5.30 P.M., and descended to Grindelwald. This appears to be the first time that the two peaks have been traversed in one day from the Bergli to Grindelwald, Mr. Coolidge having descended from the Ochsenhorn to the Concordia Hut.† The time taken from the Bergli to the Bäregg was 14½ hours, and no long stoppages were made. The snow was in bad condition nearly all the way after leaving the top of the Gross Viescherhorn, and in more favourable circumstances the expedition would probably take considerably less time.

DOLDENHORN (3,647 m. = 11,960 ft.) August 10.—Mr. G. Stallard and Mr. A. L. Ormerod, with Johannes Ogi-Müller and Abraham Müller, of Kandersteg, made the first ascent of this peak from the Gasterenthal. Sleeping under some convenient rocks immediately above Selden, by the advice of one Künzi, a Gasterenthal *Gemsjäger*, who was said to be well acquainted with the S. side of the mountain, they left their bivouac at 3.45 A.M., and by the advice of the guides traversed the side of the mountain for about 4 hrs. (having to cross a great many troublesome rocky gullies) to reach the small glacier shown on the Federal map on the W. side of the great arête which runs due S. from the summit. They then had two or three hours' easy snow and rock-débris work, succeeded by many very steep snow slopes and shelving slabs of smooth and rotten rock, with occasional climbs up very fine rock-couloirs for many hours, trying repeatedly to get on to the S. arête, but being compelled to keep below it on the left the whole time. At last, at 6.45 P.M., when it seemed almost certain that they would have to spend a second night on the mountain, they got on to the arête, and a quarter of an hour's easy walking led them to the top. They got down to the Spitzstein, on the N. side, at 8.30, and losing their way in the Biberg eventually reached the Victoria at Kandersteg at 1.45 A.M.

This route cannot be strongly recommended, but they think that a party sleeping up near the small glacier ought to reach the top by mid-

* *Alpine Journal*, vol. xiv. p. 156.

† *Ibid.*

day. This glacier could no doubt be easily reached by way of the Gabel, by following the stream which runs from it into the Kander about two miles below Selden. They were so late in reaching the real point of attack that the snow slopes on the W. of the great S. arête were in a very soft and (in the opinion of the guides) dangerous condition, and had to be traversed with great caution. The rock-climbing on the S. side of the mountain is in many places extremely difficult, but in the difficult places the rocks are sound. The great S. arête is so much broken that it cannot be followed, except just below the summit. They think it would be possible to climb straight up from Selden without great difficulty to the point where the S. arête appears on the Federal map to divide.

KLEIN LOHNER (2,591 m. = 8,492 ft.). *August 6.*—The same party made the first ascent of this little peak from the Adelboden side of the Allengrat. It is a pleasant rock-climb, with a difficult scramble up a couloir to get on to the arête. They erected a cairn, visible from the Victoria at Kandersteg, on one of the highest points.

GROSSHORN (3,765 m. = 12,345 ft.). *August 23.*—The same gentlemen, with A. Müller and J. Rubin, of Ried, made the first recorded ascent by English travellers of this mountain. Starting from Ried at 1.20 A.M., they went up a little to the E. of the Jägiknubel, and then up snow slopes to the top, which they reached at 8.45 A.M. The upper slopes are extremely steep, and would entail a great deal of step-cutting if the snow were very hard, and would be dangerous to descend if the snow were very soft. Leaving the top at 9.15, they reached Ried at 4.5, going very slowly, and stopping for more than an hour on the way. The panorama from the summit is one of extraordinary magnificence.*

Uri Alps.

THE GLETSCHHORN (3,307 mètres = 10,850 feet). *August 1, 1890.*—Messrs. Leigh S. Powell and Frank Gare, without guides, made the ascent of this peak from the Tiefengletscher inn on the Furka road. A start was made at 3.45 A.M. The route taken was by the left bank

* Studer, in *Ueber Eis and Schnee*, vol. iv. p. 78, says that the first ascent of the Grosshorn was made by Herr Wyss from the Schmadrijoeh on July 29, 1875. After a time the party were compelled to leave the corniced arête, and unroped and traversed a snow slope of 70°-75° on the S. side, and then inclining to the N., reached the *Mittagjoeh*, from which, by bearing to the W., the top was soon reached. Time from the Schmadrijoeh, 3 hours. It appears, on referring to the map, that some mistake must have been made in this description, as the Grosshorn lies between the Schmadrijoeh and Mittagjoeh, and a passage from the one pass to the other on the S. side seems to be impossible. It is also stated in the visitors' book at Ried that Dr. Dübi ascended the mountain from Ried on September 8, 1869 (six years earlier), leaving Ried at 3 A.M., reaching the top at 2 P.M., and getting back to Ried at 1 A.M. Moreover, there is a second entry in the Ried book to this effect: 'Dr. H. Dübi und Fritz Wyss-Wyss von Trachsellaunen über Schmadrijoeh (Besteigung des Grosshorns): Abreise zum Bivouac am Jägiknubel, 12 hrs. 30 min., July 30, 1875. In Studer's account it is stated that Dr. Dübi was ill, and had to be left on the Schmadrijoeh while the ascent of the Grosshorn was made. The only other recorded ascent is that made by Dr. Emil Burckhardt (with J. Rubin) in 1885.

of the Tiefengletscher to the termination of the S.W. arête of the peak; then, turning this, the snow slopes at the base of the rocks were ascended as far as the S.W. face of the mountain. The rocks of this face were now taken at what appeared to be the only practicable point—viz., to the left of a narrow and very steep snow couloir, situated to the right of the face in question. After a few minutes' climb up these a slight eminence was reached, whence a good view of the face was obtained. From here the route lay up a narrow ridge of rocks dividing two long snow and ice couloirs. Arrived at the head of these, a depression between the higher and lower pinnacle of the summit was shortly afterwards attained, and then a short final scramble to the left led to the highest point. No cairn having been previously erected, two small piles of stones were built, one being on the actual summit, an obelisk of granite some 6 or 8 feet high.

The time taken from the inn to the foot of the rocks was 4 hrs. 15 min., and the rock climb to the summit took 1 hr. 15 min. The granite rocks are tolerably steep nearly all the way, but afford excellent hold, and are free from falling stones. By making a fairly early start the rather tedious snow slopes leading to the face attacked may be ascended before the sun reaches them.

It may be mentioned that by a short deviation to the right from the foot of the rocks in descending, the well-known Cristallhöhle may be visited.

The Gletschhorn was ascended by Herr Huber, on September 12, 1888, from the Göschenenalp.* The ascent under notice appears to be the first by Englishmen, and by a new route.

Lepontine Alps.

WASENHORN OR PUNTA TERRAROSSA (3,255 mètres = 10,675 ft. Siegfried; 3,247 m. = 10,649 ft. Ital. map). August 27.—The Rev. W. A. B. Coolidge and Mr. W. M. Conway, with young Christian Almer, having reached the summit of this mountain from Berisal by the N.W. face and N. arête, descended to Veglia by a new route. They started down the steep, but at first very easy, rocks of the E. face, bearing somewhat to the left for a time, and then back to the right. They descended by ridges and gullies of rock, zigzag, and eventually got into the great snow couloir, which leads down to the Aurna glacier, and lies between the red rocks of the main S. arête and the black rocks of a great S.E. buttress, conspicuous from Veglia. They reached the bergschrund at the foot of the great couloir in 3 hrs. from the top. Thence it took 20 min. to the foot of the Aurna glacier, and 50 min. on to the Veglia inn.

RITTERPASS, August 31.—The Rev. W. A. B. Coolidge and Mr. W. M. Conway, with young Christian Almer, having reached the summit of the Ritterpass from Veglia by the usual way, returned to Veglia by a new route. They passed westwards from the col along the watershed, and then, bearing left, they went along the crest of a

* *S. A. C. Jahrbuch*, '89-'90, p. 173.

buttress ridge (which descends from a point W. of the col to the point marked 2,621 mètres on the Italian map). Leaving this ridge, they went down a snow-slope W. of it, and then, bearing left, they descended some débris-slopes among rock precipices, and so gained access to the floor of the N.E. branch of the Mottiscia glen. They followed a path along the right bank of the Mottiscia stream to the Veglia inn, which was reached in 2 hrs. from the col. In their opinion this route, if somewhat more circuitous, is preferable to that usually followed.

PEAK MARKED 2,925 MÈTRES (= 9,625 feet) on the Siegfried Map. *September 8.*—Mr. F. Baker-Gabb and a friend, with Emmanuel Imseng, of Saas Fee, as guide, made the first ascent of this peak, which lies between the Bochtenhorn and Schienhorn. Starting from the Hôtel Ofenhorn, at Binn, they followed the path leading to the Albrun Pass as far as the bridge which crosses the stream from the Ofen-gletscher at Stahlquelle (2½ hours). They then mounted to the right over large boulders and snow to a well-marked depression in the N. ridge of the Bochtenhorn (4 hours from Binn). Descending from this on to the glacier, they crossed directly to the peak, ascended by the rocks on the N. face to the N.E. arête, and then, by the S.E. face immediately under the arête, reached the foot of the final pinnacle without difficulty. The ascent of this (about 120 feet) gave great trouble, the rope having to be looped and thrown up over a projecting rock before an overhanging block, which barred the bottom of a chimney, could be climbed. The summit was gained in 5¾ hours' actual walking from Binn, and no trace of any previous ascent was found. The party, after building a stone man, descended by a traverse of the S.E. face to the col between the peak ascended and the Schienhorn; they then crossed the col between the point marked 2,904 mètres and the Kollerhorn, and struck the valley path near the bridge, opposite Imfeld. The route taken in returning is far the most direct, the descent to Binn being made in 3¼ hours from the top, excluding halts. The times were slow, owing to a heavy fall of snow shortly before.

Bernina District.

PIZ FORA (3,370 mètres = 11,057 ft.). *July 2.*—Mr. L. Norman-Néruda, with guide Christian Klucker, left Sils-Maria at 8.27 A.M., walked through the Val Fex until they reached the Fex glacier, then ascended in a straight line up the glacier. As soon as they reached the séracs they turned to the right, and, after some difficulty in crossing a schrund, the final snow-cone was climbed at 2.13 P.M. Left at 2.27 over same route, and arrived at Sils-Maria at 5.55. Generally the Piz Fora is ascended from the Val Fedoz.

PIZ TREMOGGIA (3,452 mètres = 11,328 ft.). *July 4.*—The same party left Sils Maria at 5.42 A.M., ascended through the Val Fex as far as Mott Selvas, then turned to the left, and by crossing the Curuxellas reached the eastern branch of the Fex glacier. Thence over the moraine and the glacier until the centre of the west face of the mountain was touched. The bergschrund was crossed at 10.20 A.M.,

and the summit reached by ascending a fine couloir and the final snow-field. Time 11.57. Left 12.57 P.M. by the south-west rock arête towards the Tremoggia pass, and returned to Sils Maria at 6.55 P.M. Both the line of ascent and that of descent appear to be new.

Bernina Group.

MONTE DI SCERSCEN (3,967 mètres = 13,011 ft.). *July 9.*—The same party left the Roseg Restaurant at 2.25 A.M. for the Tschierva glacier, passed the Piz Humor on its right (looking towards the Scerscen), then turned towards the Güssfeldt Sattel and breakfasted about 200 yards from its bergschrund at 7.12; left at 7.42, crossed bergschrund right under the 'Schneehaube,' and climbed the snow and ice-wall until, at 9.21, the rocks of the 'Schneehaube' were reached. They then turned to the left and traversed across to the séracs, wound their way through them (this is the only part of the new route that could be called at all dangerous), and reached the glacier, which extends as far as the rocks of the summit, at 10.45. Left 11.20 in a straight line for summit, and, climbing some rather disagreeable ice-covered rocks, stood on top of mountain at 1.4 P.M. Left 1.38, descended over the same route, crossed bergschrund at 3.40, and entered the Roseg Restaurant at 7.27 P.M.

PIZ ROSEG (3,943 mètres = 12,928 ft.). *July 16.*—The same party left the Roseg Restaurant at 1.5 A.M. over the same route as for the Scerscen until they were right opposite the north-east face, turned to the right and crossed the bergschrund straight under the depression between the summit and the Schneekuppe. Thence they ascended in a straight line until the middle of the face was reached, when they crossed an ice-couloir towards the left, and got on to one of the enormous ice-falls. Now they again struck upwards and reached the depression between the summit and the Schneekuppe at 12.37. (On measurement the inclination of the north-east face was found to be 50° for the first third, 54½° for the second, 60° for the greater part of the third, and finally 62°). At 1.18 P.M. the party left for the summit by the ordinary route, which was reached at 2.14. Left at 2.16, depression 2.50, Schneekuppe 3.8. Left 3.23 by ordinary route. Arrived Mortel Hut at 5.45, and Roseg Restaurant at 7.26 P.M.

PIZ BERNINA (4,052 m.=13,187 ft.) *July 18.*—The same party left the Boval Hut at 3.15, and one hour later crossed the bergschrund of the great couloir at the right of the Labyrinth route and very conspicuous from the Boval Hut. They ascended by this couloir, the height of which is about 1,500 ft., and in some parts very steep. Top of couloir 7.23 A.M. At 8.35 breakfast was taken on the 'Sass del Repos.' Went on 9.8 in a nearly straight line until the double bergschrund underneath the summit was reached. They now turned to the right to find a suitable point for crossing. This was accomplished at 10.21. They had now to proceed with great care, for the condition of the snow was very bad, the snow-wall very steep; but at 12.25 the rocks of the arête were reached at a point under the rock-head, whence the descent into the 'Bernina Scharte' is made. These rocks were in very bad condition, and, although not higher than about 150 ft., they took two

hours to climb. Thus at 2.25 P.M. the arête was reached; but as a thunderstorm had gathered it was deemed prudent not to climb the summit, but to descend to the Roseg Valley by way of the Pizzo Bianco and the Fuorcla Prievlusa. Before reaching the Pizzo Bianco, however, the party were in the middle of the thunderstorm and had to seek shelter on the Morteratsch side of the arête and could not proceed before 5.25 P.M. The bergschrund was crossed by lantern-light and the Roseg Restaurant reached at 11.30 P.M.

Silvretta.

GROSS-SEEHORN (3,124 mètres = 10,242 ft.). GROSS-LITZNER* (3,108 mètres = 10,191 ft.). July 24.—Mr. L. Norman-Néruda, with Klucker, left the Sardasca Alp at 4.43 A.M. by ordinary route as far as the foot of the mountain, then ascended by a rock-couloir straight to the smaller peak, and thence by connecting arête on to the highest summit. Time, 8.27 A.M. Left 9.55 A.M. They now descended, following the entire arête over the ordinary route into the gap between the Gross-Seehorn and the Gross-Litzner. The gap between the Gross-Seehorn and the Gross-Litzner was reached at 10.17, the foot of the mountain at 10.26. The party climbed straight up the first part, then descended on to the Vorarlberg side of the mountain. Now a perpendicular rock-wall of 65 ft. had to be climbed. This was done with considerable difficulty and a patch of snow reached, from where, bearing to the right, the summit was reached at 12.3 P.M. Left at 1.33 by ordinary route, arriving at the Sardasca Alp at 5.10 P.M.

Dolomites.

MONTE GIRALBA † (ca. 2,900 mètres = 9,500 ft.). This is a peak separated from the Zwölferkofl by the Giralba-Joch, and from the Hochbrünnerschneide by an enormous chasm. On June 18 Mr. L. Norman-Néruda, Dr. Hanns Helversen and Dr. L. Darmstädter, started from the Zsigmondy-Hütte for the Giralba-Joch, thence ascending into depression between lowest and second peaks; climbed latter, and reached the summit easily after crossing gap between it and second peak. The same route was taken in making the descent as far as the depression between lowest and second peak; but then, instead of continuing, they struck down a couloir to the right towards the so-called Innere Loch. Guides Josef and Veit Innerkofler, Stabeler and an Auronzo guide.

Skye.

SQURR-NA-H-UAMHA.—Mr. C. Pilkington, in his interesting article on 'The Black Coolins,' ‡ mentions an attempted ascent of this fine mountain from Harta Corrie, which failed owing to the smoothness of the rocks.

On July 30 last Messrs. E. Kidson and W. E. Corlett made the ascent

* [An excellent view of these two peaks and of the ridge joining them will be found in the *S. A. C. Jahrbuch*, 1887-8, facing p. 160.]

† *Oest. Alp. Z.*, No. 301, p. 117.

‡ *Alpine Journal*, vol. xiii. p. 445.

from Harta Corrie, starting a quarter of a mile or so west of the Bloody Stone.

Rocky Mountains, Colorado, U.S.A.

MOUNT WILSON (14,309 feet).—On September 1 Mr. Percy W. Thomas and Mr. N. G. Douglass (of the San Bernardo Mine) ascended this, the highest peak of the San Juan. The start was made on horseback from the cabin at the hot springs of West Dolores at 6.30 A.M., and the foot of the mountain was reached at 9.15. Here the horses were left, and the climb to the summit was effected chiefly by the S.W. arête, where in places the rocks were by no means easy. The summit was gained at 12.40. The descent was made by a couloir not far below the summit, and Trout Lake was reached the same evening at 7.5.

CAUCASUS.

Central Caucasus.

STULIE-VSEK PASS.—Mr. W. J. Petherick and I, with two native porters, left Karaoul at 7 A.M. (porters could not be got under weigh earlier) on August 17. We kept on the Stulie-vsek track till we had passed the snout of the Chiri-vsek glacier. We then left the horse path and the Cherek river, ascending a narrow ravine which brought us to an open valley. We followed this some distance, and then struck up grass and stone slopes to the foot of the glacier (12.30 P.M.). Here we met a solitary traveller, and our porters indulged in a long chat. Subsequently we followed a well-trodden path in the snow, and reached the pass at 3 P.M. The mountains were enveloped in cloud, but the porters knew the glacier well, and quitting the tracks (which presumably led towards Gebi) we kept to the right, and after zig-zagging a few crevasses, quitted the ice at 4.30 P.M. Long slopes and scree, ending in a low rocky wall, brought us out on to the débris of a series of avalanches which filled the trough of the valley, bridging the river for a mile or more. Further down we found a faintly-marked track, which we followed till 6 P.M., when we camped. The next morning we continued the descent of the Zeskhu Valley, as we were unable to find any track. Progress through the forest was necessarily very slow, and we did not reach the village of Scena till 3 P.M.

A. F. MUMMERY.

Southern Valleys.

August 11.—Our party, consisting of Mr. J. G. Cockin and myself with Ulrich Almer as guide, and a native of Isageri, Merun Formovitch Kugawa, as interpreter and general purveyor, met at Batoum, and started for Kutais the next day.

August 14.—We left Kutais, and following the Mamisson road to about 13 versts beyond Oni, after the usual vexatious delays and consequent irritation, reached Gebi on the afternoon of the 17th.

August 18.—Leaving Gebi we travelled easily for about 8 hrs. along the horsepath leading to the Gurdzi-vsek (Pass) to the top of the preliminary pass over a southern spur which it traverses. We encamped in a thunderstorm on the grassy slope close to the top of the spur which abuts on a peak known to the natives as Isforga, and about

in the position in which the word Gurdzi-vsek is printed on the 5-verst map.

THE ASCENT OF ISFORGA (estimated height about 13,000 feet). *August 19.*—We left our tent at 2.45 A.M. with the view of ascending Isforga. We first followed the ridge under which we were encamped, but finding the gendarmes numerous we descended to the glacier on the right. By this glacier and rocks, which were generally loose and somewhat dangerous on this account, we reached the lower summit at 11. Here we found a stone man, but could discover no record.* After a rest of over an hour we proceeded to the higher summit, arriving at 12.50 P.M. From the summit we obtained a fine view of the distant group of mountains lying to the W.—Shkara, Janga, Koshtantau, &c. Whilst looking E. we had Boordooil close at hand, masking to a great extent the remaining mountains of the Adai Choch group. On descending we made for a depression on the eastern ridge of the mountain, and, varying our route on arriving at the glacier we had ascended in the morning, were unable to reach our tent till 8.45 P.M.

Having rested on the 20th, we on the 21st removed our tent eastwards across the intervening valley to an Alp immediately under Boordooil (Mr. Freshfield's Bordjula), which the natives called Mootsansara. As the weather was not promising we remained in camp on the 22nd.

THE ASCENT OF BOORDOOIL (14,083 feet). *August 23.*—We started at 2.35 A.M. At 4.25 we had reached the snout of the lower glacier. By 6.35 we had crossed the schrund of the higher glacier, and at 8.50, after a stoppage of $\frac{3}{4}$ hr. for breakfast, we commenced our attack on the S.E. arête of the mountain. The rocks were good, and after an interesting climb of about $2\frac{1}{2}$ hrs. we stepped upon the snow-slope leading to the summit, which we gained at 11.30. Freshfield had suggested that the view from the peak would probably settle our plan of campaign for the remainder of our work in the district. But unfortunately, though we remained on the top for more than 2 hrs., we were unable, in consequence of the prevalence of clouds, to see much of the surrounding mountains. We convinced ourselves, however, that the peak we afterwards climbed (Skatikom Choch) was the highest of the group, the double-headed peak near it being probably the second in height, and we judged that these peaks could probably be gained by traversing the snow-field at their base, working first E. and then N. We did not leave the summit till 2.5 P.M., and again varying our route we descended to a depression in the eastern ridge of the mountain, and reached our tent at 5.55.

THE ASCENT OF SKATIKOM CHOCH.—The 24th was a cold, dull day, but the 25th was magnificently fine.

August 26.—We started from our camp at 12.30 A.M., and gained the watershed at the point we had crossed on our descent from Boordooil at 5.5. Thence across a large snow-field and over rocks to the huge basin of névé lying under the double-headed peak of Mr. Fresh-

* It appears to have been S. Sella's. See p. 319.

field's map,* and up the ice-fall to the S.E. arête of our peak. There is nothing striking in the form of this mountain, and there is very little of interest in its ascent. Whilst we were on the top we obtained a view of the tops of all the mountains of the group, with the exception of one lying near and to the E. of us which was in clouds. Our former judgment that we had selected the highest peak of the group, was again confirmed. By the clinometer we ascertained that all the others were below us, we being above the mist by which one was obscured. But the lower parts of all were in mist, so that we could see nothing of the glacier systems of this interesting district. The top was gained at 12.50. On descending we circumvented the rocks we had crossed in the morning, turning to the right when we reached the plateau at the base of the ice-fall, but owing to numerous crevasses our journey was much delayed, and we did not reach the tent till 9 P.M.

Having decided to move westwards, we sent Merun on his own horse on the morning of the 28th in search of horses or men to carry the baggage. He failed to secure either. So we packed everything on one horse and descended to the valley. Here we spent the night in a most picturesque position. The next morning we obtained horses from Chiure, and were able to reach Gebi on the afternoon of the same day.

August 30.—We left Gebi for Lashkete, expecting, from the information given us by the natives, to accomplish the journey in little more than a day. The journey was full of incident, but we did not reach our destination till the morning of September 2, and were, of course, detained for hours waiting for horses. We got off late in the afternoon, and having crossed the Latpari Pass, reached Kal on the afternoon of September 3.

September 4.—The night we spent in a kosh about 3 hrs. up the Kalde Valley, intending the next morning to attempt Janga from the S.

AN ATTEMPT ON JANGA (ca. 16,900 feet). *September 5.*—We started at 3.20, crossed the snout of the glacier, descending from Janga, and gained at 6.55 the foot of what, at a distance and seen end on, had the appearance of a huge buttress of rocks leading to the summit of the mountain. It proved to be an arête, with numerous gendarmes, which, at the height of perhaps 13,500 to 14,000 feet, turned sharply in a westerly direction almost at right angles to the lower part. Up this we worked: then we had to descend to the head of the glacier which flowed down between the arête and the head of the mountain. At last we found ourselves on the face of the mountain. We worked up rocks till five in the afternoon. We calculated we had still two hours' work before us, as there were steep and difficult rocks to be surmounted ere we reached the final slope of ice or snow. Most reluctantly we concluded that the only prudent course was to abandon the climb. We were soon benighted, spent the greater part of the night in descending by lantern-light, and at very considerable risk, the rocks we had easily

* See *Alpine Journal*, vol. xiv. p. 453.

climbed by daylight, and rejoined the kosh at 11 A.M., and our tent at Kal at 6 P.M. on the 6th.

September 7.—In the afternoon we left Kal for Betsho, where we arrived on the evening of the 8th. The weather was unsettled on the 9th, but on the 10th we removed our camp to a ground about a mile above Mezeri and slept out in a kosh on the west side of the northern arête of Ushba, hoping to be able to try the ascent of the mountain by the north arête the next day. We made a start in the morning, but after a couple of hours' work concluded it was absolutely impossible to complete the ascent and return to the camp, or even to the kosh, in one day. I was under the necessity of leaving on the morning of the 12th, so we were compelled to abandon the excursion. I left the camp on the evening of the 12th, and reached Kutais at eight on the morning of the 15th. Cockin remained a few days after my departure, but, experiencing bad weather, was unable to complete the climb of Ushba by the north arête, or do any further mountaineering work.

H. W. HOLDER.

Signor V. Sella—who returned to the Caucasus this year with some Italians to serve as porters for his photographic apparatus, but no guide—has sent to Mr. D. Freshfield, under date 'Batoum, October 12,' the following very interesting account of his long and extensive campaign, the rich results of which will, we hope, form one of the attractions of our winter meeting:—

'After I wrote from Zenaga, in the Uruch Valley [letter not received—D. W. F.], I visited the ranges round the Karagam glacier, and took a panorama from the Gurdzi-vsek peak (13,500 feet), and another from a peak of 12,700 feet on the right (east) of the great glacier. At the end of July bad weather interfered with my work. Then I went to Styr Digor; climbed a peak N. of the village (12,400 feet) and took a panorama; crossed the Stulie-vsek, photographing on the way. South of Karaoul I got views from two points, and a large panorama from the higher, a ridge of 12,950 feet.

'I next crossed to Gebi by a pass W. of the Passi-Mta, called Shari-tau at Balkar, and Mashkapar at Gebi. I ascended Shoda and photographed the view.

'On August 30 I climbed Bordjula by the N.W. ridge, a difficult ascent. On the top I found traces of Messrs. Cockin and Holder's ascent of a few days before (from the south, I think). I saw also their tracks across the great platform of the Karagam glacier towards the highest peak of the Adai Khokh group, which looked to me easy. Did they ascend it?*

'I failed to secure photographs of the panorama from the top of Bordjula owing to light mists floating up from the Karagam. I could only obtain indifferent views W. of Shkara and the Goribolo. I had this year to put up with much fatigue and disappointment, of which the weather gave me full measure.

'From Gebi I crossed to Suanetia, by Goribolo, Lapuri, Leshkikilo Pass, Scesqua and Scena valleys. This savage route was

* See p. 318.

very difficult for the horses, but offered me beautiful views in the forest. I took a panorama of the southern face of Shkara from a point (10,500 ft.) above Ushkul, and several views from the ridge between Adish and Kalde. In the Adish glen I found M. Jukoff's camp: he was absent, but I left him your message.

'I then climbed a peak of 12,650 ft. between Mujal and the Mestia glacier, and obtained a panorama and some large views.

'Next I photographed Ushba from ten different and beautiful points of view, and took about a hundred views in the valleys and villages, many of them instantaneous, and, I hope, likely to prove interesting as illustrations of the Caucasus.

'I risked to be imprisoned in Suanetia! I crossed the Latpari in bad weather with three feet of fresh snow on the pass. At Tiflis I met General Shdanof, who tells me the results of the new survey will be published within two years.

'I found travel in the Caucasus easier than last year. Suanetia in October is a wonder! At the end of November I shall send you a collection of photographs.'

V. SELLA.

Daghestan.

ON July 26 Mr. George Yeld and I left London *en route* for the Caucasus, taking with us, besides our own baggage, a tent, cooking-kit, and saddle bags, kindly lent by Mr. Hermann Woolley. After spending two days in Constantinople, we embarked by an Austrian Lloyd's steamer, calling at five ports on the Asia Minor coast of the Black Sea, and reached Batoum after an unusually long passage of five days.

At Trebizonde we experienced some difficulty with the authorities, because of some photographs taken by me. A short time before, the Erzeroum massacres had taken place, and all foreigners were eyed with suspicion. We were ordered back to the steamer under escort. At Batoum the Custom-house authorities were civil, allowing all our baggage to pass free of duty. We declared most of it had already paid duty. I found the Russian word 'stravo' (old) efficacious. At Tiflis we were delayed two days, procuring the necessary permit to visit the mountains. A telegram from Herr Radde, who was then at Borjom, to the Vice-Governor of the Caucasus, helped us materially.

The following is a brief diary of our tour:—

August 9.—We left Tiflis with Gerome Realini, of Tiflis, as our interpreter, and travelled by train to Evlak—a station on the Batoum-Baku Railway.

August 10.—Left Evlak at 10.30 A.M., and drove across the dusty steppe to Noncha, which was reached the same night.

August 11.—At 8 A.M. were visited by the Pristeff of Noucha, who had been advised of our journey by telegram from head-quarters. He was very courteous, and procured for us three Leaghians with five horses, natives of Kasi Jumak, who were returning to their country across the mountains. We engaged these men as far as Shin, and rode, escorted by a Cossack, to the village of Geinuk; slept in tent on the balcony of the house. Survey officer mapping this district; very hospitable.

August 12.—Proceeded to Shin, discharged the Lesghians, and, after much wrangling and delay, engaged three others with pack-horses. Started for the Salawat, or Shin Pass. Fine scenery; forest magnificent. Camped at 7,400 feet.

August 13.—Our intention in entering the district by this route was to climb an outlying peak of the Kurusch group, with a view to studying the mountains we hoped to explore—the five-verst map not intelligible. Peak of Salawat well to the E. of the pass. We were compelled to abandon the idea of climbing, being out of training, and also considerably out of condition, owing to the unpalatable food and hard travelling we had experienced. Spent the remainder of the day at ease. Purchased a sheep, and camped at the foot of pass on the N.E. side of the range, at 8,000 feet, close to the third caravanserai on this route, at the junction of the two torrents which descend from the two Salawat or Shin passes. Landscape very dreary, and entirely bare of vegetation; very steep grass slopes, with herds of horses, sheep, and goats—a startling contrast to the luxuriant scenery on the other side of the range.

August 14.—Wild and desolate valley to junction with the main valley leading to Ahti. No trees. Turned sharply to the right. Beautiful meadow, well watered—an oasis: just above the desolate village of Bursch, one hundred houses inhabited during the summer months by Lesghians. Crossed the torrent several times. Descended to village of Knoi. Scenery more interesting. Camped a little below the village at 5,700 feet. Dialect not understood by our Lesghians, but conversed in Turkish. Disturbance between our men and the villagers in the night—nothing serious.

August 15.—Continued the descent of the valley. Wild gorges. Tunnel. Turned up the side valley, which leads to Mesa. Difficult path. Wild ravines; torrent at great depth below. Horses performed great feats. Passed most curious earth pinnacles. Corn plots at Mesa good. Camped in bed of a lateral torrent of the main stream at 5,500 feet.

August 16.—Left Mesa, 100 houses, on our left by (in parts) difficult path to Echir, 50 houses. In one place the track was so bad that an ice-axe had to be used to make the passage practicable for the horses. Splendid view of Shalbruz (13,679 feet, five-verst map). After passing Echir the track was good. Pass to Kurush, 9,250 feet; glorious view of Basardjusi (14,722 feet, five-verst map). Fog bow. Descent in the dusk. Attacked by dogs. Camped in torrent bed, 7,750 feet.

August 17.—To Kurush; 700 houses, the Zermatt of this district, being situated between Shalbruz, Shah Dagh, and Basardjusi. Village council in session on open space outside village. Hospitably treated. In afternoon to camp under Shalbruz. Took with us a native hunter. Camp 9,500 feet.

August 18.—Ascended the point of Shalbruz, which is nearer Kurush; probably the one further away is slightly higher. Cairn on summit, other cairns about in every conceivable spot. Native hunter wished us to take a route by which we should certainly have failed to

climb the peak. Followed the route which we had previously marked out for ourselves. Top 11.20 A.M., 13,340 feet aneroid. Fine view. River Samur conspicuous. Saw the Caspian. Descended by a different way, in part over ice and snow to the 'shrine,' or 'church,' much frequented by Mahommedan pilgrims (at a height of 12,000 feet). Very curious place. Rocks red. Found shell fossils. Returned to camp 4.45 P.M.

August 19.—Botanised to camp under outer barrier of Shah Dagh (13,951 feet), facing S.W. Height, 9,800 feet. Ordered by secretary of Chief of Ahti to go down to Ahti and present ourselves before the authorities of Ahti. Did not carry out the order. Glorious views of the northern face of Basardjusi, streaming with glaciers; a huge cornice under the summit ridge.

August 20.—Ascended a peak in the ridge which runs from the eastern peak of Basardjusi towards Shah Dagh, called by the Kurush hunter, Kishin Dagh, 12,500 feet. Found a cairn on the summit. Mountain covered with what appeared to be volcanic ironstone. View interesting, topographically. Back at camp 2.10 P.M. Crossed pass to Kouba and Kutkashin. Kept to the right and camped opposite the route to Kutkashin at 8,940 feet. Three degrees of frost in the night inside the tent.

August 21.—Ravine by which we proposed to complete the tour of Basardjusi looked impassable for horses, a mere torrent gorge, filled up in some places with snow. Not marked on five-verst map. Found a feasible path. Passed pilgrims on the way to Shalbruz shrine. Got up by a fairly often-used track to a height of 11,600 feet on the south side of Basardjusi. We ran short of bread and overworked the horses, which resulted in a mutiny among the men. All put right by the gift of a sheep. Pitched tent in a little hollow above the track. A beautiful spring bubbled out of the mountain side a few feet below the tent platform. One of the men stayed with us, the other two and the interpreter went down to 10,000 feet to a little patch of grass (they were visited by twenty-five ibex next morning). Situation ideal, glorious evening. Views magnificent. No fire. Cold not great, 41 degrees Fah. in the tent, though it froze outside.

August 22.—Started at 5.30 on a glorious morning, leaving Ali in charge of the tent. Reached a ridge above the camp. Discussed route, whether we should descend to a large glacier below us, or climb the ridge to our left, which was full of rock towers. Decided for ridge as more interesting. One tower which we thought would take us a long time turned out much better than we expected. Cairns at 12,000 feet, and about 13,000 feet. Then snow began. A little step-cutting on ice. Ridge of snow-dome 700 feet long. Another snow-dome beyond is the actual summit. Reached it at 10.5 A.M. Height, by aneroid, 14,620 feet. Descended in a few minutes to rocks well seen from Kurush. No trace of a previous ascent. Built a small cairn. Returned quickly to camp. Found a horse had been sent up to carry down tent. Descended to the oasis at 10,000 feet. Mounted again to 11,300 feet pass to Bum (and Kutkashin). Descended to 9,100 feet, and camped under Basardjusi in narrow valley by the torrent.

August 23.—Descended valley, which soon narrowed to a gorge with room for nothing but the torrent. Were told we should have to cross the torrent twenty-eight times. Seemed to do nothing but jump or ford the streams. Had our mid-day meal in a beautiful little glade. Ferns with fronds 5 feet 8 inches long. Mehemet fell into torrent with one of cameras. Continued descent. Rain (hitherto we had had perfect weather). Rain increased in heaviness. Horses all through the day performed incredible feats. Up and down richly-wooded ridges. Splendid beech trees. Rank, heavy-smelling vegetation. Thunder storm. Everybody wet to the skin. Very hospitably received by *Yusbashi* in his new house at Samaroffka. Height, 4,050 feet.

August 24.—Fine view of Basardjusi high above the end of a valley, like Jungfrau from Interlaken. Rocks of peak covered with new snow. All grateful for our escape. Had we been three or four hours later we should have been prisoners in the forest, as it would have been impossible to cross the torrent. Rode *vid* Bum to Kutkashin. The inhabitants were Tartars and Armenians. Rich vegetation. Every other tree a fruit tree. Vines streaming from the tops of poplar and other large trees. Village market curious sight. Beautiful wooded hills. Left Kutkashin at 2.30 P.M. in a tree horse-carriage. Reached Chelibi at 6.15. Slept under a sort of large verandah of caravanserai. Mosquitoes.

August 25.—To Noucha. Mountains shrouded in cloud.

August 26.—To Evlak and Tiflis.

The programme of our intended tour to a further group of mountains in Daghestan was curtailed owing to the many delays we had hitherto experienced, and to the bad weather that had set in. We crossed the Dariel, *en route* for Moscow.

Some few photographs were taken, and plants collected.

G. P. BAKER.

ALPINE NOTES.

THE HÜHNERSTOCK.—On September 15, 1886, we made the first ascent of the Hühnerstock (3,348 mètres) in the Bernese Oberland.* A point somewhere close by was ascended on July 10, 1889, by Pfarrer Baumgartner, of Brienz, and some friends, but the details at first given did not state the route followed, mentioning only that a peak of 3,340 mètres had been climbed. Hence, in recording this ascent in these pages,† Mr. Coolidge, as Editor, inserted the following note, 3,110 having been unluckily misprinted for 3,310:—‘It is probable that this peak is identical with that marked 3,110 on the Siegfried map, for the 1886 party saw no point near the peak climbed by them which seemed to be as high as a point of 3,340 mètres.’

Pfarrer Baumgartner has now published ‡ an interesting account of

* *Alpine Journal*, vol. xiii. pp. 121, 309-313. † *Ibid.* xiv. p. 504.

‡ *S. A. C. Jahrbuch*, vol. xxv. pp. 126-141.

his expedition, while on p. 521 of the same volume the Editor has thought it well to insert a reproving—even discourteous—note. It is quite clear that Pfarrer Baumgartner's party did not climb the point 3,310 mètres, but a higher point on the S.W. ridge of the peak, somewhere between 3,310 and 3,348. The ascent was made by the W. arête (ours by the E. arête and N.E. face), and the appropriate name Hinter Hühnerstock has been given to it.

The point to which we wish to demur is the suggestion that this peak is very nearly, if not quite, as high as ours. Pfarrer Baumgartner himself marks it 'circa 3,340' on his sketch, while in the text he says (p. 127), it is 'about the same height,' and (p. 134) that though our peak (the cairn on which his party clearly saw) seemed to be higher than his, yet that this may have been an optical delusion, and that in any case the difference in height is 'very small' ('minime'). The Editor of the 'Jahrbuch,' in his summary of 'New Expeditions' (p. 520) boldly states that it is 'circa 3,348 mètres.'

Now we ourselves, and our two guides (young Christian Almer and his brother Rudolf), have a perfectly clear and distinct recollection of the fact that when on our top we saw no point close by which came anywhere near that on which we were seated. As may be seen in Mr. Gardiner's narrative, we were on the top for an hour in very clear weather, and thoroughly examined every ridge and face of the mountain to see if we could not discover a better way down than the very difficult one by which we had ascended. But a neighbouring pinnacle of even 3,340 mètres would have entirely blocked our view, and that most certainly was quite uninterrupted. Christian Almer, as well as Mr. Coolidge, has carefully read Pfarrer Baumgartner's article, and is quite certain on this point.

It would seem as if Pfarrer Baumgartner's point is a pinnacle on the S.W. ridge of the peak, which is somewhat higher than 3,310, and from which no doubt 3,348—some way off—might seem to be only slightly higher. On the other hand, from 3,348 such a pinnacle could not easily be distinguished from the others which abound on all the ridges of the peak, and would be practically invisible. We think that this is the explanation of Pfarrer Baumgartner's and Herr Wäber's misapprehension, which we desire to set right publicly in order to avoid future confusion. We are very pleased to find that the veteran Pfarrer of Brienz, who has so thoroughly explored the Grimsel-Urbachthal group, has visited this corner of the range, and confirms our impression of the great difficulty of reaching the Hühnerstock ridge from every side. It is certainly one of the most difficult ascents that we have, either of us, ever made.

W. A. B. COOLIDGE.

FREDERICK GARDINER.

VAL DE BAGNES.—The new Club hut built by the Geneva section of the S.A.C. on the Chanrion Alp was formally opened on August 24. We understand that it is very well situated and constructed, and that it is able to accommodate thirty or forty persons. We regret to hear of a gross piece of discourtesy which was offered to two well-known members of the Alpine Club, shortly before the opening of the

hut, by the member entrusted with the superintendence of the workmen. On August 13 Messrs. Coolidge and Gardiner, intending to ascend the Ruinette on the following day, went up to Chanrion. Knowing that the hut was nearly completed, they thought that they might not improbably be allowed to profit by it. Soon after passing the shepherd's hut they fell in with the person in question. The remainder of the story may be given in their own words:—'We naturally explained our wishes to him, but were met by a torrent of abuse, couched in the most violent language. As we had only asked to be allowed to sleep in a corner of the hut, and to have the use of a saucepan and some blankets (we had provisions with us), we could not at first understand the meaning of this outburst. Finally it turned out that no one, except officials and workmen, was permitted to sleep in the hut till its formal inauguration on August 24. This regulation surprised us considerably, as we both had frequently had occasion to sleep in unfinished Club huts before they were formally inaugurated; but we of course admitted the right of the Geneva section to make such a regulation, however absurd it appeared to us, and withdrew to the shepherd's hut after a protest against the violent language and gestures of which the Geneva official had made use towards us.

'An hour later we went up to the hut to see how it was getting on. The framework and roof were quite complete, and the outside seemed to be quite finished, the workmen being occupied in fitting up the interior. We again encountered the above-mentioned official, to whom we made our names known, and to whom we expressed our intention of making public our protest against his unmeasured language, while fully acknowledging that the section could lay down any regulations about its huts that it thought fit. Once more we were treated to an outburst of fury such as we have rarely seen. Soon after our return to the shepherd's hut we were visited by two of the colleagues of this enraged official. They came, not to make any apologies for his conduct, but to offer us some blankets for use in the shepherd's hut. This offer (made most courteously) we declined with thanks, on the ground that their colleague had made it impossible for us to have anything to do with him and his friends. We further made it clear to them that we never had any intention of forcing our way into the Club hut, as their colleague had somehow imagined; and wish to acknowledge the courtesy with which these two gentlemen made the best of a bad case. The result was that our party of five (two amateurs, two guides, and a porter) spent the night in the shepherd's hut, which had that day been vacated and stripped of its contents by its usual occupants. The night of August 13-14 was one succession of violent thunderstorms, accompanied by heavy rain. As we lay on some hay, covered with two thin blankets, and under a roof pierced with many holes, it was impossible not to feel a little envious of the four members of the Geneva section and their workmen, who were snugly quartered in a roomy hut, furnished with a complete *batterie de cuisine*, and possessing a very large number of perfectly new blankets. We desire, therefore, to record our protest, not so much against the alleged regulation of the Geneva section as against the discourteous and violent way in which this regu-

lation was made known to us. The regulation itself appears in the highest degree ridiculous when thus insisted on, and we feel sure that the Geneva section would have been ready to dispense with it under the circumstances of the case. But we wish to make it quite clear that our complaint is directed not so much against this absurd regulation, which it is quite within the competence of the section to make, as against the manner in which it was applied to us by the responsible official of the section.'

We feel sure that this conduct, so contrary to the spirit of *bonne camaraderie* which usually prevails in the Alps, cannot be justified by any instructions which can possibly have been given by the Geneva section, and that it will be entirely disavowed by them.

M. J. JANSSEN'S ASCENT OF MONT BLANC.—The 'Comptes Rendus de l'Académie des Sciences' (Tome cxi., No. 12, September 22, 1890) contains a communication from M. Janssen on his scientific ascent of Mont Blanc. The epithet is in every way suitable, for it was only by means of an ingenious sledge of special design that the ascent, which had a scientific object as its main purpose, was effected. The Academy, as a foot note informs readers, decided to print the communication in full, although the length greatly exceeded the prescribed six pages. From this special mark of distinction two conclusions may be drawn: one, that the paper was considered of special interest and value; the other, that an account of a mountain expedition has received the official stamp of the Académie des Sciences as admissible within the pale of scientific communications. For the—shall we say gymnastic?—portion of the account occupies some ten pages, and the scientific about one-half of that space. The principle of this proportion has long been adopted in the 'Alpine Journal;' at any rate the records of scientific observations seemed hitherto to have been indubitably less copious than those of mountain adventure. Yet the Alpine Club may take heart. It is not so often agreeable to see ourselves as others see us. We have been more scientific than we imagined. Even so was M. Jourdain surprised to learn—but I fancy this comparison has been utilised already.

There was no lack of determination on M. Janssen's part, and everything seems to have been done to make the expedition a success. Twenty-two guides and porters started from Chamonix, and went as far as the Cabane des Bosses. There the weather broke, and the party were forced to remain from the evening of the 18th to the morning of the 22nd of August. Ten of the porters went back to Chamonix during the interval, but the remaining twelve stuck to their work, and conveyed M. Janssen triumphantly to the summit. The descent to Chamonix was also effected without misadventure.

M. Janssen's principal scientific object was to determine, by means of spectroscopic observations, the presence or absence of oxygen in the solar atmosphere. The results of a journey to the Grands Mulets in 1888 (alluded to in terms dimly suggesting a now famous description of an ascent of Mont Blanc as 'à la fin d'octobre j'avais entrepris l'ascension du Mont Blanc jusqu'à la cabane dite des Grands-Mulets') had led him to suspect the probable absence of oxygen, and it was

necessary to ascend to a known height above the Grands Mulets to extend and repeat the observations. At the higher station the action of the terrestrial atmosphere on the spectrum would be diminished in a known degree when compared with observations taken at the lower station, on the Eiffel Tower and the observatory at Meudon. Briefly, M. Janssen considers it an established fact ('une vérité qui est définitivement acquise'), from his observations, that oxygen is absent from the solar atmosphere. Physicists may or may not agree as to the sufficiency of proof, but no doubt the contribution to the settlement of a most important and difficult question—one affecting the very existence of life on our planet—is very valuable.

The limited space of the cabane, and the absence of special instruments or arrangements for simultaneous observations in other places, prevented any conclusion of value from being drawn as to the probable origin, force, and track of the violent gale of August 19, which kept the party imprisoned. M. Janssen concludes that the force and rate of the gale, when at its height, was far less than that of the destructive cyclone at Hong-Kong in 1874 in which he was overtaken while on a voyage to Japan. Notwithstanding the violence and persistence of the storm, the party seem to have suffered no great inconvenience, owing to the skilful construction of the cabane and the wise forethought shown in providing for all emergencies.

Of particular interest are M. Janssen's remarks on the physiological effects noted at the cabane and on the summit, for, as he observes, no previous traveller, in all probability, had ever ascended Mont Blanc without any physical exertion on his own part. He fully confirms the opinions that are generally entertained by travellers. At the cabane a disinclination for much sleep and increased activity of mind were noticed. Such conditions were entirely explicable by the circumstances of the expedition, and not due necessarily in any way to the elevation. On the summit M. Janssen found himself in full possession of his intellectual powers, and was able to carry through his scientific task without the smallest difficulty or fatigue. From this fact he concludes that the trouble De Saussure and others experienced in working at the summit was due to physical exhaustion. Mere climbers had found this out before. Precisely the same conclusion has been stated over and over again in the pages of the 'Alpine Journal,' and in discussions at the Club meetings on the same point speakers have practically always agreed that the question is merely one of 'condition.' M. Janssen is, however, altogether in error in the supposition 'que je suis le seul qui ait joui, dans cette circonstance, de l'intégrité de mes forces intellectuelles.' Can he have forgotten M. Loppé's remarkable studies of a sunset from the same point? I have many times seen the late W. F. Donkin set to work with his camera the moment he had arrived at a summit, looking after every detail as minutely and perfectly as if he were in a studio, or take boiling-point observations. Indeed, I have seen him do this in the Caucasus at a higher elevation than the summit of Mont Blanc. Elbruz, again, is more than half a mile higher than Mont Blanc, and the conditions of access are enormously more exacting. It is as trying

to set up, focus, and attend to all details in taking a panoramic series of photographs as to take spectroscopic observations. Signor V. Sella, however, succeeded to perfection in so doing on Elbruz. The fact is that mountain sickness is a malady now almost out of date.

M. Janssen expresses the hope that an observatory may, before long, be built on or near the summit of Mont Blanc. Such things may come, no doubt. A cemetery seems for the moment to be more called for on most of the mountains. It will be easier to raise subscriptions to construct a restaurant on the top of the Jungfrau than a place for scientific observations on the highest point of French soil.

C. T. DENT.

M. VALLOT'S CABIN ON MONT BLANC.—M. Vallot, whose long sojourn and observations on the top of Mont Blanc two years ago attracted much interest,* has conferred a boon on all who desire to pursue scientific inquiries on the highest point in Central Europe, and has also done much to protect the ordinary tourist from the only real danger—that of sudden bad weather—of the Chamonix route, by causing to be erected on the rocks on the ridge, under the Bosses, and at about the level of the top of the Dôme du Gouter, a substantial shelter. The transport of the new hut was provided by the Bureau des Guides. It consists of two rooms, one for ordinary travellers, the second reserved for the storage of instruments and the use of observers. The traveller's room is warmed by an oil-stove, and well furnished with rugs. The building is a wooden framework with loose stone walls piled round it, and the roof is well furnished with lightning conductors. It is a short hour and a half from the top of Mont Blanc. One of the first to use the new hut was M. Janssen, of the Institute, and President of the French Alpine Club, who, being lame, was dragged to the summit of Mont Blanc on a sledge.

M. Janssen proposes early next year to erect a cabin at the Grands Mulets, more suited for scientific workers than the present crowded and disordered hut. The materials are already at Chamonix.

D. W. F.

GROSS GRÜNHORN (13,278 FEET) FROM CONCORDIA HÜTTE.—On August 8 Mr. R. A. Eskrigge and I, with Heinrich and Johann Zurflüh, made the ascent of the Gross Grünhorn from the Concordia. Leaving the hut at 2.30, we made straight for the rocks of the Grüneck, and turning round them sharply to the right, took to the maze of crevasses at the bottom of the Ewig Schnee Feld. Once clear of these, we went on nearly parallel to the ridge of the Grüneckhorn—at first on a sort of causeway, well marked on the Siegfried map, from which the glacier dips at each side; afterwards up steep snow-slopes—and at about 4.50 we were under the peak of the Grüneckhorn. From this point we worked gradually to the right, crossing some fine schruns with little difficulty, till we had the Grünhorn in front of us. The ascent was completed by going up the snow to a notch in the south-west arête,† and climbing along rocks to the top,

* See *Ann. du C. Alp. Français*, vol. xv. p. 22,259.

† [From this point the route seems to be identical with that taken in the two previously recorded ascents. See *Alpine Journal*, vol. xiii. p. 121.]

which was reached at 7.15. The descent to the hut took two hours and ten minutes, and it would have been materially shorter if the crevasses at the bottom had not by this time got into a state which demanded very great care. Higher up the glissading was splendid. The expedition occupied seven hours and twenty-five minutes, including one halt on the ascent, and half an hour spent at the top. It was hurried somewhat on account of the difficulty of passing the crevasses after the sun had been long on them. The view from the top is magnificent, as the mountain seems to stand in a ring-fence.

C. E. FREEMAN.

ON July 23 last Miss Pasteur, Miss Mary Pasteur, Messrs. Charles Pasteur, and Claude Wilson, with Auguste Cupelin, ascended and crossed the southernmost of the three main points on the ridge connecting the aiguilles 'Verte' and 'du Moine.' To distinguish this peak from its neighbours it is proposed, on account of its proximity to the Moine, to call it 'La Nonne.'

Leaving the Montanvers at 3.45, the summit was reached at 1.30, the route taken being by the couloir to the N. of the Moine and the rocks on its left, the last few hundred feet proving decidedly difficult. Descending towards the 'Jardin,' but little difficulty was experienced till within three or four hundred feet of the snow, when the broken rocks gave place to a smooth glacier-worn wall, the descent of which was effected by a very steep and narrow chimney, situated almost vertically below the summit, and terminating in a platform some thirty or forty feet above the snow, which was reached at 5 o'clock by means of a traverse to the S. The party regained the Montanvers at 8 P.M.

THURWIESER SPITZE (3,648 mètres=11,965 feet).—On September 16 Herr Bäckmann, of St. Petersburg, with Alois Pinggera and Alois Kuntner, of Sulden, succeeded in traversing the narrow edge which joins this peak to the Trafoier Eiswand. The passage from one summit to the other occupied four hours, and seems to have presented serious difficulties at two points only—viz. the descent from the Eiswand to the ridge, and the final climb from this to the peak of the Thurwieser.

ROCKY MOUNTAINS.—We learn that Herren Huber and Sulzer, of the S. A. C., have succeeded in reaching the summit of Mount Sir Donald.

A CIRCULAR RAINBOW.—Mrs. Main writes: 'On September 30, Theophil Boss and I, with Ulrich Kaufmann and Jossi, went up the Finsteraarhorn. When within twenty minutes or so of the top, one of the guides suddenly called our attention to a rainbow, which formed a complete circle. It lay like a ring on the clouds which hung over the Grimsel side of the Finsteraarjoch, and seemed about 3,000 feet below us. The time was 10.30 A.M.' She adds that the phenomenon remained in view for about an hour. Both the primary and the secondary bows were visible, the colours in the former being very vivid. It is described as subtending about the same angle as a penny piece, held a yard from the eye. No rain fell either before or after, though the weather at one time had seemed threatening. A similar phenomenon is said to have been more than once observed on the Faulhorn.

THE PELVO D'ELVA.—The few English travellers who have visited the ranges around Monte Viso cannot fail to have been struck by a rocky point which rises just south of Castel Delfino, and seems a natural belvedere. But no doubt the greater point has overshadowed the lower, and hence the Pelvo d'Elva is unknown to the travelling public. Mr. Ball's allusion * to the Pelvo d'Elva leaves it uncertain whether he went up it. Even in Signori Martelli and Vaccarone's great 'Guida delle Alpi Occidentali' (i. 115) two lines of small type are thought sufficient for a mountain which ought to be well known to Italian climbers at least. Signor Vaccarone in his 'Statistica delle Prime Ascensioni' (3rd edition, No. 111) tells us that Captain Cossato, of the Sardinian Etat Major, made the first ascent in 1836 from the Bellino side, and he doubtless built the great cairn which now crowns it. The new Italian map fixes its height at 3,064 metres (= 10,053 feet). That was all the information which I could collect as regards a mountain which had interested me for some years. Excessive heat prevented me from going up it in September 1879, when I crossed the Colle della Bicocca, and it was not till the summer of 1890 that I was able to carry out my project.

As in 1879, the weather was very fine, and appallingly hot. On June 24 young Christian Almer and I arrived at Castel Delfino, over the mountains, and next day took a rest, as the amazing amount of snow had made our previous day's walk very laborious. The morning of June 26 was cloudless, though the natives were panting with heat and praying for rain, and so we started off for the Colle della Bicocca. And here I must confess that this col thoroughly beats me. I can neither understand the printed descriptions of it nor can I describe how I reached it. But I am sure that our way was not the right way, as it consisted mainly of hauling oneself up by the roots of trees, an amusing pursuit no doubt, but one not recommended on a blazing hot day. I fancy the right path—mules traverse the col—starts from the village of Bellino. However, in rather under 3 hrs. we overcame the 3,000 feet odd which separate Castel Delfino and the col, and lay panting on the grassy ridge, watching a whole crowd of people who had come up from the other side to collect wood to which they have no legal right. The Viso towered opposite, perfectly clear, but loaded with snow to an extent which was simply amazing, while all around rose familiar peaks and passes disfigured by the same belated snow. Our peak rose grandly to the S.W. An easy ridge seemed to lead straight towards it, and we reckoned that an hour and a half would suffice to climb the 2,625 feet remaining. No doubt it ought to have sufficed; but it did not. The ridge was far longer than it seemed, and the heat seemed to increase instead of diminishing. We passed several entrenchments and one watchman's hut, all relics of the days preceding the Treaty of Utrecht in 1713, by which Castel Delfino ceased to be part of Dauphiné, and became Piedmontese. It took us, indeed, an hour and a half to reach the base of the peak, which from the col had seemed quite near! Then out of sheer perversity we resolved to climb up by

* *Guide to the Western Alps*, p. 14.

the steep and rocky N.E. arête, though finally at the end we were forced on to the easy E. face. The heat was maddening, and no water was to be had, except what came from some melting snow. In this way we took 2 hrs. from the base of the peak, or $3\frac{1}{2}$ hrs. from the col, so that our ascent will certainly rank as the most leisurely on record.

But our toil and trouble were amply rewarded, though the plains were shrouded in mist, and light clouds floated around. All the Maritime and Cottian Alps lay unrolled before us, while Castel Delfino lay at our feet. It was rather hard to identify old friends in their thick mantle of snow, but we soon managed to pick them out. In fact, the Pelvo d'Elva is an ideal view point whence to study these little-known ranges, while on a clear day the plains must be very well seen. The scene is thoroughly Italian, and yet Alpine at the same time; and, if only one could have been impervious to heat, this excursion, which I heartily recommend to all travellers who find themselves at Castel Delfino, would have left none but the pleasantest recollections. We went back to the col in 1 hr. 35 min. by the proper way down the E. face, and in 1 hr. 35 min. more—by forest paths, but once more not the usual route—regained the quaint and very Italian Albergo di Francia, where hospitable M. and Madame Richard did all they could to make us comfortable during our three days' stay. I hope that some of my readers may enjoy as fine a view from the Pelvo as we did, and that they will not suffer so much from the heat.

W. A. B. COOLIDGE.

THE CHARTREUSE DU REPOSOIR.—I do not know that any traveller has described a visit to this large Carthusian house, 2 hrs. distant from Cluses, since De Saussure told the world how his party frightened the brothers, who believed them to be brigands descending from the mountains. Yet it is worth a visit in itself, and the scenery of the glen in which it lies is very pleasing. The ascent of the peak of the Pointe Percée from this side is more troublesome than from Sallanches, for it is protected by a great limestone 'desert' it is hard to evade. The best general direction that can be given is to strike the ridge that divides the glen of the Reposoir and the valley of Le Grand Bornand as high as possible and then make for the gully in the cliffs which lies W. of it. When this becomes precipitous it is not difficult to climb the rocks under the N.W. ridge of the peak, on which a few yards beyond the point at which the route from Sallanches I have described in these pages * crosses that ridge, the two routes join. Inexperienced travellers should not attempt the mountain without local knowledge, as the rocks are steep, and a slight deviation from the narrow track might lead them into danger. There is a homely inn at the hamlet near the Reposoir. As an alternative to the direct descent to Sallanches I can recommend the walk round the slopes through Cordon and Comblaux to St. Gervais.

D. W. F.

COUTTET *DIT* BAGUETTE.—As we go to press the news arrives of the death of this well-known member of the Chamonix community, under whose roof many generations of mountaineers have lodged. A fuller notice of him will appear in the February number.

* Vol. xii. p. 148.

JEAN-ANTOINE CARREL AND THE GORRETS, IN 1865 AND 1890.—It is noticeable not only that Carrel should have died on the Matterhorn, but also that Signor Sinigaglia's other guide on that mountain this last summer should bear the name of Gorret. After Carrel and Maquignaz had failed, along with Signor Giordano and Signor Sella, on July 15, 1865, in their attempt to reach the summit, the Abbé Amé Gorret, who was at Breuil when the party returned, was the only man at once prepared to second the (well-remembered) determination immediately arrived at by Carrel—to try again; and it was an act of no small self-sacrifice on the part of the Abbé—the strongest of the party of four—three days later, when he remained behind with Meynet on the top of 'a gullet with perpendicular sides,' only a short distance below the long-coveted goal. From this point Carrel and Bich were let down, and on their return from the summit were hauled up again by Gorret and Meynet. Such are some of the incidents connected with the first ascent of the great peak from Val Tournanche. And it fell to the lot of Charles Gorret to minister, twenty-five years later, to the famous Italian guide in his last moments before dying on the mountain which he loved so well. It was not until after he had received the best care his companions could give him that Carrel succumbed to cold. The Gorrets are a chivalrous race.

F. T. WETHERED.

P.S.—I shall never forget the great instinct for rockwork of which Carrel gave evidence when he led me to the summit of the Dent Blanche in 1876—a mountain on which neither he himself nor any of our party of three had ever been previously.—F. T. W.

ANNUAL GENERAL MEETING AND WINTER DINNER.—The Annual General Meeting of the Alpine Club will be held at the Club Rooms on the evening of Monday, December 15. The Picture Exhibition and Winter Dinner will take place at the Whitehall Rooms, Hôtel Métropole, on the afternoon and evening of Tuesday, December 16. Loans of pictures, photographs, and mountaineering appliances will be gladly welcomed, and it is requested that all communications relating to such loans may be sent as early as possible to the Honorary Secretary of the Club, F. O. Schuster, Esq., 50 Belsize Square, South Hampstead, N.W.

Errata in August Number.

- Page 197, line 8 from bottom, *for* 'Besioch Pass' *read* 'Bles Joch';
 and in the following line *for* 'de Diablons' *read* 'des D.'
 Page 229, line 26, *for* 'Forster' *read* 'Foster.'
 " 229, " 37, *for* 'The First Passage' *read* Mr. Moore's 'Passage.'
 " 230, " 13, *for* 'Trudière' *read* 'Frudière'; and *for* 'ft.' *read* 'mètres.'

Further List of Subscribers to the BALL GUARANTEE FUND.

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THE CARREL FUND.

(FIRST LIST.)

Up to and including November 5.

IN RESPONSE to an appeal which was made in the *Daily Graphic* September 20, 1890, on behalf of the family of Jean-Antoine Carrel, who perished on the Matterhorn, on August 25, from cold, want of food, and exhaustion, we have received the following sums:—

	£	s.	d.		£	s.	d.
'A Poor but Interested Reader of the <i>Daily Graphic</i> '	0	1	0	Clinton T. Dent, Esq.	2	2	0
E. C. B.	0	2	6	M. H. W. Devenish, Esq., per A. Williams, Esq.	0	10	0
'A Sympathiser'	0	2	6	J. Eccles, Esq.	5	0	0
A Friend, per J. A. Stuart, Esq.	0	3	0	G. E. Foster, Esq.	2	2	0
'Nemo'	0	5	0	J. H. Fox, Esq.	2	2	0
'Twelve Mancunians'	3	0	0	C. E. Freeman, Esq.	4	0	0
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				T. O. Wethered, Esq.	0	10	0
Per the Rev. F. T. Wethered				Rev. E. C. Wickham	1	0	0
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W. T. Bloxam, Esq.	0	10	0	Total	292	2	6
Rev. C. F. Floyd	0	5	0				

Cheques or postal-orders may be sent to either of us, made payable to our order, and should be crossed, 'London and County Bank, pay to the account of the Carrel Fund.'

C. E. MATHEWS,
29 Waterloo Street, Birmingham.

EDWARD WHYMPER,
29 Ludgate Hill, E.C.

THE
ALPINE JOURNAL.

FEBRUARY 1891.

(No. 111.)

TWO PEAKS AND A CENTRE.

BY J. H. WICKS.

(Read before the Alpine Club, February 3, 1891.)

YEAR by year it becomes more and more difficult to write papers on mountaineering in the Alps which can have any general interest for the members of this Club; yet that such papers must not cease is, I think, admitted by all.

It is, however, with a considerable amount of diffidence that I propose to tell you of one new climb—the Pic Sans Nom. But, as this in itself hardly affords sufficient material, my difficulty is not at an end. The only plan I can suggest, and which I intend to adopt, is to preface it by a description, to a certain extent in detail, but not at too great length, of some expedition which, though it has been recorded, has not received any further notice in the pages of the 'Alpine Journal.' For my first subject, therefore, I have selected Les Périades, since I think it deserves to be better known than it is; and, in conclusion, I have added some remarks on climbing generally from the 'centrist's' point of view.

Our party last season consisted of Morse, Carr, and myself. We were climbing without guides, and chose the Montanvers as our centre, partly because Morse and I knew the surrounding district well and we wished to have as many points in our favour as possible, but principally because the chain of Mont Blanc was more attractive to us than any other.

Les Périades.

Early in our programme we decided to cross Les Périades. The ascent from west had never, to our knowledge, been

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described, though it had been recorded.* The rock-climbing was said to be very good; the descent would be over the much crevassed Glacier du Mont Mallet, one of the most beautiful in the Alps, and it would be eminently good practice.

Starting from the Montanvers at 3.25 A.M., we passed the Tacul Lake, and mounting the slopes on our left towards the Glacier des Périades, halted at 5.40 for breakfast at what we expected would prove to be the last water; leaving this at 6.10, we reached the glacier in a quarter of an hour, and managed to waste twenty minutes putting on our gaiters and the rope. The glacier was very hard, and wherever the inclination was at all steep we had to nick steps in the snow; however we mounted fairly rapidly towards the Col du Tacul, between the Pic du Tacul and Les Périades, but before arriving opposite the couloir running up towards the latter we turned sharply to our right—i.e. to the south—and crossed the schrund at 8.25. Thence the slope was very steep, the hard-frozen snow was thin, and Carr cut soup-plates in the solid ice beneath—greatly to my discomfort, since I was last on the rope, and most of the ice which was cut out went down my neck or otherwise annoyed me. It was 10.5 before we reached the first rocks, although ten minutes would probably have been sufficient had we been able to ascend by kicking steps in snow only. We had next to traverse to the left along the rocks, or just below them on the hard and steep slope. Still we thought there was plenty of time, so we spent forty-five minutes in a second meal, and, having changed ends, commenced the traverse. Finding ice on the rocks, we cut steps the whole way along the upper part of the slope and across a very steep ice-plastered gully (requiring great care) which joined the couloir before referred to below us. We then took to the rocks, and made a course up these in the direction (south-east) of the summit. After about twenty minutes over rotten stuff we enjoyed a really good climb on sound, hard grey rocks, just difficult enough to be thoroughly enjoyable. One corner and two chimneys I shall long remember. Too soon these grey rocks gave place to enormous slabs of red granite, quite vertical and without the slightest hold for hands or feet; so we were forced on the arête just where the grey and red rocks meet, and from thence, keeping occasionally below and on the east side of the arête, had a good scramble to the top. As a matter of fact the tops of the red slabs to which I have referred form

* *Alpine Journal*, vol. xi. p. 362.

the upper portion of the arête; below them on the east all is, I think, quite easy, but climbing in and out of them, as we did, is very good fun, though it would probably be quicker to keep lower down. We reached the top at 3.30, well pleased with our scramble, but sorry to find clouds gathering over the Léchaud and Mont Mallet Glaciers. On our arrival we carefully determined the point at which we would leave the rocks and take to the glacier; and, after a rest of twenty minutes, which included light refreshment, we left at 3.50 in a thick mist. The rocks were easy, and, going quickly, we reached the stones on the Léchaud Glacier, at the foot of the Glacier du Capucin, at 6. Wet gaiters were taken off, the rope done up, and pipes lit, and at 6.30 we left for the Montanvers, where we arrived at 8. I might here mention that if we had taken to the arête as quickly as possible after striking the main rocks of the peak, the ascent would have been much more rapid, but not nearly so interesting.

This is a climb I would thoroughly recommend. In ascending, the rock-work can be varied from easy to difficult, according to the taste of each individual. The descent is rapid considering the distance covered; it took us 3 hrs. 40 min. actual going, no running. The view from the top is very similar to that seen from the deservedly popular Pic du Tacul, and what may be lost in one direction is probably more than compensated for by the greater proximity of the Grandes Jorasses and Géant, and by the complete view, which should be visible, of the beautiful Glacier du Mont Mallet, which is only to be seen properly in this expedition and in the ascent of one of the Rochefort peaks or of the Mont Mallet itself.

The Pic Sans Nom.

The Pic Sans Nom is probably well known to all who have ascended the Aiguille du Dru as being that sharp rock needle on the ridge which connects the Dru with the western buttress of the Aiguille Verte, which buttress is called at the Montanvers the Aiguille Sans Nom. Morse had unsuccessfully tried it with Ulrich and Hans Almer on two occasions during the previous year, and the plans we made before leaving England included a further attempt, combined with a determination to succeed. On our first venture we started from the Montanvers at 1.20 A.M., and, after breakfasting, left the upper *gîte* on the Charpoua Glacier at 5.45 with ominous signs of bad weather. Following the usual route for the Aiguille du Dru, we had to nick steps in the

snow all across the glacier to the lower bergschrund, and then, bearing more to our right (N.E.), the slope becoming steep, regular steps had to be cut in very hard snow. Four hundred and fifty of these landed us about a hundred feet up the couloir which leads to the gap between the Pic and Aiguille Sans Nom, but the time—9.45—startled us considerably; and the weather having kindly made up its mind to be thoroughly bad, we felt no compunction in returning, though had this not been the case we must have suffered defeat from want of time. From about noon it snowed constantly for two whole days and nights.

Benefiting by this experience, we decided, on our next trial, to sleep at the lower *gîte*, the upper one being full of ice and snow. Leaving this on July 28 at 2.20 A.M., we reached the upper *gîte* at 3.35—very slow going, but the smooth rocks were far from easy to pass over with a lantern. Ten minutes were spent in putting on the rope, and at 5.55 we reached our former turning-point, where we had a good meal, and left at 6.30. Carr, as usual, began cutting steps up the couloir—by the way, Carr seemed to love step-cutting—so Morse and I went on our way rejoicing, thinking all the while what a grind step-cutting was, and how marvellously well Carr did it. The rocks on the left we knew, from Morse's experience of last year, were even worse than the ice, as they are exceedingly difficult, and, with Almer leading, they were four and a half hours reaching the gap. There was nothing to relieve the monotony—especially in my case, as it was my turn to be in the middle of the rope, whilst the others changed ends more than once. The higher we got the harder was the ice and the slower our progress; however the end did come at last, and at 11.10 we reached the gap or col—if anyone may call it by such a name (though I certainly very much doubt whether anyone will ever attempt to cross it)—after fully five hours of continuous step-cutting, as we had about half an hour of it before reaching the breakfast place. We turned sharp to the left, and began rather to come back up the arête, which is very steep indeed; but after going a few feet we sat down to lunch—that is, Carr sat on a very convenient stone with his legs dangling over the couloir; I was perched on the top of a small pinnacle, and felt more at ease when I had hitched the rope round it; whilst Morse made himself comfortable by pressing his feet against the pinnacle and his shoulders against the main rock, and thus

supported the rest of his frame in mid-air, very much as though he had been hypnotised.

Starting again at 11.50 up some overhanging rocks, we were presently stopped by a perpendicular slab about twenty feet high, which had turned Morse and the two Almers the year before. To the right there was no route; straight up there were two cracks into which an axe could be fixed, but, inasmuch as they were six feet apart at the bottom and diverged still more on the way up, to about ten feet at the top, they were of no use for climbing purposes. To the left the rock ended abruptly, and the face of the mountain began again; up this there was luckily a slab about two inches thick, detached from the main mass, behind which it was possible to get one's hand. For the first few feet Morse went well, and got his hands on the top of the slab with a good hold; then Carr and I enjoyed ourselves for the next ten minutes by looking on approvingly whilst he got his feet where his hands were. It was so perpendicular that his length, generally so useful, seemed very much in the way; then another ten minutes went by and he had worked his head and hands back towards the top of the perpendicular rock we were standing under, and towards which he was aiming. 'Look out!' we heard, and the next second he was dangling right down the rock, holding on, as we afterwards found, to a narrow ledge some four or five inches wide, but very flat, which was the summit of the obnoxious difficulty. At the same moment I saw his axe, which he thought he had safely fixed above him, flying through the air, and just managed to touch the end of it with my hand. I missed fielding it, however, and it went for a good four in one bound some 300 feet below us into the couloir up which we had just come. A few wriggles and the leader was on his elbows, then on his knees, and, going up a little chimney higher still, he presently told us he was 'good' and wanted the spare rope. This was put round a very suitable rock and served for me to climb with, and I am bound to state that with Morse hauling at me in addition, as though I were a bale of goods, I went up like a lamplighter and found no difficulty whatever. There was still a straight bit in front of us, but we got on two small cracks on the Grands Montets side, then over a nasty overhanging rock to better going, and, after one more scramble up a gully with very little hand-hold, at 1.15 we reached the summit. This was in some ways disappointing, it being in reality a ridge something like the Géant in miniature, though in this case there is no

difference in height between the two ends. A big red rock, some ten feet high, overhangs the Charpoua Glacier, while the Glacier du Dru end—the one first arrived at—is formed by two upright points, and between these two ends there is a sort of snow col. We spent a long time enjoying the view and a bottle of Bouvier, with which on this occasion only we had burdened ourselves, and we were pleased to find that, as we had thought would be the case, we were higher from the Dru by some 70 to 100 feet. To our great astonishment we saw the Montanvers apparently just below us. How many times before must we have looked at the Pic from the hotel without knowing it—perhaps even when talking about it! We found the next day that, as a matter of fact, it is lost on the face of the Aiguille Sans Nom; and, although last season the small snow col was plainly visible to the naked eye, the glass was wanted for anyone at first to make out the rocks, except when, as occasionally happens, a cloud rolls through the gap at the top of the long couloir and thus forms a background. We came to the conclusion that to climb the Aiguille from the gap would prove to be a very tough job. Undoubtedly the proper way is to ascend from the Charpoua Glacier by the couloir taken by Mr. Mummery in his ascent of the Aiguille Verte, and turning to the left out of it, at a convenient height to strike the depression in the ridge between the two.

Soon after two we turned to descend. Three times we found the spare rope very useful as a banister, and at 3.20 we struck the col. The sun was very hot, and running water in the couloir had melted all our steps and made great care necessary; but we worked safely down to our well-known breakfasting place, which we reached at 5.50, having only been bothered with one falling stone and a few very small bits of ice. Here we had an interesting conversation with some friends who had been climbing the Dru, and who were still on the rocks. Amongst other things we informed them that we had a bottle of wine in reserve at the lower *gîte*, and that there would be a cup waiting for them there. At 6.30—exactly twelve hours after we had left in the morning—we continued the descent and reached our sleeping-place a little after sunset. We went for water, made a grand cup, stretched ourselves out on our blankets, smoked (even Carr had a cigarette), and waited for our friends, whom we had seen safely on the glacier; but they managed to pass us by some unknown route, and reached the hotel much astonished to hear that we had not yet arrived. In explanation I must

say that a bright moon had risen and no lantern was required till we were almost across the Mer de Glace and under the shadow of the Charmoz. We went quietly along and reached the hotel at 10.30.

This description, I think, shows that I cannot strongly recommend the climb of the Pic Sans Nom, except perhaps to those who have a partiality for long couloirs. The rocks at the top are difficult, and I question whether anyone not possessing a very long reach could manage the worst bit; its position is such that the leader cannot be helped in any way by the remainder of the party. The couloir will generally, I believe, be found to be ice. No doubt the best time to attack it would be soon after heavy snow, but then there would be the risk of finding the rocks coated with ice.

The time taken on this and many of our other expeditions may appear to have been unduly long, but the state of the mountains last season in some way accounts for this. During our stay at the Montanvers several ascents of the Dru were made, and I do not think any party returned before (and some were later than) 10 P.M.; but when the mountains were in fair condition our actual walking times do not compare unfavourably with orthodox expeditions, with perhaps one exception, and that is the end of the day's work. When rope and gaiters are discarded, wet and heavy, they are usually given to the guides to carry, but it is a very different matter when you have to carry them yourself. Instead of feeling liberated and freshened up by taking them off, you always know they have to go round your neck. Then, again, the halts for meals do, and I think must, take longer when you are without guides. We learnt to improve in this matter towards the end, but we could never get through a meal under twenty-five to thirty minutes even with hurrying. The reason is obvious: the guides eat less; they generally finish first, do up the sack, and are ready to start by the time the rest of the party has finished eating, whereas we had to pack up after finishing. The work in carrying, in step-cutting, and to a smaller extent in leading on difficult rocks is harder, and the brain is probably more actively at work; but, whatever may be the reason, the fact exists that longer rests are taken, or at all events were taken by us. One other cause may also be mentioned as having had something to do with this. A very excellent telescope had been given to me during the preceding winter; this I always carried, and after meals we all wanted to use it, to look out the best routes on other

peaks and to discover how our friends on other expeditions were progressing.

The Reflections of a 'Centrist.'

During the past year we have had interesting papers from Mr. W. M. Conway, full of new and strange epithets applied both to mountaineers and mountains. Now it is my object to show you, at all events to some extent, the other side of the picture he has so graphically drawn.

Without in any way laying claim to the title of a mountain climber as defined by Mr. Conway, I may state that the first year I visited Zermatt, which I imagine he considers the greatest of all centres, I left after sleeping there one night, the second year I stayed two nights, and the third year one night only. On all these occasions I arrived by a snow pass, and on two of them I left also by a snow pass. Having spent my four weeks or so in earlier days with nothing but a knapsack, going solely over passes, commencing in the Oberland, working my way round by the south of Monte Rosa to Zermatt, and so on to Chamonix by the high-level route, and having wandered thus for three seasons, I think he will acknowledge, and you will agree, that if I am now what he is pleased to call a 'centrist' I have given the every-night-change-of-bed and no-change-of-clothes plan a fair trial.

I consider the Alpine mountaineer (I refer to the Alps only) as a being vastly different from the mountain gymnast, and from the mountain climber described by Mr. Conway,* and, if we are to have the various types of mountaineers defined, let me at all events try to describe a better one. Let him learn his love for the mountains, his skill as a mountaineer, and his knowledge of the Alps as a whole by a long succession of passes, with, perhaps, here and there a peak thrown in, and then let him settle down and work out each district, by ascending its peaks and crossing those passes omitted in his earlier wanderings. Such a one may, and probably many do, regret immensely that they cannot afford the time or money requisite to visit other ranges more distant than the Alps; but he knows that he would be willing and able to bear the hardships of camp life, and treats with the scorn it deserves the insinuation that he confines his attention to the Alps solely because he cannot

* See p. 108.

climb a mountain unless he has a hut or an hotel from which to start, and to which he may return. Still he is so far civilised as to use these conveniences, when they do exist, in preference to sleeping out under a stone; he also pleads guilty to preferring, simply as a matter of choice, dry clothes and a clean shirt after a long day's expedition. He abominates such phrases as 'exhausted districts,' and 'the Alps are played out.' Some centres may have lost their charm for him, owing to railways and other recent innovations, but he knows that the mountains surrounding these can generally be ascended from some other head-quarters in a neighbouring valley. He realises fully the truth of those golden words used at a winter dinner some years ago by Mr. H. S. King, when he said that the first time anyone ascends a peak it is, to all intents and purposes, a first ascent for him, and he knows that he can increase his enjoyment by employing guides who have never made the ascent themselves, or perhaps even still further heighten it by climbing without guides. Notwithstanding this, he does not consider it waste of time to ascend the same mountains more than once, and he sometimes develops such an affection for certain peaks that he cannot be in their neighbourhood without again visiting their summits. Under such circumstances is it to be wondered at that he searches for a little novelty in ascending by new routes, even though those new routes may be longer or more difficult than the old ones? He enjoys climbs of all sorts, whether they be new or old, short or long, easy or difficult. On peaks, when it is possible, he prefers the ascent and descent being on different sides, but above all things the summit must be reached. Should he fail, through bad weather, want of time, or actual difficulty, he always tries again and again, never leaving off until he knows that it is difficulty alone which has conquered him; and even then he is never thoroughly happy, and vows that some other season he will succeed where he has so often failed before.

What a contrast this is to Mr. Conway's types! His mountain gymnast is nearly all bad, and his mountain climber, though he wanders far and wide, is narrow in his ideas, and not what I hope the majority of our members will develop into. Personally I am what he calls a centrist; my schoolboy days of restlessness are over, but I will not readily believe that anyone loves the mountains or mountaineering better than I do.

There are other centres in the Alps besides Zermatt and

Grindelwald—hundreds of them. A perfect centre, to my mind, should be situated near to mountains which are not too much climbed; the hotel may be large or small, but the pleasure of one's yearly holiday will be increased if it can be arranged for one or two other parties of friends to stay there at the same time, each bent on climbing, but independent of one's own climbing companions. Last year these advantages were all combined at the Montanvers, yet Mr. Conway tells us, with reference to this my chosen example, that on August 13 'everyone in the hotel was sick to death with the *ennui* that pervades all centres.'* I will only say that on that day Morse and I had to leave for England; but if such had not been the case there would have been at least two men left who would not have succumbed to the *ennui* which he describes, and on whom the glorious view of the Dru, Jorasses, and Géant could never pall.

Bad weather we must all be prepared for, but surely it is no worse at a centre than elsewhere; and let us hope that if, after a spell of it, we do start off to climb a 'first-rate' peak (horrid epithet!), we retain sufficient control over ourselves to return when the state of the snow or of the rocks is found to be dangerous. I go further, and maintain that even during the continuance of bad weather, especially at a centre, there is much amusement and very good practice to be derived from some small climb taking from six to eight hours, when you cannot see more than a hundred feet or so; and the excitement of reaching the top in such a case is fully equal to any expedition, and a wet or foggy day may thus yield you infinite amusement.

The mountaineering enthusiast who has no time to visit countries more distant than Switzerland is, I maintain, as keen as, and perhaps keener than, the early explorers of the Alps and the present explorers of the Caucasus and other regions; and, inasmuch as he is convinced of this, he can afford to be twitted,† as he has been, with belonging to a sort of inferior genus, though no doubt he ought rather to be pitied. Unfortunately, I think the majority of the Club is in this position, and the genuine delight of exploring new lands and mountains must be left to the man of comparative leisure. The Alps are completely mapped: still everyone, according to his own taste, may yet enjoy himself amongst them, and may yet do good, honest mountaineering work.

* See pp. 255, 6. † *Alpine Journal*, vol. xiii. pp. 376, 7, 499, 500.

The 'Eccentric' may possibly improve an old pass, and the 'Centrist' an old peak; both can certainly show what combination of routes is the most varied, and so the most interesting, as, indeed, Mr. Conway himself admitted not very long ago;* but both must be, and I hope are, well content to seek health, energy, and enjoyment in their well-loved though well-known playground.

I have purposely not made this paper an apology for climbing without guides, as I know the whole subject was fully dealt with long ago;† but as, with the exception of the allusion made by Mr. Dent in his address,‡ I believe it has scarcely been referred to during the past five years in the pages of the 'Alpine Journal,' I should like, before concluding, to add a few words of caution for the guidance of those who have not seen, or who may not remember, what has been written in the past.

Such expeditions are indeed hard work, and I would insist most firmly that the rules of mountaineering should be more carefully observed than ever, and bad or doubtful weather more carefully watched than ever; and if my recital to-night should tempt anybody to try climbing without guides, I can but say, Begin at the beginning, as you started climbing with guides; try easy expeditions to commence with; be sure of your comrades and their powers; watch the weather with an ever-jealous eye; and then if you have the same good fortune as we had last year, though mingled with some defeats, you will return home to your work having enjoyed a holiday second to none you have ever had in the Alps.

GOTTLIEB STUDER.

By W. A. B. COOLIDGE.

BY the death of Gottlieb Studer, which took place at Bern on December 14 last, the Alps have lost their most devoted friend, for no one (save Mr. John Ball) has ever known them as thoroughly as he did, or has done as much to make them known to others. It might perhaps be possible to name more enterprising Alpine climbers than Gottlieb Studer, more attractive Alpine writers, more skilful Alpine

* *Alpine Journal*, vol. xiii. p. 161.

† *Ibid.* vol. v. pp. 87-96; vol. viii. p. 243; vol. ix. p. 219; vol. xii. p. 289; also vol. ix. p. 411; vol. x. pp. 138, 387; vol. xiii. p. 378.

‡ See p. 12.

artists ; but, most certainly, no one man has ever been able to wield ice-axe and pen and pencil with equal readiness and with equal success. His life was prolonged to the great age of eighty-six years, so that in any case his long-continued activity in all these departments would have sufficed of itself to secure him an honoured position in the eyes of all who share his love for the Alps, as well as in the history of Alpine exploration. But Studer was more than the Nestor and acknowledged chief of living Alpine explorers and writers and artists. His life and deeds (with those of his comrade Melchior Ulrich, who, though older, survives him) link together the earliest and the latest groups of mountaineers, and serve to bridge over the interval between the men who climbed mainly as scientific researchers and the men who climb mainly as athletes. In other words, Studer was the best representative of that period of Alpine exploration which stretches from the conquest of Mont Blanc (1786) to the foundation of the Alpine Club (1857). Born in 1804, five years after De Saussure's death, he yet began to climb before the first ascents of the Jungfrau (1811) and of the Finsteraarhorn (1812). When Bourrit died (1819), Studer was looking forward to soon making practical acquaintance with the mysterious ice-world ; when Father Placidus à Spescha died (1835), Studer had made his first ascent above the snow-line, had drawn his first panoramas, and was accumulating materials for his first book. Yet he lived to see the foundation of the first Alpine club (1857), to share in founding the Swiss Alpine Club (1863), and to hear of the exploits of those who, thinking, perhaps too hastily, that the exploration of the Alps was at an end, have gone farther afield to the Caucasus and to New Zealand, to the Andes and to the Himalaya, to the ever-frozen regions of Alaska, and to the tropical districts of East Africa.

Gottlieb Studer came of a middle-class Bernese family, which has been particularly distinguished in divers matters relating to the Alps. His uncle Samuel (1757-1834) devoted himself to the natural history of his native land, not forgetting glacial phenomena ; and his cousin Bernard (1794-1887) became celebrated as an Alpine geologist, and as the historian of Swiss topography.* Gottlieb's father, Sigismund

* Care must be taken to distinguish the subject of this notice from his first cousin, Bernard's brother, Gottlieb Ludwig Studer (1801-1889), late Professor of Theology at the University of Bern, who wrote much on Bernese history, and published editions of many of the Bernese chronicles.

Gottlieb (1761–1808), was specially known for his skill in drawing mountain forms, and in 1790 published a panorama, 'La Chaîne des Alpes vue des Environs de Berne,' which is not only very valuable in itself, but interesting as foreshadowing a considerable part of his son's work. Sigismund was for a time magistrate's clerk at Langnau in the Emmenthal, and it was during his residence at that place that, in 1808, Gottlieb made, at the age of four, the ascent of a neighbouring hill, the Rafrüti (3,950 feet), the panorama from which he drew in 1826—the first of a long series, though it does not seem to have been published till 1883, on the occasion of the annual festival of the Swiss Alpine Club, when Studer repeated the ascent which he had made seventy-five years before. He does not seem to have had his first glimpse of the snowy regions, except from afar, till 1825, when he made an attempt on the Diablerets, though it was not till 1850 that he successfully achieved the first ascent of that peak, by his route of 1825. The ascent of the Fibbia near the St. Gotthard, and an excursion with Hugi into the Urbachthal (both in 1831), as well as ascents of the Sasseneire (1835), Niesen (1837), and Sidelhorn (1838), show that he was gradually training for what was to be his life's work. His passages of the Triftlimmi (1839), Strahlegg (1839), and Tschingel (1840), together with some climbs round Zermatt in 1839 and 1840, stand at the head of the long list of his expeditions among the glaciers. Here limits of space permit me to enumerate only a few of the more striking. The Sustenhorn (1841), Jungfrau (1842, fifth recorded ascent), Oberaarjoch (1842), Altels and Wildhorn (1843), are among those described in his first published work 'Topographische Mittheilungen aus dem Alpengebirge,' 1844, of which the first part (referring to the Bernese Alps) has alone appeared, though it ran into a second edition. It was accompanied by an atlas containing six panoramas, including one from the Jungfrau, and another from the Eggischhorn. An attempt on the Mönch (1845) is all that I can find attributed to him during the next few years. In 1849 he became the companion of Ulrich, with whom during that and the following years (up to 1854) he explored the Zermatt and Val de Bagnes districts, besides conquering his old foe the Diablerets (1850), and reaching the highest crest of the Tödi (1853), narratives of these and other ascents being contained in his articles published in the two series of 'Berg- und Gletscherfahrten' (1859 and 1863). An attempt on the Nord End of Monte Rosa (1849), and on the Triftjoch (1852), successful ascents of the Tête Blanche (1849), and of

the Combin de Corbassière (1851), and the passage of many high snow passes (e.g. Col du Mont Rouge, Weissthor, Col d'Hérens) deserve to be specially mentioned. One of the results of these explorations was his valuable map of the southern valleys of the Vallais (1849), of which a revised edition—extending as far as the Combin district—was issued in 1853. A first excursion to Dauphiné, in 1851, when he went over the Col du Lautaret, points on to the time when he was to explore the non-Swiss Alps. Before that time came, however, he had continued his expeditions in his own special district of the Bernese Oberland, and in 1850 issued 'Das Panorama von Bern,' which was originally designed as the text to accompany his father's panorama. It contains some most valuable information as to the history of the peaks, great and small, seen from Bern, and has appended to it an outline of his father's panorama.

In 1855 Studer visited the Italian Graians, crossing the Col de Nuvolé and the Col de la Galise; in 1856 the French Graians, crossing the Cols de la Vanoise, de la Leisse, and du Palet, besides ascending some point on the great Vanoise snow-field; and in 1858 he made the first ascent of the highest and most southerly peak of the Ruitor range—accounts of all these excursions being published in different numbers of the 'Mittheilungen' of the Bernese Natural History Society for 1856, 1861, and 1863 respectively. Studer had become a member of this Society in 1850, perhaps on the appearance of his 'Panorama,' in which work there is much geological and botanical information. But he was even more keen in any matter relating to the practical exploration of his beloved mountains, and hence we find that he was one of the seven Bernese members of that gathering of friends (numbering thirty-five in all) which met on April 19, 1863, at Olten, and founded the Swiss Alpine Club, and that he sent to its first 'Jahrbuch' (1864) an article and a panorama (Mattwaldhorn, visited by him in 1840), the first of a long series. That very summer he went up the Finsteraarhorn and Oberaarhorn, and in 1864 made the first ascents of the Gross Wannehorn, Studerhorn, and Ofenhorn; while in 1865 the Basodino, in 1866 the Ritzlihorn, and in 1867 the Pizzo Campo Tencca, fell to his axe. It is hard to realise that he was past sixty when he began the publication of his best-known work, 'Ueber Eis und Schnee' (3 vols. 1869–1871), wherein he told the story of the conquest of the Swiss Alps, in which he had played so great a part. One may perhaps think that the scheme might have

been better planned, and may be inclined to criticise some of the details of this work ; but all must confess that it is simply indispensable to anyone interested in the subject, who will discover, the better acquainted with it he becomes, that it contains a considerable amount of hitherto unpublished information, based largely on the author's unrivalled personal experience. This labour of love was, however, far from exhausting Studer's energy. In 1872 he paid a visit to the Pyrenees; in 1873 he returned to Dauphiné, making the third ascent of the highest peak of the Grandes Rousses (11,395 feet), and in 1874—at the age of seventy—made some excursions in Norway. Nearly every 'Jahrbuch' of the Swiss Alpine Club contains some article by him, mainly describing his ascents, but also discussing interesting historical questions, e.g. the evidence in favour of the Mönchjoch as an ancient pass (vol. xv.), or of the ascent of the Finsteraarhorn in 1812 (vol. xvii.), for Studer cared for the past of his beloved mountains as well as for their present, as is further shown by his exploration (1852 and 1858) and discussion of the ancient pass over the Geltengrat. Nearly every 'Jahrbuch' contains, too, a panorama or two from high peaks drawn by him, sometimes many years before, the total number being about twenty-five, and the earliest his view of the Diablerets, taken in 1825 from Plan des Iles (vol. xvii.). In 1878 he seems to have made his last considerable ascent—the Piz Lischanna (10,181 feet) in the Lower Engadine; whence, too, he drew his latest published panorama (Swiss Alpine Club 'Jahrbuch,' vol. xiv.)—and this when he was seventy-four years of age! Yet though advancing age compelled him to gradually relinquish active climbing, the old man's zeal and energy seemed to be quenchless; for in 1883 he issued a supplementary volume of 'Ueber Eis und Schnee,' and, as has been pointed out above, visited that year the Rafrüti, which he had first ascended seventy-five years before. In 1884 he was made an honorary member of the Swiss Alpine Club, and he was also honorary president of the Bernese section. He was elected an honorary member of our own Club in July 1859,* the first foreigner to receive

* A letter from him to Mr. Ball, dated October 28, 1859, is extant, in which he acknowledges one of his correspondent's, dated July 27, announcing his election. 'Vous pouvez bien concevoir, monsieur,' he proceeds, 'avec quel plaisir je reçus cette annonce, et je viens vous exprimer ma vive reconnaissance pour les égards, non mérités, que l'honorable Club a bien voulu exercer envers moi en ajoutant mon nom aux noms illustres des savants distingués.'

this honour, to which certainly no one had a better right. In his last years he lost his sight, but doubtless this severe trial was partially lightened by his power of reproducing in imagination some of the many grand scenes which he had reproduced for the eyes of others.

Seventy years of climbing, fifty-two years of drawing, thirty-nine years of literary work—and all relating to the Alps—such is Gottlieb Studer's record. In the first pages of the 'Topographische Mittheilungen' he tells us how an irresistible impulse drove him to the mountains and to their wildest regions, a home-sickness he calls it for what seemed to be his true home, where life was so full of deep and pure enjoyment; this was the guiding principle of his life, and many who will never hear his name will be thankful for their introduction to pleasures which they owe indirectly to his writings and to his example.

The name of the Studerhorn in the Bernese Oberland was given to it by Agassiz in honour of Bernard Studer; but Gottlieb tells us himself (Swiss Alpine Club 'Jahrbuch' ii. 170-1) that in 1839 it was so named in his honour by one of his comrades on the passage of the Strahlegg; and it may well preserve the memory of the two cousins who have, in their different ways, done so much towards the exploration of the Alps. The best monument that could be set up in Gottlieb Studer's honour, besides the detailed life which is essential, would be a collected edition of all his Alpine writings—now scattered far and wide—together with reproductions of the principal panoramas he drew; and this task might well be undertaken and carried out by the Swiss Alpine Club, as a mark of its respect for the man who had the chief hand in making its existence a possibility.

ON GLACIER OBSERVATIONS.

BY CAPTAIN MARSHALL HALL, F.G.S., F.C.S., &c.

WHETHER we be young and enthusiastic, or whether we be jogging quietly down the hill of life, whether we be raw recruits, or whether, like the writer, we have loved scrambling from far-distant ages, when as yet no Alpine Club was, I imagine the word 'glacier' is very much to each and all of us as that of 'rat' is to every well-entered terrier. Wherefore I bespeak indulgence for a short paper upon the former subject.

Avoiding a history of past researches and glacial theories,

I will partially describe how things stand as regards actual observation of glacial advance and retreat in so far as regards central Europe. And I may say that, though there is plenty of room for more workers, an efficient body of men have taken the matter in hand.

First I must mention my friend Professor F. A. Forel, whose enthusiasm and devotion should be enough to make a recruit of every man—not utterly apathetic—with whom he comes into contact. His tenth report upon ‘*Les Variations Périodiques des Glaciers des Alpes*’ is before me, and he has kindly supplemented my knowledge as to the chief labourers in this field. I will mention some in connection with the countries most concerned.

To begin with Switzerland itself. Professor Forel, whose observations as regards the Rhone Glacier are amongst the most complete, devotes himself to the collection and comparison of the results sent in to him by the whole corps of workers. Amongst these I am glad to see that the Valaisan (Monte Rosa) section of the Swiss Alpine Club has been the first to appoint a committee to gather information in its domain. Considering the numbers of glaciers—many first-rate—which descend into the lateral valleys of that canton, and relatively to our subject, the field they have the glory of occupying is one of the most important that could be suggested.

I shall have occasion to mention several of the fellow-labourers of this committee later on.

Then, as regards Austria and Tyrol, we have Dr. Edward Richter, of Graz, Herr Bergrath F. Seeland, of Klagenfurth, and the veteran Hofrath von Simony, of Vienna.*

In Bavaria we have Dr. S. Finsterwalder, of Munich. In Italy, Dr. F. Virgilio, of Turin, Dr. G. Giordani, and many others.

France, including Savoy, gives us the names of M. Venance Payot, of Chamonix, and promised returns from Prince Roland Bonaparte; whilst M. Joseph Tairraz has

* We understand that in the course of last summer Herr von Simony visited the Dachstein Glacier and took photographs, which he compared with sketches taken by himself in 1840. The intervening half-century had reduced the glacier from a towering and unbroken mass of ice to a melancholy object, its lower part a mere fragment covered with débris, and separated by a cliff from the upper part, the stream from which falling on the lower part rapidly assists the process of disintegration.

been inspired with the idea of photographing the lower portions of the glaciers amongst which he lives, year by year—most important documentary evidence.

I omit a host of efficient workers in the present paper; but enough have been mentioned to show that central Europe is not destitute of men who are able and willing to make good use of observations communicated to them, giving due credit to their correspondents.

It will be well to take as an example—I may say as a pattern—the way in which Professor Forel has dealt with the information sent him. And I may mention that, often as I myself have sent him isolated measurements and trivial details, I have always found such items duly utilised, classified, and scrupulously acknowledged, a matter involving much work, considering his very many correspondents. Hence there has been no necessity for reference in the present paper to my own very limited observations.

The nature and causes of glacier movements have been more gone into than their possible periodicity. There is plenty of room for investigation as regards the former subject, but I think Professor Forel does wisely to give his chief present attention to the question of oscillation, since it is probably less understood and is equally important. And in most—perhaps more especially in physical questions—there is an interdependence between branches of research, a side-light thrown upon each point by others, which facilitates, controls, and directs the experiments and conclusions of those engaged. And in the present case, as all results are reported, there is no danger of useful material being omitted.

To begin with one of Professor Forel's most striking generalisations, he writes: '(3°) L'accroissement de la crue multi-séculaire a été la somme algébrique des variations partielles des crues semi-séculaires.'

He could hardly have written a sentence more suggestively pointing to the importance of plenty in number, and variety in place, of observations, since there is abundance of apparent incongruity even within the sphere of Swiss and Savoy glaciers. I may mention the difficulty in imagining reasons, as an instance, for the increase and diminution of some of the higher and less known glaciers upon the S. side of the Mont Blanc range, which used to strike me when, in my more youthful days, I frequented that district in search of sport. It will be seen, from the following table of their state in 1880, how much we must learn of climatic and

meteorological conditions before we can give probable causes for these fluctuations of the ice in mutual neighbourhood.

The signs + and - recapitulate the evidence. Where 0 and ± occur, the former signifies decidedly *stationary*, the latter *doubtful*. The tenth report of Professor Forel, for 1890, is my chief authority. As regards the Chamonix districts, the communications of M. Venance Payot to the 'Revue Savoissienne,' 31^e année, 1890, Mars—Avril—Mai—Juin—Juillet—together with Professor Forel's report, above-mentioned, are my *pièces de résistance*. It is much to be wished that observations upon the mass of glaciers were more frequent.

Districts	Glaciers	Length	Mass	Notes
Valley of Conches	Rhone	+		
" Fiesch	Fiesch	+	+	
" Massa	Aletsch	-	+	
" Lötschen	Lötschen	0		
" Saltine	Kaltwasser	-		
" Saas	Allalin	-		
" "	Fee	+	+	
" S. Nicholas	Gorner	+		
" "	Findelen	+		
" "	S. Théodule	-		
" "	Gabelhorn	+		
" "	Weisshorn	+		
" Hérens	Ferpècle	-		
" "	Arolla	-		
" "	Pièce	+		
" "	Zigïorenove	+		
" Bagnes	Otemma	-		
" "	Durand	-		
" "	Corbassière	-		
" "	Giétroz	+		
" Ferret	Laneuva	-		
" "	Saleina	-		
" Trient	Trient	+	+	
" "	Grands	+	+	
Allée Blanche	Miage	+	+	
Val de Monjoie	Trélatète	+	+	
" "	Bionassay	+	+	
Dauphiné "	Most of the glaciers	-		
" "	Meije	+		
" "	Étançons	+		
Aar	Aar	±		
" "	Bächli		+	
" "	Gauli	-	+	
Reuss, Maderaner-Thal	Hüfi	-		
Reuss, Maderaner-Thal	Brunni	-		
Linth	Biferten	-		
" "	Sandfirn	-		

Districts	Glaciers	Length	Mass	Notes
Linth	Kistenfirn	—		
Engadine	Surlej	+		
Oetzthal	Rettenbachferner	—		
"	Hochjochferner	—	—	
"	Vernagtferner	—		
Glockner	Pasterzen	—	—	See complete account, 10th report of F. Seeland
Adige-Ortler	Zufall	+		See Richter
	Langenferner	—		

In Professor Forel's report, 1888, he gives the following results:—

Districts	Glaciers	Length	Mass	Notes
Valais	Aletsch	+		At Concordia hut
"	"	—		At terminal
"	Théodule	—		
"	Hochwang	+		
Oberland	Grindelwald Infer.	0		

Thanks to M. Venance Payot, the record of the NW. side of Mont Blanc is the fullest we have of any locality, so far as my knowledge serves me; it is, indeed, complete within the range of observation which M. Payot has undertaken. The writer has repeatedly accompanied him and assisted in his measurements, and can bear testimony to the care bestowed upon them on those occasions.

Districts	Glaciers	Length	Mass	Notes
Chamonix	Tour	+		See M. Tairraz' photographs
"	Argentière	+		{ Modern maximum in 1820
"	Mer de Glace	+		{ " minimum in 1878
"	Bossons	—		{ " maximum in 1819
"	Tacconna	+		{ " minimum in 1878
"	Pèlerins	+		{ " maximum in 1826
"	Blaitière	+		{ " minimum in 1879
"	Mont Blanc	+		{ " maximum in 1818
Val de Montjoie	Trélatête	+	+	{ " minimum in 1868-1878
"	Bionassay	+	+	
Val Ferret	Mont Dolent	+		Not much difference
"	Triolet	+		" " "
"	Petites Jorasses	+		" " "
"	Grandes Jorasses	+		" " "
Allée Blanche	Brenva	+	+	Marked progression
"	Miage	+	+	" "

It is noticeable how deficient we are in estimates as to the increase and decrease of the mass of glaciers. Of course, the problem requires more work and continuous observation to solve. Articles such as that on 'The Glacial Epochs in Val Grande di Sezia,' by Dr. G. Giordani; series of annual notes, such as those of M. J. Guex, of Vevey, on 'The Glacier of Trient,' and of M. F. Doge, of Tour de Peilz, on that of 'Les Grands,' can only be expected from residents in, or annual visitors to, particular localities.

Nevertheless a certain discipline and uniformity of proceeding, such as a club, or an International or even a State committee could arrange, would enable us to piece together many isolated observations. Upon this point I propose to dwell later.

Without continuous, wide-spread knowledge, questions of periodicity, ably dwelt upon by Professor Forel, can rest only on a very narrow and insufficient basis; and, though they probably exist, I do not think we have as yet the means of determining the average duration of such periods. Still, careful examination and comparison of available material have enabled that savant to point to periods, which he well divides into semi- and multi-secular. He considers that continuous increase lasts from five to ten years, and decrease from thirty to fifty years. These semi-secular oscillations, he considers, form, so to speak, a smaller system of undulations, whilst climatic changes, lasting over whole epochs, are going on contemporaneously, constituting variations of a much higher order of periodicity. Modern advances of 50 mètres, which, continuing for fifty years, might amount to some $2\frac{1}{2}$ kilomètres, cannot compare with those which in times of glacial extension gave a length of 360 kilomètres to the Glacier of the Rhone, from the Furka to Lyons—an augmentation of some millions of cubic mètres, as compared with many cubic kilomètres!

The shorter periods of oscillation, according to whether those of retreat or advance (+ or - in fact) predominate, produce a multi-secular effect of accumulation or diminution.

When first I undertook to write this paper, it was my intention to sum up the evidence for and against these periods; but it would involve so much imperative consultation of so many works that I abandon the project, at all events, for the present, and until I can spend some considerable time where libraries are accessible. Sufficient for the day, I fear it will be said, is the present infliction. And,

unless we collect statistics not only from a few limited areas, but from various latitudes and climates—Norway, Iceland, Greenland (where, as also in Alaska, the motion is at racing pace), Africa, as instances, besides those in the many lands where the British flag flies—we can never be sure that we are not neglecting factors of the greatest importance, especially as regards climate.

But as to the numerous glaciers in British territory—the Himalayas, those of New Zealand, of the western portions of our American possessions—if there be any records on the subject, I am unaware how to lay hands upon such.

Probably no connected accounts exist. Our colonists, our military, naval, and civil officers, men of science, travellers, Alpine Clubs—all seem to have joined in a sublime indifference as to the history of glacial movements, and their increase or decrease, at least outside the ‘play-ground of Europe.’

This is the more surprising that English savans have borne so notable a part in investigations of the causes of ice-movement; whilst to our many geologists the sculpture of mountains, more or less of lakes, climate, fauna, and flora are all matters in which glacial history is eminently important.

There is one promising piece of comfort—the Monte Rosa section of the Swiss Alpine Club have the honour, I believe, of being the first to appoint a committee; it is charged with reporting upon the Valaisan glacier-world. I hope this will not long be allowed to be an isolated appointment!

The task of correlating individual observations and reports would be reduced easily to a minimum if such a committee, inviting the assistance of men in various countries, would arrange a code, so to speak, to be adhered to by all who could be induced to adopt it.

I am too much of a cosmopolitan, I confess, to care greatly where the domicile of origin of such a code might be. But, since the Alpine Club is admittedly the senior body of its kind, we should like to see that, after coming to the front, it also makes an early advance to the attack.

Our members, after ascending all the ‘inaccessible’ peaks, are now ranging themselves into two bodies of climbers—some of us strenuously determined to find what I may call all the wrong ways up the old peaks, the others exploring great ranges the world over.

It is true that there is a certain sameness in accounts of mountain scrambling, though it is to most of us still as

interesting as the story of a good run and a kill always is to an old fox-hunter, or that of a struggle with a phenomenally heavy 'fush' to an old hand at the river side.

It would certainly freshen up our own spirits and add to the interest of the Alpine Journal were some of us to bear a hand with these great ice questions. No individual can hope to be alive when the larger series of ascertained facts come to bear upon the periodic law, if there be such a law, of glacial and climatic variations. But let us hope this will not discourage earnest men from recording what lies within their power. As regards such things as advance and retreat, increase or diminution of masses, results must become immediately available after the first year.

For instance, armed with a small jar of paint, a brush and a measuring-tape, it consumes but a very small fraction of a climber's valuable time to go, say on an off day, to the foot of a glacier, take the distance of its extremity from some rock or boulder, not *too* near, and, making a mark upon such rock, simply record that distance in mètres, its magnetic bearing, and add the date and initials of observer. Suppose this had been done for a very few years past in a fair percentage of places where no record exists—in the Alps, in North America, New Zealand, the Andes, the Himalaya, the Caucasus—and this only by members of our own body of travellers, what a capital foundation would have been laid! Is not such an object worth so small a sacrifice of time and trouble? I do not expect any of us will be so virtuous as always to paint up the bearings of such glaciers as we come across! But even a few in each district would be a great gain.

The committee I suggest would of course lay down rules, suggest localities, mention the more marked and desirable things to observe, assist workers with easy formulæ, and so forth. Then we may quite hope for such an interchange of results as would lead to tabulation, and form a permanent record of the smallest contributions of any and all who gave themselves any trouble whatever.

In each country local committees, of which a member should always be in communication with the central international body, would furnish annual reports to it, and I may hope that the pages of this invaluable Journal would be so sought by the wide world as to represent at least their weight in gold, with a sprinkling of diamonds thrown in!

At the risk of drawing upon myself the scorn of the many university and service men amongst our members, who may think it very presumptuous in me to go near to teach so

simple a thing as the solution of triangles, I venture to point out the simplicity of sundry problems and the lightness of the necessary outfit for all but very precise and refined work. I may mention that, for my own part, a small leather case, the size of the infantry cartouch box of a few years since, is sufficient to hold all things which I would ever consent to carry—not that I would dissuade lighter men from such extra weight as they may consider luxurious.

The necessaries, then, for practical observations, are simply a note-book with a few tables as of sines, tangents, &c., pasted in, indiarubber, pencil, an aneroid barometer, protractor, measuring tape, some small pattern of compass combined with clinometer, and last, but by no means least, as good maps as can be got.

As regards the compass, there are two little instruments which at once suggest themselves—the prismatic compass, with a clinometer, and Galton's altazimuth. Both are efficient instruments, and, for the sake of 'bringing down' objects above the observer, both should be provided with an azimuth mirror. I have used Galton's instrument so frequently that I have a fondness for it, on account of its facile use in levelling and taking vertical angles, but the prismatic compass is a waistcoat-pocket affair, whilst the Galton, in leather case on the belt, looks like one of those toy revolvers which irritate, without always disabling, an adversary.

Of late years many patterns of range-finders have been introduced, and as with several the distance of an inaccessible object can be got at once and without calculation, it would save much time and trouble to add one to the outfit above mentioned. I had an opportunity of using the Labbez telemeter the summer before last at Torquay, and, having borrowed one, previously taking the distance by it of sundry objects about Tor-bay, mystified several officers by the marvellous approach to accuracy with which I seemed to be judging distance! The present occasion is the first upon which I let that cat out of the bag. Officers who have used it in range-finding report highly of its results up to, say, a mile and a half. It must be borne in mind, however, that after all it is not an instrument of precision—it is a saver of time and trouble. For ascertaining such things as the width of a glacier or of a river, the distance between blocks and moraines, and all work of that class, this telemeter ought to prove a capital friend. Still, I have had no personal experience of its use in the mountains.

A base of 30 yards or mètres (to either of which it can be graduated) should be used for distances estimated at

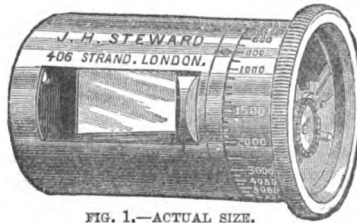


FIG. 1.—ACTUAL SIZE.

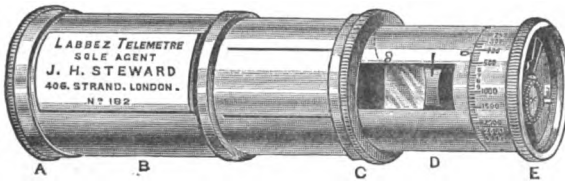


FIG. 2.

THE LABBEZ TELEMETER.

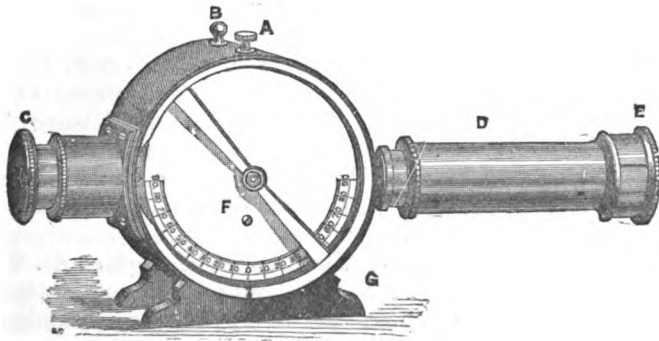


FIG. 3.—POCKET ALTAZIMUTH, WITH COMPASS.

between 300 and 1,000 yards. The result shown on instrument is then the actual range. For longer distances a base of 60, 90, or 120 yards should be used, according as the estimate is 2,000, 3,000, or 4,000 yards, the range shown on the instrument being doubled, trebled, or quadrupled according to the base taken. For objects between 200 and 300 yards a 15 yards base is said to be sufficient, an advantage when the ground is much broken. It is not necessary that the base be quite horizontal for determining distances. ‘*Experientia does it.*’ The orthodox military pace of

30 inches is pretty correct, when the ground allows of it, remembering that 30 yards=36 paces, and 30 mètres=about 39 paces (more exactly 39·37 inches = 1 mètre).

By the kind permission of Mr. Steward, cuts of the Labbez telemeter are given, as also of an altazimuth. Mr. Steward is good enough to say that he will with pleasure explain the use of these instruments to members of the Club, and suggests that Adelphi Terrace is near at hand, and is a quiet spot for estimating distances across the Thames. Of course, they can be verified by reference to the large scale ordnance map, if not already well known.

I need not enter upon the very simple formulæ in trigonometry which are wanted for field-work such as we have to consider. We want the angle of rise and its sine, which, multiplied by length of road, gives height attained, whilst the same angle with the horizontal distance (off a map, for instance, when it is considerable) and the tangent, multiplied by it, gives the height from station of observer, and, if we work in the metrical system, we are saved most of the incessant sums which have to be done by those who use the British unholy jumble of weights and measures, which must, I fear, be held accountable for a large percentage of the inmates of our lunatic asylums.

If ever the Glacial Committee, for which I call, should have an existence, it would come within the sphere of its duties to decide upon uniform methods, and I leave this part of the subject. It will be as well to mention a few objects, to attain which all travellers have it in their power to contribute assistance without serious loss of time, or, indeed, any great labour.

The first is observation of the fag end of a glacier. This has already been dwelt upon. But one of the committee's first duties would, I think, be to try and arrive at some understanding as to a date to be adopted. As an instance of its importance I may mention that, two years ago, the end of the Glacier du Tour was a mere tongue of ice lying on the ground, and separated by a crack from the rest of the ice. A measurement of this, when Mons. Payot and myself made it, in July 1888, would give a very different idea of the advance of that glacier to one taken towards the end of September; and unless very careful note be taken of such dates, and an elaborate calculation of rates of melting—subject, of course, to much error—the value of our data becomes seriously impaired. Probably the committee of the future would decide that some such date as

the middle of August would find the greatest number of likely men present in the Alps. Within a week or so of such a time the exact day of measurement would scarcely matter.

Another item would be the nature of observations of the rate of movement. To do this day by day would require the very careful use of a theodolite, which, certes, few men will care to carry about.

But with the pocket instruments already mentioned, there would be no difficulty in fixing the positions, say, of blocks of stone, with regard to streaks painted upon rocks on each side of a glacier, nor in taking the bearings of spots figured upon the existing maps with sufficient accuracy to give the accumulated movement year by year, or at greater or less intervals; indeed, the painting of these stones is a very easy way of immortalising one's name! The man who paints the position of even one stone contributes his mite! And an excellent idea of the pace of various parts of a glacier would be gained by determining the position of three approximate lines, of three stones each, at three different levels in its length—an affair, including the terminal ice, of one enjoyable day. Once this done, we have, for years to come, the means of registering motion, and, indeed, mass, for stones do not run away, though they have an evil propensity to slide into crevasses!

The question of mass is a formidable one. No other way than guess-work has yet been found by which we can ascertain the form of a glacier bed, and but few spots exist where enough is seen of the ice-mass to arrive at a safely approximate estimate of it.

On the other hand, the variation in existing mass, be the latter what it may, is far more easy to be got at. Without entering upon elaborate surveys, the elevation and depression of surface at any point can be ascertained with reference to the sides of a glacier, with the aid of an altazimuth, and is, indeed, often very noticeable at intervals of a year or two, and the marking of rocks and boulders, before referred to, would here come in very handily. Travellers with eyes and ears open can pick up much local information. Again, Galton, in his little book on 'The Art of Travel,' advises men to seek out old and slow savages to carry their instruments, which will journey all the more softly. In the same way, if one is upon an excursion not requiring first-rate men, it is a good plan to get hold of some garrulous old porter, who, if he does not kill his *Herrschaft* with bore, often

affords an infinity of information, more or less correct—possibly less—respecting his own localities.

There is much to be learnt as to rates of motion and mass, above the snow-line. Only as there are comparatively but few big stones upon the surface of névés our committee must excogitate some available methods.

The permeability to and capacity for retention of water by névé and ice, more or less compact, seems to me worthy of even the rough attention which climbers could have time to give it. There is a paper by Professor J. Thomson (British Association Report for 1857), which is well worth study, upon the influence of stress upon the melting-point, bearing much upon the theory of glacier motion.

When, some years hence, we have a sufficient body of information, it will be interesting to know how many years subsequently a snowy winter tells upon the mass and length of the lower glaciers. We must, of course, bear in mind that a *severe* does not always imply a *snowy* season.

A few words as to signalling. Besides the attitudes given in the military signal-book, wherewith to work the Morse code, and which can be written down in one's note-book, a few conventional signs are easily remembered and taught one's guide. Frantic gesticulation is always a danger signal. The signaller and signallees facing each other, both hands held up above the head = ascend; held out at right-angles like a cross = halt; one arm at right-angles = take ground in the direction indicated; both arms a little away from the body and pointing downwards = descend.

The light infantry calls on a whistle might be of use in a fog or after dark, and a convention for night signals with the boxes of fusees giving green and red lights, now sold in Geneva and other large towns. Our Club, by taking the initiative, and issuing a card showing the codes agreed upon, would do good service.

In conclusion, I may assure those who have never tried field sketching, that it immediately becomes a source of un-failing interest and amusement. Personally I should as soon think of gadding about without a corkscrew as without compass and map. And—I appeal to the Club—could the thing be put more strongly?

Amongst the earliest duties of a Glacial Committee would be to ask assistance of and to ascertain from official sources whether the good cause could be promoted by circulars inviting the co-operation of officials in our colonies and foreign possessions. Of general glacier history as yet we

know nothing, nor of their behaviour, synchronous or otherwise, in the two hemispheres, nor have we much information as to the Arctic and Antarctic ice-caps. A science 'of comparative glaciology' * has to be created, and will probably afford unexpected clues as regards other phenomena.

SOME UNDESIGNED 'NEW ROUTES.'

BY THE EDITOR.

I LEFT the Gepatsch-Haus, Aug. 7, 1890, with Alois Gstrein, intending to ascend the Glockthurm. We took the usual route by the Krummgampen Thal (getting on the way the best view I ever had of marmots, two of which were playing on some snow quite close to us, and took no notice of us for some minutes), and went on very well till we reached the glacier. Unfortunately neither of us had been there before. There was a good deal of cloud about, and the directions we had received from Praxmarer, the *Wirth* of the Gepatsch Haus, were not minute enough to keep us right. So we went too far to the left, and, after a short climb up some rocks, found ourselves at the top of something. Alois maintained that we were right; I was very doubtful, on account of the absence of any stoneman, which could hardly fail to exist at the top of so well-known a peak as the Glockthurm. Presently the clouds broke, and the question was settled by the appearance of a summit a little distance to the N., some 400 or 500 feet above our heads. It then became clear that we had strayed to the top of the most northerly and highest of the Hennesiegel Köpfe (3,222 mètres = 10,581 feet, D.O.A.V. Sp. Karte). When we got back, Praxmarer, who is probably as good an authority on the point as anyone, said that he knew of no previous ascent, nor can I conceive any reason why there should ever have been one.

Next day we started with the intention of getting to Unsere Frau by the Kesselwandjoch and Hochjoch. Now the basin of the Gepatsch Glacier, up which the first part of our road lay, is a huge irregular quadrilateral, the sides from three to five miles long, and the angles pointing W., S., E., and N.E. On the E. side, where it abuts on the Vernagt, Guslar, and Kesselwand Glaciers, the névé on both sides reaches to the ridge, and the passes are easy. But on the S.E., while this is still the case with the Gepatsch Glacier itself, and the series of depressions which occur at intervals of about a mile all round the head of the glacier continues with unbroken uniformity, the traveller who reaches the ridge finds himself at the top of a very steep rock wall, some 1,000 feet high, falling to the Hintereis Glacier. The day though fine was cloudy enough for the landmarks to be frequently obscured. I had not been on the glacier for ten years, and then in bad weather, my guide not for six; and so it befell that we walked (though

* A vile hybrid. But unluckily another science has appropriated the Greek word for 'ice,' and 'cryology' might not be generally understood to refer to glaciers specially. Committee of the future, please suggest a term.

not without hesitation) past the depression of the Kesselwandjoch, and on reaching the next found ourselves at the top of the wall in question, known as the Vernagelwand, at a point between the Hintere and Mittlere Hintereisspitzen. On each side was a steep Eisrinne, a foot deep in snow of the very worst consistency. Obviously the only way of getting down without undue haste was by the rocks. These were so constituted as to form a series of narrow broken ledges, sloping down at an angle of 30° to the left (N.E.); the 'rises' (as, I believe, the upright parts of a staircase are technically called) being of various heights, and about twice that angle. The difficulty consisted mainly in judging where to leave one ledge in order to hit the best way from the next to the next but one. We are neither of us first-rate rock-climbers, but, even with all due allowance for that, two hours (which we took) is a long time for the descent of 1,000 feet to occupy on a fine afternoon. Except for a vague report that one of the Fend guides had once come down that way, I could not find that it had been followed before. Taken the other way, it would make an interesting route from the Hochjoch Hospiz to Gepatsch.

On August 21 the Rev. T. H. Archer-Houblon and I, with Josef Spechtlenhauser and Alois Gstrein, in company with two Bavarian gentlemen and their guide, started from Ponte di Legno to reach the Leipziger Hütte by the Passo Lagoscuro.* Josef was, I regret to say, a little short in his temper, the result of two or three days spent among men speaking a strange tongue and smoking strange tobacco. His mood displayed itself first in refusing to believe in the existence of the pass, next in reviling it as a 'Sauweg,' and, when driven out of these positions, in utterly declining to follow the paths adopted by the 'Wälschen.' So we went up Val Narcanello (Val Narcanè of the map—a name quite unrecognised locally) after the first hour or so, much as Mr. Stanley went across Africa, hewing our way through wet alder thickets on the left bank of the stream, the real path being all the time on the right bank. After a while Josef was persuaded to cross over, and for some way, I believe, we were more or less on the right track. Unluckily we had no map on a sufficiently large scale to indicate which of the many notches in the wall of crags which forms the head of Val Narcanello was the one we wanted. Baedeker mentioned 'zwei Eisrinnen,' but there were Eisrinnen everywhere. Eventually we bore to the left (E.) too soon; went up some rocks just steep enough to demand the use of hands once or twice, and got into a steep gully floored with hard snow. About this point we became fully aware of our mistake by seeing a gentleman with his guide, whom Josef recognised for Hans Pinggera of Sulden, at the top of the pass where we ought to have been. We proceeded, however, and soon found ourselves on the ridge at a level a little lower than that of the Passo Lagoscuro—i.e. about 9,700 feet, almost exactly at the point where 'M. Pisgana' is written on the Generalstabskarte of 1875. Thence

* For an account of a neighbouring pass over the same ridge, see Mr. Ball's paper (*Alpine Journal*, vol. ii. p. 11, *sqq.*) on the Pisgana Pass, lying apparently between Passo del Lago Inghiacciato and Passo Lagoscuro. In the *Alpine Guide* (Central Alps, p. 476, ed. 1876) he prefers to call it Bocchetta di Marocaro.

we looked down on the Presena Glacier, to which we presently descended, and, crossing the Presena Pass, reached the Leipziger Hütte in about 8 hrs. from Ponte di Legno. Josef's equanimity returned as soon as he found himself again on Austrian territory, and the sight of a herd of Gamsen in the course of the afternoon effected a perfect cure, notwithstanding the fact that (although he found a rifle somewhere in the hut) he could not manage to get a shot. The pass might be called Passo Castellaccio, from the name of the peak which lies immediately to the N. of it, and of which the height is, in the last edition of Baedeker, surely understated at 3,028 metres. It affords (bar the wet alders, which are not an essential part of it) a very pleasing variation on the usual routes from Val Camonica to Val di Genova.

IN MEMORIAM.

FRANÇOIS COUTTET.

DURING the past autumn three of the 'old guard' of the Alps have been taken from our midst. Jean Antoine Carrel and Joseph Maquignaz died on 'active service' amongst the peaks and glaciers of the great range they knew so well; and a few weeks later François Couttet took a last farewell of those who had watched by his bedside during a short but painful illness.

'Baguette,' as Couttet was always called, was born at Chamonix in 1828, and at an early age became a member of the Society of Guides. His list of new expeditions was not a remarkable one; still, as has been lately said of him elsewhere, Couttet 'was distinctly a good guide in a poor epoch.' He received a 'médaille d'honneur' from the French Government in recognition of the courage and resource he displayed as leader of the rescue party sent to the assistance of the brothers Young, one of whom perished on Mont Blanc in 1866. It was in 1862 that Couttet built a house at Chamonix, part of which he used to let as bachelors' quarters to Mr. A. A. Reilly, M. Loppé, and some of those members of the Alpine Club to whom he acted as guide. As years passed on what had originally been little more than a chalet gradually attained the dimensions of a 'hôtel du premier ordre.' Baguette caused his name to be placed on the retired list at the guide-chef's bureau, and decided to devote himself exclusively to his new calling. Still he never lost his great love for the mountains, and it is as the guide rather than as the hotel proprietor that his old friends will ever think of Baguette. On those rare occasions when he accompanied his friends on some glacier excursion it was pleasant to see how keenly he enjoyed acting as their leader; it seemed to bring to his remembrance those years of his life on which he best loved to dwell.

M. Loppé has recorded how as a guide Baguette possessed what might be described as the 'vrai instinct des glaciers;' to an equally remarkable degree he certainly showed a similar innate capacity regarding all the business transactions in which he was engaged.

Indeed, the story of his life might well be chronicled in some such work as Dr. Smiles's 'Self-Help;' for, in spite of the enormous disadvantage of having started with but little education, Couttet by perseverance and thrift, in the course of his honourable and upright career, amassed a larger share of this world's goods than almost any of his early colleagues and contemporaries. Although he seldom left his native valley, constant intercourse with the crowd who come to the foot of Mont Blanc from all parts of the world made him a shrewd judge of human nature, and nothing pleased him more than to relate his reminiscences of the widely different sorts and conditions of men he had met during the long years he had lived at Chamonix. His keen sense of humour, his quaint native wit and turns of phrase, imparted a great deal of individuality to these narratives. I doubt if there was anyone at Chamonix whose opinions on all matters regarding guides or mountaineering carried so much weight with the local authorities. Nearly everyone who has stayed under his roof must recall occasions when an appeal to old Couttet has enabled him to escape from some one or other of the irksome restrictions imposed by the *Guide-chef* or his *règlement*.

The death of François Couttet seems to break yet another of the few remaining links which join us with the early days of mountaineering; it will seem strange to arrive at Chamonix without seeing his familiar figure waiting to meet us at the corner of the Place, and we shall long miss his hearty welcome and the cordial grip of his hand. Everyone who knew 'brave Baguette' will always hold the memory of the true-hearted, kind old guide in affectionate regard. 'He was thoroughly loyal to his friends,' wrote an old office-bearer of the Club, 'and loyal also to the best traditions of his profession, one of the few who kept up the old feeling amongst a new order; he was in the best sense a true "vieux de la vieille."' C. D. C.

NEW EXPEDITIONS IN 1890.

Monte Rosa District.

CASTOR (4,222 mètres=13,852 feet). August 10.—Miss Richardson with Emile Rey and J. B. Bich crossed this peak from the Sella Club hut to Zermatt in 7½ hrs. actual walking, making two new variations *en route*. Starting from the Sella hut, the party gained a point on the E. arête, whence the summit of the peak was reached in 20 min. more. On the descent the arête was followed for two or three minutes. The party then struck down the snow-slopes (at first rather steep) of the N. face of the peak, and bearing always slightly to the left rejoined the route of the Zwillingssjoch on the snow-field above the Zwillingss glacier, and followed that route to the Riffel.

Mont Blanc District.

AIGUILLE DU CHARDONNET BY THE S.E. FACE (3,823 mètres = 12,543 feet). September 5.—The same party having ascended this

peak by the usual route resolved to attempt the descent by way of the arête running down to the Col du Chardonnet.* The unusual amount of snow on the rocks forced them, however, to try another new route down the S.E. face, which is broken up into couloirs separated by ribs of rock, then rendered difficult by untrustworthy snow. The party zigzagged across this face at first in a westerly and afterwards generally in an easterly direction, keeping to the rocks when possible, though the couloirs were more frequently practicable. They thus joined the route from the Col du Chardonnet by the third couloir W. of the col. The descent of this face, which was uniformly steep, occupied 4 hrs. (including a halt of 35 min. just below the summit), great care being needed in many places with the step-cutting.

On the following day Mr. Arkle and Mr. C. J. Arkle made the ascent of the peak by the S.E. face, following the same route taken by the previous party on the descent.

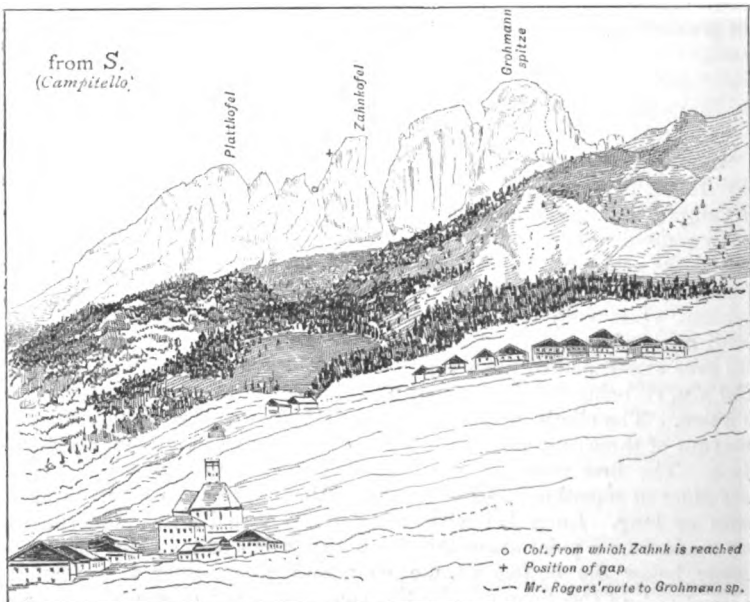
ALPINE NOTES.

SOME ASCENTS IN THE LANGKOFEL GROUP OF THE DOLOMITES.—

(1) *August 31.*—Giorgio and Luigi Bernard, the well-known guides of Campitello, accompanied me in an ascent of the Grohmannspitze by a new route direct from the south side. Giorgio had looked at a certain cleft in the rocks, which runs down from the little gap almost at the summit of the mountain down to within 350 feet of its base, for some eighteen years with an ever-increasing belief in its practicability. Luigi believed that the first 350 feet were inaccessible; but as no one had ever experimented upon this route, we started at the late hour of 6.30 A.M. (it being Sunday) to put Giorgio's hopes, and Luigi's doubts, to a test. The climb began at about 8.45, the guides leaving their two (out of three) ice-axes and their hobnail boots at the breakfasting place. The first reach of rock equalled the commencement of the Sass Maor in smoothness, steepness, and difficulty, but was about three times as long. Luigi led with splendid vigour and skill. The start was made from a point about 200 yards to the left of the point immediately below the bottom of the cleft, and when, after a traverse to the right of the same length, the commencement of the cleft was reached, the guides unanimously declared that the new way had been won. The first feature in the cleft was a perpendicular chimney about 25 feet high, down which a waterfall of melted snow poured. The rocks to the right and left were smooth, glazed, and somewhat overhanging. Luigi accordingly led up straight through the waterfall like a merman, and the rest of the party followed. All the rocks above were glazed or filled with fresh slippery snow. Two other total immersions in chimney-waterfalls induced the guides to name the new cleft the Johannes-Kamin. If it had not been for the waterfalls, the iced rocks, and the snow upon the rocks, the Kamin would have pre-

* For previous attempts by this ridge see *Alpine Journal*, vol. x. p. 233; *Bulletin du Club Alpin Français*, 1889, p. 71.

sented no extraordinary difficulties. Giorgio expressed an opinion that these difficulties would always exist, as the upper part of the Kamn was never without snow, although it was not to be expected that they would exist to such an extent as on the first occasion of their being encountered. As it was, ice, snow, and water rendered the Kamn almost impracticable, and our party only arrived at the gap where the old joins the new route at 1.20, and there unroped and scrambled to the summit (10 min.). Meanwhile, as snow had been falling since 11 a.m., it was thought better to descend by the old route, where, at any rate, the last man could loop the rope round jutting pieces of rock. The guides, however, had never seen the northern gully in such a bad snowy condition. Rock-climbing in difficult places was out of the question, and in two places—the descent into the

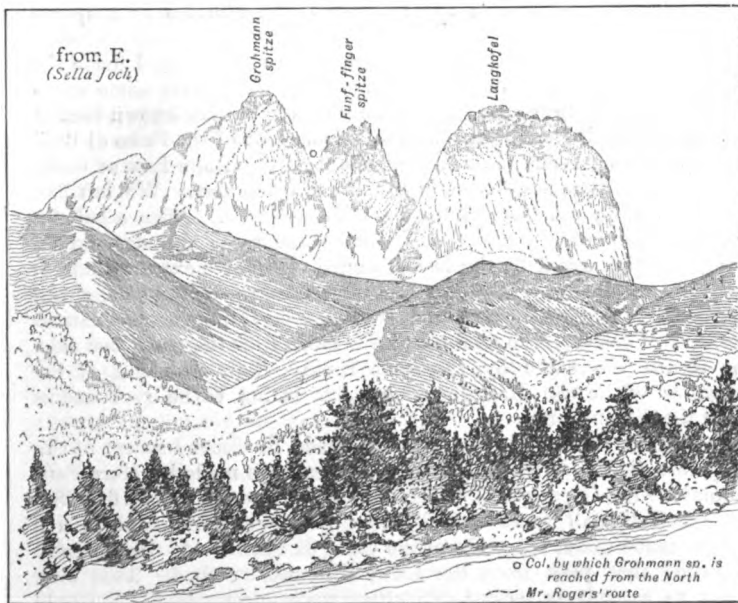


gully and traverse from left to a point right of the gully (as you face it)—more reliance was placed upon the rope than is usually advisable. The last difficulty in the descent—namely, the 50-foot traverse from right to left—was surmounted at about 5.30. Luigi was last man over three parts of the descent; Giorgio then took his place. As the easy rocks which remained were covered with more than a foot of snow, and as it did not cease to snow until about 8 p.m., Campitello was only reached at 10 p.m. No pauses were made except for breakfast (8.20 to 8.45) and lunch (1.30 to 2). Luigi's skill and strength in climbing, and Giorgio's coolness, and steadiness, and judgment merited the highest praise. There was a cold mist, but little wind. (2) Giorgio Bernard accompanied me in a third ascent of the Zahnkofel from the

Campitello side on August 28. The first ascent from this side was made on June 16 by Herr Max Schlessinger, accompanied by Giorgio and Luigi Bernard. As no Englishman had previously ascended it, the following account of our ascent may be of interest:—After ascending to the Joch between Zahnkofel and Plattkofel, and then turning back and down to the right for about 100 yards, a series of easy chimneys leads to the two difficulties of the ascent. The first is a long steep chimney (about 80 feet), rather like that on the Cima dei Canali, and this leads to the little gap, or lücke, visible from Campitello. After this, a climb of about 80 feet on fairly smooth and steep rocks rather like those on the traverse on the Croda del Lago, brings the climber to a point from which the summit is easily reached in 15 min.—4½ hrs. in all from Campitello. It is an extremely interesting and fairly short excursion, and no difficulties were encountered from snow and ice, although there had been heavy snowfalls a few days previously.

J. D. ROGERS.

FÜNFINGER SPITZE.—This rock, shown in our illustration between the Langkofel and the Grohmannspitze, was ascended (August 8, 1890) by Herren Schmitt and Santner. The ascent was made from the



Sella Joch, and is described by Herr Schmitt, who is well qualified to express an opinion, as 'by far the most difficult which I have ever undertaken.' From his account in the 'Oesterreichische Alpenzeitung' (No. 304, p. 215) we should judge that nothing short of Mr. Willink's illustrations to 'Snap' (which visitors to the Picture Exhibi-

tion of last December will recollect) could give any adequate idea of the more exciting incidents of the climb.

TWO NEW ASCENTS AT SAN MARTINO.—On August 3 I made, with M. Bettega, of San Martino, the first ascent of the Cima Cugilio, the highest of the western offshoots of the Rosetta. The route taken was straight up the gully leading to the arête between the double peak. No particular obstacle was encountered till near the end, when the gully narrowed to a Kamin of extraordinary difficulty. Ninety-eight feet of rope was requisite for the upper part of it, which Bettega insisted on climbing in spite of my wishes to try another route, as there would have been no possibility of my holding him in case of his slipping. Another route was discovered for the descent, descending about 200 feet on the side facing the Rosetta, then traversing the arête separating my peak from the lower Figlia della Rosetta (first ascended in 1889 by Herr von Radewski, with M. Bettega), and joining the route taken on the ascent about 200 feet below the Kamin. No particular difficulty was met with, but the rocks were bad and at some points the falling stones were troublesome. Time, $4\frac{1}{2}$ hrs. up, $\frac{1}{2}$ hrs. down, including several long halts—slow walking, as I had come straight out from England. The 'kamin' is certainly the hardest on any of the ordinary routes up the San Martino or Ampezzo Dolomites.

On August 7, with Bettega and M. Barbaria of Cortina, I made the first ascent of the Cima di Pradidali; not the peak of that name mentioned in Herr Meurer's guide, which appears to be that known locally as Cima di Val di Roda, but the peak on the right of the Passo di Ball, which presents a remarkable appearance from the Rolle Pass as being inclined at a considerable angle to the perpendicular. We left San Martino at 3.30, and reached the Passo di Ball at 6. After a halt for breakfast, we walked round the N. face of the rock, and decided on attempting the ascent by the last principal chimney next the Cima di Ball. From thence to the top took three hours—a most delightful climb and easy, though snow and some ice on the upper part caused considerable delay. The final climb was made from the south-east side. The return was made by the same route. This was one of the pleasantest of the San Martino ascents, but is not to be reckoned as one of the difficult ones.

On August 18, I, with M. Barbaria, made the second ascent of the Campanile di Val di Roda, the first having been made by Herr Paul Neumann with Giuseppe Zecchini, of San Martino, on July 16, 1889. The Passo di Ball route was followed for about 2 hrs., and then a traverse made under the rocks of the Cima di Val di Roda till the gully separating that peak from the Campanile was reached. This took $2\frac{1}{2}$ hrs. to ascend, as serious difficulties were encountered. It would be easy, or perhaps impossible, according to the state of the snow and ice. From the pass to the top was exactly 1 hr., the greater part easy, though one chimney was met with which was no easier than the well-known one on the small peak of the Sasso Maor. This is one of the most varied and interesting ascents at San Martino.

J. T. H. WOOD.

JÄGERJOCH.—Mr. L. Norman Néruda with Chr. Klucker crossed this pass on August 23, 1890, from Zermatt to Macugnaga, ascending the Jägerhorn from a point to the north of the Joch, on the way. He was at the time under the impression, which Dr. Curtius, who crossed the Horn from Macugnaga just three years earlier,* appears to have shared, that it had never before been traversed in that direction. As a matter of fact, however, the pass was so traversed by Mr. W. E. Davidson with Ferdinand Imseng in 1876, though the fact seems never to have been recorded in these pages. This party did not climb the Horn, the weather being unpropitious; but that part of the route was accomplished by Mr. Peebles-Chaplin shortly afterwards. So far as can be ascertained, he ascended by the north side, and descended to the west side, returning to the Riffel. Mr. Norman Néruda's actual line of climb up the final peak, which occupied a little over a quarter of an hour, seems to be new.

DOM.—Mr. Norman Néruda and Klucker made, on August 12, a variation, which, though probably not new, has not been hitherto recorded, on the descent from the Dom to Randa. The snow was in good order, so instead of retracing their steps over the ordinary 'snow-route,' they climbed straight down and through the séracs between that and the 'rock-route,' thus making the entire descent from the summit to Randa in 2 hrs. 25 mins.

MONTE GIRALBA: A CORRECTION.—By an oversight, Mr. Norman Néruda's ascent of this peak was recorded in the last number (p. 315), among the 'New Expeditions.' It had escaped both his notice and that of the Editor, that its ascent had been duly effected by Mr. Holzmann at some unspecified date previous to August, 1874.† In those days a secondary peak, under 10,000 feet high, was less of a prize than it now is, and Monte Giralba was not even accorded a place in the index to the volume.

WETTERHORN: DESCENT BY THE RENFEN GLACIER.—Mrs. Main writes: 'Leaving Grindelwald on September 14, Herr Theophil Boss and I, with Ulrich Kaufmann and Christian Jossi, slept at the Glectstein hut, and went up the Wetterhorn the ordinary way. We came down the Rosenlauri side until we got to the snow-basin where one begins to go down to the left for the Dossen hut. This basin we crossed, and made as if for the Gault Pass; but the guides were struck with a brilliant idea of getting down quickly to the Urbach Thal. So when we reached the great snow-plateau, we bore to the left, and came to the top of a very cheerful-looking icewall. Here we should have steered to our left, and gone down partly by the rocks of the Dossenhorn, and partly by snow close to them. But, in our ignorance, we bore very much to the right, and after two hours' step-cutting gained the rightmost rib of rock, and got down without any further trouble, except that we had to build a bridge over the Urbach. This line of descent, direct down the middle of the Renfen Glacier,‡ the

* See *S. A. C. Jahrbuch*, '87-'88, p. 51.

† See *Alpine Journal*, vol. vii. p. 27.

‡ *Ibid.* vol. iv. p. 256; vol. ix. p. 488.

guides believe to be new. On a nice warm July afternoon it would probably be accelerated by avalanches.'

WINTER ASCENT.—The 'Journal de Genève' of January 25 announces that on January 14 Dr. Güssfeldt with Emile Rey and a troop of men ascended the Grandes Jorasses (first winter ascent) from Courmayeur. Top reached at 1 P.M., hut regained at 7. A great track had been made by a party of men sent some days before to clear the way as far as the Italian Club hut.

A NEW DESCENT FROM THE SCHRECKHORN, AND SOME NOTES FROM THE ZERMATT DISTRICT.—The following notes may be of interest to some of your readers: On July 25 last, having made the ascent, the first of the season, of the Schreckhorn, with Christian Jossi, of Grindelwald, and Joseph Taugwalder, of Zermatt, and having reached the summit early (at 7.40), I determined to try what I had often had in my mind—the descent of the mountain by the east side to the Glectstein hut. Accordingly, having halted an hour on the summit and enjoyed the magnificent view, under the influence of the soothing pipe, we started down at 8.45, taking to a rib of rock running apparently half-way down the east side, starting just south of the first or pseudo-summit of the mountain, and bounded on the left by a long and nasty looking ice couloir. Owing to the high angle at which the mountain lies on the east side, great care had to be exercised, and we were some two hours in descending to the extremity of the rocks; we then had to cut downwards across the ice couloir on the left to a patch of rocks on the left; this took us till 12.30. From the end of these rocks we cut across the couloir to what seemed the continuation of our original rib, whence we reached the foot of the mountain in an hour more; this brought us to the south-west of the snow-saddle, running to the Lauteraarjoch rock arête, and a quarter of an hour's walking found us on the upper Grindelwald glacier. Unfortunately, here, fog and rain came on, and from 2 till 10 we erred on the glacier, not able to see a yard in front of us, and spoiling considerably the pleasure of a most successful and enjoyable expedition. The rocks are good and the expedition seems to me, with ordinary care, a good one, and not dangerous, and, besides, likely to be less trying and laborious than the traverse the reverse way successfully accomplished by Messrs. Pendlebury and Woolley.

I can endorse what Mr. P. W. Thomas says in the August number, with regard to the ascent of the Dom by the south-west rock arête, though I would differ from him in calling them easy rocks; I should call it a really good climb, and one, I think, but seldom made. I would also point out that I believe the way up the Dent Blanche from the Schönbühl glacier by the rocks, striking the rocks of the south arête at their beginning, is a better and a shorter climb than the ordinary way. Though probably known, I doubt if the route was used before my ascent of the season before last, but the *gîte* of the Schönbühl glacier is a very good one, and by following Mr. Whitwell's route (*vide* Conway's Guide) about half-way, and striking the south arête at its commencement, you make the Dent Blanche a rock climb the whole way, and can avoid the bad snow of

the descent by the ordinary way. I may mention that for those who go up to the Trift hut for Ober Gabelhorn or Zinal Rothhorn, are overtaken by doubtful weather, and have to return to Zermatt—an oft-recurring experience last season—the Unter Gabelhorn by the rocks direct from the hut is a good climb of some $2\frac{1}{2}$ to 3 hours.

CLAUDE A. MACDONALD.

THE SWISS ALPINE CLUB.—The assembly of delegates of the Swiss Alpine Club met on October 13, 1890, at Baden to transact business. It was agreed to form a special library of works relating to the mountains, which is to be housed with, but kept distinct from, the Town Library of Zürich. It was resolved that from January 1, 1890, the Club should issue a periodical publication, which is to appear at shorter intervals than the "Jahrbuch," and also to increase the sum set aside for defraying the expenses of the "Jahrbuch," which is to be improved in several aspects. The club will henceforth pay 5 per cent. (instead of 3 per cent.) of the insurance policy effected by each guide against the danger he runs in pursuing his calling; but the question of framing a general tariff of the amount to be paid to each guide for every mountain expedition throughout Switzerland, was postponed on the ground of its complexity. The sum of 400 francs was granted to the Commission engaged in making scientific observations on the Rhone glacier. The club festival of 1891 will take place at Zofingen.

HEIGHT OF SOME NORTH AMERICAN PEAKS.—We read with some relief in the 'Oesterreichische Alpen-Zeitung,'* that Professor Heilprin's final results leave the great Mexican peaks in a very fair position among the big mountains of the world. Orizaba comes out at 5,549 mètres=18,207 feet, Popocatepetl 5,341 mètres=17,515 ft., and Iztaccihuatl 5,170 mètres=16,950 ft. (It does not appear whether this last is given as the height of the actual summit, or of the point, a little below the actual summit, which Professor Heilprin reached; probably the latter, as his measurements were barometrical.) On the other hand Mount St. Elias has been terribly reduced by the latest survey. Its 19,000 and odd feet have, in the hands of the emissaries of the United States National Geographical Society, come down to something less than 14,000. We believe it has been recently decided that Mount St. Elias is in British territory.

A COMPANION OF ALBERT SMITH.—The Club Library has acquired a little book, privately printed at Manchester in 1851, entitled 'A Reading Party in Switzerland; with an Account of the Ascent of Mont Blanc on the 12th and 13th of August, 1851. By Francis Philips, Christ Church, Oxford.' Mr. Philips and his friends were the party who accompanied Albert Smith, or rather whom he joined. Thus we have an independent account to compare with Albert Smith's better known one. In all material particulars they agree; but towards the end of Mr. Philips's narrative is this curious passage:

* *Oe. A. Z.* No. 310, p. 289. The same number contains an account of the ascent of Ajusco (13,612 feet—English or Viennese is not stated). This appears to be a perfectly easy expedition.

'We all commenced the ascent with the impression of finding the fatigue and danger much exaggerated. Albert Smith in particular fully intended to expose the whole affair as an imposition, fancying the guides were leagued together in representing it as much more hazardous than would prove, on trial, to be the case.' This is quite inconsistent with the fact that Albert Smith was already by no means a stranger at Chamonix, and with the tone of his own narrative. It seems probable that, although he speaks with much cordiality of his companions in the ascent, he could not resist the temptation to mystify them to some extent. They were innocent enough for it. Mr. Philips relates how they solemnly put themselves into training, and called for *bifstek à l' Anglais*, ten days beforehand. Anyhow, the noble invention of Bompard in 'Tantarin sur les Alpes,' is here, though in meagre fashion enough, anticipated. F.P.

TRAVEL IN THE CAUCASUS.—Mr. Douglas Freshfield has, in reply to inquiries he addressed to Mr. Peacock, H.B.M.'s Consul at Batoum, received the following very satisfactory communication. The best thanks of English mountaineers are due to the Governor-General of the Caucasus for the liberal facilities that have always been accorded them by the higher authorities, and it may be confidently hoped that cases of over-zeal on the part of local officials, such as were reported last summer, will not occur again after this emphatic expression from the Governor-General himself:—

'British Consulate, Batoum,
'December 24, 1890.

'I hasten to inform you that in reply to my letter addressed to the Governor-General of the Caucasus, with reference to the question of right of travel in this country, I have received an official communication that no special permits are required either in the Terek district or Daghestan, or, in fact, in any part of the Caucasus.

'In applying for information on that subject I had, of course, to mention the difficulties encountered by Mummery and Petherick, and again by Baker. The authorities are desirous to know the names of the local officials who demanded special permits, in order to be able to impress upon their mind that, in future, travellers are to enjoy perfect freedom in the Caucasus. 'D. R. PEACOCK.'

AN ALPINE QUERY.—A gentleman asked me gravely last year in the Alps, 'Why do mountaineers take *two* guides with them? Is it in case they should lose one?' F. T. WETHERED.

THE NEW EDITION OF 'THE ALPINE GUIDE.'—As will be seen from the circular published in the present number, the promises of subscriptions have reached a sum sufficient to justify the Committee in thinking that, although the list is still open (which readers will kindly note), practical steps may now be taken to proceed with this work. The Editor will be glad to hear from any members who are willing to give assistance. It should be understood that the object is not to rewrite the book. Except in matters of detail, as where heights have been more accurately determined, old inns improved, club-huts substituted for the precarious shelter of Sennhütten, almost

everything that Mr. Ball wrote is of as much service to travellers now as it was fifteen years ago. It will be only necessary to bring the work up to date, preserving the lines which he laid down. Nor is there any intention of entering into competition with 'The Pennine Guide,' or other books adapted solely to the requirements of the *Hochtourist*. It cannot be too carefully remembered that the ultimate divisions of the book are 'Routes,' not 'Excursions;' and that while due notice is taken of the more important peaks, it has not been thought necessary to give minute directions for the ascent of every point in every ridge. At the same time an endeavour will be made to render the new edition a trustworthy guide for mountaineers. The best service towards its preparation will be done by those who will act (to borrow an apposite term used by Mr. Tuckett in a letter to the present writer) as 'topographical missionaries,' those, that is, who will devote a part of their next summer's tour to working out in detail one or more sections of the book—correcting and supplying as may seem to them necessary. The most gratitude will, of course, be earned by those who will undertake the least-frequented districts. For the great Italian, French, and Swiss 'centres,' and several of the Tyrolese groups abundance of information is to be got from English sources, though, in the case of the latter, we should often be all the better for such careful working as a few of our members have bestowed on the South-Western Alps. But when we come to districts like the Silvretta, and its northern division the Ferwall group (reported to offer some of the best rock-climbing in the Alps), or to the ranges east of the Glockner, or to those that enclose the Ultenthal and Val di Rabbi, we shall find plenty of work for our 'missionaries.' Let them name their sections, and they shall be supplied with interleaved copies and pencils.

REVIEWS AND NOTICES.

Jahrbuch des Schweizer Alpenclub. Vol. XXV. 1889-90. (Bern: J. Dalp).

THIS volume, No. XXV., is larger than any of its predecessors, containing no less than 744 pages. As in previous volumes, the interest passes more and more from the accounts of mountaineering expeditions to the articles which are indirectly connected with the Alps in the departments of history or science. In the Preface the Editor (Herr A. Wäber) calls the particular attention of the Club to three points. (1) The request of Professor E. von Fellenberg for specimens of rock from new summits to enable him to classify their geological position and to correct errors. This request is motivated by the fact that Herr Montandon found granite on the top of the Lauterbrunner Breithorn, which has hitherto been regarded as entirely limestone. (2) Another request from Herr Reber, asking tourists to spare the trigonometrical signals set up by the Federal surveyors. When on the Fluela Schwarzhorn preparing to observe the signal on the Scesa Plana, 40 kilomètres (25 miles) distant, the first thing he saw was a party of

tourists engaged in demolishing the signal. He had to send two men to rebuild it, and several days were consequently lost. (3) The necessity for the different sections of the Club sending in a list of the guides to whom they have granted certificates. He has repeatedly urged this on the Club, but with indifferent success, the section Rhätia alone having furnished him with a list. The Editor announces his resignation, after having occupied the post for nineteen years. His task has been an arduous one. It is now proposed to establish a central secretary's office, in whose duties the editorship of the 'Jahrbuch' will be included.

The following new ascents, or ascents by new routes, have not already been noticed in the 'Alpine Journal':—

In the Mont Blanc range the Grand Luis (? 3,500 mètres = 11,483 feet) was ascended by MM. Attinger, Colomb and Kurz, with two guides and a porter, on June 3.

In the Bernese Alps the Viescher-Gabelhorn (3,870 mètres = 12,697 feet) was ascended by the brothers Paul and Charles Montandon, without guides, August 8. This mountain is a summit lying between the Kamm and the Gross Wannehorn in the chain which divides the glaciers of Aletsch and Viesch.

The Lauterbrunner Breithorn (3,143 mètres = 10,312 feet) was ascended on August 4 by the same with three friends, without guides.

On August 6 the same party made the ascent of the Jungfrau from the Roththal Hut by the S.W. ridge. They think the difficulties of the ascent have been underrated. It is curious that on the occasion of the first ascent by this route it should have been regarded as comparatively easy by a person who had never done anything harder than the Tschingel Pass. The difficulties must vary enormously with the weather and the state of the snow. Herr A. Beck alone ascended on August 10 the Ghudelhorn (2,427 mètres = 7,962 feet) and the Schaffhorn. There are two subordinate peaks in the ridge which descends from the Tschingel Grat to the valley of Lauterbrunnen, the latter involving a short but rather dangerous scramble. Pfarrer H. Baumgartner and two friends, Dr. Körber and Professor Studer, with the guides, J. Tannler, A. Anderegg, and J. Moor, starting from the Pavilion Dolfuss on July 10, made their way to the Vorder Trifthorn glacier, W. of the Hühnerstock ridge. The ridge was attained by a steep couloir, and after a difficult climb they reached a peak, which they call the Hinter-Hühnerstock. To the N. of their peak was the culminating point with the stone man, which was ascended by Messrs. Coolidge and Gardiner in 1886; to the S. a lower point, which they concluded to be the point marked 3,310 mètres on the Federal Map. Their peak appeared very slightly lower than the main peak, and they put its height at *circa* 3,340 mètres, or 10,950 ft., whilst the Editor gives it the same height as the main peak (3,348 mètres). Messrs. Coolidge and Gardiner, on the other hand, from the summit saw no peak so nearly approaching to it in height.* It is improbable that two such experienced mountaineers should be mistaken in this matter. It is

* See p. 324.

also much more easy to misjudge a higher peak when seen from a lower one than the reverse.

In the Dammastock group Herr E. Huber, with the guide Joseph Gamma, on September 12, ascended the Gletschhorn (3,307 mètres = 10,850 feet) from the Geschenen Alp. They built no stone man, and left no card. Being a teetotaller (abstinenzler) he had no bottle. This was probably the first ascent by tourists, though the summit had probably been visited by crystal-hunters.* The Salbitschyn (2,989 mètres = 9,807 feet) in the ridge E. of the Voralpthal was ascended by the same on July 27, and the Stücklistock (3,309 mètres = 10,862 feet), N. of the Fleckistock, no less than three times, on April 14, November 4, and November 17. On the second occasion a new descent was effected by the Ruti glacier into the Meienthal. This mountain had not been ascended for twenty-four years. Herr Huber with Gamma, starting from Amsteg at 1.45 A.M. on September 13, reached the summit of the Oberalpstock by the Regenstalden † glacier at 1.30 P.M., and the Rusein Alp over the Cavrein Pass at 5 P.M., a very long traverse, involving a climb of 2,800 mètres (9,186 feet).

The first ascent of the Sustenhorn (3,512 mètres = 11,522 feet) from the Voralpthal was made on August 4 by Herr C. Seelig with the guide, Jos. Zraggen.

The Gross Zanayhorn (2,825 mètres = 9,269 feet), S. of Piz Sol in the Graue Hörner, was ascended by Herr E. Imhof alone on July 22, and a week later by Dr. W. Gröbli with the guide D. Kohler.

The central peak of the Fluchthorn (Silvretta group) was climbed on August 22 by Herr H. G. Schwarz with the guides J. Lorenz and G. Walter, of Galthür.

Herr P. H. Kind, in an account of a tour from Elm to Vättis over the Muttin Grat, gives some interesting particulars about the colonisation of the Kalfeuserthal by Walliser (or 'Walser') early in the fourteenth century. These were tenants under the convent of Pfäfers, which owned all the land from Ragatz to the Kunkels Pass, and they were brought there to occupy and increase the value of the convent property.

Herr Aug. Walker gives us three expeditions in the Dolomites, the last being the ascent of the Grosse and the Kleine Zinne on the same day, August 4. His guide, Veit Innerkofler, though he had only made the ascent once before, found the somewhat complicated route up the rocks without a check. Michael Innerkofler, who perished in 1887 on the Cristallo, had been leader in the previous fifteen ascents.

The Triglav (Terglou) (2,864 m. = 9,396 ft.) was ascended by Herr E. Chambon and two ladies, with the guide Skumanc from Moistrana. There are now three huts on this mountain:—(1) The Maria Theresien Schutzhaus (2,404 m. = 7,887 ft.) on the S. side, under the Little Terglou, on the usual line of ascent from Mitterdorf, in Wochein. (2) The Baumbach Hut (600 m. = 1,968 ft.) at the head of the Isonzo Valley, on the so-called Kugy route. (3) The

* See p. 311.

† *Alpine Journal*, vol. ix. p. 369.

Deschmann Hut (2,200 m. = 7,218 ft.) on the N. side, on the line of ascent from Moistrana. A path has been constructed and wire ropes fixed in several places. This route will probably be the one most followed in future ascents.

Herr Rutimeyer Lindt considers that he found an easier route up Mount Serbal (2,052 m. = 6,732 ft.) than any previous explorer, from Wadi Aleyat, by the ravine of Abou Hamid. In Wadi Barak he gathered a plant (*Lasiospermum brachyglossum*) hitherto only seen S. of the Equator in Namaqualand.

In a chapter on the 'History of the Special District for 1888-9,' Prof. G. Meyer v. Knonau gives an interesting account of an old map found in Vol. I. of the 'Theatrum Europæum.' This work was commenced by Matth. Merian, a native of Basel, who settled at Frankfurt-am-Main. Vol. I. was published in 1635, and contains the account of events during the period 1619-1629. The map (of which the W. half is reproduced in the text) included the Prättigau, Mayenfeld, Chur, and the Valley of the Plessur. It was meant to illustrate the troubles during the war, called the 'Prügelkrieg,' between the Austrians and Graubünden in the years 1621-1623. Not only are the mountains, rivers, towns, &c., pictorially represented, but we see the very conflicts taking place. Chur has a fort on the S. side, and on the N. a girdle of fortifications from the Rhine to the mountains. The assailants are seen swarming round the defences. Further N., between Mayenfeld and Luziensteig, the whole valley is full of the contending hosts. We see the cannon firing and villages burning. Prof. Meyer gives many interesting particulars about Sargans, which, after being for four centuries a subject land of the VII. Orte, was, in 1803, attached to the Canton of St. Gall. When the Constitution (Mediation) came to an end with the fall of Napoleon, an agitation was commenced in Sargans for joining either Graubünden or Schwyz. It was abandoned as hopeless in November 1814; but the effects are even yet visible.

Few of the travellers who, in passing Chur, look up to the cliffs of the Calanda, above Felsberg, are aware that there is a gold mine in the face 700 mètres (2,300 ft.) above the river. The gold was first observed in the stones used for building a dyke near the Rhine about the beginning of the century, and a company was formed to work it in 1803. The gold (as Herr E. Bossard tells us) was found in a vein of quartz and felspar, running at an angle across the strata of limestone. The vein varied from 8 inches to 5 feet in thickness. Sulphate of iron and of arsenic (Schwefelkies und Arsenkies) were present. The gold was found in a very pure condition, often in the form of 'octahedra.' One piece was found worth 400 francs (16*l.*). After some time they drove through the lode, and, not observing the fact, worked on into the limestone. The workmen did not mind, as they were paid by the cubic foot, but the directors were in despair. They sent for a somnambulist from Zürich, who indicated a spot 300 mètres (1,000 feet) lower down. Here they sunk a shaft 80 feet deep without success. Meanwhile, the somnambulist had disappeared. The wife of the manager, Hitz, now assumed the part of clairvoyant, and selected a

spot lower down, where they drove a gallery 330 feet long and a shaft 60 feet deep. Two other attempts were made at spots pointed out by her, one of them near (W. of) the original entrance; so that now 5 adits and 3 shafts had been made, of which only the first was productive. The company dissolved with great loss about 1830, having spent upwards of 70,000*l.* in these vain attempts. In 1856 search was made in the original adit, and some fine specimens of ore were found for the exhibition at Bern in 1857. The direction of the vein was observed and the mine was worked until 1861. The proportion of gold was about $\frac{1}{2}$ oz. per ton of the matter which came to the smelting-house. Up to the present time the mine has been worked at intervals, but seldom profitably.

Bezirk's-Förster Bächtold tells us of the wood on the Gonzen, near Sargans, and the iron mine there. This was worked in Roman times, and documents concerning it go back as far as 1438, chiefly concerning the rights of the mine to wood and charcoal, which the owners, on the one hand, sought to maintain, and the neighbouring parishes, on the other, sought to restrict. In 1823 the mine came into the hands of the Neher family, who worked it until 1868, when it was stopped owing to the low price of iron. The working was resumed in 1878, but, to ensure success, better modes of transport and of smelting are required. The mine is 1,100 mètres (3,600 feet) above the floor of the valley, and the cost of transport at present is 8–10 francs per ton from the mine to the smelting mill. Concessions have been granted for a tramway, and also for an aerial railway (*Drahtseil*), but neither has been constructed. The Gonzenwald, which is so valuable to the mine, extends from 740 mètres (2,428 feet) above the sea to 1,250 mètres (4,100 feet), and its surface covers 81·87 hectares (202 acres). The presence of iron in the mountain is said to make the wood more valuable. Up to 1874 the cutting of the wood was not regulated, and the leaves were carried away by the neighbouring *Gemeinde*; but now the former is under careful supervision and the latter forbidden. The leaves formed a rich 'humus,' which not only favoured the growth of the trees but prevented sudden inundations.

The great finds of quartz crystals in the Alps have been but few. The greatest was found in 1719 on the Zinkenstock, the terminal mountain between the Ober- and Unter-Aar glaciers. The editor (Herr A. Wäber) found in the museum at Bern a pamphlet, published in 1721 by David Marki, Pfarrer at Diemtigen (Simmenthal), who visited the cave in 1720. He describes his journey up the Hasli Thal to the Grimsel Hospice and the crystal hole, and gives many curious particulars. A white quartz band in the rock (*Blust*) was observed by Melchior Brügger, a crystal-hunter. He showed this to Peter Moor, a miner, and they thought it promised good results. Early in the summer of 1719, along with three brothers of Moor and five paid workmen, they began, and drove an adit six fathoms in length. Here Brügger was discouraged and gave up. Moor had no means to go on himself, but he succeeded in interesting other persons, and in the autumn they began again, and four days later broke into the crystal cavern. This was 60 ft. in length, by about 25 ft. in width. They got out

about 25,000 lbs. weight of crystals before the winter compelled them to desist. They then walled up the entrance. In spite of this the mine was plundered during the winter, though not completely, since Marki saw crystals there in 1720. Brügger now brought an action against Moor for a share of the profits, and a certain sum was paid to him as discoverer. Thus the Bern authorities heard of the find and they claimed the tithe. Hence proceed the crystals of this date in the Bern museum. At first the crystals were disposed of to dealers from Uri and Wallis to little profit; but later an arrangement was made with the convent of Engelberg to convey them into Italy. The convent willingly undertook this, as the owners spent much of the proceeds in goods which they brought from Italy. The traffic was carried on at first over the St. Gothard Pass, but later over the Grimsel and Gries Passes. The search for crystals became now so animated and successful that the commune of Meyringen in the Hasli Thal were able in 1734 to regulate the course of the Albach at a cost of 1,426 kronen 10 batzen, entirely out of the tithe paid on crystals. There were subsequently considerable finds of crystals in cantons Wallis and Uri, notably that of 1868 on the Tiefenstock, but none of them approached in value that on the Zinkenstock.

At the Club festival in 1889 a paper was read by Prof. C. Schröter on Oswald Heer, the naturalist. A list of his works is given, &c., but the article is chiefly devoted to showing his love for the mountains. He made two first ascents, that of the Piz Linard in the Lower Engadine, August 1, 1835, with the guide Madutz (so often mentioned in the early Swiss tours), and that of the Piz Palù in the Bernina group, with the well-known chamois-hunter Colani.

Prof. F. A. Forel, in his 10th Report on the 'Variations périodiques des Glaciers,' states fifty-five glaciers are retreating at the end of 1889, as against forty-two at the end of 1888. The movement progresses from west to east. Whilst all the glaciers of the Mont Blanc group are now advancing, those of the eastern Alps (with the exception of the Ortler group) are still retreating.

Herr L. Held, after summarising the glacier observations from those of Venetz in 1822 to the present day, reviews the work done on the Rhone glacier from 1874 to 1888. Four rows of stones coloured black, green, yellow, and red were set up across the glacier at elevations of 1,800, 1,890, 2,420, and 2,550 mètres above the sea. Two lines were above the icefall, and two below it. These rows contained respectively 25, 27, 56, and 53 stones of larger size with numbers. At present the black row has cleared the glacier, and the green one also, except a few stones on the moraine of the left bank. The yellow row has passed the icefall, twenty of the fifty-one numbered stones being still visible. The greatest speed attained by this row was 210 mètres (690 ft.) in the year. The red row reached the position of the yellow one in 1886. Its greatest speed was 119 mètres (394 ft.) in the year. Stones that fell into crevasses mostly reappeared below in line with their fellows in the row.

The ablation or decrease of the ice in thickness was on the red line on an average 3 mètres (10 ft.) per year; on the yellow line 4-4½

mètres (13–14½ ft.) per year, and on the green line 12–13 mètres (39–42 ft.). No variation in speed was noticed to a depth of 30 mètres (98½ ft.) below the surface.

Herr A. Wäber made an attempt to find the route from Adelboden to Sierre over the 'Strubeleck' Pass. This pass is described in general terms in Ball's Guide, ed. 1873, Central Alps, p. 47. Leaving Adelboden on July 18 the party spent the night at the Adelboden Alp (1,940 mètres). On July 19, starting at 1.45 A.M., they crossed the Amerten Pass, ascended the Gross-Strubel, and reached the Strubeleck at 9.30 A.M. From this they ascended the Steghorn at 10.30. No descent to the south seemed possible, nor a direct ascent from Adelboden to this point. The party made their way down the steep rock faces of the Steghorn to the Lammerthal and the Gemmi Pass, and thence to Schwärenbach.

The excursion district for 1890–91 is the Prättigau and adjoining valleys, and includes sheets 273–4, 415–16, and 418–19 of the Siegfried atlas. The map of the district in the folding case is a model of excellence. In 1888 125 guides were insured for 373,000 fcs. In 1889 75 guides for 247,000 fcs. The Club still continues to pay 3 per cent. of the premiums. The Zürich office refuses to pay the insurance money to the relatives of Kaspar Streich, who perished in the Caucasus; a subject on which we shall probably have more to say in a subsequent number.

The Club have managed to stop the advertisements which defaced the cliffs near the Devil's Bridge. No new ones will be put up, and the old ones are to be removed.*

They will take no part in forwarding the Jungfrau railway. Great defects are reported in the 'mountain huts,' and much injury from weather. In November 1889 the Stockje hut was completely destroyed by an avalanche. Henceforward the Club will only allow huts to be built where situation has been carefully examined, and whose structure is of the most solid character.

The Bêtamps Legacy (3,000f.) is to be applied to building a hut on the Platte on Monte Rosa at a height of 2,990 mètres (9,810 feet).

* [This unhappily turns out to be premature. From a circular which we have received from the Committee of the S.A.C. it appears that no legal power exists which can either restrain the Corporation of Ursern—i.e. the united parishes of Andermatt, Hospenthal, and Realp—to which the land belongs, from letting it, or annul the contracts under which the lessee has, for a consideration, permitted various tradesmen and innkeepers to disfigure the place. The Corporation has indeed somewhat grudgingly consented to cancel the lease, if the lessee is willing. This person, however, declines to forgo the 1,500 francs a year which he expects to make. Under these circumstances the occasion would seem to be a good one for a little 'exclusive dealing.' If all tourists who resent this disfigurement of some of the grandest scenery in the Alps will resolve, so long as the objectionable *réclames* remain, to put up at some other hotel than the 'Bellevue' or the 'Tourist' at Andermatt, it is possible that in a year or two Herr Sebastian Christen-Kesselbach will find it his more profitable course to cancel his contracts with the advertisers (one of whom is his own son, the landlord of the 'Tourist'), and pay such forfeit as they may require.]

The commune of Zermatt has granted the site, but forbids the establishment of a restaurant.

A list is given of no less than 537 Alpine huts, of which some 40 are building or to be built. Of these 273 are opened as inns during the summer, amongst them being included such as the Eggischhorn and Bel Alp Hôtels, the Monte Generoso Hôtel, &c. The highest yet built is the cabin on the Italian side of the Matterhorn (4,144 mètres = 13,498 feet), and the highest projected is that on the summit of the Punta Gnifetti (4,540 mètres = 14,896 feet).

At the end of 1889 the Club numbered 3,344 members, and had a balance of 39,755 francs.

Besides numerous illustrations in the text, the map of the special district and five larger views are in a folding case which accompanies the volume. J. S.

Bollettino del Club Alpino Italiano per l'anno 1889, No. 56. (Turin, 1890.)

The latest 'Bollettino' of the Italian Alpine Club contains a larger number of interesting and valuable papers than has been the case for some years past. Signor Vittorio Sella gives a detailed account of his journey in 1889 to the Central Caucasus. This was undertaken mainly for photographic purposes, and a list of 113 photographs taken, appended to the paper, shows how valuable the results of this journey have proved. The small map given is rather indistinct, but the twenty-one reproductions of photographs which illustrate the article are very interesting, and are generally accompanied by useful notes. This is also the case with the large panorama from near the summit of Elbruz, which thus forms a very useful key to the original magnificent photograph. Signor Sella adds to his narrative some useful practical hints for future explorers in the Caucasus.

Next come two very thorough and complete monographs on particular groups. Signor Bobba describes in detail the ranges round the little known but very beautiful valley of Rhêmes, one of the southern tributaries of the Val d'Aosta. It is to be hoped that it will be reprinted (a number of small slips and misprints having been corrected) in a separate form (together with the many illustrations which brighten it), as it is a model guide-book to the mountains of Rhêmes. The other is a joint paper by Signori C. Fiorio, C. Ratti, and G. Rey on the Aiguilles d'Arves, three fine rocky pinnacles which rise on the borders of Dauphiné and Savoy. These gentlemen have (without guides) ascended the central and southern aiguilles and the lower point of the northern one. They seem to have found the central peak more difficult than usual, but are certainly not inclined to minimise the horrors of the *mauvais pas* on the southern one. Save the actual details of their ascents, almost every fact in their paper may be found in Mr. Coolidge's numerous articles on the group and in the works referred to in the bibliographies of the 'Guide du Haut-Dauphiné.' It would, perhaps, have been more graceful if a fuller and more direct acknowledgment of this perfectly lawful borrowing had been given. As to other points, it may suffice here to say that many photographs (though mainly unpublished) of the Aiguilles are actually in existence, and that the defeat

of the Austrian party on the southern aiguille cannot have been due to the shock of Zsigmondy's death, which took place a fortnight after, not before, the attempt on the peak. It was quite unnecessary to query one of the 'times' recorded by Mr. Coolidge on his second ascent of the same summit, as it is copied quite accurately from these pages. Two useful outline maps are given with this paper, but the sketch (from memory) of the *mauvais pas* already referred to is about as unlike the reality as it can well be. It is to be hoped that this paper will attract the attention of the right kind of mountaineers towards one of the most striking, and even now least known, regions of the Alps.

Professor Achille Ratti narrates his experiences on the Macugnaga side of Monte Rosa. His party (the first Italians to succeed by this route) seem to have reached the summit after two nights spent out on the mountain. On the third day, in the vain hope of recovering a lost ice-axe, they descended a long way down the base of the final rocks of the Grenzs Spitze, and then remounted to the opening between it and the Zumstein Spitze—the Zumstein or Grenzsattel—of which they thus claim to have made the first passage.

Two minor articles describe some ascents in the Basilicata, and a journey from Palermo to Etna, while geology is represented by a paper by Dr. Sacco (in continuation of his former contributions) on a bone cavern in the Gesso valley. We have kept to the last the paper which contains the most novel and startling announcement. This is by Professor Uzielli, who sets out to prove that Leonardo da Vinci possibly ascended one of the peaks of Monte Rosa (or perhaps a peak in the Adula group). It is known that he went up a high mountain called 'Monboso,' and this Professor Uzielli tries to identify with Monte Rosa. It seems that 'Monboso' is the name still given to Monte Rosa in the Val Sesia, while in the valley of Ayas it is called 'Monte della Roiza' (a name which appears on one map only, published by Magini in 1620); and in Val d'Aosta, 'Les Monts Roeses.' Now Simler in the sixteenth century, in his 'Commentarius de Alpibus,' distinctly says that the mountain which the Salassi call Rosa is named Silvius by the men of the Vallais; * and Professor Uzielli conjectures that

* P. 193 of the Elzevir edition of 1633. There are two other passages in Simler's works which Professor Uzielli might have quoted to show that in the sixteenth century Mons Sylvius was the Vallais name for Monte Rosa. One is in the 'Descriptio Vallesiae' (*ibid.* p. 56), wherein it is said that the Visp flows from Mons Sylvius into the Zermatt valley; and the other in the 'Commentarius de Alpibus' (*ibid.* p. 255), which states that 'per juga Montis Sylvii' there are two passes, one being clearly the Theodul, and the other leading over into the Val Sesia to Varallo, 'alterum in vallem Sessitis fluvii ad Varallum oppidum ducit.' This last pass, which may be the present Lysjoch (though Schott, in his *Die deutschen Colonien am Monte Rosa*, p. 231, makes it the Weissthor, over which pilgrims are said to have formerly gone to the Sesia Valley, clearly after crossing from the Val Anzasca by a second pass), suits Professor Uzielli's theory very well, while the application of the name Mons Sylvius to the whole chain between the Matterhorn and Monte Rosa seems to point on to the time when that name became limited to the peak of the Matterhorn, and was transformed into the familiar 'Mont Cervin' (see Coolidge's *Swiss Travel and Swiss Guidebooks*, pp. 177-9). Simler too (*ibid.* p. 234) supplies an instance of 'collis' in the sense of a col or

'Monboso' was regarded as a corruption of 'Mons Boscus,' which again was converted into 'Mons Silvius' by the scholars of the Renaissance age. We cannot here discuss at length this very interesting and tempting theory, which seems to us to be weighted with very serious topographical difficulties; but the numerous contributions to the history of Alpine topography scattered broadcast throughout this paper deserve attention, as also the facsimiles of seven old maps of the central part of the Alpine chain, and the mention of the curious inscription 'A. T. N., 1615,' which is said to be still visible at a height of nearly 10,000 feet on the rocky ridge running from the Vincent Pyramide to the Col d'Ollen. Nor can we pass over the very curious extract from Fra Salimbene's chronicle, describing the ascent of the Canigou (9,132 feet), in the Pyrenees, made by Peter III., king of Aragon (1276-1285), a most noteworthy feat which completely throws into the shade Philip III. of Macedon's ascent in the Balkans (181 B.C.) and Petrarch's ascent of the Mont Ventoux in 1336. In short, Professor Uzielli's paper bristles with paradoxes, and is one of the most remarkable contributions to the history of the Alps that has appeared for a long time.

Readers must, however, be warned that his accuracy is not always equal to his erudition. In one or two instances he has quoted Mr. Freshfield as writing the reverse of what he has written (*e.g.* as to the meaning of Rosa). He holds it worth while to argue that Leonardo is correct in asserting that clouds only mount twice in summer to the highest peaks, and that hail, not snow, falls there! and he thinks Mr. Ball invented the name Hchste Spitze subsequently to the Swiss suggestion of Dufour Spitze. And even in antiquarian and literary matters he is not above reproach. Thus he asserts that Wyndham and Pococke, in 1741, 'made known' the name *Mont Blanc* and attempted its ascent. They did not even mention 'Mt. Blanc'; the Genevese party of 1742 did. He says that Bourrit, by a map published in 1789, popularised the name. It had been used by De Lc in 1772; Bordier, in 1773, headed a chapter with it; and, finally, De Saussure published his first volume in 1779. We might proceed, but enough has been said to show that Signor Uzielli's statements must be verified before use by all cautious students.

Zeitschrift des Deutschen und Oesterreichischen Alpen-Vereins. 1890.
Vol. xxi.

This volume contains two historical articles. Dr. Oswald Redlich (Innsbruck) gives an account of the bishopric of Brixen up to 1590 A.D.

pass ('collem Crucis,' the well-known Col de la Croix, between Bobbio and Abris), a tendency which Professor Uzielli is inclined (on Durandi's authority) to date back as far as 1011, though he thinks that the word used was rather 'collum' (see his article, p. 103, foot-note). So too in the introduction to the 1634 Elzevir edition of Lambert Van der Burch's treatise, *Sabaudia Respublica et Historia*, we read of 'Agnellus collis, petram habens pertusam per quam ex Gallia in Italiam patet iter,' though there is here an unlucky transfer to the Col de l'Agnello of the famous fifteenth-century tunnel under the Col de la Traversette, which is no small distance off.

This was established as early as 550 A.D. at Säben, above Klausen, and transferred to Brixen in 990 A.D.

Dr. Joh. Alton (Wien), who wrote in a previous volume upon the Grödner Thal, now takes us to the adjoining district of Enneberg and Buchenstein, and gives many curious particulars about its population, the nobles, and castles in former times.

Herr H. S. Prem (Innsbruck) gives an explanation and account of the growth of the legend of Kaiser Max on the Martinswand.

Herr August Schaeffer (Wien) writes on Alpine landscape painting an article illustrated by no less than sixteen engravings of Alpine landscapes by different artists.

Professor F. Schindler (Riga) discusses the regions and limits of cultivation in the Oetzthal Alps. He finds that the conditions in the Innthal are favourable, owing partly to the low elevation and partly to the 'scirocco.' These conditions must also affect the Oetzthal and other lateral valleys. Also that as the average height of a mountain increases so the height of the isotherm of 0°, and the consequent height to which vegetation will rise, also increase, above all when other conditions, such as favourable exposure, &c., are added; and he adds that all the conditions are more satisfied in the Oetzthal than anywhere else in the Eastern Alps.

Dr. Fritz Frech (Halle a. S.) writes on the geology of the cosmic Alps, with illustrations of the different periods, and discusses the causes which led to their present form.

Herr Karl A. von Zittel (München) describes a visit to the Rocky Mountains in 1883. The only permanently active volcano in this range is Mount St. Elias (5,822 mètres=19,100 feet*). Mount Shasta (4,423 mètres=14,511 feet) is best known. Mount Tacoma (4,404 mètres=14,449 feet) was first ascended in 1857 by Lieutenant Kautz, and twice in 1870. The writer, along with four German friends and three Englishmen (Messrs. Bryce, Benson, and MacLeod), visited the mountain in September 1883, but only reached, on the ice of the Willis Glacier, a height of 10,000 feet. Some fine peaks in the range—Mount Adams, Mount Helens, and Mount Baker—whose heights and geological formation are unknown, yet remain unexplored. The great difficulty is the approach to their bases, which are surrounded by almost impenetrable forest.

Dr. S. Finsterwalder (München) discusses the two outbursts which took place from the Martell Glacier on June 5, 1888, and June 5, 1889. The three glaciers Zufall, Langen, and Furkele had formerly a common termination. The Furkele Glacier has shrunk back, and the Zufall Glacier now crosses the valley, and has blocked the Langen Glacier. The water accumulates in a depression between the two glaciers and the left bank, and finally works its way out by a channel near that of the Plima. A repetition of the outbreak is to be expected annually, as long as the glaciers maintain their present position. The inhabitants believe the inundations to have been caused by the bursting of a sub-glacial lake, but this is improbable.

* See p. 371.

Herr Friedrich Müller (Triest) gives an interesting description of the explorations in the grottoes of S. Canzian. The river Reka, after running for thirty miles above ground, disappears here, and after passing below the Karst falls into the sea as the Timavo. These caverns were known from the earliest times. They were visited and partially explored in 1818 A.D. by the savant Hoppe, but the first serious attempt to render them accessible was made in 1823. The first who ventured in a boat on the river was Herr G. Svetina Brunnenmeister, of Trieste, in 1840. In 1850 an expedition, headed by Dr. Adolf Schmidl, assisted by miners and firemen, worked for fourteen days, and succeeded in reaching the sixth waterfall (about 400 yards from the entrance), when a sudden rise of the Reka carried away all their apparatus and obliged them to beat a hasty retreat. The idea of supplying Trieste with water from this river was abandoned, and the work of exploration discontinued for many years. In 1883 the Section *Kustenland* took up the matter. The writer and three friends, in a series of difficult and dangerous expeditions between January 1884 and September 1887, succeeded in reaching a distance of 1,000 yards from the entrance. Three grand halls beyond the Rudolf Dom were discovered. As the journey to the farthest point occupied seven or eight hours, their first care was to construct a 'Rettungsweg,' to secure their retreat in case of a sudden rise of the water. The quickness with which this sometimes ascends nearly to the roof of the great domes is astonishing. Since 1887 their labours have been devoted to making their discoveries accessible to the public. The writer concludes with an account of various remains found in the cavern, amongst which is a bronze helmet found in a crack above the stream, about 400 yards from the entrance. It was probably floated into its position on the dead body of its wearer. Experts assign to it the date of 500 B.C.

Herr F. Kilger again writes on the *Mieminger Kette*, and describes various excursions in this little-known district. The *Obere Platte* (2,743 mètres=8,999 feet) as seen from the N. is a fine obelisk, and affords some sharp climbing. Good quarters are to be found at *Obsteig* and *Obermicming*.

The Austrian Alpine Society '*Preinthal*' has devoted itself to the exploration of the Lesser *Tauern*. This region is enclosed by the *Gross Arlthal* on the W., the upper courses of the *Enns* and *Muhr* on the N. and S. respectively, and on the E. by the line of railway from *Liesing* to *Leoben*. Herr Hans Wödl (Wien) describes the peaks and passes in the western part of this district, and some ascents, of which that of the *Faulkogel* (2,653 mètres=8,704 feet), a limestone ruin (as its name implies) at the head of the *Ennstal*, is perhaps the most interesting. The easiest of its peaks was ascended in 1882 by Herr L. *Purtscheller*. The writer ascended the most difficult.

Dr. Carl Diener gives an account of his excursions about *Sappada* (*Canale di Gorto*) in 1889. These, he says, exceed in difficulty anything he knows in the *Dolomites*. Besides the ascents (five in number) made by himself, he gives a summary of peaks climbed by other tourists in the district. Three of these were climbed in 1880 by Mr. M.

Holzmann,* with Santo Siorpaes; Monte Siera (2,470 mètres=8,104 feet), Mont Gheu (2,470 mètres=8,104 feet), and the S.W. peak of the Terza Grande. The most lively account amongst them all is the ascent of the Engen Kofel (2,350 mètres=7,710 feet) by Herr Julius Pock, of Innsbruck, September 23, 1889. The weather was bad, and Pock proposed to the guide, Peter Kratter, to ascend another peak nearer to them. 'You *must* go to the top,' said Kratter. 'How they would laugh at me in Bladen' (Sappada) 'if they knew I had guided a tourist and not taken him to the top.' Pock's little dog, as usual, accompanied him, but hurt one of his feet, and had to be carried in the guide's *Rucksack*. This animal, in 1888, was lost for a fortnight on the Walderkamm Spitze, near Innsbruck, and was restored to its owner a perfect skeleton, but soon recovered. Dr. Diener describes the routes by which Sappada may be reached, the inns, &c., and this article, as well as the two preceding, may be regarded almost as guides to the regions referred to, which they describe.

Herr Gustav Euringer, who has made so many first ascents in the Dolomites, describes two ascents in Switzerland. On August 31 he reached the Wengern Alp, with the intention of ascending the Eiger. He had with him the guide Kederbacher, of Ramsau, and dispensed with a local guide, as an Englishman (Mr. Hills) intended to make the ascent the same day. They started at 3.30 a.m., and reached the summit at 10.15 a.m. Shortly before reaching it Mr. Hills asked them to go in front, and Kederbacher distinguished himself. Herr Euringer was much impressed, especially by the narrow ice arête on the descent. On September 2 they went to Murren, and next day to a bivouac near the Buttlassen Lücke to ascend the Gspaltenhorn. They took with them only a porter, Ulrich Brunner, who had never been farther than the *gîte*. On September 4, starting at 4.30 a.m., they reached the base of the rocks about seven. Here they kept too much to the right, and got into an unpleasant position, from which they extricated themselves by an ugly traverse, which they will not readily forget. The 'Böse Tritt' was easily passed, by the help of the rope which is fixed there. Herr Euringer thinks that even without this it would not be very difficult, and considers the climbing in many of the Dolomite ascents more difficult. The snow above was favourable, and the summit was reached at 9.15 p.m. Leaving at 10.15, the Buttlassen Lücke was reached at 12.15, the Sefinen Furke at 3.30, and Murren at 7 p.m.

Dr. Johann Frischauf (Gratz) takes us to a remote district, the 'Uskokon Gebirge,' a mountain region lying between the Save and its branches, the southern Gurk and the Kulpa, on the borders of Carniola and Croatia. There is good accommodation at S. Barthelma (188 mètres=617 feet), on its northern edge, and at Mötting (166 mètres=544 feet), on the S. The church of St. Nicholas (969 mètres=3,180 feet) commands a very fine view of the Santhaler and Julian Alps. The highest summit in the district, on which stands the ruined church of S. Gera, is only 1,181 mètres=3,874 feet.

Herr J. Baumann describes the mountains of Jotunheim, N.E. of

* See *Alpine Journal*, vol. x. pp. 106, 107.

the Sogne Fiord, in Scandinavia. The beauties of this almost uninhabited district have been made more accessible to tourists by the huts (inns rather), three in number, built by the Norwegian Tourist Club at suitable spots. Good beer and wine and tinned provisions are always to be had. The tourists (Norwegian, that is, for he specially excludes the English, of whom there are many) are very good fellows, though not well equipped for mountaineering.

A chapter (xi.) on the Pasterze Glacier, and the usual review of the scientific literature of the year, conclude the volume.

Besides upwards of 120 illustrations in the body of the work, there are, in a band attached to the volume, the sixteen engravings illustrative of Herr Schaeffer's article; panoramas from the Luschari Berg, and the Plosse, near Brixen; a map of the Gross Glockner group, &c.

J. S.

Annuaire du Club Alpin Français, 16^{me} année, 1889 (Paris).

If the ranges which lie between the Val de Rhêmes and the Val de Tignes are not well known by this time, it is not for want of thorough exploration. As will be seen by reference to the Italian 'Bollettino,' reviewed in our present number, Signor Bobba has worked them out from the Italian (which oddly enough is in this case the north) side; while in the 'Annuaire' before us the most important mountaineering paper, by M. Henri Ferrand, gives the results of his investigations from the other side of the frontier. His studies were mainly devoted to that beautiful peak, the Tsanteleina (formerly called Ste. Hélène), of which he aids his readers to understand the topography by photographs taken from far and near. As seen from the Pointe de Goletta (a small eminence near the pass of that name, which M. Ferrand has scored as a 'new ascent'), it bears, to judge from the view given, a striking resemblance to the Adamello. It is interesting to note that in his paper M. Ferrand sketches out, as a possible new and improved route to the summit, one which, as will be seen by reference to the last number of this Journal (p. 297), he succeeded in effecting just a year later. We do not understand his 'axiome bien connu,' that high peaks are usually ascended by the south face. As a matter of fact, very few of the highest were first ascended from that side.

M. Pierre Puiseux follows with an ascent of Mont Tondou, a peak which seems to have been less frequented than it deserves. From its position on the extreme south-west of the mass of Mt. Blanc, it ought to give a fine view both ways. M. Puiseux did not get the view, but he seems to have had an interesting little climb, and gives an entertaining account of it. The name of the next paper, 'Rochers et Aiguille d'Argentière,' appears at first sight to take us to the other end of the Mt. Blanc range. As a matter of fact, however, it relates to quite a different region. This Aiguille d'Argentière, of which M. V. Cadiat writes, is in the group of the Belledonne, near Allevard. It seems to be a rather exciting little rock peak, 2,917 mètres high, of which 15 or so still remain to be climbed; the final mass, which he compares to a house, having been 'one too many' for M. Cadiat.

The next writer, M. P. Beaumont, does however take us very near to the real A. d'Argentière. He has been exploring the frontier between the Cols de Balme and du Tour, a very little known bit of the chain, and ascending the principal summits in it. The peculiar taste of the Latin races in the matter of nomenclature unluckily makes it impossible in this Journal to indicate, otherwise than by description, the highest of these, of which M. Beaumont appears to have made the first ascent. It lies about half a mile N.E. of the Aiguille du Tour, marking a salient angle in the French frontier, and is credited by the maps with 3,349 mètres (just under 11,000 feet) of height: an estimate which M. Beaumont's observations lead him to think below the mark by nearly 100 m. A well-executed map, on the scale of 1: 30,000, accompanies the paper.

An ascent of the Ortler (under the rather comprehensive title 'Les Montagnes du Tirol'), by M. Edgar Vatin, completes the tale of strictly Alpine papers, though one on the Pic de Campbieil (3,175 m.) in the Pyrenees, by M. Fontès, is in its proper place in an Alpine periodical. The same may be said of the geology, fauna, and flora of the Pic du Ger, and of a short paper by M. Durier on the movements of the Chamonix glaciers. But when we come to grottoes, caves, 'Six Jours au Pays des Ksour,' 'Autour de la Mer des Antilles,' and, oddest of all, a boating expedition on the Ardèche, we can only say that the term *Alpin* 'surprises by himself,' etc. All this of course makes a very handsome volume; even though the pictures are not quite up to the mark of those which adorn the 'Zeitschrift.' In the matter of book-illustration, where anything beyond mere prettiness is required, Germany is certainly ahead of France just now.

On March 8, 1890, a commemorative tablet was placed on the house at Dijon in which Adolphe Joanne was born. This volume contains the speeches made on the occasion by MM. Party, Ch. Durier, and Paul Joanne.

We are sorry to learn that the numbers of the C. A. F. have undergone a slight reduction. As this however leaves it with 5,356 members (as against 5,431 in the previous year) there seems no immediate fear of its extinction. Still we trust that the vigorous appeal which M. Caron makes in his annual report of the Club's progress will bear the fruit it deserves.

Die Entwicklung der Hochtouristik in den Oesterreichischen Alpen. Von Dr. Gustav Gröger und Josef Rabl. (Vienna: Lechner.)

As perhaps might have been expected from what we know of the Austrian character, sport and adventure rather than even an ostensible pretext of science gave the first incitement to mountain exploration in that region of the Alps. It is all very well for Herren Gröger and Rabl on their first page to talk about the discussions on natural science in the first circles of Döllach in the Möllthal. Very likely the Barons of Zoys and Wulfen did meet there and talk about the mountains; but it may be safely assumed that their interest in the mountains did not extend far beyond the levels at which *Campanula Zoysii* and *Wulfenia*

Carinthiaca were to be found. When his Eminence Franz Xaver 'Altgraf und Fürst Salm-Reifferscheid, Cardinal und Fürstbischoff von Gurk' (let us give the good man his full style and titles for once) decided at the age of fifty to try if he could get up the Glockner, and 'do for Austria what the first climbers of Mont Blanc had done for Switzerland,' it is quite clear that scientific observation did not trouble him much. Indeed a ladder, a telescope, and an iron cross to set up on the summit seem to have represented the whole of the apparatus taken by the first party. The Prince-Bishop, like a wise man, had the route explored, and a good solid hut built at a height of about 9,000 ft. before he adventured himself. In 1799 a party, of peasants only, reached the second summit, or Klein Glockner; and in the following year, on July 26, a mighty caravan of sixty-two persons, the Bishop at their head, supported by his Vicar-General, Freiherr von Hohenwarth, many nobles and clergy, and his cook, proceeded to the hut. There they feasted, we are told, on pine-apples and peaches, figs and melons, champagne, tokay, and malaga. It is not surprising that the journey was not resumed till the next day but one. The Bishop got as far as the Hohenwarth-hütte, which had been erected near the point now called Hohenwarth-scharte, about 10,300 ft.; the Vicar-General and two other clergy achieved the Klein Glockner, and the actual summit was reached by the guides, and Pfarrer Horrasch of Dellach in the Drauthal. The name of this plucky parson ought surely to be better commemorated. He alone, of all the most eminent Glockner explorers, seems to have no hut dedicated to him. Next day science had its chance. 'The young mathematician Valentin Stanig, who had been detained in Heiligenblut by the necessary scientific counter-observations'—to what, we are not told—perhaps the figs and champagne—went to the top with the guides, and occupied himself in the scientific task of climbing up the pole which the guides had erected, 'so as to be able to say he had been higher than the Glockner.' Our authors remark upon the interest of this detail, as the first case in which we meet with documentary evidence for the 'echt sportlich angelegte Hochtourist.' And he the scientific member of the expedition! Then they all went down again; the Bishop anticipating M. Janssen by crossing the Leiterkees on a sledge. No one seems to have been the worse except Valentin Stanig, who took the mountain fever in an acute form. In a few days he had made the first ascent of the Watzmann (where he was nearly brought to grief by his barometer); in December he went up the Untersberg. In 1808 he climbed the Triglav, of which the first ascent had been made twenty years before by one Lorenz Willonitzer. Stanig died a canon of Görz in 1847. Prince-Bishop Salm had yet another 'shot' at the Glockner in 1802, and got as far as the second peak, which is about 100 ft. lower than the highest, or somewhere about 12,350 ft.; a very good performance for an elderly ecclesiastic; indeed probably an episcopal 'record.' He lived another twenty years, but does not seem to have made any more ascents. In this truly *gemüthlich* fashion did Austrian mountaineering begin. From it our authors carry us on, through Dr. Gebhard, the Paccard of

the Ortler, and Joseph Pichler (or P'sseyrer Josele), its Balmat, Archduke John, Thurwieser and his friend Prince Schwarzenberg (another climbing bishop), Ruthner, Grohmann, Payer, Barth, Hofmann, Stüdl, Senn, and other well-known names, to the 'Vienna School,' the Zsigmondys, Purtschellers, and Schmitts of these latter days. These last names may serve to remind us how fast and how far Austrian climbing has progressed since 'C. C. T.' ascended the Glockner in 1873 ('Alpine Journal,' vol. vi. p. 151). The greater part of the book is taken up with a *catalogue raisonnée* of tours notable either as made for the first time, or for any other reason, from 1852 onward. As a list of 'New Expeditions,' it is not indeed quite complete, but amply sufficient to show the gradual development of mountaineering in the Eastern Alps, and the conquest of them; in which the English reader will find that his countrymen have borne no mean share. It may be enough here to recall the fact, that if Mr. Tuckett did not make the first ascent of the noblest of all Tyrolese peaks, the Königspitze (and we doubt much if his only alleged predecessor, Corbinian Steinberger, is not mythical), he certainly showed the way up it.

The book is an example of the advantage to be obtained from looking at things from different points of view. Herr Rabl, if we may judge from his utterances in the 'Touristen-Zeitung' and other quarters, has no special affection for the modern 'Vienna School,'—the school of guideless, or even solitary expeditions, of 'Maximalleistungen,' 'Gratwanderungen,' and so on, of which Dr. Gröger is a distinguished exponent. So between them they have produced a very interesting and useful book.

Across East African Glaciers. By Dr. Hans Meyer. Translated from the German by E. H. S. Calder. (Philip.)

Just a year ago we gave in these pages a summary of the account published by Dr. Meyer in Petermann's 'Mittheilungen' of his successful efforts, aided by Herr Purtscheller, to ascend the highest peak of Kilimandjaro. The present handsome volume adds little information for our purposes to that account; since, from an Alpine point of view, we have not much to do with his journey to the mountain, or his return to Zanzibar, or his estimate of the comparative merits of different African potentates, or his criticisms on former travellers' estimates of the same. Still less are we concerned here with the attack which he has thought fit to make on Mr. H. H. Johnston, a traveller who, as his review of the book in a recent number of the *Speaker* shows, is thoroughly competent to defend himself. It may, however, perhaps not be out of place to remark that one of Mr. Johnston's statements which excites Dr. Meyer's wrath, to the effect that Kilimandjaro is a mountain which could be climbed without even a walking-stick, would appear, if Dr. Meyer's photographs can be trusted, to be strictly true. Judging from these, which show the incline pretty much all over the mountain, it would seem that the slope of 35° up which he and Herr Purtscheller cut their way represents by far the steepest snow-slope to be found upon it; and, as a rule, the mountain generally seems to lie at an angle with which decent hobnails ought to be quite able to

cope. Where the 'precipice running almost sheer down to a depth of 3,000 feet' hides itself, we cannot divine. No trace of it is to be seen in any of the views of Kibo, whether from E., S.E., or S.W., nor in the views given in Mr. Johnston's book. Dr. Meyer flatly contradicts his predecessor's statement that he reached a height of 16,315 feet. The aneroid is, of course, not wholly trustworthy as a means of estimating heights—some sceptics, we believe, are not convinced that Dr. Meyer reached a height of 19,700 feet—but there is a curious corroboration of Mr. Johnston's estimate given by Dr. Meyer himself. Mr. Johnston stopped when he reached the snow. Now Dr. Meyer, at very nearly the same time of year, a little earlier, if anything, in the summer, met with the first snow, in the same quarter of the mountain, at 16,400 feet. However, these bickerings and jealousies are things of which the Alpine Club, we trust, knows nothing. All we know is, that Dr. Meyer and Herr Purtscheller have achieved one of the most notable 'first ascents' in history; not, indeed, from the purely mountaineering or gymnastic point of view—there it is surpassed, no doubt, by the conquest of many a tooth and pinnacle in the Alps—but from the ancient renown of the peak which they have reached and the kind of mystery which has so long attached to it. Either they or someone else ought now to explore the W. side of the mountain, and bring us news of the great glacier, the only true glacier, it would appear, existing there, which streams through the breach in the crater. From the description of the ice-cap on the other side, it would seem to resemble more the odd fan-shaped glaciers which lie on the N. side of the Marmolata than any others which we know in the Alps. There is no great *névé*-basin outside the crater; the ice is formed from the snow which falls on the summit-ridge, and packs together by its own weight, alternate thaws and frosts no doubt aiding; a process which we have had plenty of opportunities during the present winter of seeing at work on a smaller scale.

The book contains appendices on the geology of the region—Kibo, it may be observed, is a mere infant in years beside its fellow Mawenzi, wherefore Mawenzi, though the shorter, is by far the tougher adversary, and so far remains unconquered—on butterflies and beetles, lichens and mosses, liverworts and other plants, cartography and bibliography, to review all which properly would require a scientific syndicate. The translation is excellently done, and would, indeed, never be taken for other than an original if the title-page did not reveal it. We even suspect that the translator, in his desire to be idiomatic, has occasionally strayed a little from the original; at any rate, we wonder where he found German equivalents for 'a sporting parson' or 'a regular masher.'

Of the illustrations, some are photographs; some, drawings in Mr. Compton's well-known style from photographs; some, chiefly the vignette initials and tail-pieces to the chapters, woodcuts. All are charming.

Minor Notices.

The Swiss Alpine Club has commemorated the completion of its first twenty-five years of existence by the publication of a little work,

mainly statistical in character, to show the advance made in that period by the Society. The work (*Die Ersten 25 Jahre des S.A.C.-Glarus: Bäschlin*) has been executed by Dr. Ernst Buss. For some reason—darkly hinted at, but not revealed—it appears two years after date. Fortunately, this delay only enables the chronicler to record further prosperity. Starting in 1863 with 8 sections and 358 members, the Club had reached by the middle of 1888 the respectable figure of 2,989 members, distributed among 34 sections, with an expenditure for the year of over 600*l.*, and a capital (apart, as we understand, from yearly subscriptions) of twice that amount. It had, indeed, reached nearly its present figure in 1879, but was reduced to less than half by expenditure on the measurement of the Rhone glacier. These, indeed, are figures to make the mouth of our treasurer water.

It is amusing to read that when the proposal to found a Club was first mooted, in 1863, among Swiss mountaineers, one of the grounds of opposition which the promoters had to encounter was that 'it is unworthy of us to ape the English; we require something much better.' Better counsels prevailed, and the climbing world at large has profited.

Of what may be called the 'sub-Alpine' Clubs, one of the most energetic appears to be the *Associacio d'Excursions Catalana*. Their only mountain of anything like Alpine dimensions is the Canigou (2,785 mètres = 9,132 feet), which they seem to ascend with praise-worthy diligence. A pleasant account of one of these ascents is given in the *Bulletí* for January-March, 1890 (Barcelona, at the Society's office), by D. Francisco de S. Maspons y Labros. The excursion seems to partake more of the nature of a picnic than of a climb, the terms 'perilous' and 'difficult' applied to the last bit being probably complimentary rather than accurately descriptive. The same number contains an account of a visit to a subterranean river. Otherwise the articles in this number and the next are mainly scientific and literary. Besides its 'Bulletí' the Society has put out sundry guides to various parts of Catalonia, which seem well arranged and practical. Of two before us the joint authors are D. Arthur Osona and D. Joseph Castellanos. That to the Western Pyrenees is announced as in preparation.

For the series of *Touristen-Karten*, published by Artaria at Vienna, and executed by R. Maschek, Herr Meurer has recently edited six, comprising, roughly speaking, the whole of Tyrol except a little on the extreme W. and N., with a small portion of Salzburg and Carinthia. They are on a scale of $\frac{1}{130000}$, or almost exactly two miles to the inch, and are printed on *Leinenpapier*—i.e., so far as we can make out, linen faced with a coat of paper-pulp. This material is untearable, and much lighter, of course, than paper mounted on linen. By its use, too, the divisions which are necessary in a mounted and folded map, and which always come in the most inconvenient places, are wholly avoided. The maps themselves seem to be based on the 'Generalstabskarte,' and have the merits and defects of that work. They give a good deal of information to anyone who has learnt to read them, and are in the main accurate; but they are far too heavily shaded, and the

letters used are not clear for their size. Besides the information usually given in maps, these show the approximate average times required for the various routes, indicated by red lines, arrows for direction, and figures; also the position of huts, those which are 'bewirtschaftet' in summer being distinguished by a line under the name. We expressed our opinion some time ago* as to the red-line system; the other speciality of these maps is purely useful. The Austrian map-makers have, however, a long way to go before they can rival either the North Germans or the Swiss.

Herr Leuzinger has published a *Relief-karte* of Switzerland (Bern, Kümmerly), to which the remarks which we made in August last on his map of Tyrol equally apply. The scale is a trifle smaller (330'000), the names, perhaps, rather better selected. He sends also a specimen of the map before the insertion of the names, which shows the configuration of the country a good deal better.

Mr. L. Cumming, of Rugby, has reprinted in a pamphlet called *Notes on Glacial Moraines* (Liverpool, Tinling) a paper, originally published in the 'Proceedings of the Liverpool Geological Society.' His main points are that the moraine is composed entirely of fragments fallen from the rocks surrounding the glacier, *not* broken off by the glacier; that the stones in a fresh moraine are very rarely polished or rounded, and, therefore, that when such stones are found in ancient deposits we must assume the operation of water; and that the sand which forms the cement whereby the stones of a moraine are bound together is rather that which winds have blown on to the surface of the snow or glacier from dry places than the product of any grinding process due to the glacier itself, which, in his view, is only to be looked for at the bottom of the glacier. He suggests 'with hesitation' that the convexity of the transverse section of glaciers is due to the more rapid melting of the sides, caused by the radiation from the rocks which bound it, and accounts in the same way for the fact that moraines on a glacier often appear to lie in a kind of trough. On the vexed question of the glacial origin of lakes he says: 'Having in the last twenty years visited very many valleys whose upper ends are occupied by glaciers, both in Norway and in Central Europe, the writer has never seen one such lake in process of forming—as, for instance, a glacier ending in such a rock-bottomed lake, which increased in length as the glacier retired.'

WINTER EXHIBITION.

THE annual exhibition of pictures and photographs, brought together on the occasion of the winter assemblage of the Alpine Club, attracted this year even more attention than usual. For several years the photographic section of the exhibition has been markedly increasing both in size and importance. This is doubtless chiefly due to the fact that the camera is becoming a more and more ordinary part of the normal

* *Alpine Journal*, vol. xiii. p. 286.

climber's equipment, but it must likewise be remembered that concurrently with this development of one of the most valuable accessories to travel, the development of mountaineers into travellers has likewise been going forward. Members of the Alpine Club are now to be found in almost every great mountain region in the world. They have recently not only flocked to the Caucasus, but they have penetrated into its remoter districts. Daghestan has now been photographed. The Selkirks, in North America, have been further explored. Renewed attention has been paid to the great mountains of Mexico. Moreover, this extension of the mountaineering range is not the result of a spasmodic and exceptional effort; it is a normal and continuous growth, and may be regarded as merely the promise of greater developments to come.

For these reasons the photographic exhibit presents many features of novelty and interest which cannot appertain to the collection of pictures. The paintings, of course, do not, or should not, depend upon subject for charm. It is the art and beautiful manner of the work that is the real subject of a picture, but to this view very few Alpine artists have been bold enough to rise, in defiance of the usually false standards of their mountain-climbing *clientèle*.

The large number of objects exhibited, the brief time during which the exhibition is open, and the impossibility of preparing a catalogue for so ephemeral a show, render it almost impossible for a critic to exercise any of his proper functions on this occasion. It will doubtless be the case that many a good piece of work escaped our notice through the mischance of an unfavourable position.

A pathetic interest attached to the work of our recently deceased member, the veteran Alpine painter, George Barnard. Some two dozen or more of his pictures were exhibited, and attracted much attention. The artist's style is well known to all members of the Alpine Club, and need not form the subject of special characterisation in this place.

On all accounts the most remarkable painting in the exhibition was a simple but most excellent water-colour study of the Wetterhorn from Grindelwald by the great artist Bonnington. Such truthful representation of form, such dignified suggestion of mass, such absence of the ordinary hysterics, into which Bonnington's contemporaries were usually thrown in the presence of high mountains, came as a surprise to many experienced amateurs of Alpine art. Mr. Ruskin's outline of a distant view of Mont Blanc was interesting more on account of the personality of the artist than the beauty of the work. Mr. Arthur Severn's contributions, notably a mountain view in the Coniston district, were worthy of more leisurely study than any we were enabled to give them. We likewise noticed a remarkable 'Grivola,' and a fine glacier pool by Mr. Alfred Williams, and a few characteristic examples of the work of M. Loppé, Mr. Arthur Croft, and Mr. Smith. Mr. Willink exhibited several of his very popular studies of mountaineers in action and repose, besides numerous designs for book illustrations. His most characteristic examples always contain an undercurrent of humour, even when the subjects are not directly humorous. On the

present occasion a sketch of five guideless duffers on a glacier was his most popular contribution. The largest, and in some respects the most important, work exhibited was a great water-colour painting of the Jungfrau and neighbouring peaks as seen from Mürren, by Mr. A. McCallum. This contained much careful and even subtle work, and attempted, not without success, to render the mysteries of atmospheric effect, of the existence of which so few climbers are even conscious. Unfortunately, the light in the room was most unfavourable to the picture, and it was almost impossible to form any true estimate of the artist's success. It seems to us that so large and so carefully wrought a picture would have 'carried' further and been altogether stronger, without loss of delicacy, had it been executed in a more solid medium.

Turning now to the photographs, one of the most artistic in choice of subject, and the most technically perfect in other respects, was Captain Abney's 'Study of Hoar-frost.' The other photographs exhibited by the same accomplished photographer were likewise wonderfully perfect. Mr. Eccles' beautiful views of the Matterhorn, more or less enveloped in a becoming drapery of cloud, attracted universal admiration; and M. Loppé's winter and cloud effects, similar to those which were so well appreciated last year, were, in almost every instance, beautifully chosen as to point of view and moment of exposure. The series of large photographs of mountain scenery in Daghestan, contributed by Mr. G. P. Baker, have been already referred to. Specially notable were the views of Shalbruz and of the village of Mesa. Some enlargements from Kodak negatives obtained by Mr. Walter Leaf on the Dent Perroc, the Aiguille de la Za, and other neighbouring points, representing precipitous rocks and interesting details of scrambling, were of interest both for themselves and as showing the rapidly-developing capabilities of light photographic apparatus. Mr. Dent contributed some interesting views of the S. portions of the main Pennine chain, and a noteworthy enlargement of what is perhaps the most remarkable view of the Matterhorn, that, namely, from the little visited Punta des Cors. Prof. Dixon's views of the Needle Rock showed that it is not necessary to go to the Alps for startling crags and natural obelisks. A further series of images of Caucasian scenery was contributed by Mr. H. Woolley; while last, and, probably, most important of all, we were favoured with a quantity of new photographs of the same wonderful mountain range, taken last summer by Signor Sella. Amongst them were several notable portions of fine panoramas, views of important and till now unphotographed glaciers, and many most interesting examples of Caucasian village architecture.

In conclusion, we cannot but regret that this remarkable collection of photographs was visible for so short a time. Surely amateur photographers could be made to see the importance of sending one example of each important view they take to the Club Library. The fault is, probably, with the Club itself, which does not provide proper accommodation even for the photographs which it does possess. Let us I hope that progress will soon be made in this direction also.

W. M. C.

PROCEEDINGS OF THE ALPINE CLUB.

THE ANNUAL GENERAL MEETING of the Club was held at the Club Rooms on Monday, December 15, at 8.30 P.M., the *President*, Mr. HORACE WALKER, in the Chair.

The following candidates were balloted for and elected members of the Club :—Messrs. J. E. Bode, D. Diamantidi, J. H. Gibson, A. D. Godley, H. E. B. Harrison, E. Kelly, L. Norman-Neruda, C. H. Pasteur, D. W. Stable, and C. Stonham.

The PRESIDENT in a short address briefly alluded to the loss of several highly-valued members which the Club had sustained during the year; and, remarking that the season had been a particularly disastrous one to guides, he called the attention of the meeting to the collections which were being made by various members of the Club on behalf of the families of Carrel, Castagneri, and Maquignaz. He further announced that the promises of subscriptions to the 'Alpine Guide' Republication Fund had now reached a sum sufficient to enable the Committee to decide that the work should now be proceeded with forthwith.

The election of officers for the ensuing year then took place. On the motion of Mr. C. PILKINGTON, seconded by Mr. HALL, Messrs. G. Chater and J. H. Wicks were unanimously elected new members of the Committee in the places of Messrs. W. M. Conway and H. S. King, who retired by rotation.

On the motion of Mr. D. FRESHFIELD, seconded by the Rev. H. B. GEORGE, the *President*, Mr. H. WALKER, was unanimously re-elected.

On the motion of Mr. GROVE, seconded by Dr. SAVAGE, the Vice-Presidents, Messrs. F. A. Wallroth and S. F. Still, the Hon. Secretary, Mr. F. O. Schuster, and the remaining members of the Committee, viz., Messrs. Beachcroft, Mortimer, Slingsby, Willink, Carson, and Thomas were unanimously re-elected. Mr. C. T. DENT proposed, and Dr. LIVEING seconded the following resolution :—

That Rule XV. be altered as follows :—In place of the words 'Each member shall pay an Entrance Fee of One Guinea and an annual subscription of One Guinea,' to substitute 'Each member shall pay an Entrance Fee of FOUR Guineas, and an annual subscription of One Guinea.'

After some remarks from the HON. SECRETARY, bearing on the general question of the finances of the Club, Mr. W. PUCKLE proposed, and Mr. FRESHFIELD seconded, an amendment raising the entrance fee to five instead of four guineas. In the discussion which followed Messrs. C. E. MATHEWS, WALLROTH, and GROVE took part, and the amendment having been withdrawn, the original motion was put and carried by an all but unanimous vote, there being only one dissident. Mr. DENT further moved and Dr. LIVEING seconded :—

'That the Committee be requested so to modify the existing arrangements as to provide an assistant to the Honorary Secretary, whose business shall be to attend at the Club Rooms on such days and at such hours as the Committee may direct, and to discharge such further

duties as the Committee may prescribe,' and this resolution was carried unanimously.

Mr. W. M. CONWAY read a paper on 'The Exploration of the Alps.' An animated discussion followed, in which the PRESIDENT and Messrs. PILKINGTON, WALLROTH, BUTLER, DENT, and GROVE took part. A hearty vote of thanks was accorded to Mr. Conway, and the meeting, which had been very numerously attended, came to a close.

The Annual Exhibition of Alpine paintings and photographs was held at the Whitehall Rooms of the Hotel Métropole during the afternoon of Tuesday, December 16 (for a detailed notice see p. 392), and again attracted a very large number of visitors, the rooms being crowded almost to excess. Gratifying as the ever-increasing popularity of these gatherings is, it cannot be said that under such conditions works of art and objects deserving close study, can be seen to best advantage, and the question arises whether in future arrangements should not be made to keep the collection together and on view for at least another day.

The Winter Dinner took place at the Whitehall Rooms on the evening of the 16th, the chair being taken by the *President*, Mr. Horace Walker. The attendance was more numerous even than last year, 210 members and guests being present; amongst the latter were the Rev. Dr. Lansdell, Mr. G. Buckle (editor of the 'Times'), Sir H. MacCormac, the Principal of Brasenose, Mr. Onslow Ford, &c. &c.

The following circular has been sent to those who have promised subscriptions to the fund for republishing the 'Alpine Guide':—

'ALPINE GUIDE' REPUBLICATION FUND.

Dear Sir,—The subscriptions to the above-named fund have reached a sum sufficient to enable the Committee of the Alpine Club to decide that the work be forthwith put in hand, and that the promised subscriptions be at once called up.

You have been good enough to promise a subscription to the fund amounting to £ , and I shall be obliged if you will kindly transmit that sum to Messrs. R. Twining & Co., Bankers, 215, Strand, London, W.C., accompanied by the annexed form.

The subscription list will be kept open until the sum of £750—being the estimated cost of the production of the work—is reached.

I remain, dear Sir,

Yours faithfully,

F. O. SCHUSTER,
Hon. Sec.

Errata in November Number.

Page 255, *Note on Illustration*, line 4, for 'valleys' read 'villages.'
 " 293, line 28, for 'Point' read 'Pic.'
 " 297, " 8 from bottom, for 'arcent' read 'descent.'
 Pages 307, 308, for 'Fee' read 'Fee.'
 Page 312, line 26, for '1888' read '1889'; and in the next line for 'by a new route' read 'by a route taken only once before, and in the contrary direction.'

THE CARREL FUND.

IN RESPONSE to an appeal which was made in the *Daily Graphic* September 20, 1890, on behalf of the family of Jean-Antoine Carrel, who perished on the Matterhorn, on August 25, from cold, want of food, and exhaustion, we have received the following sums :—

FIRST LIST.

	£	s.	d.		£	s.	d.
'A Poor but Interested Reader of the <i>Daily Graphic</i> '	0	1	0	G. E. Foster, Esq.	2	2	0
E. C. B.	0	2	6	J. H. Fox, Esq.	2	2	0
'A Sympathiser'	0	2	6	C. E. Freeman, Esq.	4	0	0
A Friend, per J. A. Stuart, Esq.	0	3	0	D. W. Freshfield, Esq.	2	2	0
'Nemo'	0	5	0	F. J. Fry, Esq., J.P., per F. F. Tuckett, Esq.	1	0	0
'Twelve Mancunians'	3	0	0	H. G. Gregory, Esq., per A. Williams, Esq.	1	1	0
W. M. Ainsworth, Esq.	5	0	0	F. C. Grove, Esq.	10	0	0
D. J. Abercromby, Esq.	4	0	0	Capt. Marshall Hall	0	5	0
G. P. Baker, Esq.	1	1	0	E. Hastie, Esq.	0	2	0
F. P. Barlow, Esq.	5	0	0	R. B. Heathcote, Esq.	1	1	0
J. R. Beard, Esq.	0	10	0	C. G. Heathcote, Esq.	1	0	0
John Birkbeck, Esq.	2	0	0	Messrs. Hennig & Co.	1	0	0
Alfred Bird, Esq.	1	1	0	Malcolm L. Hepburn, Esq.	0	10	0
Miss Isabella Blackburn	5	5	0	J. J. Hicks, Esq.	1	0	0
Prof. T. G. Bonney, F. R. S.	1	0	0	Messrs. Hill & Son	0	10	6
H. B. Brain, Esq.	1	0	0	A. H. Hamilton Hoare, Esq.	1	1	0
Rev. J. T. Bramston	1	1	0	G. H. Hodgson, Esq.	1	1	0
J. Buckingham, Esq.	2	2	0	Maurice Holzmann, Esq.	5	0	0
A. J. Butler, Esq.	1	1	0	Mrs. Jackson	5	0	0
T. B. Callard, Esq.	0	10	6	Rev. Harry Jones	0	10	0
Lieut.-Col. J. R. Campbell	1	10	0	W. Jones, Esq.	0	5	0
W. W. Carter, Esq.	0	10	0	E. S. Kennedy, Esq.	0	10	0
L. Casimir, Esq.	0	2	0	T. S. Kennedy, Esq.	2	0	0
Lieut.-Col. E. Clayton	1	0	0	E. Powell King, Esq.	0	16	0
Ralph Clutton, Esq.	5	0	0	H. S. King, Esq., M.P.	10	0	0
Edmd. T. Coleman, Esq.	1	1	0	J. H. Kitson, Esq.	2	0	0
Dr. M. O. Coleman	1	1	0	W. E. Lapworth, Esq.	0	5	0
The Misses Charlotte and Isalen Colville	2	0	0	W. Larden, Esq.	1	1	0
W. M. Conway, Esq.	1	0	0	Dr. R. Liveing	1	1	0
T. Cox, Esq.	1	1	0	R. Lord, Junior, Esq.	2	2	0
R. R. Dees, Esq.	2	0	0	Rev. R. Lovett	0	8	0
Clinton T. Dent, Esq.	2	2	0	G. Marindin, Esq.	2	2	0
M. H. W. Devenish, Esq., per A. Williams, Esq.	0	10	0	Signor Leone Massimiliano (Ital. A.C.)	0	10	0
J. Eccles, Esq.	5	0	0	C. E. Mathews, Esq.	4	0	0
				Wm. Mathews, Esq.	3	3	0
				W. Maude, Esq.	1	1	0

	£	s.	d.		£	s.	d.
A. H. Leslie Melville, Esq.	2	2	0	J. W. Whympcr, Esq.	1	0	0
Thos. Middlemore, Esq.	1	1	0	W. N. Whympcr, Esq.	1	0	0
G. H. Morse, Esq.	1	0	0	J. H. Wicks, Esq.	1	0	0
F. Morshead, Esq.	2	0	0	A. Williams, Esq.	1	1	0
W. Muir, Esq.	5	0	0	H. G. Willink, Esq.	1	0	0
A. F. Mummery, Esq.	1	1	0	Claude Wilson, Esq.	2	0	0
John Murray, Esq.	1	1	0	H. Schutz Wilson, Esq.	1	1	0
Mrs. Naismith and Mr. W. W. Naismith	1	1	0	J. W. Wilson, Esq.	1	1	0
R. C. Nichols, Esq.	2	2	0	H. Woolley, Esq.	2	2	0
S. W. Norman, Esq.	0	10	0	George V. Yool, Esq.	1	1	0
Mrs. J. Wedderburn Ogilvy	2	0	0	Per the Rev. F. T. Wethered			
Charles Packe, Esq.	1	0	0	(1st list):—			
The Very Rev. the Dean of St. Paul's	5	0	0	Miss Aldridge	0	2	6
Mrs. Pratten	0	5	0	Rev. R. V. Barker	0	5	0
G. W. Prothero, Esq.	1	0	0	Rev. J. T. Brown	0	10	0
A. D. Puckle, Esq.	1	1	0	The Very Rev. the Dean of Canterbury	1	0	0
G. G. Ramsay, Esq.	1	1	0	Rev. H. Chilton	0	5	0
R. Redmayne, Esq.	0	10	6	Miss Cholmondeley	0	2	6
W. L. Rickett, Esq., S.A.C.	0	10	0	A. A. Clark, Esq.	0	10	0
Rothschild, Lady Emma	5	0	0	T. Somers Cocks, Esq.	0	10	0
Dr. G. H. Savage	1	1	0	The Earl of Derby	5	0	0
T. D. Scott, Esq.	0	10	0	Rev. A. Fearon	1	1	0
F. O. Schuster, Esq.	2	2	0	Lewis Fry, Esq., M.P.	1	1	0
W. W. Simpson, Esq.	3	3	0	W. H. Gladstone, Esq.	5	0	0
W. Cecil Slingsby, Esq.	0	10	0	The Bishop of Gloucester and Bristol	0	10	0
Rev. A. Sloman	1	1	0	H. Gould, Esq.	0	10	0
Messrs. Socin and Meyer	1	0	0	J. H. Gough, Esq.	0	10	0
D. W. Stable, Esq.	1	1	0	W. H. Grenfell, Esq.	5	0	0
Leslie Stephen, Esq.	1	1	0	Lord Harlech	1	0	0
G. Stevens, Esq. (Messrs. Spooner)	1	1	0	Rev. J. J. Hornby, D.D.	1	0	0
S. F. Still, Esq.	2	0	0	The Hon. and Rev. A. Legge	0	2	6
J. Stogdon, Esq.	1	1	0	The Very Rev. the Dean of Lichfield	0	10	0
Hugh Stutfield, Esq.	2	0	0	Dr. Mason	0	10	0
George H. Strutt, Esq.	2	2	0	Sir F. E. Nicolson, Bart.	1	0	0
J. A. Stuart, Esq.	0	5	0	The Very Rev. the Dean of Norwich	1	1	0
C. J. Thomas, Esq., per F. F. Tuckett, Esq.	0	10	0	Miss Openshaw	1	0	0
Geo. Carslake Thompson, Esq.	4	0	0	Canon Paget	1	1	0
J. J. Thorney, Esq.	1	0	0	Archdeacon Palmer	0	10	0
A. C. Tosswill, Esq.	4	0	0	J. E. H. Peyton, Esq.	1	1	0
Rev. H. F. Tozer	1	0	0	The Bishop of Reading	1	0	0
W. Trotter, Esq.	5	0	0	R. A. Robertson, Esq.	1	1	0
F. F. Tuckett, Esq.	1	0	0	Mrs. Robson	1	0	0
Horace Walker, Esq.	2	2	0	F. W. Saunders, Esq.	0	10	6
Robert Walters, Esq.	1	0	0	Rev. H. Shutte	0	5	0
W. E. Wallis, Esq.	0	2	6	Mrs. Trefusis	0	2	6
F. A. Wallroth, Esq.	2	2	0	Mrs. D. H. Wargent	0	1	0
R. Spence Watson, Esq.	0	10	0	P. Watson, Esq.	1	0	0
F. O. Wethered, Esq.	2	2	0	The Duke of Westminster	5	0	0
Rev. F. T. Wethered	0	10	0	A. J. Wethered, Esq.	0	2	6
H. H. West, Esq.	1	1	0	Rev. E. P. Wethered	0	2	6
Miss E. Whympcr	0	10	6	Mrs. F. J. Wethered	1	0	0
Edward Whympcr, Esq.	10	0	0	Mrs. L. W. Wethered	0	10	0
Henry Whympcr, Esq., C.I.E.	1	0	0	Col. O. P. Wethered	1	1	0
				James Wigan, Esq.	1	0	0

	£	s.	d.		£	s.	d.
Rev. J. M. Wilson	0	10	0	Henry Micklem, Esq.	1	0	0
A. J. de Winton, Esq.	1	1	0	Dr. Ord	0	10	0
Per the Rev. F. T. Wethered (2nd list):—				Rev. T. J. Prout	0	10	0
W. T. Bloxam, Esq.	0	10	0	Dr. Quain	2	2	0
Rev. C. F. Floyd	0	5	0	Rev. R. F. Rumsey	0	5	0
Mrs. Graves	0	7	6	Rev. R. St. J. Tyrwhitt	0	10	0
Herr G. Gruber	2	0	0	T. O. Wethered, Esq.	0	10	0
W. B. Heberden, Esq.	1	0	0	Rev. E. C. Wickham	1	0	0
Alderman Stuart Knill	2	0	0	Total	292	2	6

SECOND LIST.

	£	s.	d.		£	s.	d.
THE ROYAL GEOGRAPHICAL SOCIETY	21	0	0	Walter Leaf, Esq.	5	0	0
THE OXFORD ALPINE CLUB	5	0	0	Charles Lucena, Esq.	1	1	0
'Ten friends of Sheffield'	1	0	0	Mons. Jean Maitre	1	0	0
X. Y. Z.	0	2	6	A. L. Mumm, Esq.	1	0	0
George Barclay, Esq.	0	10	0	W. M.	3	0	0
Geo. F. Bernty, Esq.	1	1	0	W. N.	1	1	0
R. F. Bevan, Esq.	1	1	0	H. C. Norris, Esq.	0	10	0
Per Miss Isabella Blackburn (2nd donation)	3	0	0	C. Oakley, Esq.	2	2	0
J. E. Bode, Esq.	1	1	0	Major-Gen. J. R. Oliver	0	5	0
Charles Burlingham, Esq.	1	1	0	Charles Pilkington, Esq.	1	1	0
Edward North Buxton, Esq.	1	1	0	W. B. Puckle, Esq.	2	2	0
C. Cannan, Esq.	1	0	0	T. A. Rickman, Esq.	0	5	0
D. E. Cardinal, Esq.	1	1	0	H. M. Rose, Esq.	0	10	0
Dr. W. Cayley	1	1	0	Alexander J. Spiers, Esq.	0	10	6
Miss Charlotte Colville (2nd donation)	1	0	0	Isidore H. B. Spiers, Esq., M.A.	0	10	6
Herr M. Déchy	0	16	0	Prof. Victor Spiers, M.A.	0	10	6
F. J. Cullinan, Esq.	1	1	0	R. G. Tatton, Esq.	2	0	0
Herr Demeter Diamantidi	1	1	0	P. W. Thomas, Esq.	1	1	0
Miss Florence Dismore	1	1	0	Mrs. Topham	1	1	0
J. C. J. Drucker, Esq.	4	0	0	Miss Ada Topham	0	5	0
Sir W. Evans	1	0	0	Alfred G. Topham, Esq.	1	1	0
J. P. Farrar, Esq.	2	0	0	Miss Ethel Topham	0	5	0
Edw. A. FitzGerald, Esq.	2	2	0	Harold W. Topham, Esq.	1	1	0
Miss Flemming	0	5	0	Dr. John Tyndall, F.R.S.	5	5	0
R. Flemming, Esq.	0	5	0	A. C. Vesey, Esq.	1	1	0
A. F. de Fonblanque, Esq.	1	1	0	Reginald T. Walker, Esq.	1	1	0
Rev. H. B. George	1	0	0	Mrs. S. Warner	0	10	0
J. H. Gibson, Esq.	1	0	0	J. Watkinson, Esq.	1	0	0
J. Gilbert, Esq.	1	1	0	W. H. Winterbotham, Esq.	1	1	0
Sir Julian Goldsmid	5	0	0	G. Yeld, Esq.	1	0	0
G. W. Hartley, Esq.	1	1	0	Per the Rev. F. T. Wethered (3rd list):—			
T. B. Heathcote, Esq.	1	0	0	A Kulm Visitor (S. Moritz)	0	8	0
J. A. Luttman Johnson, Esq.	1	1	0	J. Ashby, Esq.	0	5	0
Rev. J. R. King	0	10	0	Miss Bannister	0	2	6
C. E. Layton, Esq.	2	0	0	F. Darwin, Esq.	0	16	0
				H. Emberson, Esq.	0	10	0
				J. T. Godfrey Faussett, Esq.	0	10	0

	£	s.	d.		£	s.	d.
Mrs. R. Godfrey Faussett .	0	2	6	Arthur Milman, Esq. .	0	10	0
Miss J. Chaffyn Grove .	0	1	0	Lord Monk Bretton .	2	2	0
Herren Hauser .	3	5	0	W. H. S. .	0	2	6
Rev. W. Hickman .	0	5	0	Mons. Alex. Seiler .	0	11	0
S. E. Jones, Esq. .	0	5	0	H. Wagner, Esq. .	1	1	0
Sir F. Leighton, Bart.,				Mrs. R. P. Wethered .	1	0	0
P.R.A. .	1	1	0				
Mrs. Main .	1	0	0	Total .	120	2	6

The List amounts to £412 5s., and is now closed.

C. E. MATHEWS,

29 Waterloo Street, Birmingham.

EDWARD WHYMPER,

29 Ludgate Hill, E.C.

Further List of Subscribers to the Ball Guarantee Fund.

	£	s.	d.
Brought forward	645	19	6
Bowlker, Rev. C. A. C.	1	1	0
Brunskill, W.	1	1	0
Wood, H. J. T.	1	1	0
Club Alpin Français, Section Lyonnaise	1	1	0
Hutchison, J. A.	1	1	0
Starr, Russell	1	1	0
Hopkinson, E.	1	1	0
Prickard, A. O.	1	1	0
Yeld, G.	1	1	0
Buxton, E. N.	2	2	0
Lucena, Ch.	1	1	0
Bell, Rev. F. C.	1	1	0
Bird, Alfred	1	1	0
FitzGerald, E. A.	2	2	0
Heathcote, Thornhill B.	1	1	0
Pritchard, C. Fleetwood	1	1	0

THE
ALPINE JOURNAL.

MAY 1891.

(No. 112.)

CENTRISTS AND EXCENTRISTS.

BY W. M. CONWAY.

(The gist* of a Paper read before the Alpine Club,
December 15, 1890.)

'At which open country of low undulation, far into blue,—gazing as at one of our own distances from Malvern of Worcestershire, or Dorking of Kent,—suddenly—behold—beyond,

'There was no thought in any of us for a moment of their being clouds. They were clear as crystal, sharp on the pure horizon sky, and already tinged with rose by the sinking sun. Infinitely beyond all that we had ever thought or dreamed,—the seen walls of lost Eden would not have been more beautiful to us; not more awful, round heaven, the walls of sacred Death.

'It is not possible to imagine, in any time of the world, a more blessed entrance into life, for a child of such a temperament as mine.—RUSKIN'S *Præterita*.

I PROPOSE, on this occasion, to call the attention of members of the Alpine Club to 'their noble selves.' Surely a most interesting subject for contemplation!

In the first instance, we are all mountaineers—that is to say, men who love climbing mountains. But men may find pleasure in one and the same occupation for different reasons. All of us do not like climbing in the same way or for the same cause. The Alps are a centre of attraction to men of various caste, and character of mind and body. To this fact the prosperity of the Alpine Club and its pleasurable-ness as a point of union are largely due.

If mountaineers are to be divided into categories, the criterion must be the question, What do they climb for?

* The MS. of this paper was in large part destroyed; the author has, therefore, rewritten its substance in rather a different form.

In so far as a man can answer this question, he can determine for himself the category to which he belongs. Some men belong plainly to one group, some are not so easily classified, and some cannot be classified at all.

It is impossible, and would not be worth while if possible it were, to enumerate all the pleasures of mountaineering, by their several enjoyment of which mountaineers must be grouped. A few selected examples will suffice for present needs.

First in order and most rudimentary is the pleasure of looking from a high place over a larger area than you can survey from below. This is one of man's most rudimentary delights. The infant loves to be held aloft in its parent's arms; the schoolboy delights to get to the top of everything he can scramble to; grown people will pay money to be allowed to mount to the galleries of monuments. The desire is sufficiently widespread to make it commercially exploitable by Eiffel towers and the like. It probably results from a deep-seated instinct. Its root may consist in the sense of freedom derived from seeing over obstacles which usually shut one in. This would be especially true in hilly countries. A dweller in the plains soon comes to feel imprisoned in a deep valley. Hence mountain-climbers are usually men whose homes are not among very high mountain ranges.

A child or a dull person may love to get to a high point and see far afield without knowing or caring to know why; but a man will have a reasonable delight in anything he does. The reasonable delight in panoramic views may be of two broadly different kinds, to wit, scientific or artistic—the delight of acquiring knowledge or perceiving beauty. Of the latter delight it is not needful to say much. The capacity for appreciating beauty is very unequally developed amongst men of our day. Some almost lack it; in others, it is present in extraordinary force. It is a capacity capable of being fostered into strength wherever the germs of it exist, but the manner and surroundings of modern life tend rather to destroy than to foster it. When once a man is blind to beauty it is useless talking to him about it.

The scientific spirit, though not common, is nowadays much more common than the artistic, besides being more easily conveyed from man to man. It finds pleasure in panoramic views, in observing the geographical relations of mountains, valleys, and lakes, the position of glaciers, the forms and structure of ranges, the direction of water-sheds,

and, we may broadly say, in all the facts of form which make mountains and ranges individual. The geographer on a mountain-top melts into the geologist, and the geologist into the geographer. Both are appealed to by every detail of a wide-extending vista; both experience a thrill of delight in the acquirement of knowledge which a panoramic view enables them to attain.

But it is not merely upon summits that these two spirits of science and art are awakened and stimulated. The stimulus is extended to them during every hour of a climbing day, from the moment when the mountaineer emerges into the starlit night, amidst pallid glaciers and the infinite silences of the deserted world, till that when he lays down his tired limbs by the side of the rippling meadow fountain, and looks back at the rosy glories that deck the summit of the peak still sealed with the impress of his conquering foot.

Corresponding, then, to these two kinds of pleasure among mountains, we have two types of mountaineers. I will call them the scientific and the artistic. Without delaying over them, I shall now introduce a third type to your notice, though it is one not to be distinguished from the scientific type by any hard and fast lines; I refer to the inquisitive climber. I take it that mere unscientific inquisitiveness is a large element in the attraction that draws most men to venture their first experiment in the climbing of snow mountains. They do not desire to make any original observations or to enlarge even the meanest and most special area of knowledge. They simply wish to know what it is like to stand upon the eternal snows, to scramble up arêtes of rock, to thread the labyrinth of crevasses, or to mount the glazed counterscarp of nature's fortresses. The desire to see round corners, to discover what is beyond and behind, not for any scientific reason, or to any rational end, but merely for the sake of satisfying curiosity and 'to be able to say'—(as though anyone else ever counterpartly 'cared to hear')—this is the force which, if I mistake not, recruits the bulk of our members. Inquisitiveness is a preliminary stage for most; some remain possessed by it for the whole length of their climbing existence. They want to exhaust a district, or a centre, or a particular kind of peak, and work to that end for the mere sake of satisfying some irrational inquisitiveness of disposition, which has never been developed or trained into a more wholesome and productive appetite.

It may safely be assumed that every climber experiences, at the close of a successful expedition, a grateful sensation of pleasure, resulting from the consciousness that he has accomplished somewhat; and I will go further, and admit that the more difficult and dangerous an expedition has been so much the more keen is this pleasure. To overcome a difficulty, or to escape from a danger, is always delightful. The best Alpine climber may be unsuccessful owing to changes of weather and a hundred other uncertainties. In this element of uncertainty there resides a real charm. If the expedition is long and difficult the charm, depending on the uncertainty, is greater. Moreover, when the difficulties of an ascent are considerable, and a party of men have as it were to measure their powers of attack against a mountain's passive or active resistance, a successful issue is a keen satisfaction to everyone concerned. This satisfaction will be greater on new expeditions than old ones, and to unguided than to guided climbers. A new expedition of extreme difficulty, which has been attempted without success by strong parties, and which is ultimately accomplished successfully by a party of climbers without guides (I am, of course, thinking of the fine ascent of the *Pic sans Nom*), will linger in the memory of the victors as a most charming and delightful experience. The victory over difficulty and danger is the chief element in this pleasure. It is so delightful that for some men it becomes the main element in their Alpine satisfaction. I apply the designation 'Alpine gymnast' to a man for whom the overcoming of physical obstacles by means of muscular exertion and skill is the chief pleasure of mountaineering. I do not call him an Alpine climber, because that title was invented and applied before Alpine gymnasts came into being; a new descriptive term must be used for a new type.

At the risk of being wearisome, I must guard myself from any seeming personality that might be imagined to hang about this definition, for, in my own mind, none such exists. A man who plans new expeditions after gathering a full knowledge of a locality, who has the generalship to strike out a new line of route, and the intelligence to understand a mountain, can be no mere gymnast. The gymnast, pure and simple, is incapable of any of these things. He is a mere ideal or imaginary type, whose lineaments I do indeed detect in many of my mountaineering friends, but only as a factor in a larger whole, which I by no means desire to criticise in any hostile sense. There is a danger, to my

thinking, in that the gymnastic and quasi-professional element tends to increase; and that tendency should now be combated. Alpine climbing is no mere gymnastic exercise like rowing, but a large and comprehensive sport, wherein the whole nature of man can find stimulus and play. It is not an exercise for the muscles and the nerves only, but for the reason and imagination as well.

There are other Alpine pleasures which give rise to types of mountaineers. There is the pleasure of human society and intercourse, which brings men together and makes 'centres' attractive to some, but which in its best and most memorable form only springs into existence upon the mountain side, to be shared by friends united by a single rope. The mere contrast, again, to the plaguey uniformity of modern town existence, 'living in houses and going to offices,' which a mountaineering holiday affords, is a sufficient reason with many men for the cultivation of climbing. Photography, botany, and other special interests may be motives in different individuals; such matters of detail the reader must fill up for himself.

We thus arrive at the conclusion that there are four main tastes which find satisfaction in mountaineering, to wit, the artistic or æsthetic, the scientific, the inquisitive, and the gymnastic, in which last I include the love of adventure and hazard. Now, just as a man is a better and finer creature in proportion as his sympathies and interests are large and numerous, so is mountaineering, or any other sport or occupation, of a high type in proportion as it gives play to the largest number of dignified human tastes, and awakens the largest number of fine human emotions. I propose, therefore, in conclusion, to discuss the question as to what kind of mountaineering is, according to this definition, the best.

I have divided climbers into two broadly sundered groups—centrists and excentrists—and this division has met with general acceptance. Some men, either from domestic and other circumstances, or through 'the large red man's' inherited love of physical comfort, prefer to establish themselves at a modern and readily accessible hotel, whence they may start for their various expeditions, and whither they may daily return. Others prefer to move on from place to place at relatively short intervals. Now, both of these methods have advantages. The centrist may be conceived of as, and sometimes is, a man who wishes to make a careful study of a single district with a view of thereby attaining a better knowledge of mountains as a whole. Such an one

is a centrist merely for the time. The kind of knowledge he seeks being once acquired he will apply it to a larger area, and forthwith wander to that end. The excentrist may be a superficial person, and his wandering may be merely the sign of a jaded appetite. Such exceptions, however, may be left out of the account.

Broadly speaking, I assert that the man who wanders amongst the Alps (or any other large range or set of ranges) is more easily able to keep his eye alert and his mind fresh for the appreciation of the various forms and kinds of beauty which mountain regions offer, than can a man who makes excursions around a centre. Few parts of the world are richer in beauty than a great mountain area, crowned with snow, draped in ice, buttressed by splintered rock, founded on the broad bosom of the earth, and framed in the emerald glories of verdant meadows and mysterious forests. Great is the educational value of mountains to the æsthetic sense; but he that would experience it must open his mind to all the pleasures of the hills. He must learn in repose as well as in action to know their whims and humours. He must not always be fighting them in their most dangerous strongholds. He must alternate between high and low, difficult and easy, between ice and woodland, meadow and rock, snowfield, valley, and lake. Nothing that the mountains offer must be taboo to him. He must become their brother, and must know and enjoy all their moods. The man who knows only one kind of mountain, only the surroundings of a few centres, does not know even the Alps. Every great district has its peculiarities. An exclusive attention to any one district is, therefore, not advisable. Most minds become dull to the beauty of familiar scenes. The Zermatt valley (between Visp and Zermatt), beautiful though it be, bores those who have passed oftenest along it; and it is well to avoid learning to be bored by beauty.

For the development of the geographic and other scientific tastes in a man, wandering with open eyes is certainly best. Of course, everyone should seek to know some centre well. That I have always asserted. But when once this educational stage has been passed through, it is the wanderer that adds most to his stock of knowledge and best develops his observational faculties. The view from Pollux means more to one who has climbed in the Oberland, Dauphiné, the Graians, the Maritimes, and the North Italian Alps than it can mean to a Zermatt centrist.

The inquisitive man is not an important type. He will often be a wanderer, and over him we need not linger.

There remains only to consider the gymnast pure and simple. For heaven's sake let him go to Zermatt by train and stay there! If the Alps are the playground of Europe, let Zermatt be set aside as its gymnasium. There are several unaccomplished gymnast routes up the Matterhorn (straight up the north face, for instance); there remains more to be done in that neighbourhood by our excellent and muscular friends. Moreover, about Zermatt and Saas dwell the gymnast guides; and there is the best gymnastic atmosphere. We shall soon no doubt hear of a man holding the 'record of the world' for the Matterhorn, and half a dozen betting agents will set up their summer abodes on the sites of the old wooden houses once so picturesque.

I conclude, therefore, that, except for the gymnast and the man who climbs merely for the sake of enjoying dangerous adventure (and who therefore cares only for the most difficult rocks, which nature kindly arranges in the immediate neighbourhood of a few centres), the eccentricist's method of visiting mountain ranges is the best. The Alpine wanderer is more likely to profit by his expedition than the centrist, and I maintain that, in the present condition of affairs, wandering deserves to be practised and encouraged by members of the Alpine Club. Individual centrists may fully appreciate and enjoy all the glories of the Alps; I am not speaking of individuals but of the system.

I propose, therefore, that there be formed within the Alpine Club an eccentric section—an entirely private and unadvertised affair.* The members of this section should devote themselves, for a time at any rate, to the study of the Alps as a whole. A small group of wanderers would soon produce a wholesome effect upon the rapidly degenerating type of centrist guides, and their silent influence would presently be felt amongst the large body of mountaineers. Now that the Alps are riddled with passes in all directions, and that almost every peak can be traversed by known routes, the time for the Alpine wanderer has surely come. Let us hope that he will not in his turn harden into another unintelligent type, and come to aim merely at covering the largest possible area of ground in a given time, in order 'to be able to say——'

* I am willing to receive communications on this matter from members of the Club. [The Editor begs to point out that members of Mr. Conway's 'eccentric section' will be able to render most useful assistance in the preparation of the new edition of Ball's *Guide*, and trusts that they will also communicate with him.]

A NIGHT ADVENTURE ON THE DENT BLANCHE.

BY WILLIAM CECIL SLINGSBY.

(Read before the Alpine Club, Tuesday, March 3, 1891.)

SOON after my return from the Alps last summer, I received a letter from the Editor of this Journal in which he asked me to write a paper on an adventure which, in company with two friends, I had recently met with on the Dent Blanche. This I declined to do for several reasons. However, as it appears that a somewhat unusual interest has been awakened in our adventure, I have received what I conceive to be a positive command from the President and Hon. Secretary of the Alpine Club, not only to write, but, what is ten times worse, to read a paper on this subject. This, as a loyal subject, I obey without question.

In June last year I joined a large party of A.C.'s in the Isle of Skye, where three of us made an appointment to meet, if possible, at Zermatt early in August to attempt the ascent of the Dent Blanche without guides. Each one of us had, at different times, been defeated upon this mountain, and none of us had ascended it. This expedition was, in fact, the sole magnet which attracted me to Zermatt last year. So far as Zermatt was concerned, we faithfully kept our appointment, but the only expeditions which the weather allowed us to make together were the ascent to the lower Findelen hut, and to the Riffel Alp by way of the Gorner icefall. These we accomplished quite safely. Before my arrival at Zermatt these two gentlemen to whom I refer did indeed make a start for the Dent Blanche with their guides, but the only success which they achieved was the partial—very partial too—restoration of the hut at the Stockje which had been carried away by an avalanche in October of the preceding year. The day that these veterans left, in company with Messrs. G. A. Solly, W. P. Haskett-Smith, and E. T. Hartley, I climbed the Unter Gabelhorn, passing designedly over the little peak which masks on the east its higher neighbour, and which, as a matter of fact, has frequently been climbed in mistake for the Unter Gabelhorn, once indeed by a remarkably strong party who got no further. From this peaklet, which we dubbed the Hartley Spitze, we descended a very fine ridge to the col just below the higher peak. On this descent we met with considerable difficulty on ice-glazed rocks, and had ample opportunities of testing

one another's climbing powers. We returned very late to Zermatt and made the startling discovery that a glow-worm held in the hand does not give so good a light as an Alpine lantern.

A few days later we made an attempt on the Rothhorn direct from Zermatt, but, when we arrived at the notch, we met two other parties who had slept at the Trift hut, one of which was led by Alexander Burgener, who told us that the slabs above the notch were impracticable owing to the ice which encased them. These men were unaware that we were following them. With Burgener we made a vigorous attempt to cut across the west face to the Zinal arête, but were obliged to return because the covering of ice was too thin and therefore unsafe.

On returning from this expedition, Solly, Haskett-Smith, and I resolved to try the Dent Blanche after the lapse of a few days, provided that the weather would allow us to do so. By this time we were all in perfect training, and each of us now felt fully confident of the power of the others to undertake what we well knew to be an expedition of exceptional severity.

On Monday, August 11, we went to the Stockje with a porter. On starting, appearances seemed to be against us, for, as was often the case last summer, there was 'a southerly wind and a cloudy sky,' a combination which, though good enough in Yorkshire or Leicestershire in December, is unpopular at Zermatt in August. However, as August 12 was the last day which Solly could well spare in Switzerland, and we knew that we had at least a chance of success, we thought it worth trying for. All of us have before now started for some peak in doubtful weather, and in a few hours have been very glad that we did so. We have also, I doubt not, over and over again regretted that we have not started, because of some slight shower of rain, low-lying clouds, or distant thunder. In 1882 I missed the Dent Blanche, on a lovely day too, solely because at 1.30 A.M. there was a shower of rain at the Stockje.

During the night, notwithstanding the efforts of my friends and their guides to put the ruins of the Stockje into a habitable condition, we had ample opportunities of testing the power of the wind, which was by no means small. As we had not, however, been drawn up to the Stockje in sledges, our observations have no scientific value. Some rain and hail also fell.

Meanwhile, the weather at Zermatt had so much improved,

and altogether appeared so hopeful, that Miss Richardson decided to leave Zermatt at midnight for the Dent d'Hérens. In a letter which I received from her she says, 'I actually dressed and went out, but it had suddenly clouded over, and Emile Rey thought we had better wait, much to my grief. A little later, when it cleared again, it was much too late for us to start, and I need not say how bitterly we regretted our midnight decision. You may like to know that, during the whole day, Rey kept remarking that you were wiser than we, and were certain of your peak, and that if we had set off we should also have done ours.'

We started from the Stockje at 1.40, and, as there was still a very strong wind blowing from the west, each one of us retained the extra flannel shirt in which he had slept. Solly and I wore ours outside our coats, and with our fluttering tails and red handkerchiefs over our hats we looked disreputable enough. Haskett-Smith, having to sustain the dignity of the bar, preferred to keep his shirt under his waistcoat.

We went by way of the Col d'Hérens, though I knew the route up the Wandfluh rocks. By the time we reached the col, the wind had gone down wonderfully, and, when the sun got up, the wind died away altogether, which was what we had hoped for, and, indeed, had almost expected, and now we felt almost certain of a fine day.

On the upper glacier we lost probably five minutes by making a needless *détour*, but still we reached 'the good breakfast place' below point 3,566 metres at 5.10, or in twenty minutes longer than Mr. Conway's time by the Wandfluh.

At the top of the rocks which we then climbed we had one little gully of thick ice to cut across, about 25 feet wide. Otherwise, as far as the base of the great tower on the south ridge, the mountain was in good order. The rocks on the crest of the ridge, and everywhere on the 'Schönbühl' side, were unusually good—in fact, there was not a grain or a crystal of new snow to be seen on them, and there was an unusual absence of cornices on the ridge. On the Ferpécle face the case was very different, and we saw at an early hour that there was ice everywhere on those sunless rocks. We thought that we should succeed, but not without a struggle. Fortunately, neither rain nor snow had fallen during the night on the upper part of the mountain, though there had been a sharp shower at the Stockje.

It was delightfully sunny, warm, and mild as we traversed

the long snowy ridge; there was no wind, and we could not have wished for better weather. No snow was blowing from the arête above us. We got along rapidly, and reached the foot of the great tower about 10.40, having halted 45 minutes on the way for breakfast.

According to 'The Pennine Guide' we were 'about an hour' from the top by the route which we had chosen, as the rocks on the arête—or, rather, on the crest of the arête—were 'in first-rate condition.'

Whilst halting at the tower we saw a party on the Schönbühl glacier far below us, who had just crossed the Col de la Dent Blanche from the Mountet hut.

After ascertaining that we could turn the tower by its west flank at the expense of a good deal of step-cutting, I proposed that we should try to turn it on the Schönbühl side instead, because, though the rocks on the west face were in bad condition, those on the east were in exceptionally good order. Every stone was perfectly dry, and the ridge was nowhere overhung by a cornice, as is so often the case. My companions agreed to this proposal.

We descended an easy gully about 70 feet, then crossed it by cutting half a dozen steps in hard ice, and climbed up good, firm, and pleasant rocks for about 200 to 300 feet. This brought us to a broad ledge, which tempted us to get round the tower. As we afterwards proved, it would have been much better to have zigzagged almost on to the top of the tower itself. The ledge led us to a shallow chimney, and here our real difficulties began. The rocks were steep and abominably loose; there was plenty of hand- and foothold; but very few of the apparently good holds could be made use of, because we had no desire of undermining and pulling down the tower itself upon our heads in order to make the ascent of the Dent Blanche easier for other climbers in the future. We found no ice at all here, and probably these rocks were in as good condition as such schistose rocks standing end up can ever be. We can certainly corroborate all that Mr. Whitwell said about the rottenness of the rocks on the Schönbühl face.

After many a shove, many a pull, and many a struggle, where we all worked together as hard as we could, we regained the ridge, some distance above the tower, two hours after arriving at its southern base.

The rocks on the crest of the ridge were still in perfect order. The day was magnificent, and there was not the remotest sign of a storm. Climbers who were on neighbour-

ing mountains on this day all speak of the fine weather. My friend Mr. Eric Greenwood, who was on the Rothhorn, told me that that peak was in capital condition, but that there was a strong N.W. wind blowing at the top. We had perfect calm. Mr. Greenwood stopped on the snow arête till a late hour in the afternoon taking photographs, and neither his guides nor he had the slightest expectation of a thunderstorm.

We stuck faithfully to the ridge, and climbed up, and as nearly as possible over, each point as we reached it, because of the ice which shrouded the rocks almost everywhere on the west face.

We were forced on to the face of one little pinnacle, and had to use the greatest care.

Nowhere did we come to any place where we felt that our powers were overtaxed; still, the work was difficult, though not supremely so.

A few days later, I met Mr. Conway at Breuil, and I asked him what he meant in this case by the term 'following the arête.' His interpretation, which is rather an elastic one, is this: 'Climb over the pinnacles if it is convenient to do so. If not convenient, shirk them by passing below their western bases.' This latter method was most probably impracticable on the occasion of our ascent, which fully accounts for the great difference between Mr. Conway's 'times' and our own, as we certainly climbed at least as quickly as an average party on the Dent Blanche during the whole of our ascent.

The time sped merrily and quickly by, and the difficulties decreased as we hastened onward. Just as we left the last rocks, a light filmy cloud, sailing up from the north, hovered for an instant over the top of the mountain, and then settled upon it; otherwise, though it had then become exceedingly cold, the sky was clear and the day perfect, and we could not help comparing our good fortune with that of those early climbers who fought their way upward, step by step, against most ferocious gales.

After some tiring step-cutting on the gentler slopes above the rocks, which, like the west face, were sheathed in ice, we reached at last the south end of the little flat ridge which forms the summit of the Dent Blanche, where a small flagstaff is usually to be seen. Here there was an enormous snow cornice which overhung the eastern side. The little cloud merely clung to the cornice on the ridge, and evidently had no malice in it at all. None of us put down the time at

which we reached the top. One of us thinks that it was just after four o'clock, but the memory of the two others is clear that it was between three and four. At any rate, of this we are all agreed, that it was not so late as 4.12, the hour when the author of 'Scrambles in the Alps' reached the summit in bad weather. My watch, being out of order, was left at Zermatt.

We left directly, and in less than a minute were out of the little cloud, which was uncommonly cold, and again we revelled in bright sunshine. We were under no apprehension of danger, nor had we any reason whatever to be anxious, as our way was clear enough: there was no doubt about that. We were in capital training, and we had, most certainly, a sufficiency of daylight still left to allow us to get well beyond every difficulty upon the mountain. Moreover, Solly, with his usual instinctive thoughtfulness, carried a lantern in his pocket, and we had left another lower down. Thus we had a most reasonable expectation of reaching the Stockje that evening, and Zermatt early the next morning.

When we had come down for about an hour, we saw an occasional flash of lightning playing about the Aiguilles Rouges d'Arolla. This was the first indication that we had of foul weather. Soon afterwards a dark cloud crept up ominously over the shoulder of Mont Collon, and on to the Pigne d'Arolla. Still no cloud seemed to threaten us, but we hurried on very quickly.

On arriving at the col, just above the great rock tower, we turned down a little gully on the west face. Here, though the work was exceedingly difficult, we lost no time whatever, and undoubtedly we chose the best route. The storm, meanwhile, had crossed over the east Arolla ridge, and we saw the lightning flashing about the Aiguille de la Za and Dent Perroc, and the clouds, as they advanced, grew more and more angry-looking.

We were advancing as quickly as the nature of the ground would allow on a buttress which supports the great tower on the west. It was then about six o'clock. We had, at the most, only 150 feet of difficult ground to get over, when a dark and dense cloud fell upon us, and it became, suddenly and almost without any warning, prematurely dark. Our axes emitted electric sparks, or rather faint but steady little flames, on both the adze and pick part; so also did our gloves, the hair of which stood out quite straight. A handkerchief, which I had tied over my hat, was like a tiara of light. This was very uncanny, but still deeply interesting.

The sparks, when touched by the bare hand or the cheek, gave out no heat. There was no hissing to be heard on our axes or on the rocks, but Solly felt a sort of vibration about the spectacles which were on his forehead that he did not at all like, so he put them under his hat.

Under ordinary circumstances we should have put away our axes until the storm should have passed away. Of course we did not do this, nor indeed would any other member of the Alpine Club have done so if he had had the good fortune to be with us. We wished to get across the 150 feet which was the only difficulty yet remaining before us. Each one of us was quite capable of undertaking the work, and, in spite of the unusual darkness, we had sufficient light for the purpose.

Solly was leading across a difficult bit of rock, and clearing away the ice; Haskett-Smith was paying out the rope as required; I was perched firmly at the bottom end of a narrow and steep ledge round the corner of a crag above them with the rope firmly hitched. We were all working steadily and most carefully, and hoped in a few minutes to clear our last difficulty. All at once the whole mountain side seemed to be ablaze, and at the same time there was a muzzled, muffled, or suppressed peal of thunder, apparently coming out of the interior of the mountain—so much so that, if a great crevice had been opened in the rocks and fire had burst out from it, we should hardly have been more surprised than we were. Solly and Haskett-Smith each exclaimed, 'My axe was struck,' and each of them naturally enough let his axe go. Where to none knew. Solly, describing this, says, 'At the moment I was standing with my face towards the mountain, with my right arm stretched out, feeling for a firm foothold with my axe, which I held just under its head. For perhaps a minute the lightning was coming very fast; then came the noise, and I saw a curve of flame on the head of my axe. I involuntarily let it go. The whole place seemed one blaze of light, and I could distinguish nothing. The thought that rushed through my mind was—Am I blinded? the intensity of the light was so terrible. It is difficult to put such events in any order of time; but I think the noise or explosion came first, before the blaze of light, and the light seemed to flicker as if a series of flashes were coming. I hardly know whether my body or any part of my clothing was actually struck. My axe certainly was, and I think the rocks just by me were.'

Haskett-Smith said that his neck was burnt, and we

saw later that a dark-brown band, an inch and a quarter wide, had been burnt exactly halfway round his neck. I was untouched. All the sparks disappeared with the flash.

Now the matter was serious enough, as we had only one axe, and we felt that we had had a most providential escape. There is little doubt that, if this had occurred upon the crest of the ridge above us, the electric current would have been much stronger and the consequences much worse.

My two companions then climbed up to the little ledge where I was sitting, to wait at least until the storm should pass away. Whilst Solly was doing this, a tremendous gust of wind swept up from the N.W., and nearly carried him off his feet.

The storm lasted much longer than we expected it to do, and by the time it had vanished it was quite dark. All climbers will readily agree with me when I say that the storm, seen from such a point of view, where the mountain forms are so wild, and their guardian glaciers so vast and glittering, was indescribably grand—so much so that, even under our circumstances, there was a kind of grim enjoyment which we could not help feeling.

I put my axe upon a higher ledge for safety's sake. When the storm had gone by we took stock of our goods. Solly had a lantern. We each had two shirts, scarfs, and unusually warm clothing. We had plenty of food, some cold tea, and a flask of brandy. We knew well that we must stop where we were until morning. It was hard luck certainly, as there was only one narrow prison moat between us and freedom. Once over these 150 feet, we could have reached the Stockje by lantern light. Of this I am certain. But no man living could cross the moat except in daylight.

Haskett-Smith, who is a marvellous man for making all sorts of hitches, knots, and nooses, managed to get a capital hitch for our rope, and lashed us to the rock most skilfully. The ledge was steep, and varied from $1\frac{1}{2}$ to 2 feet wide. As we could not sit back to back, which is the best plan when possible, we did the next best thing, and sat, squatted, or leaned, face to back. Solly, who sat at the bottom, had a loose piece of friable rock which supported one foot. I was in the middle, with my knees up to my chin, on a steep slope, but was supported by Solly's back, and by a singularly sharp little stone on which I squatted. Haskett-Smith leaned with his back against a corner, and with his knees against my back. Each of us had a rucksack, which helped to keep out the cold. We made a good meal of potted meat,

bread, chocolate, and an orange, and left a box of sardines and other food for the morning.

Several short but heavy snow and hail showers fell after the thunderstorm had subsided, but we were thankful that there was no rain. The wind got up, too, and whistled wildly through the crags above us. Fortunately, a screen of rock above our ledge partly sheltered us. We faced a grim and grisly little pinnacle on the west face of the mountain, which became, hour after hour, if possible, more ghostly. How we did hate it to be sure! A light in a *châlet* near Ferpécle shone like a beacon for some hours, which was a pleasant contrast to the near view of the ghost, but it seemed to be a terribly long way off. We kept up our spirits capitably, and from previous experience I, at least, knew how thankful we ought to be that no member of our party was of a pessimistic turn of mind. At the same time, we were fully aware how serious the matter was, but we were determined to get well through it, helped, we trusted, by a power not our own.

Our greatest trouble during the night arose from the consciousness that Mr. Schuster, Herr Seiler, and other friends at Zermatt would be very anxious about us, and we often spoke of it with regret.

We were most careful to keep moving our hands and feet all the night, and, though the temptation to indulge in sleep was very great, we denied ourselves this luxury. After two o'clock an increased vigilance was necessary, as the sky became clearer, and the cold much more intense. Mr. Aitkin's guides, who were then bivouacking above the Stockje, 'complained much of the cold.' We probably suffered less than they did, as, at our great altitude, the air was doubtless much drier than below. At the same time, gentlemen who were occupying comfortable beds in luxurious hotels in the Vispthal thought the night was unusually warm. Haskett-Smith imagined the whole night that Solly was another member of the A. C., and invariably addressed him by the wrong name. This hallucination was no doubt the result of the electric shock.

Shortly before 5 A.M. we opened our sardine box, which was no easy task, as our outer gloves were like iron gauntlets. We made a good meal of petrified fish, frozen oranges, and bread. We avoided our brandy flask like poison on the whole expedition.

We soon discovered the lost axes below us, half embedded in hard snow. Then we began to move. Solly took my

axe, and with much difficulty, and at the expense of a good deal of time, cut down to and recovered one of the missing ones. We found, however, that it was then far too cold, and we were too benumbed to work safely, so we returned to our ledge again until eight o'clock. Long before this hour the ghostly pinnacle was gilded by the morning sun, and, if possible, we hated it more than ever, as no warm rays could reach the place where we were for hours to come. On telling several of the leading guides in Zermatt about waiting until eight o'clock on the ledge, they all said that it was quite early enough for us to move after spending a night out in the cold, and that they had done exactly the same under similar circumstances. We were sure we were right; still their testimony is valuable. Messrs. Kennedy and Hardy, when they had their 'Night Adventure on the Bristenstock,' say they were 'obliged to stamp about for some twenty minutes in order to restore circulation, or we should not have had sufficient steadiness to have continued our descent in safety.' Well, these gentlemen had neither waistcoats nor neckties, and had only a lump of bread and one bottle of wine. We were at least well fed and warmly clad, but we had no room to stamp about. Having now two axes, we were able to work again with renewed confidence in our powers. We saw the third axe lying half imbedded in the snow a long way below us, and about a rope's length from some firm rocks. The hail and snow, which had partly covered the rocks, increased the difficulty, and the ice in which we had to cut steps was unusually hard. In fact, our 150 feet were gained with much difficulty, and by the exercise of great caution and severe labour, at last, after much time and manœuvring, we recovered the third axe, and were indeed happy.

Two minutes later we stood in bright sunshine, and such was its invigorating power that in ten minutes all our stiffness had vanished. My hat blew off here, and rolled on its stiffened brim at a tremendous pace down a couloir of ice. Fortunately I had a woollen helmet which Miss Richardson had knitted for me. We hastened on very quickly in order to relieve, as soon as possible, the anxiety which we well knew our friends at Zermatt were enduring.

When on the snow ridge between points 3,912 m. and 3,729 m. we heard voices far below us on the west, and soon saw what we knew afterwards to be Mr. Aitkin, Imboden, and a porter. They had abandoned their intention of climbing the Dent Blanche 'on account of bad weather.'

Indeed, Miss Richardson, who had spent the night at the Stockje, was told by Imboden that 'in such weather it would be impossible, and probably would remain so for a day or two; therefore, they might as well go to Ferpécle and do another col the next day.'

Seeing that the party were above the route to Ferpécle, we knew at once that they were looking for us. Imboden shouted out to us, 'Where do you come from?' We pointed to the Dent Blanche, and they immediately turned towards Zermatt, and we only missed them by about five minutes at the usual breakfast place.

Now, as we knew that there was no need for us to hurry, we rested, and made a most hearty breakfast, as we had left on the rocks a whole chicken, some ham, bread, plums, and a bottle of white wine.

On crossing the glacier to the Wandfluh rocks our axes and rucksacks hissed like serpents for a long time, while we saw in the distance the storm which overtook Mr. Macdonald on the Lyskamm that very morning; and none of us liked the renewal of electric energy, which may well be believed. A heavy mist also threatened us. Mr. Aitkin had a similar experience to ours.

We descended by way of the Wandfluh, and above the Stockje untied the rope which we had had on for thirty-eight hours; and such is the virtue of the Alpine knot that we were as firmly tied at the end of this time as we were when we first put on the rope.

On the Zmutt glacier we bathed our hands repeatedly in the glacier pools as a safeguard against possible frost-bites with entirely satisfactory results. On the glacier we were delighted to meet Mr. E. T. Hartley, who welcomed us most warmly, and told us of the anxiety of our friends; he, however, and one good lady in Zermatt said all the time that we should return safe and sound again. Just off the glacier we met three porters provided with blankets and provisions sent by the kind thoughtfulness of Mr. Schuster and Herr Seiler.

We rested at the Staffel Alp, where we had some most refreshing tea, and reached Zermatt in the evening. Never shall we forget the hearty greeting which we received from Mr. and Mrs. Schuster, Herr Seiler and his family, Messrs. Aitkin, Alison, Newmarch, Groves, and many other friends, as well as from the leading guides, who congratulated us very warmly, and, I believe, sincerely. I take this opportunity of expressing, on behalf of my companions and my-

self, our most sincere thanks to all those who, at considerable trouble, organised the search party which was to have started to look for us at midnight in case we did not turn up, and our deep regret for the anxiety suffered on our account. Also, on my own account, I am glad to have this opportunity of stating, that the success which it was our good fortune to gain was due to the fact that during the whole expedition we worked together with the greatest unanimity. Each had his share of real hard labour, and each did it most willingly. I never heard one single word of complaint from either of my companions during the whole of that most trying time, which speaks well for the good tempers of these two gentlemen. In fact, no party could have pulled better together than we did, and as a proof of this I can truly say that we would gladly climb the Dent Blanche together again if the opportunity should present itself.

It may be thought that, because we were so long a time on the arête, we went slowly. This is not the case, as our pace throughout was quite up to the average. The real reason is that the mountain was unusually difficult on account of the old ice which was present everywhere below the crest of the arête on the west side. For all that, I can most conscientiously say that we ran no unjustifiable risk whatever, and we never advanced imprudently. We were prepared to retire at any moment if an advance seemed to be foolhardy. We were later on the top than we expected to be, but felt fully assured that we had sufficient time to clear every difficulty upon the mountain before nightfall. Though we were late, others have been later, in bad weather too. We were undoubtedly in great peril, but solely on account of the thunderstorm. But for this we could and should have returned to the Stockje.

I have been asked how it was we did not notice that a thunderstorm was coming on. What I stoutly maintain is that, during the whole time of our ascent, and for at least one hour on the descent, there was no cause to make either us or any one else to suspect that a bad thunderstorm was going to pour down its wrath upon us, nor was there anything whatever to make us believe that during some twenty-four hours there would be the extraordinary state of electric tension throughout the whole chain of the Alps which followed. The President of the Alpine Club had no private warning during his ascent of the Dent Jaune, one of the peaks of the Dent du Midi, nor had Mr. Macdonald on

the Lyskamm. Even the Editor of 'The Alpine Journal' had no special messenger to warn him that Tyrol was to be the scene of unusual electric energy. Many other climbers were caught in the storms which attacked the mountains on August 12 to 14 last year, and none of them were able to predict their coming.

In the pages of past 'Alpine Journals' are many records of adventures in thunderstorms—notably that charming paper of Mr. Tuckett's in vol. vii. p. 191; also Mr. Clayton's experience in Tyrol in 1878.*

Prior to last summer, my strangest experience of a thunderstorm was in 1879, when I climbed the Weisshorn. Whilst on the mountain, we noticed that the whole Visp valley was shrouded with a heavy pall of clouds nearly the whole day, whilst we had a clear blue sky. When we reached the valley in the evening, we found traces of recent heavy rains. Alpine friends whom we met in Zermatt told us that there had been a severe thunderstorm in the valley most of the day. Strange to say, we on the Weisshorn neither saw the lightning nor heard any of the thunder below us.

A few days after this, Mr. W. W. Richmond Powell had a remarkable experience on the Unter Gabelhorn. He gives me leave to make use of the following most interesting account of this adventure, which I extract from a letter which he wrote to me:

Regarding the Unter Gabelhorn thunderstorm, I left Zermatt with Hutchison and Peter Taugwalder on a brilliant morning in August, 1879. We reached the base of the rocky peak at about 8 A.M., breakfasted there, and lay basking in the sun for a full hour—for we had the whole day before us, and there was no need to hurry.

At last Taugwalder, looking back over his shoulder, said, 'The weather is going to change; we must get on.' I turned, and saw at the back of the Matterhorn and over the Dent d'Hérens a dense black mist rising against the blue sky—a mist that had no defined edges, and bore no resemblance to an ordinary cloud. We packed up our things quickly, and started climbing the easy rocks. The mist advanced rapidly, and by the time we had nearly reached the summit we were enveloped in it. Taugwalder was first on the rope, Hutchison came next, and I was at the tail. When about 40 or 50 feet below the top, I heard a curious hissing or buzzing sound, and, as it was one unfamiliar to me at that time, I halted a second or two to seek the cause of it. Finding nothing (I half expected to see some novel insect), I called to Taugwalder, asking if he heard it, and knew what it was. 'It's the wind; come along quickly,' replied he. I obeyed the injunction, but the explanation failed to carry conviction. I was in

* See *Alpine Journal*, vol. viii. p. 449.

the act of catching hold of a knob of rock just above this when, to my increasing perplexity, the knob also began to hiss. I examined it, and still could see nothing. But the next moment the ice-axe in my hand joined the chorus, which was now giving tongue on all sides, and I then comprehended the state of the case, for I remembered a description of Professor Tyndall's of similar hissing on a snowfield. As soon as I realised the situation I shouted to Taugwalder to turn back; but he, thinking perhaps his full tariff fee might be at stake, answered, 'We must just touch the top.' It was quicker to do this, I thought, than to stop to argue, so we scrambled up the few remaining feet, and the moment I touched the summit I bolted down again as hard as I could. I did not like the situation, and by this time every jutting point of rock was adding its own particular hiss to the general clamour. The rope was not long, and, getting quickly to the end of my tether, I turned and called to the other two, who still stood on the summit, urging them to follow at once. Just then I saw them both throw their hands up to their heads and cry out together, 'I'm struck!' 'Ich bin geschlagen!' Immediately afterwards came a flash of lightning and a report like the firing of a big gun. But the word 'flash' is insufficient to describe the awfulness of the fire that instantaneously pervaded the whole peak. Every crag, little and great, seemed to have its own tongue of flame; it was around us, above, below, and everywhere; and the terrific explosion-like report that accompanied it was most appalling. My first feeling of horror was, 'They are both killed!' But directly afterwards I saw that, whatever might have happened, they still had power of motion, and then I hauled at the rope, bringing them tumbling down the rocks, careless of bruises or other injury. A hurried word of inquiry, 'Were they hurt by the lightning?' and an equally hurried reply, and then we all bundled down at a pace I have never seen equalled before or since.

After the echoes which followed the first fearful flash had died away, I noticed that all the hissing had ceased; but it soon began again, and then came a second report, far less violent than the first, but accompanied by no lightning. A little later a third and much milder thunderclap was heard, and then heavy rain set in. We still raced down the rocks, and never stopped to speak till we reached our break-fasting place, drenched through, but, thank God! safe and sound. I then learnt that both my companions had sustained an electric shock—not, apparently, very severe, and both had escaped more serious injury. This shock occurred at a distinct interval of time before the great flash. I myself experienced no shock. The storm was a very severe one throughout the whole of the neighbourhood; and I think I am right in saying that Mr. Passingham found it both unpleasant and inconvenient on the Weisshorn that day.

In conclusion, I will merely say that each one of us was fully conscious of the fact that, under the most favourable conditions, this expedition must always be a formidable one; but I claim, too, that we were not acting unwisely in ascending so noble a mountain as the Dent Blanche.

A FEW NOTES ABOUT THE SELKIRKS.—I.

BY H. W. TOPHAM.

I PROPOSE to give in a short paper an account of the excursions which I made last summer in the Selkirk Mountains, British Columbia, and to give also what information I can to aid any one who may have the time and inclination to visit America this year. Probably the first mention in the 'Alpine Journal' of these mountains was a short note in the August number of 1888, alluding to a winter excursion which I made that year.* In the summer of the same year the Rev. W. S. Green made a very fair survey of a portion of the Selkirks, and added a great deal to our knowledge of the district, both by a paper which he read before the Royal Geographical Society, and by a book which he wrote upon the subject. The paper and a map will be found in the 'Proceedings of the Royal Geographical Society,' vol. xi. No. 3.

Messrs. Nottman, of Montreal, have published some fine photographs of Selkirk scenery, which may be seen at the rooms of the Royal Geographical Society; and I may add that I hope myself to be able, at a meeting of the Alpine Club in June, to exhibit some lantern-slides from photographs taken by Mr. Huber and myself last summer.

The best months in which to visit the Selkirks are July, August, and September. About a fortnight should be allowed for the journey out; and it will be best to go through to Vancouver, the terminus of the Canadian Pacific Railway. This for two reasons—first, because the whole journey from the plains to Vancouver, across four ranges of mountains, viz. the Rockies, the Selkirks, the Gold Range, and the Cascade Mountains, is exceedingly beautiful, more so than anything which resembles it in the States; and, secondly, because Vancouver is the best town in which to purchase food-supplies and camp outfit.

The best route to take from New York is either by way of Chicago, St. Paul, and then through Manitoba to Winnipeg on the Canadian Pacific Railway, and so on to Vancouver; or from New York direct by the Canadian Pacific Railway. In either case I strongly advise a visit to Vancouver.

The expenses will be: London to New York, say 15*l.* to 18*l.*; New York to Vancouver, say 30*l.* return. This is first-class. The price of a ticket to Glacier House

* *Alpine Journal*, vol. xiv. pp. 58–60.

Station, in the Selkirks, is very little less than the price of a through ticket to Vancouver.

It is better at New York to pay duty upon excisable articles than to send them through on bond. Such articles are cameras, instruments, and new guns. I sent my camera and instruments through on bond, paid heavy express charges for carriage, and did not receive them for six weeks afterwards, when they arrived too late to be of much service. The things most needed from England are condensed soups, condensed vegetables, ice-axes, alpenropes, boots, instruments, and plenty of boot-nails. At Vancouver the following things must be bought: Tents, blankets, cooking-utensils, and provisions. Flour can be obtained from Donald. Let us now suppose that you are starting from Vancouver. You will arrive in twenty-four hours at Glacier House Station, which is situated nearly at the highest point reached in the Selkirk Mountains by the railway. You will find an extremely comfortable hotel, and a landlord who will do his utmost to help you in every way, although he may reserve his private opinion as to your sanity. It will be best to write to him a few days in advance to engage the porter whom I took with me last year; for this man is the only one in the neighbourhood who has any knowledge of the mountains. If you cannot get him or his friend, who also accompanied me, you will have to get any one you can—probably some prospector after minerals or wood—and you will have to educate him yourself in the art of climbing. This is what I had to do myself with the men of whom I speak; and although they could not at first see the necessity of carrying a stick of any sort, yet, by the time we parted company, nothing would suit them but an ice-axe of the very first quality. I mean by this that the men are quite capable of learning. With the exception of men of this sort, who are by far the most agreeable men to camp with and climb with, you will find no porters at all, unless a few Indians should happen to have been brought from another part of the country and located here by the railway company as a doubtful attraction to travellers. These Indians will grumble if asked to carry more than 50 lbs.; and you will find that, although they can walk clean away from you over snow and rocks, yet they are like helpless babies upon ice. They are not particular about sleeping out without a tent—a couple of blankets each is all they want; but it is unlikely that they will consent to leave their squaws for more than two nights at a time.

Before leaving this part of my subject I must add that letters of introduction to the managers and officials of the railway company are of great service. I have always received the greatest courtesy at their hands.

And now for a brief account of the climbing accomplished last year. The limits of this paper must of necessity preclude anything but the most summary account of our doings, and the reader had better place Mr. Green's map before him, in order to get some idea of the lay of the country.

My first excursion, on which I was accompanied by two porters, was to the Dawson Glacier, where I camped for several days, and ascended Mounts Donkin and Fox. The latter is very easy, but there is a steep snow-slope at the summit of the former, which requires some care. We descended into the Horne Creek, which contains a series of fine falls and rapids; but we had great difficulty in forcing our way through the dense undergrowth, which renders walking below timber-line almost impossible. There is one golden rule to be observed in the Selkirks: 'Keep above timber-line.' From the summit of Donkin innumerable snow-peaks and glaciers were seen. One peak in particular stood out from the rest prominent for grace of outline and the beautiful pureness of its snow. I named it, with the licence allowed alike to great and small travellers in a new district, Mount Purity. Want of provisions prevented us from attempting any further ascents at present, so we returned to the hotel by way of the Illecellewaet Névé. By doing this we were enabled to clear up what had hitherto been something of a mystery—the extent of the névé; and we found that it does not extend farther than Mounts Macoon and Fox, and that it is entirely disconnected with the Deville Glacier, which is fed from a different source.

I was joined at the hotel by my friend Forster, and we then crossed the same névé and descended to the Deville Glacier, which we thoroughly explored, together with the Deville Névé. We also ascended the peak which on Mr. Green's map lies south of Mount Fox.

The Deville Névé, besides being the great feeder of the Deville Glacier, sends down also great quantities of ice in a fine ice-fall on to the Grand Glacier.

This last is the largest glacier which we found, and is considerably larger than the Illecellewaet. Like the Deville Glacier, it descends into the Beaver Creek, and it became our ambition now to ascend this creek and make a base-camp at the foot of the glacier. It was our belief that the Grand

Glacier was the source of the Beaver River ; but in this we were mistaken, for when, after infinite trouble, we had reached this glacier from Bear Creek and over the Prairie Hills, we found that the source of the river must be looked for in a glacier still farther up the valley. But previous to this last excursion we had once more to return to the hotel upon the same old quest of food.

Here we were joined by two Swiss gentlemen—Messrs. Huber and Sultzter—who had just succeeded in making the ascent of Mount Sir Donald.

From Grand Glacier we ascended a conspicuous peak shaped like a sugar-loaf. It was the highest peak within easy reach of our camp, and from its summit we obtained a magnificent view of glaciers and mountains as far as the eye could see. Before leaving this camp we visited the two glaciers at the head of the Beaver Valley. These two glaciers run parallel to each other, and are not separated at their snouts by more than a few hundred yards. The one feeds the Beaver River, and the other the Duncan River. We named them respectively the Beaver and Duncan Glaciers, and gave the same names to two fine peaks, one at the head of either glacier.

We next determined to attempt the ascent of Mounts Purity, Dawson, and Mitre, and we therefore retraced our steps by way of the Deville Glacier to the hotel. Mount Purity was the only one of the three peaks which we succeeded in climbing, and I think we must have taken ten days to do it ; for whereas we had had so far nothing to hinder us but lack of provisions and a superfluity of mosquitoes, the weather now broke, and we were driven back again and again before our perseverance was rewarded. From its central position, Mount Purity will be useful to the topographer, and the panorama from the summit will well repay the climber.

In conclusion, I will ask any one intending to visit the Selkirks to obtain from me certain data, which will enable him to continue the observations which I commenced for the measurement of several of the glaciers.

THE ROCKY MOUNTAINS OF SKYE.

BY CLINTON DENT.

IN these days the writer who sets forth the attractions of little frequented mountain districts displays a disinterestedness and a benevolence of disposition so singular as dangerously to resemble excessive good nature. Yet this is what I am bidden to do. To obviate any inconvenient rush to the district which forms the subject of this paper, I may mention at once that nearly every peak seems to have been climbed, and the supply of new faces and variations already shows signs of being exhausted. As another discouragement, which may give pause to the intending visitor, is to be found in the formidable sea voyage which is necessary to get to the spot at all, it seems judicious here to suppress the fact that an alternative route, *viâ* Strome Ferry, with a comparatively brief and smooth stretch of water, is equally open to the tourist. A love of adventure and a hardy disregard for comfort (together with a favourable forecast) induced our party in Whitsuntide 1890 to take the longer sea route from Oban to Portree. Of the *dramatis personæ* I need say little now. They will have their exits and their entrances, and the ups and downs of a brief period of their careers shall be duly set forth as I unfold my tale, for it must be borne in mind that my duty is merely to briefly chronicle our doings in general.

The weather while we were on the steamer was such that the meteorologist who predicted that it would be favourable probably reckoned it as an occasion on which he spoke absolute truth, judged by the weather prophet's standard of veracity. Certainly for a long time all went smoothly, all went well, and all who went were well. We forgathered with the other passengers, of whom there was a goodly muster, scarcely any being bound for Skye. The sound of a preliminary dinner-bell bred distrust and suspicion, however, when it became obvious that the number of travellers exceeded the probable number of seats at table. The second bell in consequence led all who could get a good start to precipitate themselves down to the saloon in a tumultuous and indecorous rush which could hardly have been worse in the height of the season. Presently a sociable fellow-traveller, who adopted a cheery manner and spoke, as people always do on board ship as long as they feel well,

in a much louder tone of voice than was at all necessary, remarked that we were nearing Ardnamurchan Point, and that shortly we should find ourselves on the broad Atlantic Ocean, and feel a nice swell. Having given us this information our informant vanished, and did not reappear, looking rather pale, until we were safely in calm waters again. One member of the party owed his safety to a lady novelist, whose work first shocked and then cast him into a deep slumber, from which he emerged refreshed when the region of the rolling billows was past. A brief moment of anxiety for the temporary health of two or three of our companions was occasioned by the fact that I noticed them, from a little distance, making very curious faces. It transpired, however, that my fears were unfounded, and that they were merely practising Gaelic pronunciation. The spelling of the proper names in this paper is correct, for it has been revised by a competent authority. It is very far from being phonetic, and gives no clue whatever to the right method of pronunciation. Some of the party knew all about it, and posed as expert Gaelic linguists by the simple process of calling the mountains by names to which their written appellations bore no relation whatever.

As we were a properly equipped party for the mountains, it follows that photographers were included among the members of the expedition. Nowadays a rope even is not more essential than a camera. Of one of the artists (as they like to be called) I need only say that his work is well known, and that one of his views forms an admirable illustration to this paper, giving very effectively the rugged outlines of the scree-strewn slopes of the bleak but beautiful Cuchullins. The other artist had all the enthusiasm of a beginner, and I may dismiss his work with very brief criticism. Notwithstanding infinite taking of pains, much calculation of exposures and a frequent use of technical expressions, the ultimate results were more singular than satisfactory. The principal outcome of the developments was a curious picture in which a presidential head was dimly suggested, suspended in mid sky and framed in an appropriate nimbus of cloud, the corporeal part being still more loftily elevated. In another, the flicker of a smile, worn by one of the group at great personal inconvenience owing to sunburn, feebly illuminated a distant hill. These phenomena were ascribed by the experts to an unsuccessful endeavour to take two pictures on one plate, and were dismissed contemptuously as 'doubles.'

In all seriousness the steamer route from Oban to Portree is the approach most strongly to be recommended. The seascapes studded with rocky islands will, in line and colour alike, astonish anyone who does not believe in the infinite variety of the coast scenery of Great Britain. The steamers touch at many places, and variety is thus obtained, if at the expense of progress. At one stopping place a horse was landed by the simple process of dropping the animal into the water. Some boatmen were in readiness to head the beast in the right direction, but it swam the best part of half a mile to shore with astonishing ease and rapidity. We disembarked at Portree, and immediately recognised that we were out-of-season visitors. It is always possible to estimate this by the warmth of your reception at an hotel. With all the ardour of youth we left the town attractions furnished by Portree early the next day, and drove straight to the mountaineering centre of Sligachan. Skye can already boast of a centre; in fact, as mathematically speaking ought to be the case, it has only one. Let it be understood, however, that I do not wish to join in the fray raging round the centres just at present; and desiring to preserve a claim to originality of treatment, I will keep Mr. Conway's name out of the paper. The Corporation of Guides in the person of John Mackenzie, a most excellent fellow, willing, strong, active, and rapidly developing into a good climber, had met us at Portree in a new pair of boots, and seemed as eager as anybody to commence an onslaught at once on the peaks around. Sgurr-nan-Gillean appeared the most obvious expedition for an afternoon's climb, and, as a matter of fact, is almost the only peak which can be ascended from the inn at Sligachan without a tolerably long walk to commence with, and to finish with also. The most amusing route up Sgurr-nan-Gillean is by the north ridge: this is known as the Pinnacle route. No sooner had we approached the first pinnacle than it became obvious to those who were being newly introduced to Skye that Mr. Pilkington's description of the charm of the rock-climbing was in no measure exaggerated.* No doubt it was mountaineering in miniature, for the ridges are but short, and the rock-points not very formidable in height; but each crag here and in the other parts of the range could, with the exercise of the smallest amount of ingenuity or perversity, be made into admirable ground for practice and

* See *Alpine Journal*, vol. xiii. p. 433.

training. To the ardent aspirant for mountaineering honours I may say at once and most emphatically that he cannot do better than learn how to climb rocks in Skye. There is a delightful possibility always, if you do not like any particular passage of rock, of varying the route by a few yards and finding an alternative and easier track. This feature of the mountains was largely taken advantage of on this our first expedition by some members of the party, who assigned the orthodox excuses for their deviations, such as that they were out of training, that they were getting old, that they were married, or that they had had too much lunch. In due course some scrambling brought us to the top of the fourth pinnacle, known as Knight's Peak. Now, in mountain climbing in Skye it is a point of honour always, to as great an extent as may be convenient, to play the game of follow-my-leader. The member who happened to be leading at the moment was a person of energy. He looked over the edge on the west side of the ridge, said there was a nice drop down into the gully, and called to us to come and inspect it. The proposed route was discussed as warmly for a few minutes as if we were on a new peak in a new country, and as if the success or failure of a whole summer tour depended on our decision. Some said the gully would go, while some were doubtful whether they would. The chief organiser was distinctly of the former opinion, on the plausible ground that it had gone already, and that he had on a previous occasion descended it. Finally, after we had worked ourselves into a proper state of excitement and doubt, we descended the gully in question and found, if the whole truth has to be told, that there was no great difficulty in it. We were now at the base of the final point, and a few minutes' climbing landed us on the top of the most shapely of all the Cuchullin Hills, Sgurrnan-Gillean. We descended by the west ridge, and made our way back to Sligachan.

The time that some of the party were able to devote to the mountains was very limited, and it was decreed by the majority that days of fine weather were far too precious to be wasted. Accordingly a great part of the evening was spent in planning ascents and expeditions for those whose stay was short. This is a very delightful exercise and was entered into most heartily, I observed, by those who had arranged for themselves certain off-days. I am bound to say that the council came to a wise decision, for no better expedition could have been devised for anyone who wanted

a rock climb combined with a good general view of the range than the ascent of Blath Bheinn, a point rising prominently on the east side of Glen Sligachan, well away from the main group. Being in submissive mood, I accordingly found myself next day, with Slingsby, Hastings and Woolley, pounding along the long open Glen Sligachan to the massive little peak some nine miles distant as the crow flies. The ordinary route up this mountain is simple enough; but it is needless to say that we were fired by the ambition to do something new, and the most attractive route, of which little was as yet known, appeared to be the north face. We were very soon able to enjoy all the pleasures of being in difficulties. There are many rocky passages on the north-west face which would puzzle even the most active of the young braves. The rope was often required, not only from the point of view of mountaineering propriety, but also from that of sheer necessity. The line of attack led up a narrow gully, in which the rocks were large and smooth. About halfway up the face the party divided, Slingsby and Hastings proceeding along the track which they had been pleased to select, while Woolley and I found an easier ridge a little further west. This expedition led me, during the brief intervals of repose, to contrast mentally the widely dissimilar arts of rock-climbing and snow-craft. The conviction gradually became certain, as I watched the successful gymnastics of my companions, that the latter branch afforded, after all, the most scientific field for the devotee of the pursuit. The rock climber, I thought to myself, if he leads a very active and merry career still can enjoy only a short one; and I resolved to extol henceforth snow-craft as the highest intellectual development of mountaineering. Similar experiences have, I fancy, actuated others in coming to identical conclusions. The difficulties of the rocks may be estimated by the fact that Woolley and I, whose route was not so perfectly simple as to dispense with a good deal of scrambling, were on the top of the mountain a full hour before the others arrived. In fact, for a little time we were anxious about them, largely, it may be, on account of the fact that an essential portion of the luncheon was in their keeping. The day was too fine to show the colours of the distant hills at their best. It would probably be hard to find a better expedition to take, in broken showery weather, when occasional glimpses might be obtained of the distant hills, than this ascent of Blath Bheinn. Unfortunately, in Skye such days appear to be few and far between: when

the weather is good it is very, very clear, and when it is bad it is commonly persistently hopeless. In due course our shouts were answered, and our companions appeared in a high state of delight. They had, it seemed, swarmed up a lovely gully, scrambled up a sweet little pinnacle wholly unconnected with their line of ascent, traversed some delightful slabs, knocked down some perfect rocks on each other's heads, and, in short, found admirable opportunities for performing all the feats that bring comfort to the soul of the ardent rock-climber. Finally, becoming hungry, and being desirous of putting to the test Woolley's singular talent for making attractive drinks out of nothing in particular, they made straight up the last rocks. Unless some primitive Macdonald, pursued by a Macleod who was his physical superior, or some mediæval Macleod endeavouring to flee from the just retribution of an outraged Macdonald, had been forced to go up these rocks, the line of ascent was probably new.

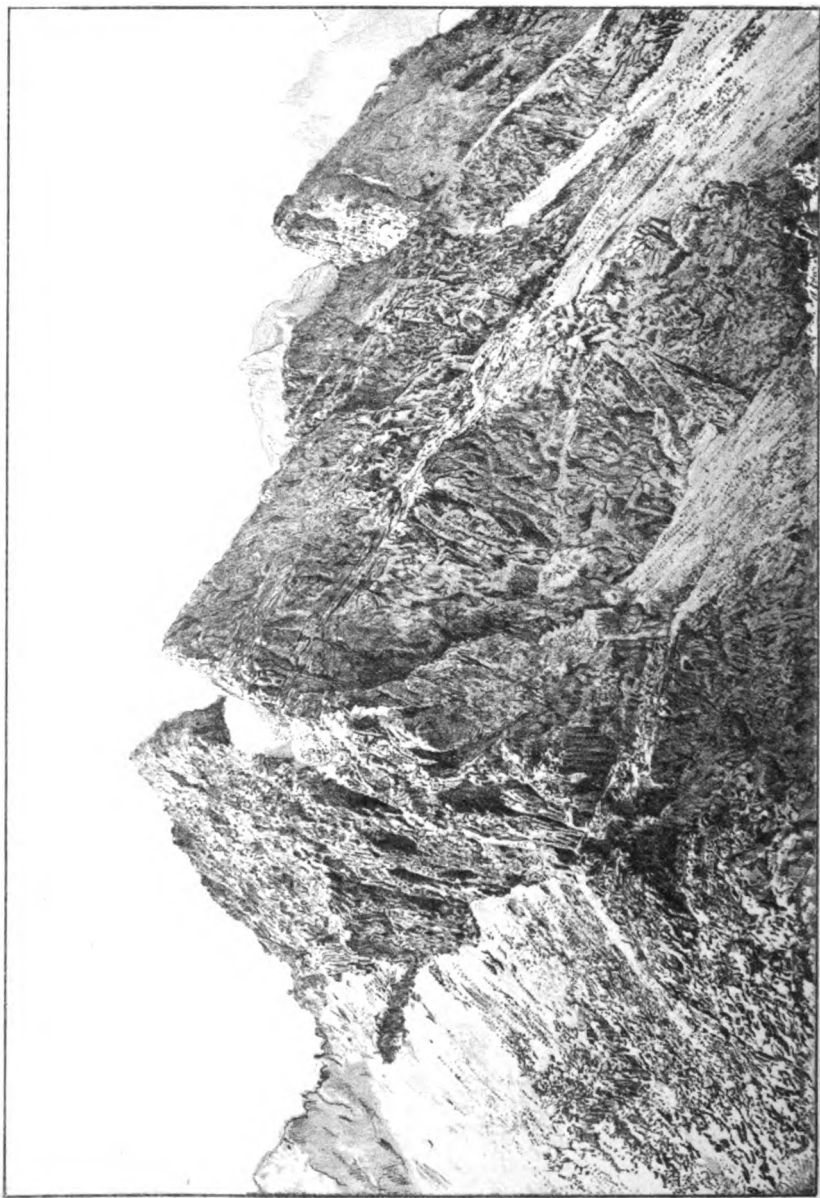
Our appetite for novelty was satiated for the day, and we followed the ordinary route home again.

The chief of the organising department to the expedition had so arranged matters as to provide the greatest possible amount of variety. We had now ascended one peak by a recognised route, and another by a variation. The programme for the next day was to consist of a form of mountaineering which I have heard of more often than I have tried; having criticised it unfavourably, it seemed at least proper to test whether there was really anything in it. We were to undertake a 'ridge-wandering.' The ordinary form of this latest mountaineering innovation, I believe, does not require any particular peak; it is quite sufficient to get on to the selected ridge, and to climb along it, in any direction, for an indefinite time. The desire for orthodoxy led us to select a ridge on which, at any rate, there were some named points.

Starting from Sligachan, we followed the ordinary route leading to Loch Brittle until we reached Coire-na-Creiche; bearing to the right when up the Coire, we made for the depression between Sgurr Mhadaidh and Sgurr Thuilm, and attained the crest at no great distance from the peak of Mhadaidh itself. Here, as we had a long day before us, we judiciously placed a person of not too enterprising temperament in the van, for, as has been already explained, the actual difficulties of the rock-climbing depend very much on where the leader elects to go. Wisdom and courtesy alike indicated

the propriety of asking a senior member to go first. Even early in the day we became conscious that the route we were immediately following was not a novel one. It is still possible on the Cuchullins to estimate the number of previous travellers by the number of loose stones to be found on the route, the latter being in inverse proportion to the former. Without any difficulty we reached the top of Mhadaidh. At this stage, though but the beginning of the day's walk, one of the charms of ridge-wandering became apparent. It consists in this. Just at the moment when an admiration for the surrounding scenery begins to develop; when a concern for the effects that the pace of climbing may possibly have on untrained persons is engendered in those who are thoughtful for the feelings of others; when the climber looks upwards with a somewhat sinking heart and downwards with a contempt for the apparently short distance he has already accomplished; in short, when the mountaineer is getting tired, some top or another is reached. In the Alps, any such point would nowadays be considered a virgin ascent, worthy of being forwarded to the editor under the title of a 'new expedition,' but we gathered in our first ascents with great unconcern. Reaching a summit at all times is considered a highly emotional occasion, and it would seem scarcely possible to add to the pleasure; but mountaineering is so perfect an amusement that no real climax is ever conceivable. The older the mountaineer, the more capable is he of finding new pleasures in his pursuit, and in these wanderings the relief of a brief descent falls always just at the opportune moment. Certainly the seniors seemed to be most attracted by this feature.

From Mhadaidh and from the ridge we were able to look straight down Glac Mhor, over Loch Coruisk, and away over the distant blue of Loch Scavaig. It is such glimpses that yield an attraction to these little Skye peaks which can nowhere else be found; the rugged foreground crags, with the wonderful blues and emeralds of the lochs, with the brilliant soft mists hanging over them, form pictures of which it is not possible to tire. Our next point, Greadaidh, was soon reached; in front of us was Banachdich, and still further south our goal of the day, the famous inaccessible pinnacle of Sgurr Dearg. The third peak was soon added to our list, and from this point, Banachdich, a good view was obtained of the steep ridge hemming in the dark waters of Loch Coruisk on the east. The weather, which was absolutely perfect for the climber, was not the best possible for showing



H. Woodley phot.

SGURR ALAIDAIR AND SGURR DEARG.

THE MOUNTAINS OF SCOTLAND.

up the colours of the rocks. Not only were the hills we were on obtrusively dry, but the absence of moisture prevented any of the evaporation from the lower slopes which is so necessary to give harmony of colour. The photographers of the party, it is needless to say, were anxious at all times to record their impressions. There is no more useful person in an expedition which includes extremely active climbers than a photographer. Without their intervention, indeed, the halts would have been few and far between, and a disposition to encourage this form of the fine arts, it was gratifying to observe, was very generally shown by some members of the party. From Banachdich excellent scrambling was obtained along the ridge separating it from Dearg. Sgurr Dearg is a rounded mass planned in the most singular style of architecture, but there is no need to describe again the 'inaccessible pinnacle,' as it is called, which forms the culminating point of this mountain. It would be prosaic to compare it to a tooth-comb stuck in the middle of a hair brush for convenience of packing, but it bears a strong resemblance to such an arrangement. The illustration, reproduced from a photograph of Mr. Woolley's, shows the pinnacle on the right of Sgurr Alaisdair. The view was taken from the south side, the reverse of our line of attack. It is a decidedly good scramble up this west side of the pinnacle, with one distinctly bad step. The use of the rope is imperative. We cast lots as to who should have the honour of leading, and the choice fell on Hastings, who went up in a style that made some of us reflect on the number of birthdays we had already experienced. Mackenzie, charged with the cameras and other baggage, skirted round the base of the pinnacle, and watched our gymnastics with a critical eye. The descent on the east side requires some care, for the ridge is marvellously sharp and jagged, but the previous ascents of the brothers Pilkington and others had made matters very much easier, inasmuch as the whole of the place had been swept of loose stones and put into thorough order for the climber. The effects of weathering of rocks could be most admirably studied on Dearg and some of the surrounding pinnacles. The whole process is shown to perfection on a small scale. Standing on these points it seems possible to trace in imagination the shaping and modelling, out of a cubical upheaved mass of rock, of even such an obelisk as the Matterhorn, or the jagged aiguilles of the Mont Blanc district.

In descending, we followed the main ridge for a little distance further south, and then turning to the right down

some screes, landed in Coire Labain. No more perfect expedition, varied and interesting as it was throughout, could have been planned than the one we had concluded. A vote of thanks was carried *nem. con.* to the chief organiser, Charles Pilkington. We were all ready enough to drink to his health, but there was no spring handy, and the water-bottles were drained dry. A supply of fresh-water springs is, however, much needed on the Cuchullin Hills, and a rider was added to this effect. Silver's gourds are essential items of equipment, especially in fine weather, for a good deal of dust is set loose by the dislodgment of loose stones which abound everywhere. A mathematically minded person had indeed relieved our thirst to some extent by an extremely painstaking and accurate division of an orange among the party—even to the apportionment of the pips he seemed scrupulously exact. At the lower part of the Coire the party divided, Walker and Slingsby returning to Sligachan to assure the ladies of the party that the expedition had been achieved without misadventure, while the rest descended to the localised forest and aviary distinguished already in Skye literature as Glen Brittle. Antiquarian research forms no part of the subject of this paper. Many interesting points of history were, however, indicated to me, no doubt extremely authentic and correct; the lapse of time, however, has rather confused my recollections of the details. This is, however, a matter of complete unimportance. It is practically safe in any part of the Cuchullins, if you meet with a striking point of view, a queer-shaped stone or a mountain tarn, to assert, without fear of contradiction, that at some distant period either the clan Macdonald selected the spot for an onslaught on the Macleods, or that the Macleods had rendered the locality for ever famous in history by exterminating in it some section of the Macdonalds. In the wilds of Suanetia in the Caucasus similar internecine warfare was in the old days carried on, the *casus belli* there being almost invariably either cattle or women. These old Celtic tribes, probably, were never at a loss to find some excuse for a fight; but when a motive was needed their hardy morality would appear to have limited the excuse to a desire for their neighbours' cattle. Disregarding possible historical associations, we saw only in Glen Brittle a perfect oasis of flowers and trees, which seemed all the more refreshing after our wanderings during the day. The aviary was well tenanted, but the now classical cuckoo had an engagement elsewhere.

The next morning we were up betimes, for it was the last

day's climbing for some of us, and great things were to be accomplished on the mountains. Our plan was to ascend the highest point of Sgurr Alaisdair by a new route, descending to Loch Coruisk, and so home by Glen Sligachan. The Ordnance map is a little uncertain in the nomenclature of the group of peaks known as Alaisdair, and the name Sgumain is applied to them collectively. Mr. Pilkington's sketch map* gives the proper nomenclature in detail. The highest point of Sgurr Alaisdair, to which that name should alone be applied, is, according to him, the centre of the three peaks on the south-east side of the head of Coire Labain. This point is not on the water-parting at all, but on a narrow ridge branching off in a south-west direction and separating Coire Labain from Coire-na-Ghrunnda. The northern of the three peaks is at the junction of the Alaisdair ridge with the main water-parting, while north-west of this again and between it and Sgurr Dearg is another point to which no name is assigned in the Ordnance map, and which Mr. Pilkington calls Sgurr Mhic Connich. This is placed in the very centre of the amphitheatre forming the head of Coire Labain.

Keeping to the right as we ascended the head of Coire Labain, we made our way up a buttress leading straight up to the southern point of Sgurr Sgumain, and found at once very fine climbing. Turning to the north and keeping always along the ridge, we reached the highest point of Alaisdair. Here at once the topographers fell to a discussion as to whether Dearg or Alaisdair is the higher. This appears to be an unfailing source of difference of opinion in Skye. Still keeping along the ridge in descending, we made for the north-east peak in the hope that we should be able to follow the eastern ridge leading thence towards Sgurr Dubh. This ridge proved, however, impracticable, and we accordingly found it necessary to give up the endeavour to find a way, and retracing our steps to the depression between Sgurr Alaisdair and Sgurr Sgumain we descended into Coire-na-Ghrunnda. Striking upwards we gained the main ridge again and travelled along it to an unnamed point from which the Dubh ridge branches off to the east. Woolley's photograph, now reproduced, was taken from this point. The party now divided, Pilkington and Hastings being desirous of ascertaining whether they could not make an ascent of Sgurr Dubh, while Woolley and I made

* See p. 447.

straight down the valley as we wished to see all we could of Loch Coruisk and Loch Scavaig, and the hour was getting late. A more exasperating valley to travel down is not to be found anywhere. All the loose stones of Skye appear to have been shot here with absolutely no attempt at arrangement. Rapid progress was impossible, and, in fact, at the lower part of the Coire we joined Pilkington and Hastings, who had found time to ascend Sgurr Dubh and descend straight down the face, while we were picking our way over the boulders. A wide sweep round the slopes and down some grass-covered gullies brought us to the seashore, where we revelled for a time by a little spring enjoying the soft fresh air and stimulated by the perfume of some decomposing seaweed. From thence the way lay round Loch Coruisk and over the shoulder of its north side—a good hour's ascent—into Glen Sligachan.

Doubtless by the next day the inventive genius of Pilkington and Woolley could easily have devised fresh climbs, but strong sporting tendencies developed in the party, and a fishing excursion was decided on. A characteristically leaky boat was provided and launched in safety on Loch Sligachan. When the rowers were tired they announced that we had arrived at the best of the fishing ground, and we addressed ourselves to the sport as seriously as though it were a pegged-down fishing match. Of the actual conditions of this form of contest I have no practical experience, but believe it to be the case that the man who catches most fish gets first prize, while the angler who has the smallest basket is allowed by fishermen's etiquette to tell subsequently the most incredible stories. At any rate, these were the conditions more or less faithfully observed. The first prize was awarded to a sportswoman who at one haul jerked up two wriggling little objects said to be codfish, but more resembling in size early April whitebait. It appeared, however, that there was something wrong with the tide, or the wind, or the bait which fully accounted for our partial success. One of the first things to be got up in any place where fishing is the special sport is the list of excuses accepted locally as explaining failure, and I was sorry that I had not made suitable inquiries beforehand. As the boat had not been in use for some time, and after a while showed symptoms of going down, we decided to return before the fishing ground was wholly exhausted. Some of the party, out of concern for the oarsmen, elected to walk, but the ladies with true nautical heroism flatly refused to desert a sinking ship.

As a simple chronicler of the doings of our party it is my privilege to record a singular expedition, in which I took no part. For the notes of this climb I am indebted to Mr. Cecil Slingsby, who, in fact, supplied me with the plain black and white; any colouring that may be detected must be of my addition. The party consisted of Messrs. Geoffrey Hastings, Edward Hopkinson, and Slingsby. The programme which they had evolved was, briefly, to endeavour to force a way through the unpromising gorge which drains Coire Bhasteir on the north side. Sgurr Bhasteir itself, it should be noted, the position of which has been corrected by Mr. Charles Pilkington, is not, as represented in the Ordnance map, situated on the secondary ridge jutting out northwards, but is a point on the main water-parting between Bruach-na-Frithe and Sgurr-nan-Gillean. From the top of the gorge an attempt was to be made on the centre of the five pinnacles of Sgurr-nan-Gillean by the face of the mountain. This was a very pretty programme in itself, and an additional zest was given to the project by the fact that distinguished climbers had tried in vain to ascend the pinnacle by this route. The actual obstruction was a matter of uncertainty. Very soon, however, when the party were well in the gorge, the nature of the difficulty was disclosed, and turned out to be a pool of water some thirty to forty feet in length and twelve feet in width, averaging probably about ten feet in depth. A tarn of this nature forms a very pretty feature in a mountain picture but a somewhat unexpected obstacle to the mountaineer; howbeit, as the party seem to have been going a sort of steeplechase, a water-jump was not much out of place. It is deeply to be regretted that the ubiquitous photographer was not present on the occasion. My information is limited really to the notes supplied, and I can but give the bare facts of the climb; a photographer might have been able to record some of the bare facts much more graphically. On each side of the little tarn the rocks were perpendicular, a term that, in mountaineering literature, signifies anything from difficult to impossible; at any rate, they were sheer enough to be pronounced impracticable. At the head of the pool a little waterfall some twenty feet high completed the picture. A huge rock, which at some time or another had fallen from the side of the mountain, had become wedged in the steep bed of the little stream and other loose stones were piled on the top of it. The big boulder projected about ten feet over the pool. It was necessary, therefore, in the first place,

to get to the head of the pool and, in the second, to turn the boulder. A bold attempt by Hastings to find a way by a little ledge, while still observing the ordinary mountaineering proprieties in the matter of costume, proved fruitless. After some ingenious climbing he was pounded and it seemed possible for a minute or two, to the great delectation of his companions, that, in the words of the Portuguese dialogue book, 'he could not nor to go further neither to put back.' The alternative route back lay through the pool, and those who were in a position of safety watched with interest to see which way might be selected. By means of some ingenious movements, described by the spectators, rather contemptuously, as a wriggle, he succeeded in rejoining his companions without taking an involuntary bath. Meanwhile the others had adopted a costume more suitable for the emergency, and stood, like yellow primroses, on the brim. Then the leader plunged boldly in and swam to the head of the pool. So far the route was simple enough, but a more painful exercise consisted in climbing the rock to the top of the waterfall. The performance is described as having been more instructive from an anatomical point of view than graceful. The rope was now thrown up, and Slingsby and Hopkinson, as true gymnasts, followed. Even now the difficulties were not at an end, for a few feet further up another tarn was found, which, however, it was possible to ford, though the party was waist-deep in the water. From the upper pool to the end of the gorge the obstacles were less, and the party soon emerged into the very head of Coire Bhasteir. It is difficult in these days to discover any novelty, and unwise to claim originality in anything whatever, but I can recall no other recorded occasion on which any party ascended a mountain by water—since the days of Noah. Turning to the left, the climbers now attacked their pinnacle. A steep chimney, on the right-hand side of the face as the pinnacle is seen from the Coire, first attracted the leader's eye. The attempt to get up this was, however, unsuccessful. Descending, therefore, again to the base of the chimney, they traversed to the right, and climbed straight up the face of the pinnacle. The rocks were smooth and very steep, but firm. After about one hundred feet had been ascended, a short broad ledge afforded a moment's rest. Above the ledge again rose a steep chimney some twenty feet high. The rocks here were all loose and the gully was blocked at its upper part by a rounded boss of stone, affording neither hand nor foot

hold. It was not until the leader had trampled one of his companions under foot by standing on his shoulders that he was able to work his way slowly to the top. Some fifty feet higher up the party reached the ridge by which we had made our ascent on the first day. When mountaineers have achieved an expedition of particular difficulty or interest, it is their universal custom to do two things; one, to describe every detail of the expedition in so minute and circumstantial a way that nobody ought to fail to recognise where they went, and nobody, therefore, ought to experience any difficulty in following them. Unless they perform this task to the satisfaction of editors of guide books, they are apt to draw down upon their heads outpourings of wrath, and topographical contempt will be their lot. Secondly, when they have made their route perfectly clear, they are bound to recommend that no one should on any account follow it. This is the method, at any rate, commonly adopted for making a new route popular, and the description furnished to the chronicler observed these conditions.

Other noteworthy excursions by the party were a new ascent of Bidein Druim-nan-Ramh by a route which, it appears to me, as an historian trying to decipher others' notes, must be seen in order to be described, and a traverse of the inaccessible pinnacle by one of the ladies of the party.

A few remarks on the mountain climbing among these Cuchullin Hills may here not be out of place, and I hope that they embody more or less completely the opinions generally held by those who best know the peaks. To every mountain summit there will be found more than one easy route involving little more than an enjoyable scramble, but to every one of the peaks there are many lines of attack which seem promising, but which may lead the inexperienced climber into very formidable difficulties indeed. The rocks vary very much on the ridges; for long stretches they may be found firm, rough, and broken, but in many places they are insecure and dangerous. In any attempt to make a new route up any of the peaks, the utmost precaution should be taken with loose stones. As time goes on and mountaineering in Skye becomes more popular, the faces may be more swept and garnished, and already a great part of the range has been got into proper order. The weathering of the rocks is the chief cause of their extraordinary local variations as regards firmness. The rocks must nowhere be treated with contempt. Attempts to find new routes, to

ascend by untried buttresses and walls, should be considered in detail as carefully as in the Alps, and if any new route is contemplated a rope should invariably be taken. Even a slight deviation from a recognised track may lead the climber to places where a slip might easily be fatal. Solitary climbing is at least as unwise here as in the Alps.

Probably the best time of year to ensure fine weather is that which we selected, and those who can obtain a brief holiday at Whitsuntide, in most years, will be well rewarded by a visit to Skye. The colouring, however, which is so striking a feature of the whole range, will be seen in much better perfection in April, September, or October. The long walk from Sligachan to the base of the majority of the Cuchullins is an undeniable drawback. A party of three or four provided with an alpine tent pitched, say, on the north shore of Loch Coruisk or in the corrie running up from the loch, would find ample occupation for three or four days in climbing the peaks around. There is a good place for camping on the neck of land on the west side between Loch Coruisk and Loch Scavaig. John Mackenzie may be, without hesitation, recommended most strongly as a guide. It would be very easy to mistake the way in misty or bad weather, and his local knowledge would be invaluable. In addition he is a capital climber, takes great interest in all the modern refinements of new routes and variations, and is an excellent companion.

For those who are interested in physical geography, Skye presents a fine field hitherto insufficiently worked. The traces of extinct glaciers are strikingly distinct. Ice-worn rocks and transported boulders exist in profusion. There is a good opportunity for anyone to work out the ancient glacier system of Skye on the same lines as Professor Ramsay adopted in a paper on those of North Wales in the first volume of 'Peaks, Passes and Glaciers.'

It must not be supposed for a moment that the topography given in this paper is in any degree mine: for all the notes relating to this subject I am indebted to Mr. Charles Pilkington, who is an authority on the range; indeed, it is principally due to him that this most picturesque corner of Great Britain has become at all known to mountaineers. We were fortunate indeed in seeing all the sights under his guidance and direction.

THE FIRST ASCENT OF THE ZERMATT BREITHORN.

BY W. A. B. COOLIDGE.

THERE has been some discussion of late years among climbers as to what constitutes a 'first ascent,' or 'first passage.' The object of this note is to call attention to one point relating to first ascents—whether a duly recorded ascent which has been overlooked can rank as a first ascent, and therefore displace another claim which had hitherto been regarded as good. It seems to me that, when found, this recorded but forgotten ascent is certainly entitled to take precedence of any other claim; and that the following ascent falls under this rule, so that it must now be put in its rightful position.

Some time ago, when turning over the pages of the first edition (1841) of Joanne's 'Itinéraire de la Suisse,' I came across these words,* which occur (p. 614) in an historical sketch of the exploration of Monte Rosa, and come immediately after a summary of De Saussure's ascents in that district:—

'Longtemps après, en 1813, "Le Moniteur" publia la relation d'une prétendue ascension au Mont-Rose, par un M. H. Maynard, qui avait tout simplement gravi une des deux cimes au S.-E. du Col *Saint-Théodule*.'

I was greatly surprised by this mention of an expedition to which I could then find no allusion in the recognised books of reference, and which was as unknown to the various living authorities on Alpine history whom I consulted, as to myself. I at first thought that M. Maynard was an Englishman, but this turned out to be an unfounded idea, when (through the kindness of my friend Monsieur Henry Duhamel) I succeeded in obtaining a copy of the narrative alluded to in Joanne.

This occurs on p. 1045 of No. 265 (Wednesday, September 22, 1813) of 'Le Moniteur Universel,' and runs as follows:—

'Turin, le 14 septembre.

'On écrit de Genève qu'un voyageur français, M. Henri Maynard, accompagné de Marie Joseph Contet [*sic*] de Chamouny, ancien guide de M. de Saussure, a monté le Mont-Rose le 13 août 1813.

'Le Mont-Rose, comme on sait, est situé entre le Vallais et le Piémont, et s'élève à une hauteur de 2,430 toises au-dessus de la mer. C'est à peu près le hauteur du Mont-Blanc qui, selon M. de Saussure, est de 2,450 toises: comme lui, il est couvert de neiges éternelles; personne n'avait encore entrepris de le monter.

'Les voyageurs, partis de Châtillon, dans la Vallée d'Aoste, le jeudi 12 août 1813, remontèrent le Val-Tornanche jusqu'aux chalets du Breuil, situés à 1,130 toises au-dessus de la mer.

'Le même jour, à onze heures du soir, à la faveur du clair de lune, ils sont partis des chalets du Breuil, avec Jean-Gras Erin, Jean-

* They appear also in the second (1853) edition, p. 227, and in the third (1859) edition, p. 399, of the same work.

Baptiste Erin, son fils, et Jean-Jacques Erin, son neveu, tous habitans du Val-Tornanche. Ils sont arrivés le vendredi 13 août à cinq heures du matin sur le col de Saint-Théodule ou du Mont Cervin, situé à 1,736 toises au-dessus de la mer, et sont parvenus sur la cime du Mont-Rose à midi et demi, sans accident et sans éprouver de très grandes difficultés, mais extrêmement fatigués de la rareté de l'air, et le visage tout brûlé par la réverbération des neiges. Ils ont déposé sur la cime diverses monnaies de France et du royaume d'Italie de l'année actuelle 1813. Les guides ont fait constater le voyage par M. Jacques Maynet, maire de la commune de Val-Tornanche, lequel résidait alors dans son habitation d'été, aux chalets du Breuil.

'Il est à désirer que les amateurs de géologie puissent avoir une relation de ce voyage, avec les observations auxquelles il a dû donner lieu.'

This account is rather vague and unsatisfactory; but one point is quite clear—that the peak ascended was *not* Monte Rosa itself, but some other point of the chain. The time stated to have been employed from the Theodul to the summit ($7\frac{1}{2}$ hrs.) is too short for the great distance between the pass and the peak, especially when we take into consideration the long time the party took from Breuil to the pass, which shows that they were not fast goers. Then, too, the fact that they did not encounter any very great difficulties tells against their claim to have ascended Monte Rosa, for the crevasses on the plateaux on the S. side of the range would undoubtedly have given them a great deal of trouble, particularly in days when glaciers were so little known and so much feared. Hence we may take it as tolerably certain that the peak ascended in 1813 was not Monte Rosa, thus agreeing with Joanne and with Von Welden, in whose book* I have very recently found a summary of the 'Moniteur' narrative.

Which, then, was the peak climbed in 1813? I was at first inclined to think of one of the Zwillinge, for which the times would suit better than for Monte Rosa. But there still remains the fact that the difficulties of crossing the crevassed plateaux on the S. side of the range would have warranted a party in those days in laying much more stress than they do on the perils of the journey and less on the inconvenience caused by the reflection of the sun's rays. Then, too, I have found a small bit of evidence that makes me pretty certain that the peak really reached was the Breithorn.

It is expressly stated that the M. J. Couttet who was with the 1813 party was De Saussure's old guide. Now, it is certain † that Couttet was the head guide on the ascent of the Little Matterhorn made on August 13, 1792, by De Saussure (during his three days' stay on the Theodul), who calls it 'Cime Brune du Breithorn.' It appears from De Saussure's description that his party saw a snowy peak to the E., higher than their 'Cime Brune.' Further, it is clear that it was for purely personal reasons that he did not ascend this higher peak. He was tired, and feared the steepness of the final slope, and, chief of all,

* *Der Monte Rosa*, 1824, p. 7.

† See De Saussure's *Voyages*, vol. iv. pp. 408, 415, 416.

he particularly wished to obtain geological specimens, which, he supposed, would not be found on this higher point, apparently consisting altogether of snow. It thus seems as if the choice of the peak to be ascended in 1792 was made solely by De Saussure, and that it was not at all improbable that his guide wished to go to the higher point while, for the reasons mentioned, he preferred the lower. What more likely than that the recollection of this higher peak remained in Couttet's mind, and that when, twenty-one years later, he found himself in the same neighbourhood with an employer who was less of a *savant* (notice that in the 1813 account nothing is said of observations being taken, as was usual on mountain ascents in those days) and probably younger and more active than De Saussure, he should have led him up the peak which he had missed before, particularly when (as appears from what he told Mr. Clissold in 1822—see below) he did not anticipate any great difficulties on the ascent? These are but conjectures, yet I think not improbable ones, given the ascertained fact that the same man was the leading guide in 1792 and 1813. At any rate they are sufficient as against the claim of the Zwillinge, while the 1813 peak is clearly not that of 1792, which Couttet knew already, and thus the Breithorn is left as the only candidate for the honour. The length of time taken on the ascent in 1813 will not surprise anyone acquainted with old books of Alpine travel.

Mr. Tuckett attributes the first recorded ascent of the Breithorn to Sir John Herschel, in 1821.* Mr. Ball,† writing a few years later, states that Lord Minto had preceded Sir J. Herschel, but gives no date. Is it possible that by a slip of the pen Mr. Ball wrote 'Minto' in place of 'Maynard,' and that the 'Henri Maynard' of 1813 was really 'Henry Maynard,' who was born in 1786, and succeeded, in 1824, as third and last Viscount Maynard? However this may be, the M. Maynard of 1813 holds the field, in my opinion, against all other claimants to the honour of having made the first recorded ascent of the Breithorn.

Possibly the allusion to an ascent of Monte Rosa made by Mr. Clissold,‡ writing in 1822, refers to the 1813 ascent. Mr. W. Long-

* *Peaks, Passes, and Glaciers* Second series, vol. ii. p. 260.

† *Western Alps*, p. 324, followed by Studer's *Ueber Eis und Schnee*, ii. 204.

‡ *Narrative of an Ascent to the Summit of Mont Blanc, August 18, 1822* (London, 1823), p. 28:—

'The summit [of Mont Blanc] presented a much larger area than Contet had ever before seen, though this was his sixth ascent [Mr. Clissold's was the eleventh recorded ascent]. It is supposed, therefore, that a portion of the previous altitude of the mountain had fallen; and hence, as Mont Rosa differs in height from Mont Blanc only about one hundred feet, it is probable that they may sometimes approach nearer to equality of height than is often considered.' [At this point there is the following footnote.] 'Contet states that the traveller requires only three or four guides for the ascent of Mont Rosa, as its summit may be gained with comparatively little hazard and labour; indeed, one of the monks of the Convent of Grand St. Bernard related to me that one of their order ascended Mont Rosa with only one guide.' [This last ascent is clearly that of the Vêlan, made on August 31, 1779, by M. Murith, Prior of the Great St. Bernard, but is mentioned here in order to show how vaguely the name Monte Rosa was then used. Mr. Clissold's text

man * considered it probable that the peak Mr. Clissold was thinking of was really the Breithorn, which would exactly agree with my conjectures. This is rendered even more probable by the fact that Mr. Clissold derived his information from Joseph Marie Couttet, whom, by reason of his repeated ascents of Mont Blanc, we may assume to have been the guide of 1792 and 1813, and who may quite genuinely have supposed that the peak he climbed in 1813 was really Monte Rosa.†

ALPINE NOTES.

THE PUNTA BIANCA.—This fine peak (12,471 feet) is so overshadowed by its immediate neighbour the Grivola that it was long most undeservedly neglected. Mr. Frederick Gardiner and I went up it on August 12, 1889, and claimed 'provisionally' to have made the first ascent, since to my great surprise I could find out nothing about any previous visit to it.‡ Signor Vaccarone himself, even in the third edition of his useful 'Statistica delle Prime Ascensioni,' published in the spring of 1890, was not aware of any ascent save ours.§ All that was known about the peak up to the summer of 1890—with this one exception—was that Mr. Tuckett had spent the night of July 6–7, 1859 (on occasion of an attempt on the Grivola), on the lofty ridge between the peak and the Grivola, which he had reached (by traversing the S.E. face, W. arête, and N.W. face of the peak) from Val Savaranche and crossed to Cogne, naming his pass the Col de la Grivola. But it was certain from the text of his narrative,|| and still more from his accurate sketches,¶ that he had not mounted to the summit of the Punta Bianca.

And yet it is now ascertained beyond a doubt that the first ascent was made as far back as 1858, and had been duly recorded at the time in an Italian newspaper. This account is to be found in the narrative of the first attempt to reach the Grivola, printed in the *Feuille d'Aoste* of October 28, 1858, and reprinted (where I first came across it) on pp. 399–402 of Mrs. Cole's 'A Lady's Tour round Monte Rosa' (London: 1859).** The Punta Bianca was thus first ascended on September 21, 1858, by Monsieur P. B. Chamonin, the curé of Cogne,

then continues with the following remarkable statement, as to which one would like to know more.] 'Buonaparte had a column of wood raised, respectively, on Mont Blanc, Mont Rosa, and Mont Buet, for the purpose of facilitating surveys. These columns were erected several years since; but, as they are now invisible, it is supposed that they have been swept away by avalanches.'

* *Alpine Journal*, vol. viii. Appendix on 'Modern Mountaineering,' p. 30.

† As to the way in which the name 'Monte Rosa' was applied to different peaks, see my *Swiss Travel*, pp. 316, 317.

‡ *Alpine Journal*, vol. xiv. pp. 483–4.

§ See No. 351.

|| *Peaks, Passes and Glaciers*, 2nd series, vol. ii. pp. 295, 297, 310.

¶ *Ibid.* pp. 268, 309, and particularly that on p. 286.

** *Alpine Journal*, vol. viii. p. 56.

and A. J. Jeantet, who, starting from Cogne, crossed the Col des Rayes Noires and traversed the S.E. face of the peak to the W. arête, by which they mounted to the summit (9 hours from Cogne). They descended along the N. arête to the Col de la Grivola, and then made an unsuccessful attempt on the Grivola. This is, of course, the first recorded ascent, so that ours in 1889 can only claim notice as having been made by a new and more direct route, along the E. arête, our descent having been made (like M. Chamonin's) to the Col de la Grivola, whence we regained the Trajo glacier by Mr. Tuckett's route.

It often happens that, after a long period of neglect, a peak is reached several times in quick succession, and thus the Punta Bianca was ascended once more in 1890, and by yet a new route. Signor Giovanni Bobba, with his guide Casimir Thérissod, started on July 17 from the upper Leviona chalets, and climbed straight up the S.E. face by rocks and snow patches direct (5 hours) to the summit of the peak, thus crossing at right angles M. Chamonin's and Mr. Tuckett's route up to the W. arête. He thence descended to the Col de la Grivola, and then succeeded in ascending the Grivola by the route Mr. Tuckett tried, that is, by its S. arête, finding the rocks in parts very difficult, and taking nearly 6 hours (with halts) from the Punta Bianca to the Grivola. Descending by the usual route to the Trajo glacier, this indefatigable Italian climber and his guide mounted the Punta Nera, whence by a new route down the S. arête they descended to the Col des Rayes Noires, and regained Leviona 17½ hours after having left it, and after a very well filled day. I am indebted for these particulars to Signor Bobba, who will no doubt publish in due course a full account of this and other ascents, but whose outline itinerary alone has as yet appeared in print.* To make matters as to the Punta Bianca quite clear, I add a summary of the routes hitherto made up and down it:—

1858 party up W. arête, down N. arête.

1889 party up E. arête, down N. arête.

1890 party up S.E. face, down N. arête.

W. A. B. COOLIDGE.

LYSKAMM FROM THE N.E.—In the 'Oesterreichische Alpen-Zeitung,' Nos. 319, 320, Mr. L. Norman-Neruda gives a detailed account of this expedition.† As there has been some misunderstanding about the exact line taken by the party (consisting of himself, with the guides Chr. Klucker, of Sils, and Josef Reinstadler, of Sulden) it may be mentioned here that a line drawn from the summit of the Lyskamm to the Fillarhorn lies along the rib of rock by which the ascent was made. For the benefit of anyone who may wish to repeat it, he says that an improvement on their route would be to follow the way to the Lysjoch as far as point 3722 before turning to the right to cross the Grenz-gletscher. It should be added that the date of the expedition was August 9, not August 2.

MONTE GIRALBA.—A CORRECTION CORRECTED.—Mr. Norman-Neruda writes: It will be remembered that in my list of 'New Expeditions

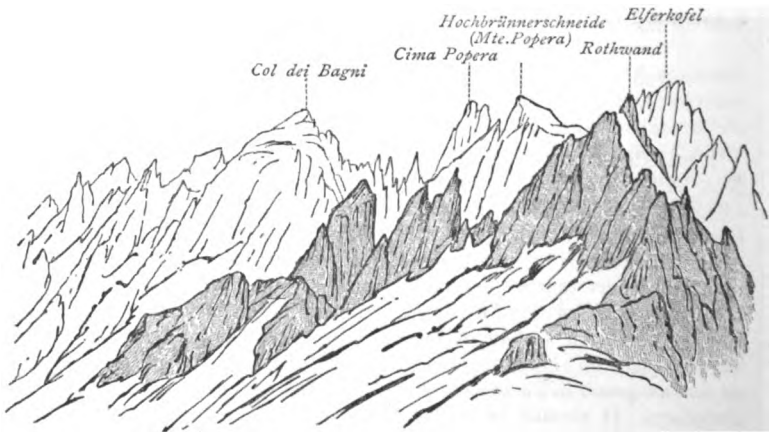
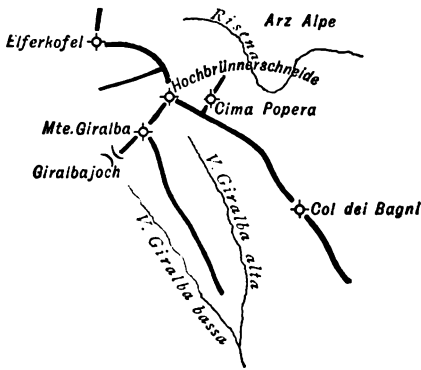
* *Rivista Mensile C.A.I.*, 1890, p. 361.

† See p. 307.

in 1890 I claimed to have made the first ascent of Monte Giralba,* a peak in the so-called Sexten dolomites. It appeared, however, that

Mr. Holzmann had carried out the ascent in 1872, and in the February number a correction of my statement was made.† But on reading through Mr. Holzmann's description in vol. vii. I found that the peak he described could not possibly be the one I had climbed in 1890, for the latter is south-west from the Hochbrünnerschneide, whereas Mr. Holzmann's is south-east from it. After some correspondence with him

and the President of the Oesterr. Alpen Club, I find there is now no doubt that my statements in the November number of the 'Alpine Journal' are perfectly correct, and that Mr. Holzmann ascended a peak for which the name 'Cima Popera' has now been adopted; my peak, which, as I have said, is a different one, being that which at present is known, and will be designated on the new survey, by the name Monte Giralba. This Cima Popera was ascended (as they believed, for the first time) in the last summer by one of the gentlemen who accompanied me on the ascent of Monte Giralba, and two friends. A



description of their route will be published in the next number of the 'Mittheilungen.'

The accompanying outline sketch and map by Dr. Diener, which he

* See p. 315.

† See p. 369.

very kindly allows us to reproduce, will make the matter clearer than any verbal description. The view is taken from the Hollbrucker Spitze, on the other side of the Sexten Thal. Mr. Norman-Neruda's Monte Giralba is hidden by the Hochbrunnernschneide; Mr. Holzmann's (now Cima Popera) is seen to the left of that peak.

GROSSHORN.—In a footnote on p. 311 of the present volume of the 'Alpine Journal' attention was drawn to the account given in Studer's 'Ueber Eis und Schnee,' vol. iv. p. 78, of an ascent of this mountain, made by Herr Wyss from the Schmadrijoeh on July 29, 1875.

Studer states that the party left the Schmadrijoeh, traversed the S. side of the Grosshorn till they reached the Mittagjoeh, and arrived at the summit from the latter point. They then returned by the reverse route and reached the Schmadrijoeh in three hours from the time at which they left it. As the party in this traverse must have crossed the easy S. arête by which the two recorded subsequent ascents have been made, and as it seemed difficult to see why they should have gone to the Mittagjoeh at all, it appeared that some serious error must have crept into Studer's account. The difficulty has been cleared up by Dr. Dübi, who himself made the first ascent of the mountain (September 9, 1868), and accompanied Herr Wyss as far as the Schmadrijoeh on the occasion of the second ascent (July 29, 1875). Dr. Dübi writes, 'Es liegt offenbar ein Irrtum meines seither verstorbenen Freundes Wyss zu Grunde. Seine Darstellung ist in meinem Aufsatz im "Jahrbuch des S.A.C.," Bd. xi., und von da in Studer's "Ueber Eis und Schnee," Bd. iv., Seite 78, übergegangen, ohne dass weder ich noch Studer den Irrtum bemerkten. Es kann bei den gebrauchten Zeiten, die feststehen, und bei der Beschaffenheit des Grosshorns und der Entfernung des Mittagjochs keine Rede davon sein, dass meine Gefährten, Herr Wyss mit zwei Führern, bis in das Mittagjoch gekommen seien; es ist vielmehr anzunehmen, dass sie vom Schmadrijoeh zunächst in nordöstlicher Richtung über Felsen und Schnee aufsteigend den Kamm erreichten; dann unter demselben, der überwächet war, in der südlichen Schneewand traversirten, den Südkamm etwas unter der Spitze, wo auch Ihre Photographie eine Einsattelung zeigt, erreichten, und über diesen zum Gipfel emporstiegen — rückweg der Gleiche. Wäre Herr Wyss bis zum Mittagjoch gegangen, so hätte er durch die Felsen der Ostflanke des Grosshorns klettern müssen, wovon er nichts sagt. Sein Irrtum kommt offenbar von unrichtiger Benutzung der Karte und undeutlicher Erinnerung.*

* [Freely rendered: 'It obviously rests on an error on the part of my late friend Wyss. His description is given in my article (vol. xi. of the *Jahrbuch*), and was thence transferred to *Ueber Eis und Schnee*, vol. iv., without the error being noticed by either myself or Studer. Looking to the times, as to which there is no doubt, and to the conformation of the Grosshorn and the distance of the Mittagjoch, it is out of the question that my companions, Wyss and the guides, can have reached the last-named point. We must rather assume that they reached the ridge directly from the Schmadrijoeh, climbing in a N.E. direction over rocks and snow, then traversed the southern snow-wall below the cornice till they reached the S. ridge a little below the peak, and climbed

In the note on p. 311 for 'the first,' read 'an.' The *first* ascent was that of Dr. Dübi and Herr Ober, September 9, 1868.*

G. STALLARD.

GRAND COMBIN.—Mr. C. F. Judson, of Philadelphia, sends the following account of a variation on Route 1c of the 'Pennine Guide':—On October 12, 1890, I ascended the Grand Combin from the Chalets of Valsorey, Michel Genoud and Omer Balley, of Bourg St. Pierre, being my guides. Genoud gave me to understand that our route, from a point about 12,300 feet high as far as the col between the west and highest summits, had never been taken before. The point at which this new portion of our ascent began was a little rocky platform overlooking the Col des Maisons Blanches (12,005 feet) and the Glacier de Corbassière. In no place was any great difficulty encountered, though a few nasty corners (which only offered a precarious foothold from the rotten condition of the rocks) had to be turned. In several places the smooth rocky buttresses overhung a precipice of 2,000 feet or more. From the little platform (12,300 feet) to the west summit (13,800 feet) there was approximately only 1,500 feet to be ascended. It took us two and a half hours, however, to accomplish this short distance, for in many places only one of us could move at a time. Towards the upper part of the arête a smooth rock-wall, which fortunately was solid, caused us some trouble, as it decidedly overhung its base. But the ledges though narrow were good. Genoud climbed finely, and I was well satisfied with his conduct throughout our expedition, which lasted nearly twenty hours; he always proved steady, courageous, and reliable.

WINTER EXPEDITIONS: ENGADINE.—The *St. Moritz Post* records that a party consisting of Mrs. Main and Mr. Bulpett, accompanied by the Pontresina guides, Martin Schocher and Martin Weibel, quitted the Morteratsch Restaurant at mid-day on Thursday, February 19, and reached the Boval hut at 5.30 p.m., the route taken being that by the glacier; the snow was in bad order.

On Friday the party left the hut at 2.20 a.m. and made for the rocks below the Festung. The snow was extremely bad until the upper slopes were reached, where it was hard and firm. The Bellavista saddle was reached at 9.30 a.m. and left at 10 a.m., the central and highest peak of Piz Pulü being gained at 11.30. The ridge was in an excellent state and the rocks free from ice. From the highest peak to the third peak took more than 1½ hour, owing to the icy condition of the ridge and the consequent step-cutting. After spending some time on the third peak, the climbers left it at 2 p.m. and all went well till they were within a few feet of the point at which the ridge is generally finally quitted. Here an enormous bergschrund had split the slope asunder, and the party were forced on to the Italian side of the arête in order to turn it. The slope was of smooth blue ice, and

this to the summit, returning the same way. If Herr Wyss had been to the Mittagjoch he would have had to climb the rocks on the E. side of the Grosshorn; and of this he says nothing. His mistake clearly arose from inaccuracy in the use of the map and indistinct recollection.]

* *Ueber Eis u. Schnee*, vol. i. p. 253.

took nearly an hour's hard work in step-cutting before it could be descended, though the distance was only about 30 feet. From here the only trouble was caused by the bad state of the snow, which was in the worst possible order the whole way down to the Bernina high road. The houses were reached at 10 P.M., and St. Moritz regained a little before midnight.

The day was warm and still, and the thermometer readings were as follows:—Boval, 8 P.M. Thursday, 26.6°. Friday, 2 A.M. 10.4°. Summit of Piz Palù, 19.4°. (The thermometer was suspended to an ice axe between two rocks, and was consequently in rather an exposed situation.)

This is the first time that the three peaks have been crossed and the highest peak of Piz Palù has been ascended in winter. In February 1890 Messrs. Wainwright and Bulpett reached the third peak from the Bernina houses, returning in their tracks, and employing 18 hours for the expedition. They were unfortunate in having very cold weather.

GRAND PARADIS.—The ascent of this peak by Dr. Güssfeldt on January 25 last, though not the first that has been made in winter, deserves record as a remarkable performance. From an account contributed by the guide Séraphin Henry to the *Rivista* (p. 18), it would appear that Dr. Güssfeldt, with Emile Rey, David Proment, and two porters, succeeded, after two false starts, in getting off from the Rifugio Vittorio Emanuele a few minutes before midnight on the 24th, reached the summit at 4.30, remained there twenty minutes with a temperature of -17° ($= 1.4^{\circ}$ Fahr.), and returned to the Rifugio at seven, thus accomplishing the whole excursion before sunrise. They were, however, favoured with a brilliant moon.

NEW ZEALAND.—Since the Rev. W. S. Green, with Boss and Kaufmann, made his memorable ascent (and descent) of Mount Cook, several attempts have been made to gain the summit, but all ended in failure. Last December, however, an attempt was made by Messrs. Mannering and Dixon, of Christchurch, New Zealand, and was so far successful that they managed to get within 140 feet of the top.* Had time permitted they would no doubt have succeeded in reaching the actual summit. The mountain, however, was not in the best order, the snow being very soft in places. Messrs. Mannering and Dixon have been trying for the last five years to conquer Mount Cook, but owing to various difficulties they had not previously succeeded in reaching a higher altitude than 9,000 feet.

On December 29 Messrs. Harper and Blakiston went for three hours and a half up the Hooker glacier from the Hermitage, making a camp, from whence they hoped to make the ascent of the saddle at the head of the glacier, in order to ascertain if a pass to the West Coast existed at this point. The upper part of the Hooker glacier has never before been visited. On December 30, starting at 6.30 A.M., and walking over slopes, on which the snow was very soft, for eight hours, they

* A full account of this expedition will be found in the *Field* of February 21 last.

reached an almost sheer wall of ice upwards of 250 feet high, with an awkward bergschrund along the base. Almost immediately on crossing this bergschrund it was found necessary to cut steps to the top of the saddle as the ice wall was almost perpendicular for 180 feet or so. rounding off in the last 60 feet. Mr. Harper led the way up, cutting 110 steps, and at 3 P.M. the ridge was reached. The view on the West Coast side was somewhat obscured by the clouds which appeared below, but the sea could just be seen in the North-West. The saddle was not (like most of the West Coast saddles) precipitous on the other side, but the snow sloped gently down as far as the clouds, and it is believed, from what could be seen, that an Alpine pass might be made over to the coast by this saddle. After descending a short way towards the coast, and finding that, even if time permitted, the fog below would have prevented further progress, the party returned to the top, and left a record in the shape of a cairn and bottle on the rocks to the left of the saddle. The return journey was easy until near the last slope, in which some ten crevasses had either opened or had their snow bridges broken in, owing to the intense heat prevailing during the day. These, however, gave a good deal less trouble than had been anticipated, and the camp was regained at 7.30 P.M.

The present map of the Hooker glacier was found to be slightly incorrect as to the head basin of the glacier, which will have to be shown a trifle larger, and also because Mount Hector (which does not appear on the map) was seen rising perpendicularly out of the head basin.

This ascent would probably be very difficult, and, in fact, almost impossible later on in the summer, owing to the crevasses being more open. The ascent of St. David's Dome seemed quite practicable from the saddle. Had the weather been at all settled, the party think they might have succeeded in reaching the coast, but, owing to the clouds below, it was almost impossible really to form an idea whether the descent to the coast would be practicable.

Alpine climbing is finding much favour among New Zealanders, and there is talk of starting a New Zealand Alpine Club.

The Government, too, are spending thousands of pounds in opening up tracks through the principal mountain passes, so that tourists and Alpine climbers will not have to encounter the difficulties and dangers which have hindered them hitherto.

THE SACRO MONTE OF VARALLO.—Will you kindly allow me to bring under the notice of the numerous readers of the 'Alpine Journal' that a committee has been formed at Varallo-Sesia with the object of celebrating in proper form, in September next, the fourth centenary of the 'Sacro Monte'?

JOHN B. CAMASCHELLA.

THE ACCIDENTS OF 1890.—We learn that the sum collected by the C.A.I. for the lost guides, Carrel, Maquignaz, and Castagneri, had by the end of March amounted to about 416*l.* (10,400*f.*), and that, in addition, 300*f.* have been received from the Queen of Italy.

SOCIETÀ DEGLI ALPINISTI TRIDENTINI.—The head-quarters of this club for the two years beginning March 15, 1891, are at Rovereto; the office in the Corso Rosmini. Members of all Alpine Clubs have free access to the library for purposes of reference; but no publications

can be borrowed without special leave of the committee. The secretary is Dr. Angelo Pinali.

GRAND HOTEL, CERESOLE REALE.—This hotel, of which earlier reports were not quite satisfactory, was last year admirably kept. The prices charged were reasonable, and the table was admirably supplied from Turin. I spent three weeks there most pleasantly.

ALFRED WILLIAMS.

HUTS, &c.—A new hut has been opened on the Aletsch Glacier, at the base of the Fusshörner. It is about one hundred feet above the glacier, $1\frac{1}{4}$ hr. below the Beichgrat, and a little below the bend of the glacier at point 2,607. It is very well fitted up, and conveniently situated for the ascent of the Aletschhorn and Gross Nesthorn.

The *St. Moritz Post* states that a small restaurant will be opened next summer on the Diavolezza Pass by Christian Grass, jun. If sleeping accommodation is provided, it will prove very useful to those wishing to ascend Piz Palù or Piz Cambrena, and to make other excursions in the neighbourhood.

THE COOLINS.—Mr. C. Pilkington wishes it to be known that he has had a map of the Coolin Hills, Skye, reproduced by John Heywood & Co., Deansgate, Manchester, who will supply it, post free, for 6*d*. The map wants further correcting, but it is more correct than the Ordnance, and might help others to correct still more.

THE LIBRARY.—The following additions have been made since February 16, 1891 :—

Books.

Fornier (Marcellin). *Histoire Générale des Alpes Maritimes ou Cottiennes*. 2 vols. 8vo. Paris, 1890–91.

Meyer (Dr. Hans). *Ostafrikanische Gletscherfahrten: Forschungsreisen im Kilimandscharo-Gebiet*. 8vo. Maps and Plates. Leipzig, 1890.

*Baedeker (K.). *Southern France, from the Loire to the Spanish and Italian Frontiers, including Corsica*. 8vo. Maps. 1891. (Presented by the Publishers.)

Lloyd (Major Sir William), Gerard (Capt. Alex.), and Gerard (J. G.) *Narrative of a Journey from Caunpoor to the Boorendo Pass, in the Himalaya Mountains; Attempt to penetrate by Bekhur to Garoo and the Lake Manasarowara; Visit to the Shatool and Boorendo Passes*. 2 vols. 8vo. Maps. London, 1840.

Metcalfe (Rev. Fred.) *The Oxonian in Iceland*. 8vo. Map and Plates. London, 1861.

*Smithsonian Institution. *Annual Report of the Board of Regents for the Years ending June 30, 1887, and June 30, 1888*. 4 parts. 8vo. Maps and Plates. Washington, 1890.

*Sella (Vittorio) e Vallino (Domenico). *Monte Rosa e Gressoney*. Obl. 4to. Plates. Biella, 1890. (Presented by the Authors.)

*Rapida Escursione Alpina nel Bellunese. Edita a cura del C.A.I. Sezione di Agordo. Obl. 8vo. Photographs. Trento, 1888. (Presented by the Club.)

Hayden (John). *Sketch of a Tour in Switzerland*. 16mo. London, 1859.

*Diener (Carl). *Der Gebirgsbau der Westalpen*. 8vo. Maps. Wien, 1891, (Presented by the Publishers)

* Presented.

Photographs, &c.

- *Panorama of Murchison Glacier and Malte Brun Range, New Zealand. (Presented by G. E. Mannering, Esq.)
- *The Matterhorn from the Riffel Alp, December 26, 1890. C. T. Dent, phot. (Presented by C. T. Dent, Esq.)
- *The Dom and Täschhorn from the Hörnli path, December 24, 1890. C. T. Dent, phot. (Presented by C. T. Dent, Esq.)
- *Portrait of Horace Benedict de Saussure. (Presented by M. Henri de Saussure.)

Maps.

- *Andorra, constructed by F. H. Deverell, 1890. Based on the scale of the French Ordnance Survey map, 1 = 80,000 (Presented by the Constructor.)
- *Geologische Karte des Karwendelgebirges herausgegeben vom deutschen und oesterreichischen Alpenverein. Entworfen von A. Rothpletz unter Mitwirkung von W. Clark u. a.

ALPINE JOURNAL BACK NUMBERS.—The following numbers may be obtained on applying to the Assistant Secretary at the Alpine Club Rooms, 8 St. Martin's Place, W.C.: 5, 9, 10, 13, 14, 16, 39, 50, 53, 54, 57, 69, 73, 84, 85, 87, 88, 89, 90, 91, 92, 93, 97, 100. The Editor has also Nos. 70, 86, and 109; and vols. xiii. and xiv.

Those indicated by black type are out of print.

The following numbers are required by members to complete their sets. Offers to be addressed to the Assistant Secretary: 21, 63, 64, 66, 67, 71, 72, 79, 86, 94, 101; also vol. iii.

REVIEWS AND NOTICES.

The Story of the Nations—Switzerland. By Lina Hug and R. Stead. (London: T. Fisher Unwin.)

Switzerland and the Alps are not identical or convertible terms, though it is to be feared that many persons think them so. Still, the Alps have, no doubt, had a good deal to do with making Switzerland what it is politically and nationally. This being so, we rather wonder that the authors of the book before us have so little to say about them. With the exception of a page or two on Suwarrow's campaign, there is hardly a word from which the reader would gather that any rising ground exists in Switzerland. Of course, for obvious reasons, few of the important events in Swiss history have taken place in the higher Alps; but the 'story' of a nation can hardly be thought complete which takes no notice of the first subject which comes into everyone's mind on hearing its name. However, this feature, or its absence, practically removes the book from the category of those with which the 'Alpine Journal' is concerned; nor does the introduction of a few exceedingly poor mountain views, quite unconnected with the text, help the matter. As a political history of Switzerland, and an account of how the federation of states became the federated state, it has its merits.

* Presented.

Mittheilungen des D. O. A. V. : 1890.

On May 2, 1889, Herr Gottfried Merzbacher ascended Mount Ætna, and on May 24–25 the Gran Sasso d' Italia. The quantity of snow was very great, considering the latitude and the time of year. The Rifugio di Roma on the Campo Pericoli (? 2,000 mètres = 6,562 feet) was completely buried in snow. Two hours' labour were spent in effecting an entrance, and he and his guide passed a most miserable night. The next morning the summit was reached in 3 hrs. Herr M. would have done better to sleep at Assergi (847 mètres) and make an early start.

On August 4, 1889, Herr Merzbacher, with the guide Preiss (*vulg.* Punz), of Ramsau, effected the sixth ascent of the Piz Bernina by the Bernina Scharte. This was in order to judge for himself of the difficulty of this, avowedly, the most difficult excursion in the Pontresina district. Another tourist with two guides was permitted to join the party. The sudden drop in the ridge, which constitutes the chief difficulty of this expedition, was passed with tolerable ease. The guide Preiss, who was last, to the astonishment of the Swiss guides, came down without even looping the rope. Herr Merzbacher concludes that in favourable conditions of weather and snow there is no serious difficulty for rock-climbers. The times seem unusually short. Leaving the Rosegg Restaurant at 1.30 A.M., the Fuorcla Prievlusa was reached at 6.20 A.M. After 35 min. halt, they were on the Pizzo Bianco at 9.15 A.M. The critical spot was reached at 10 A.M., and in half an hour they had all passed it, and were on the Piz Bernina at 11.15 A.M. They left at 12.15 P.M., and passing through the labyrinth the Boval Hut was reached at 4.45 P.M., and Pontresina at 8 P.M.

Herr Finsterwalder (Munich) contributes an interesting article on the application of photography to surveying. Photographs can be taken more rapidly than sketches, and answer their purpose more completely, and so save a great deal of outdoor work.

An area of 1,000 square kilomètres, including the valleys of Cogne and Savaranche and the summits of the Grand Paradis and the Grivola, was mapped by both the new and the old method, and the success of the former was so great that General Ferrero in charge of the survey had no hesitation in extending the application of it.

The sixth number contains an article from the pen of the late Editor of the 'Alpine Journal,' the Rev. W. A. B. Coolidge, describing a fine excursion made on July 22, 1888, from the Concordia hut.* With the guides Christian and Rudolf Almer, he ascended the Gross Viescherhorn by the N.W. ridge, descended by the S.E. ridge on to the almost unknown snow plateau inclosed by the peaks of the Viescherhörner; from this ascended the Ochsenhorn, and then effecting the circuit of the latter returned by the Viescherjoch to the Concordia hut. Time, 13 hrs. 5 min., of which 2 hrs. were devoted to halts.

From an article, in Nos. 7 and 8, by Herr L. Purtscheller, on his ascent of Kilimandjaro, it is plain that the assistance of a skilled mountaineer was much more necessary to Herr Meyer than appeared

* *Alpine Journal*, vol. xiv. p. 156.

from the reports in newspapers. When in the ascent of Kibo they reached the edge of the ice (5,570 mètres = 18,274 feet) they had to cut steps up a ridge of ice at an angle of 35°, with an overhanging icecliff on their right 70 to 80 feet high, and a rock precipice on the other. The ice was hard and glassy, requiring 20 to 25 strokes for each step, and the greatest precaution was required to prevent slipping. Again when, on October 6, they climbed Mawenzi, he can only compare the ascent of the great lava cone to the ascent of the Watzmann from S. Bartholomä (which has only been effected by Herren L. Purtscheller and G. Merzbacher, with the guide Punz (Preiss), of Ramsau, and is accounted by these excellent mountaineers, perhaps, the most difficult rock-climb in the Alps). The holds for hands and feet were bad, the lava slabs were inclined unfavourably downwards, there were narrow ledges and perpendicular gullies, and the difficulty was increased by the cold, which for the 1½ hr. did not rise above freezing point. Sometimes the ridge they were on seemed almost suspended in the air, and the sky was visible through cracks in it ten minutes before they reached it. Their labour was increased not only by the rarefaction of the air, but by the excessive changes of temperature, which varied in the course of a few minutes from 107° F. in the sun to 32° to 34° F. when affected by fog or wind.

Herr J. Pock (Innsbruck) contributes a (? final) article on his tour in 1888 in the Sarntal group. He has described the ascent of 28 peaks, of which any one is accessible in a day's journey from the Eisackthal, and from Innsbruck by aid of the rail.

The new ascents made in the Sulzthal by Herr L. Purtscheller in 1887, and by Herr Pallocsay in 1888, show how neglected this district (the Sulzthal) has been by tourists. Many new ascents yet remain to be made, and these are facilitated by the Amberger hut. Three reliable guides are to be had in the village of Gries, of whom Quirin Grisch (*vulg.* 'der G'sunde,' say, 'the fit man') is the best.

The difficulties which have arisen between tourists and game-keepers in preserved districts have led to a good deal of correspondence. Paths and improvements made by sections have been destroyed, and tourists have been rudely treated. As in such districts the by-roads are all private, it would seem only proper to refrain from using, marking, or altering them in any way without permission.

With respect to subterranean explorations, such as those in the 'Reka Höhlen' (S. Canzian), Dr. Frischauf recommends the use of 'Fluorescein,' which causes the water to remain coloured for a great distance and length of time. On a trial made at the 'Aachquellen,' 11 kilomètres distant from the Danube, the discolouration appeared in that river after 60 hrs., and continued for 36 hrs.

In June a festival was held in the grottoes of S. Canzian. The Brunnen grotto, the finest yet discovered, was brilliantly illuminated. The grottoes have been made accessible by a convenient path, and other tracks have been constructed to exhibit their beauties to advantage. The new paths have enabled the explorer to advance a kilomètre (5 furlongs) beyond the point reached in 1887.

On June 8, 1890, Fräulein Toni Santner was one of a party which

ascended the *Fermeda Thurm*, the most difficult summit of the *Geislerspitzen*.

A great number of ascents are recorded, many of which are new, or by new routes.

Mr. Norman-Neruda (London) contributes a long list of peaks climbed by new routes, in which he was accompanied by Chr. Klucker (Dr. Curtius' guide), whose performances he cannot sufficiently praise.

Herr L. Purtscheller has been actively engaged in making up for his lost summer. Between May 11 and October 5, 1890, he made no less than 143 ascents in 55 excursions from the Lesser Tauern to the Maritime Alps, and including an ascent of Mont Blanc. Many of these were what he calls 'ridge walks' ('*Gratwanderungen*'). On August 18, 19, and 20 he ascended five, four, and six peaks respectively; and on August 22 no less than 10 peaks, three of them being new ascents. On the whole he made 14 new ascents. In 20 of the 55 tours he had a companion. In three he took a guide, probably more to show the way than otherwise, since only one peak, the *Kumpfkarspitze* (2,394 mètres = 7,855 feet), was a first ascent. In five he took a porter. In the others he was alone.

Seventeen accidents (or supposed accidents) are reported, most of which have been already noticed in the '*Alpine Journal*.' Of one or two, however, all the details have not been mentioned.*

On May 26 Herr Christian Schollhorn (Munich) started at 2.30 A.M. with the guide Punz (Preiss) to ascend the *Watzmann* from *S. Bartholomä*. Preiss had urged him to take a second guide, but he refused. About 7 A.M. they were above the '*Randkluft*.' Here a difficult '*platte*' had to be crossed. The guide unroped himself, and bidding the tourist stay where he was, proceeded to climb the wall, holding the end of the rope in his left hand. When near the top the rope was pulled out of his hand by a jerk which nearly dislodged him from his precarious hold. In alarm he descended to the spot to find the tourist gone. He had evidently fallen down the precipice (about 100 feet) into the '*Randkluft*.' He made his way back to *Berchtesgaden*, and gave the alarm. May 27, an expedition of seven guides, headed by *Kederbacher*, reached the spot. *Kederbacher* was lowered into the '*kluft*' to a depth of 24 mètres (79 feet), and lowered a lantern into a funnel-shaped aperture below, but could discern nothing. On May 28 the bad weather prevented further search, but on May 29, with eight other guides, he again reached the spot. This time he descended 16 mètres (52 feet) deeper into the '*trichter*,' and perceived *Schollhorn's* foot. The body was found to have the rope wrapped round it, and by means of this drawn up with difficulty, and by their united efforts got down over the steep rocks. Two hours were occupied in getting the body to the surface, and seven in getting it to *S. Bartholomä*. *Kederbacher* on this occasion was lowered about 220 feet. His leading on this expedition deserves all praise.

On June 20 *E. Böhm*, a postman of Vienna, perished on the *Planspitze*.

* See p. 225.

He left Vienna immediately after his morning's round, and went with his brother-in-law by train to Gstatterboden. Here, at 1 P.M., they started on the Peterspfad, a difficult route leading to the summit. About 9 P.M. in bad weather they were near the ridge. Here Böhm became quite exhausted, and they were forced to bivouac. Next morning he was too weak to proceed, whereupon Pallausch tied him to a rock and went to Johnsbach for help. Pallausch was too exhausted to join the search party, which did not succeed in finding Böhm, who had then to pass another night in that exposed position. Next day he was found dead.

On October 16 two tourists named Leuch and Paganini left the Bottersalphütten in fine weather to ascend the Säntis. A sudden and violent storm came on, in which they are supposed to have perished, since nothing has been heard of them.

N.B.—The expected outbreak of the glaciers in Martell did not take place in 1890. The Furkele glacier has advanced considerably; the others in a less degree. J. S.

Section Lyonnaise du Club Alpin Français : Septième Bulletin.
(Lyon : Imprimerie Mougin-Rusand.)

The 1890 volume of the periodical issued by the Lyons section is, as reading, equal, or perhaps superior, to any of the Alpine publications of the year. It is 'impressionist,' it is decidedly 'excentric,' and nobody, we think, will be able to make any use of it whatsoever for historical or 'documentary' purposes. It contains five articles—a thrilling adventure in bad weather on the Buet, by 'J. C. ;' an account of a tour from Mont Blanc to the Pelvoux, with some notice of the ascent of those peaks, by M. Adolphe Gamet; 'Some Corners of Unknown Switzerland,' by M. Prosper Chappet, who has discovered the Maderanerthal, the Lukmanier, Val Maggia, Binn, and other spots not precisely so much frequented as Zermatt or Pontresina; 'In the Tyrol and the Dolomites,' by M. Th. Camus (this, as anyone who figures to himself the French tourist in Tyrol will readily conceive, is the gem of the volume), and one scientific article. All are characterised by a pleasant cheeriness, a delightful independence in regard to such details as the spelling of foreign names or the quotation of heights, and a general holiday spirit which carries one back to the early days of Alpine literature. Whether it be M. Gamet and his party crossing from St. Christophe to Vallouise by the Aiguille du Plat de la Selle and the Col des Ecrins with only four hours' repose between the two excursions, or M. Camus killing time on the Fedaja Alp, after a rebuff from the Marmolata, by ascending Monte Padon in his slippers while his companion sleeps in the sun, or any of the others in any position whatever, every one of these jolly gentlemen of Lyons seems to understand fully the meaning of the phrase, 'All in the day's work.' The paper on the Dolomites has a little touch of tragedy. M. Camus, being on the Tofana, saw with a glass the guide Michael Innerkofler and his party on the Cristallo. On their return to Cortina they were met by the news, 'Innerkofler ist todt.' They must have been the last persons, except his own party, who saw that valiant guide alive. But for a mere

chance they would themselves have been with him; 'and,' says M. Camus, 'we reflected that if he had been with us he would still be living, for *we* should never have consented to be both together on a snow bridge.' The last article, 'Alpinisme et Hygiène,' is by Dr. P. Marduel. The doctor's opinion is gratifying. He says, 'What all bodily exercises—walking, gymnastics, swimming, fencing, boating, riding—effect, viz. the training of the muscles and toughening of the frame for labour, "alpinism" effects better than any of them,' with which view readers of this Journal will agree.

Annuaire de la Société des Touristes du Dauphiné. 15^{ème} Année, 1889.
(Grenoble: Allier, 1890.)

Contrary to custom, the most important communication to the 1889 'Annuaire' is not connected with Dauphiné. The chief place is occupied by an article by the Rev. W. A. B. Coolidge on 'Three Ascents of the Grand Paradis.' We have here not only a very interesting account of the actual climbing, but a history of the peak, and all such information connected with guides, routes, inns, and maps as the tourist can require. We trust that many will be incited by Mr. Coolidge's account to make the ascent, and hope they may enjoy on the summit such a *véritable révélation* as he did in 1888. The map attached to the article is not quite what it should be. To pass by other faults, the Grivola and Becca de Montandeyné should surely have been indicated. On the other hand, it should be noted that this is the first map to mark the Col de l'Abeille.* The other chief articles are on the first ascent of the Aiguille Marcieu, and a week in the Queyras and Grand Rubren district, a part probably little known to English mountaineers. Science is represented by a 'Note sur l'Enseignement de la Lecture des Cartes.' In the list of ascensions in Dauphiné for 1889 we are pleased to see the names of a fair number of English clubmen amongst the climbers of the Grande Meije, the Ecrins, and Pelvoux. On p. 161, St. Véran, 2,002 m., is described as the highest village in France; but has not Avérole, under the Charbonel, an altitude of 2,035 m.? We congratulate the Société des Touristes on the success of their efforts to open up Dauphiné, and to promote the comfort of travellers amongst its peaks and passes, and wish them all prosperity for the future.

G. Y.

Monte Rosa e Gressoney. By V. Sella and D. Vallino (Biella).

This charming volume is one which ought to find a place in every Alpine Library, notwithstanding its somewhat inconvenient form for the requirements of ordinary bookshelves. It is a pity that an English edition of it has not been published, though we may state at the outset that the illustrations are of far more importance than the text. A well-written and scholarly monograph on the valley and folk of Gressoney might be made singularly interesting, for the German population still retains many of the customs and traditions which it brought from Wallis, and now is the time to record them before

* See *Alpine Journal*, vol. xiv. p. 285.

they have been obliterated by the planing away which improved means of communication with Italy will of course effect. For the folk-songs and other records collected by Signor Vallino we are thankful, though he has only scratched the surface of the ground. With much that has been observed and recorded by foreign observers before him he has failed to make himself acquainted. The historical chapter is especially thin. In fact, in respect of scholarship, the volume leaves much to be desired.

In the present brief notice all we can do is to correct certain errors of fact in the record of mountain achievement in the Gressoney neighbourhood. Omissions, which are very numerous, we cannot attempt to supply. Mr. Déchy's ascent of Monte Rosa, in 1871, was not made 'by the same route' as that followed by Messrs. Digby and Heathcote in 1868. Déchy ascended a rock-face, Digby a conspicuous buttress some way further west. Again, the route followed by Rey in 1886 was identically the same as that discovered by Mr. Hulton in 1874, and so vaguely described in the 'Alpine Journal.'* One party approached from Zermatt, the other from the Lysjoch; both ascended the same main rib to the summit. This same rib had been ascended three times by Mr. Abercromby, and by five other parties known to the present writer, before the year 1881, and the route was well-known to the Zermatt guides as the route 'by the rocks.' The Zumstein Sp. was not ascended from the Grenz-Sattel in 1819, but from the plateau between the Zumstein Sp. and the Signal Kuppe. The first ascent from the Grenz-Sattel was made in 1886.† Signor Perazzi's ascent of the Lyskamm in 1884 was made by practically the same route as that followed by Messrs. Morshead and C. E. Mathews, in 1867.‡ Both parties attained the summit by the same ridge. The English party reached this ridge from a shelf of névé lying under the saddle between the two peaks of the mountain. Signor Perazzi's variation consisted in passing below this shelf and making the ascent from the very foot of the rocks of the rib. The latter route is of all ways the best by which to ascend this glorious mountain. The mistake as to these routes arose from a misdescription of Morshead and Mathews' route published in the 'Zermatt Pocket Book.'

It now only remains to bestow unlimited praise upon the beautiful illustrations with which the volume is so plentifully illustrated. They are all process reproductions of photographs by Signor Vittorio Sella. Thirty-one are full-page plates, with many of which we have already been rendered familiar by examples shown at the Winter Exhibition in London or included in our own collections of Alpine views. By no means the least interesting are the instantaneous renderings of incidents in the life of the people—Girls at the Village Fountain, or Preparing Polenta, and the like—for the most part delightfully chosen or composed. The strictly Alpine views are, of course, more important; and

* *Alpine Journal*, vol. vii. p. 107; xiii. p. 203, 263; *S.A.C.J.* vol. xv. p. 211; *Boll* 1885, p. 145; 1888, p. 107; *Rivista*, vol. v. p. 247; vol. vi. p. 83; vol. viii. p. 260. See also forthcoming *Pennine Guide*, vol. ii. pp. 53, 55, 56.

† *Alpine Journal*, vol. xiii. pp. 126, 163. ‡ *Ibid.* vol. iv. pp. 55, 67.

amongst them the most beautiful is the view taken from the Q. Sella Hut, on July 15, 1888. It embraces a wonderful panorama of rock and downy cloud, brilliantly and mysteriously illuminated, and forming an almost perfect composition of mass, shadow, and line. The plate is printed in a greenish ink which suits the subject marvellously well. The Gorge of Guillemore makes another beautiful plate, and so does the view of the H"ochste Sp. and Zumstein Sp. from the Lysjoch, which forms the frontispiece of the volume. In this the long rib climbed by Mr. Hulton forms a conspicuous feature.

There are, besides, some forty-two illustrations included in the pages of text. Many of them are good examples of process blocks, and the whole series forms a valuable contribution to Alpine iconography. A few more examples of climbers in action would have been pleasant, but where there is so much to be thankful for, it were scurvy to complain. Let us rather conclude by expressing a hope that the reception accorded to this beautiful volume may induce its authors to provide us with others of the same kind.

W. M. C.

Southern France from the Loire to the Spanish and Italian Frontiers.
By Karl B"adeker. (Leipzig: B"adeker, 1891.)

This, the English edition, corresponds with the third French edition of the *Midi and Centre de la France*; that is, we presume, it is translated from them. This may account for the frequency with which the terms 'difficult' and 'dangerous' occur in the sections dealing with the Alps; those terms having, as is well known, a somewhat wider 'connotation' abroad than is usually allowed to them in English writings on Alpine matters. Thus the Col Emile Pic, which Mr. Coolidge some time ago* pronounced with emphasis to be 'by far the easiest between Vallouise and La Grave,' is twice spoken of as dangerous, and once as difficult. The Aiguille d'Olan, perhaps by a confusion with the Pic of the same name, is called by both epithets. The Tsanteleina (called Ste. H"el"ene, and mixed up with the Pointe de Bazel) is dignified in the same way—'if the second peak be included.' Neither Mr. Nichols nor M. Ferrand was able to discover this second peak, both agreeing that the summit is a ridge about fifty yards long, with so little difference in height between the ends (instead of the thirty-five feet given here) that the former gentleman's guides were able to reverse their relative altitudes by building a stone-man on the lower.† What the 'second peak' of Herr B"adeker—the passage to which from the first, moreover, occupies three hours—can be, remains a mystery. To go back to Dauphin"e, we find that, as in the second edition, the height assigned to the Ailefroide is that of its lowest summit; though the existence of the higher is recognised. In the same paragraph we regret to see that the clumsy appellation of 'Mont Salvador-Guillemain' is adopted for the S.W. peak of the Pelvoux, generally called 'Pic sans Nom;' a title of which its first climbers, Messrs. Pendlebury and Colgrove, were content to leave it in possession. This

* *Alpine Journal*, vol. x. p. 85.

† *Ibid.* vol. ii. p. 395.

again, by the way, is one of the 'difficult and even dangerous' division. One cannot resist a suspicion that some writers imagine danger to be a kind of extreme case of difficulty; the truth being, as every practised climber knows, that the two qualities are entirely independent of each other, and more frequently than not are to be found in very different places.

With regard to the inns in this district, Mr. Coolidge's note in the number of this Journal for November 1889* might have been studied with advantage.

Perhaps for the reason that the Mont Blanc range is better known, we find there less to remark upon. 'Danger' seems to be unknown in that more favoured region, and of 'difficulty' there is far less. Indeed, the style adopted, 'we' climb this *couloir*, 'we' ascend that *cheminée*, seems to bespeak quite an intimate acquaintance.

The other mountain sections, Pyrenees and Auvergne, are very satisfactorily treated, though a map of the latter district would be an addition to the utility of the book. The maps that are given are, as usual with 'Bädeker,' very well executed. We are surprised to see under the heading 'Maps,' in the Introduction, no mention of M. Duhamel's beautiful little map of Dauphiné and the adjacent parts.

Kalender des Deutschen und Oesterreichischen Alpenvereins für das Jahr 1891.
(Munich: Lindauer.)

This useful little pocket book contains: (1) A calendar showing the moon's age, the hours of sunrise and sunset, and the Church festivals specially observed in the German Alpine districts—an important matter in planning a tour in those parts; (2) a list of the sections of the D.O.A.V., with their respective presidents, days of meeting, &c.; (3) rules, statistics, publications of the club; (4) information as to other clubs; (5) the same as to maps, handbooks, equipment, &c.; (6) a table of huts; (7) a list of all the recognised guides in the German Alps, with their ages (here we have observed one or two inaccuracies) and their qualifications, arranged under their places of abode; (8) tables of comparative measures, and for calculating the exchange between Germany and Austria, according to the fluctuations, —which, as is well known, are 'frequent, and painful, and free'—of the gulden; with other miscellaneous information, such as key-maps to the sheets of the Swiss and Austrian Government maps. Finally, there are a number of blank pages ruled so that the conscientious climber can record the weather, his times, his (?) temperature, and any other observations of a scientific kind which may seem to him desirable. On the whole a very good eighteenpennyworth.

* *Alpine Journal*, vol. xiv. pp. 518, 519.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held on February 3, 1891, Mr. HORACE WALKER, *President*, in the Chair.

The following candidates were balloted for and elected members of the Club:—Messrs. Samuel Aitken, Alfred Bird, Robert A. Danvers, Charles Ashworth James, Maurice Paillon, and Wilberforce N. Tribe.

The PRESIDENT mentioned the serious loss which the Club and all mountaineers had sustained by the death of Herr Gottlieb Studer, whose name was a household word with all who took an interest in the history of the exploration of the Alps, and who, as a traveller and author, had largely added to our knowledge of them. Herr Studer had been an honorary member of our Club for a period of thirty years.

The HONORARY SECRETARY AND TREASURER presented the accounts for the year 1890, which were, after a brief discussion, unanimously passed. At the suggestion of Mr. WALLROTH, it was agreed that a suitable cabinet for the collection of photographs, which is assuming large dimensions, should be purchased.

Mr. J. H. WICKS read a paper: 'Two Peaks and a Centre.'

Mr. W. CECIL SLINGSBY read a paper: 'A Night Adventure on the Dent Blanche.'

An animated discussion on the subject of both papers followed, in which the PRESIDENT, Messrs. CONWAY, HOLZMANN, FRESHFIELD, WILSON, BUTLER, SCHUSTER, NASH, SOLLY, MACDONALD, MORSE, and others took part. While some members held that Mr. Slingsby's party ought under the existing conditions as to weather and the state of the mountain to have turned back sooner and not completed their ascent, the majority of the speakers maintained that no unjustifiable risk had been run; but the unanimous opinion was that parties without guides especially should pay the greatest possible attention to the state of the weather.

With regard to the district described by Mr. Wicks, it was suggested that a Committee on the nomenclature of the various peaks might be appointed.

A cordial vote of thanks was accorded to Messrs. Wicks and Slingsby for their most interesting and excellent papers.

A General Meeting of the Club was held on March 3.

Messrs. Thomas Lawrence Kesteven and Charles Hawker Liveing were balloted for and elected members of the Club.

The PRESIDENT said it was his painful duty to inform the meeting of the probable death of a member of the Club, Mr. J. Baumann, which, according to information received, there was too much reason to fear had occurred in Mashonaland. His loss would be regretted by all; he was a most excellent climber, and popular member.

Mr. DENT gave some particulars as to the circumstances under which, according to the latest news, Mr. Baumann was lost.

The PRESIDENT announced that Mr. Malcolm Ross, of Dunedin, had kindly offered his assistance to any member desirous of visiting the

Alps of New Zealand; also, that there was some idea of forming a New Zealand Alpine Club.

Mr. G. YELD read a paper: 'The Ascent of Basardjusi,' illustrated by a series of beautiful photographs taken by Mr. G. P. Baker, large maps, lent by the Royal Geographical Society, and numerous geological specimens.

At the conclusion of the paper MESSRS. BAKER, FRESHFIELD, CONWAY, and C. E. MATHEWS spoke, and attention was drawn to the beautiful series of photographs which Signor Sella had succeeded in producing during his prolonged journey in the Caucasus last summer.* Reference was also made to the numerous still-unexplored districts, and to the moderate cost and comparative safety of travel in the Caucasus.

On the motion of the PRESIDENT, the thanks of the meeting were unanimously voted to Mr. Yeld for his interesting paper.

A General Meeting of the Club was held on April 7. Mr. William Michael Spence was balloted for and elected a member of the Club.

The PRESIDENT announced that a portrait of M. de Saussure had been presented to the Club by his grandson; also, that Mr. Dent had presented the Club with two very beautiful photographs taken by him last winter.

Mr. WALTER LEAF read a paper: 'Climbing with a Hand Camera,' illustrated by a most interesting series of lantern-slides from negatives obtained by him with his hand camera.

Very beautiful views taken by Mr. Eccles, Mr. Dent, and Mr. A. Topham were also shown on the screen.

Mr. G. R. BAKER, on behalf of Mr. J. H. Steward, attended and exhibited the Labbez Telemeter, described in Captain Marshall Hall's article on 'Glacier Observation' ('Alpine Journal,' No. 111).

A short discussion on Mr. Leaf's paper took place, and the proceedings terminated with a hearty vote of thanks to him for his admirable and amusing paper, and to the other members who had exhibited their photographs.

The following circular has been issued by the special committee appointed for the purpose indicated in it:—

Alpine Club, 8, St. Martin's Place, March 4th, 1891.

EQUIPMENT FOR MOUNTAINEERS.

Sir,—We have been charged by the Committee of the Alpine Club to make inquiries with a view to preparing a comprehensive report upon the equipment of mountaineers. Will you kindly send us such *precise* information as you may have acquired from your own practical experience? We have divided the subject into three main sections concerned with the needs of—(1) Ordinary climbers in the Alps, (2) Guideless climbers, and (3) Climbers intending to explore remote

* These, which have been on view at the Royal Geographical Society during April, have doubtless been seen by many members of the Club; one of whom, competent to speak, describes them as a 'grand collection.' We shall hope to give a more detailed account in the August number.

mountain ranges. We have subdivided each section under four headings—(a) Kit, (b) Food, (c) Photography and Instruments, and (d) Special.

It is particularly requested that answers be written on one side of the paper only, and that information as to different headings (1a, 3d, and the like) be written on different slips of paper, with the reference number and letter inserted in the top left corner of each sheet (for convenience of classification). Whenever possible, please give accurately the name and address of the tradesman or firm from whom a particular object referred to can be purchased.

You are also requested to state whether you are willing to send any objects or instruments, you may have occasion to refer to, to the Club rooms for inspection by the sub-committee.

Kindly address your answer to Mr. J. H. Wicks, at 38 St. Luke's Road, London, W.

We are, yours faithfully,

C. T. DENT, W. M. CONWAY, J. H. WICKS.

1. Ordinary Climbers in the Alps:—

- (a) *Kit*.—It may be assumed that information about axes, ropes, and boots is not required. Precise information, on the other hand, is asked for as to Rucksacks, wine-bags, gloves, gaiters, anklets, crampons, sleeping-bags, and any small portable appliances of proved utility.
- (b) *Food and Cooking Apparatus, Canteens*.—The names and descriptions of all manner of portable foods and where to buy them (both in England and in the towns in the neighbourhood of the Alps).
- (c) *Photography and Instruments*.—Information of every kind will be valuable under this head. For instance, the best type and make of camera, for view and instantaneous work, varieties and make of lens, best kinds of plates and films for summer and winter work. Methods of packing plates. Photometers. Special appliances. In every possible instance approximate prices should be quoted.
- (d) *Special*.—Most climbers have some appliances or methods of their own which they consider valuable. We hope they will take this opportunity of sharing their notions with the whole climbing fraternity.

2. Guideless Climbers:—

- (a) *Kit*.—What modifications in the kit are recommended for guideless climbers, to whom weight is of special importance?
- (b, c, d), see 1b, 1c, 1d.

3. Exploring Climbers:—

- (a) *Kit*.—What modifications upon or additions to the ordinary kit are advisable? What tools should be carried? Precise information as to tents, sleeping-bags for great heights, sacks, medicine, clothes, and the like is required.

- (b) *Food and Cooking Apparatus.*—If a party has to carry provisions for several days, what is the best form of food to carry?
- (c) *Photography and Instruments.*—See 1c. What are the most portable instruments and the least likely to get out of repair?
- (d) *Special.*—See 1d.

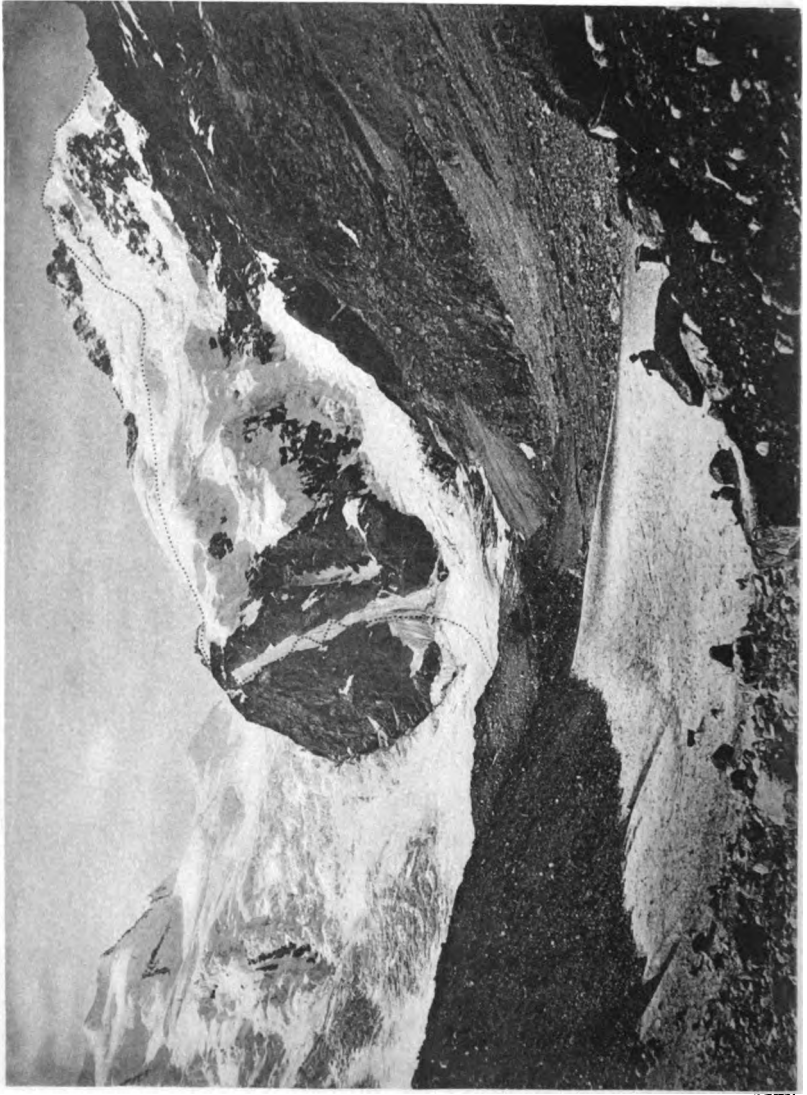
Errata in the February Number.

Page 371, lines 15, 16, for '5 per cent.' and '3 per cent.' read '50 per cent.' and '30 per cent.'

Page 371, line 20, after '400 francs' add 'per annum for three years.'

" 372, " 13, for 'Tantarin' read 'Tartarin.'

" 375, " 21, for 'Herr C. Seelig' read 'Herr August Nät.'



THE
ALPINE JOURNAL

AUGUST 1891.

1139

SOME NEW ASCENTS OF THE MOUNTAINS OF THE ALPS.

BY L. S. MANN, M.A.

(Read before the Alpine Club, 18th July 1891.)

Our Secretary has requested me to read to you a description of three new ascents of the Piz Roseg, published last year by myself and Mr. J. B. Jones. One of these— that of the Piz Roseg— has already been made, but being a new route, it may at some future time, considered as a less and less dangerous route than the old one or Wainwright's was possible. The other two could not have thought of, had not the general conditions which caused 1890 to be called a "bad year" enabled us to do much we should have been unable to do under more generally favourable circumstances. The ascents of the Piz Roseg and the Piz Roseg are, in many places, quite steep, and in a general sense, would in all likelihood present difficulties. But we found that much of the snow covering the ice, and steps had melted through the snow into the rock, as was the case in a dry summer, and often were enough to produce a path, which was not so much necessitated by steepness as by the little fatiguing nature of the route. To reach our two goals—the summit of the Piz Roseg and the summit of the Piz Roseg— the same day, we had started from the same point in general it is possible to reach the summit of the Piz Roseg in a day.

(C. XV.—NO. CXXII.)



THE
ALPINE JOURNAL.

AUGUST 1891.

(No. 113.)

SOME NEW ASCENTS IN THE BERNINA GROUP.

By L. NORMAN NERUDA.

(Read before the Alpine Club, May 5, 1891.)

OUR Secretary has requested me to give you to-night a short description of three new ascents in the Bernina Range accomplished last year by my guide Christian Klucker and myself. One of these—that of the Scerscen—I had long wished to make, believing—what I hope some of you may at some future time consider me to have proved—that an easier and less dangerous route than either Güssfeldt's or Wainewright's was possible. The other two I should not have thought of, had not the conditions of snow and ice, which caused 1890 to be called a bad year for climbing, enabled us to do much we should have had to leave undone under more generally favourable circumstances, for in our ascents of the Piz Roseg and the Piz Bernina we had to conquer steep, in many places quite exceptionally steep ice slopes which at other times, in a good mountaineering season, would in all likelihood present insurmountable difficulties. But we found at nearly every point a sufficient coat of snow covering the ice, and steps had scarcely ever to be cut through the snow into the ice, as would infallibly have been the case in a dry summer, and often half a dozen kicks were enough to produce as many steps; consequently the work necessitated by step-cutting was not only of a comparatively little fatiguing nature, but we got through it in time to reach our two goals—the summit and our own comfortable bed—the same day we had started. As regards snow mountains in general it stands to reason that even if an

ordinary, not very steep route, followed every year by dozens of tourists of both sexes, should be more or less impracticable on account of the snow lying in too heavy and for the hob-nailed boot too easily penetrable masses, the steeper sides of the mountain, where we generally encounter but pure ice, and where step-cutting would demand an expenditure of strength and energy out of all proportion with what we can reasonably expect from guides, should in seasons like the last offer to the enterprising Alpineer a possible access to the summit, because the ice is then covered with snow. But as the steepness does not permit of an accumulation of heavy and too soft masses and, in many cases aided by the wind, sends the snow rushing or sliding down into the glacier basin below so soon as its weight surpasses the maximum the particular angle of inclination can support, the snow forms a coat which, though varying in thickness with the degree of steepness, and depending also to a great extent on climatic conditions, I found last summer would, through the alternate processes of melting and freezing, two or three days after a snowfall attain a firmness, an union with the ice underneath, justifying what otherwise would indeed have been unjustifiable attempts at climbing old mountains by new routes as we chose them. My ascents of the Piz Roseg and the Piz Bernina were carried out under exceptional circumstances, and I therefore attach no importance whatsoever to them. With the Scerscen it is different, and I propose to devote the better half of the twenty minutes I have been allowed by the Secretary to giving you as seductive an idea of its attractions as I possibly can, and hope a few of you at least may be induced to try the new way when your wanderings take you to the Bernina district, a part of the Alps neglected at the present time, much to their loss, by English mountaineers. I also beg to draw your attention to the fact that not a dozen ascents have been made since the Scerscen was first scaled by Dr. Güssfeldt on September 13, 1877, although it is one of the most beautiful mountains in Switzerland. The reason seems to be that the guides who had reached its summit strongly dissuaded their colleagues from attempting the difficult and dangerous climb, and were themselves unwilling to repeat it.

Klucker and I had been in Pontresina for several days, serving a term of enforced laziness to which the bad weather had condemned us, and were getting tired of playing billiards and looking at the relief map of the district when

there was no chance of making a more intimate acquaintance of the peaks it represents. At last, on July 7, we walked up the Roseg valley, intending to spend the night at the Roseg Restaurant, and on the following day to try the projected way up the Scerscen. On July 8, however, a cold caught several days before, on the Pizzo Tremoggia, had reached its climax of inconvenience to me and, much as I regretted it, it was deemed necessary, both by my guide and myself, to postpone our expedition until the day after. A start was made at 2.25 A.M. on the 9th. Our way led us first of all over Alp Misaun and Margum Misaun along the foot of the Piz Tschierva until we reached a point below the place marked, 'Terrasse 3,125 M.,' on the Siegfried map. The night had been very fine, somewhat cold, and the day promised to be one of exceptional beauty; there was not a breath of wind, nor a cloud anywhere to be seen. Had this not been so, I dare say I should have returned to the restaurant, for I was suffering badly with my cold and had many times to rest for a few minutes, and consequently our progress was very slow; but after waiting so long for favourable weather I did not like to let a chance pass by without doing my best to carry out the ascent we had planned. We now turned to the right, wound our way through the séracs of the Tschierva glacier, crossed over from its eastern to its western branch between the Piz Humor (3,257 m.) and the rocks which have been called 'Kleiner Humor,' and then continued our way parallel with, and close to, the base of the former. At 7.12 we found ourselves on that part of the Tschierva glacier, where it is nearly level, and from where the real climb, both in the case of Güssfeldt's route and of mine, begins.

Perhaps it may be just as well to give you, in a few words, a sketch of how you would have to go, were you from this point to follow Güssfeldt's lead instead of mine. I will then leave it to you to decide whether it was worth while or not to try to find a better way. First of all you will have to ascend the snow-ridge between the Piz Humor and the Scerscen—this is quite easy—then follow it until you get to the foot of a steep rock wall which you will find glazed with ice, and experience some difficulty in climbing, and there will be a constant danger of ice-blocks falling on your heads from the ice wall above. You will now have to cut steps into the ice wall for over an hour and a half, the danger never growing less until you have reached its top, and then to continue the way in a nearly straight line—there

will now be no more difficulty or danger—to the very summit. If the ascent, although it can be made at an early hour in the morning, is dangerous, the descent is much more so, for in the afternoon ice is more likely to fall than in the morning. The reason for the continual falling of the ice is that the upper part of the west side of the mountain is formed by a glacier—I shall call it for convenience sake ‘the Upper Scerscen glacier’—which, always growing and travelling downwards, sends its superfluous material over the rock wall, sometimes in bits that would kill a party on the wall itself, at other times in blocks that would be death to a battalion at its foot. Shortly before Dr. Güssfeldt’s ascent, however, a heavy fall of ice must have taken place, for in his book ‘In den Hochalpen,’ he says he considered himself to have been very fortunate in finding the ice masses quite solid, and not split up into tablets or blocks waiting to lose their balance.

We now took some food and inspected the way we intended to follow. To our right we saw the Roseg-furcla (also called ‘Güssfeldt-sattel’); on its left the lowest of the three Scerscen peaks, the ‘Schneehaube,’ and again, further left, our aim, the highest peak. On its top, the ‘Schneehaube’ has a ‘snow cap,’ below which a practically perpendicular rock wall descends in one bound of several hundred feet to a steep snow slope, and terminates on the right below the summit of the Roseg-furcla, on the left in a gap between the Schneehaube, and the Upper Scerscen glacier. The snow slope reaches down to the bergschrund, which runs in a continuous line along the Piz Roseg, the Roseg-furcla and part of the Scerscen. Our intention was to cut steps into the snow slope, and, gradually, bearing to the left, to climb into the gap I have mentioned. At that point, we knew, were enormous séracs, and on them depended the success of our undertaking, namely, to find a route presenting neither difficulty nor danger. If the séracs could be surmounted only by tempting Providence, our expedition would be a failure, even if attended by success in as far as the actual forcing of our way to the summit was concerned.

We left our breakfast place at 7.42, and a few minutes later crossed the bergschrund. Owing, no doubt, to the early season it was not wide open (as I have been told it generally is) and gave us no trouble, but in August or September it might prove a stumbling-block—the stumbling-block—to those desirous of repeating our expedition.

Klucker cut steps into the snow slope, and I remained behind at rope's length. Soon, however, the steepness increased, and the bits of frozen snow and ice that Klucker's axe sent down on my head, hands, and knees, became too much for me, and, disregarding one of the principles of mountaineering, I went up to my companion's heels to escape the painful castigation I received when strictly adhering to the rule of keeping the rope taut between myself and the guide. My excuse must be that the steps were so good that a slip seemed, if not actually was, impossible. At 9.21 we touched the rock wall of the *Schneehaube*. It had taken us little more than one hour and a half to mount about 1,000 feet, and, considering Klucker had to cut steps nearly all the time, that was a fairly good rate of progress. We traversed to the left along the rock wall, but here it took much longer to cut steps; there was little snow, and the ice very hard. At a point about 300 feet higher than the *Roseg-fuorela* I turned round and looked at the north face of the *Piz Roseg*. Nothing grander could be imagined. The sky was, by contrast with the pure white of the snow, of the deepest blue of a Neapolitan midday; the enormous ice-falls showed a variety of composition, both of form and of colour, delightful to the artistic eye.

But what interested me even more was that I believed I could see a possibility of ascending the *Roseg* from the north, between the two greatest ice-falls, and involuntarily I exclaimed, 'By Jove! Klucker, that over there would be a first-class climb.' (I do not think, now I come to think of it, I really said 'By Jove!') Most likely I borrowed my exclamation from a less celestial personage, and said 'Teufel!') Klucker, however, only smiled, and murmuring something scarcely complimentary to my brilliant idea, went on with his work. We were getting near the *séracs*, where the question of victory or defeat was to be decided, and soon saw that nothing would prevent us from carrying out our original plan. Our snow slope tapered into a kind of broad couloir, and the end of it was a depression formed by the *Upper Scerscen glacier* and a gigantic block of ice. The latter was remarkable for its extraordinary likeness of shape to the *Matterhorn* as seen from *Zmutt*, not only in general outline, but in minute detail. Having made up my mind to tell you the absolute truth about my expedition, I cannot hide from you that at this point there was some danger. In order to reach the above-mentioned depression we had to pass close by the overhanging ice wall in which the Upper

Scerscen glacier here terminates. Icicles of considerable size and weight hung down from its upper part, and they might certainly have come down on our heads; but if I add that it did not take five seconds to pass the dangerous place, you will scarcely consider me to have been rash for not turning back. A few seconds—and were they minutes?—of danger on my route, and hours of peril on Güssfeldt's, still make a great difference in favour of the former. Well, the icicles did not move, and we, after reaching the depression, climbed the 'Matterhorn' over Mummery's arête. It was a quarter to eleven. We left the Matterhorn at 11.20, and ascending in a nearly straight line without having to cut any steps, and crossing two bergschrunds on the way, reached the rocks of the summit a few minutes before one o'clock. Here my route joins Güssfeldt's. The rocks were coated with ice, and required some attention. At four past one we stood on the summit of our mountain. There is just sufficient sitting room for two or three, and that not very comfortable. The weather was still lovely—the view splendid; though, owing to the neighbouring Bernina being higher than our standpoint, not complete. At 1.38 we left, passed the Matterhorn at 2.32, found our steps on the snow-slope in good condition, crossed the bergschrund at 3.40, and glissaded down into the glacier basin. Here we halted for twenty minutes, and then continued our way, never leaving our old track until, after having indulged in several long rests, we arrived at the Roseg Restaurant at 7.27.

We considered the result of our expedition very satisfactory, and, emboldened by this our first success in the Bernina group, we agreed to try the Piz Roseg from the north. The day after—the 10th—we walked down to Pontresina. The guides there, who had up till then had nothing to do, immediately surrounded Klucker, and wanted to know what we had done; but, when informed, calmly told him it was a lie. I should not mention this had it not happened again after our ascent of the Piz Roseg. Altogether the Pontresina guides treated Klucker very badly, more especially when they found out the truth about our ascents. They called him, I remember, a foreigner, who had no right to poach on their preserves; and yet Sils-Fex, his home, is but two hours distant from Pontresina, and they speak the same dialect of Romanish at both places. I shall not disclose the names of those who behaved worst, but may be permitted to say that Martin Schocher made an honourable exception, and was ever ready to assist us with his vast knowledge of

his district. He is a quiet man, and those whose guide he has been think much of his abilities. No doubt many of you have had dealings with Pontresina guides, and will bear me out when I say that, however useful they may be in their own country, they refuse to travel in search of a greater variety of experience, or greater general knowledge of the Alps, fettered to their own soil by the extortionate fees their association of guides has thought fit to pronounce legal, and which they imagine every stranger is bound to pay; but foreign mountaineers have at last begun to bring their own guides, and have done very well indeed—so well that their guides have been treated with little ceremony—nay, with great rudeness—by their brothers in craft. But I trust the final result of this competition may be to make a reduction in the tariff necessary.*

Between July 10 and 16 the weather was so bad that we could do nothing. On the 16th, however, we left the Roseg Restaurant at 1.9 A.M., and at 5.45 stood at the base of the Piz Roseg, at a point from where the depression between the two peaks appeared S.S.W. Our intention was to climb straight up as far as the depression, and without touching the lower peak, or Schneekuppe, to finish the ascent by joining the ordinary route over the N.W. arête of the higher peak. We left our breakfasting-place at 6.13, crossed the bergschrund at 6.32, and began to cut steps into the snow. At first we found a hard crust covering the soft snow underneath; but soon matters changed, and for about half an hour step-cutting was easy and sometimes could be entirely dispensed with. We mounted easily, and at 7.15 reached a solitary rock piercing the otherwise uniform coat of snow. The rapid pace, together with the steepness of the ground, had made us very thirsty; but in vain we tried to get some water. Soon after, I took several clinometer readings, and found the average inclination at about 50 degrees. At 8.35

* This question of fees, I think, is simple enough. All guides have a profession besides that of a guide. How much do they make by it? Scarcely ever, I have found, 10 francs a day. When they go out on an easy expedition, the fees should not be more than, say, 15 francs, but when the ascent is difficult or dangerous, or requires much work, so that the guide could not do anything the day after, it should be in proportion to the danger and difficulty. But is 70 francs for the Bernina and 80 francs for the Roseg not much more than an adequate compensation for a guide's time? Certainly, for there is no danger and little work or difficulty. It seems extraordinary that the fee for the Bernina and the Dent Blanche should be the same.

we found water near some rocks, which, being thickly coated with ice, gave us considerable trouble to climb. On our left was an ice gully, originating somewhere to the right of the depression we were striving for; we made up our minds to cross it, and get on to the great ice-fall beyond it, and then to resume our original direction. Crossing the ice gully was hard work. Klucker cut fourteen steps horizontally, of such dimensions that, counting the blows from his ice-axe, I found that on an average each step required seventy.

The crossing of the gully is the key to the whole ascent. At 10, we halted on the ice-fall, and, half an hour later, continued our way. Again I measured the inclination, and found it to be $54\frac{1}{2}^{\circ}$. Shortly after, the steepness increased, the average inclination being 60° . Klucker cut 225 steps, the last of which brought us, at 12.37, into the depression. Our labours were over. All we had to do was to follow the ordinary route to the summit.

I have nothing more of importance to add, except that we descended by the well-known and often-used route, covering the whole distance from the Schneekuppe to the Mortel hut in 2 hours and 2 minutes actual walking and glissading. This being the shortest time on record, the compiler of a future Bernina pocket-book, if present, had better make a note of it.

The next morning we left for Pontresina, and, after luncheon, walked to the Boval hut. During the spell of bad weather, between the 10th and 15th, we had inspected the N.E. face of the Piz Bernina, and thought we could reach its summit by climbing straight up it. On the 18th we started from the Boval hut at 3.15, and made straight for the long couloir, on the right of the labyrinth. This we intended to follow to a point called Sass del Repos. Klucker said Dr. Ludwig had ascended it many years ago, and, as far as I remember, I never for one single moment hesitated to take the same route. It was a mistake. Dr. Ludwig's route was quite different. Gentlemen who have had an opportunity of seeing this couloir from near its bergschlund, or even from the Boval hut, will no doubt consider us to have been very rash in having chosen this way, when we might have reached the Sass del Repos by the ordinary, or even by the labyrinth route, in probably less time; and other gentlemen who, not having been on the spot itself, see photographs of the couloir, showing what it looks like in a dry summer, will endorse their opinion.

Well, having climbed it from bottom to top, I quite agree

with them. But I had not seen it before, and last year it presented quite a different spectacle and, as I have already said, I thought it was the one Dr. Ludwig had ascended. We crossed its bergschrund at 4.15 and, as I always do, when Klucker and I are alone, and we come to the first place demanding great attention and hard work on his part, I strapped his rucksack to my back in addition to mine. All went well for a time. We stuck to the left side of the couloir, but later on had several times to change from one side to the other, in order to avoid pieces of ice or hard snow the sun began to detach from the rocks at the top of the couloir. We were in an altogether uncomfortable position and began to wish we could turn back; but it was too late, and, after considering the matter under the shelter of a friendly projecting rock, we came to the conclusion that we could do nothing but proceed. Proceed we did; but I assure you that, however calmly we both behaved, and however successfully we dodged—sometimes by a few inches—the often large pieces of ice and the stones whizzing by, I, at least, should have given more than a great deal for a pair of wings for each of us. However, by carefully looking out for corners where we should be comparatively sheltered, and sometimes, certainly, trusting to Providence—a practice I cordially disapprove of—we managed to reach the top of our couloir at 7.23, the height of which is scarcely less than one Eiffel Tower and a half. Thus we had been in the couloir for three hours and eight minutes. Only once had I been struck by a missile from above. I had seen it—a good lump, I thought—coming straight for my head, and had just time, and enough presence of mind, to bore my head into a fortunately large footstep. It grazed my back as it shot by at a tremendous pace, and gave me considerable pain.

As soon as we were safe, we took a drop of brandy, and then immediately crossed the summit of the couloir from left to right, and, after climbing some interesting rocks, reached the *Sass del Repos*, where we took our first breakfast. It was 8.35. The weather was very fine, and the view beautiful. Only the *Ortler* was clouded. At 9.8 we left, and walking in a nearly straight line, reached the bergschrund at 10.21. For some little time we could not find a good place for crossing, but finally succeeded, and began mounting straight upwards. We wished to reach the *arête* between the *Bernina* and *Pizzo Bianco*, as near as possible to the former; then to ascend the summit over

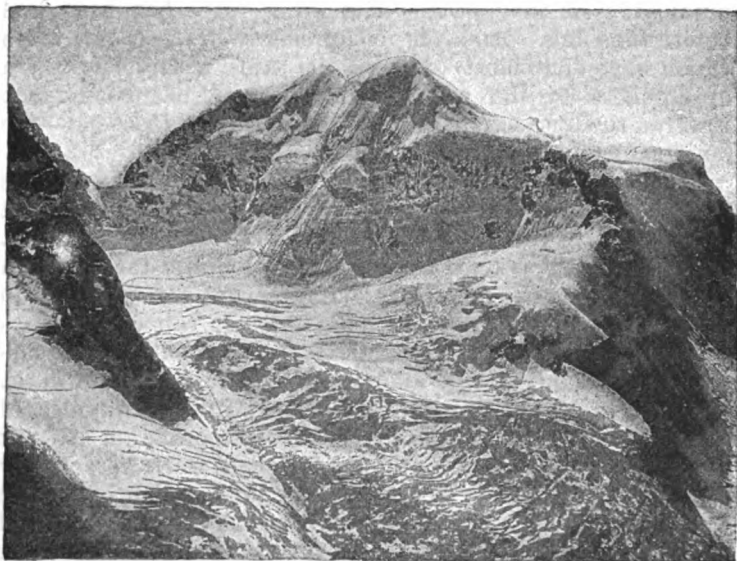
the Bernina Scharte. But suddenly mists began to gather, and soon surrounded us so completely that we could see nothing, and had to proceed with the utmost caution; now again we wished we could turn back, but the snow had been in such very bad condition that we dared not. At 12.25 we saw some rocks on our left, and at once made for them. The fog began to clear away over our heads, and, to our joy, we saw the arête not more than 150 feet over our level.

But the rocks proved to be more disagreeable than we had thought, and it took us two hours to ascend the 150 feet. Sometimes one short step took no less than five minutes; so much hard ice covered the rocks, which, in themselves, were quite difficult enough, and Klucker had to clear away snow in order to get at the ice, and then to cut away the ice to get at the rocks. At 2.25 we stood on the arête, at the very point from where you descend into the Bernina Scharte. The fog again grew very dense; a terrible wind blew from the Tschierva side, and, as it was getting late, we thought it better not to go on to the summit, but to descend to the Roseg Valley by the Pizzo Bianco and the Fuorcla Prievlusa. We commenced climbing along the arête, and had nearly reached the Pizzo Bianco when a terrible thunderstorm overtook us; our ice-axes began to sing, and the irregular gusts of wind threatening to knock us over, compelled us to seek shelter on the Morteratsch side of the arête. We found but scant accommodation; in fact, had to tie ourselves to the rocks, so as not to be swept away by the ever-growing power of the storm. A new danger arose from the ice-axes. They decidedly attracted the lightning, and it was necessary to carry them over to the Pizzo Bianco. Klucker did so and returned. The thunderstorm seemed to describe an ellipse round our arête, always, always returning with what seemed to us increased force, when we for a few minutes had believed, had hoped, it had diminished in power, or left our immediate neighbourhood altogether. I more than one time saw the flash of lightning dart between two teeth of our arête I knew to be no more than 15 or 20 feet distant from where we sat. The deafening roar of the storm made it difficult for one to understand what the other said. Klucker refused to go on, and there we remained till 5.25. I once looked at Klucker's hat—there lay considerably over 12 inches of snow on it. It had been snowing for nearly three hours.

Klucker had refused to go on, but the thunder and lightning being as bad as ever at 5.25, I refused to remain there

another minute, and, consequently, we made for the Pizzo Bianco. Only about 100 feet of arête separated us from it. We took our ice-axes, and now began the hardest work of the day. The wind took our breath away, and yet we had to proceed at a steadily quickening rate of speed, always sticking to the narrow snow arête, working against time, I first, cutting steps when absolutely necessary, but more often turning my face to the slope and holding on by my hands and one foot while kicking steps into the soft snow with the other. I will not say any more about the descent, except that we did not go as far as the Fuorcla Prielvusa, but climbed down the Tschierva face of the Pizzo Bianco, crossed the bergschrund by lantern-light, fought hard with the deep snow on the Tschierva glacier, and, followed by thunder and lightning, entered the Roseg Restaurant at 11.30.

I must bring my paper to a close—my time must be up, and I have nothing more to say. If you wish to propose a vote of censure on me for having made the ascent last described, I have no objection, and shall beg most cordially to second it.



CLIMBING WITH A HAND-CAMERA.

(Adapted from a Paper read before the Alpine Club, April 7, 1891.)

BY WALTER LEAF.

IT is impossible to speak to the Alpine Club on the subject of Alpine photography without recalling to the minds of all our members the name of a friend whose loss is still fresh in our memories. One almost shrinks from a position which might seem to imply that one considered oneself a rival to Mr. Donkin. Let me at once repudiate such an idea. It is enough if I can claim to be a disciple, at however great a distance.

It seems time, however, that something should be said about recent advances in photography as affecting the possibilities of its use by mountaineers. It is more than nine years since Mr. Donkin read his paper on 'Photography in the High Alps,'* and since then, though the photographs taken by climbers have increased much in average merit, and enormously in number, I do not think that any communication on the methods of making them has been laid before the Club. And yet it is precisely the last few years which have done most to bring the thing within the reach of climbers by the great advance which has been made towards the perfection of the photographer's last pet—the hand-camera.

What can the hand-camera do for us? Can it give us first-rate work? I almost doubt it; at least, I am sure that I have not as yet been able to get first-rate work from it. But, after all, it is only a few who can get first-rate work in any branch of art. What the hand-camera can certainly do is humbler, but exceedingly practical. It can enable anyone, almost without any technical knowledge or skill whatever, to turn out a large amount of very fair average work. One can be sure of securing an almost infinite number of memoranda; and a photographic memorandum is not a thing to be despised. It may not be a work of art, any more than one's diary is a first-class novel. Few of us can write novels, but we can all write diaries which will be of interest to us and sometimes even to our friends. For my own part, I look upon my hand-camera above all as a pictorial diary. My only regret is that this particular

* See *Alpine Journal*, vol. xi. p. 61.

form of diary was not invented in time for me to make proper use of it. What would I not give for such a record of my climbs for the last twenty years as I have of my season of 1890?

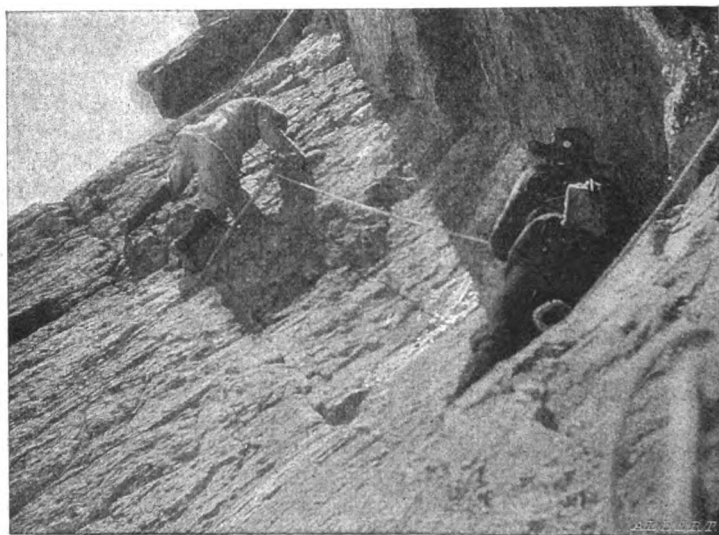
There is, however, a practical use which a snap-shot will serve as well as the most careful and elaborated picture. A snap-shot will often be found to solve a question of topography which might have seriously puzzled one but for an incontestable record taken at the time. Of this I had a striking instance last season.

Our party set out one morning from Mauvoisin to ascend a certain virgin peak numbered 3,509 mètres on the Siegfried map, and called by Conway 'Pointe des Portons.' As a matter of fact we missed it altogether, and went up the next peak to the west. A suspicion of this fact dawned upon me when I carefully examined the map on our return and compared it with our own experiences; but I was quite unable to reconcile our track with the map. Fortunately I had taken a considerable number of snap-shots on the way. I had to wait till I had developed them in order to settle the question. When I had them before me the solution was clear. On my photographs I could identify every point in the neighbourhood with the indications of the map, and there was no doubt as to where our peak was situated. At the same time I found that we were not so much to blame as the Siegfried map, which showed a slight but demonstrable inaccuracy—just enough to mislead us. But for my views I should never have been convinced of this.

Another of my negatives, here reproduced, may serve to save some future climber from a disappointment. In the 'Guide to the Central Pennine Alps' there is recorded a peak named the 'Gran Epicoun,' with the tempting addition, 'no information.' It is situated at the point of intersection of the ridge called 'Tourme de Bouque' with the main watershed, just W. of the peak with many names, which Conway calls the 'Oulie Cecca.' The Gran Epicoun is not marked at all on the Swiss map, and appears only on the Italian; a fact which is in itself sufficient to raise doubts as to its existence. These doubts are fully justified by the appended illustration. The main peak is the Oulie Cecca; of that there can be no doubt, as a careful comparison shows the exact correspondence of every ridge and line with the Swiss map. The rock mass running down to the Glacier d'Otemma on the right is the Tourme de Bouque. The articulation of this ridge with the watershed does not take

place at any peak whatever; it is at best marked by a hardly perceptible snow-mound on the W. arête of the Oulie Cecca. So that the Gran Epicoun may be confidently erased from any future editions of the Pennine Guide.

But there is another wide field open to the hand-camera which to me is most attractive. You can by it secure unique pictures of incidents of actual climbing. The practice is perhaps less attractive to my companions; and here I would give a piece of advice. Always be the one of the party that carries the camera; then you cannot be taken unawares. Do not put yourself at the mercy of a friend possessed with a sense of humour; or, at all events, take care that the camera is not behind you on the rope.



It is only with a hand-camera that it is at all possible to catch such incidents. In the first place they are hardly worth taking, except in places where it is impossible to set up a tripod at all. Secondly, the very setting up of a tripod takes all the truth out of the picture. Your friends pose, and show the most beautiful form, but no life; and, after all, you do not much care about your friends' beautiful form. It would be shameful to sacrifice truth to so vain a shadow. What you want to do is to get them as they are actually moving, and before they suspect your design. This aim can

be reached, and the only merit I would claim for my pictures is the modern virtue of the entire absence of idealism of any sort whatever.

But it must not be overlooked that in taking such pictures you are under one serious disadvantage. You can very rarely be placed in such a position as to get even a reasonably good grouping of your party. Mr. Willink has the artist's privilege of floating in the air horizontally opposite his subject at any distance from 20 to 100 feet that pleases him. Until the photographer can command the services of a steerable balloon, he can, therefore, certainly not attempt to rival Mr. Willink. All he can do is to get himself roped as far back in the party as possible, and look out for chances when an individual figure among the leaders presents itself in a takeable attitude. His party as a whole he can never expect to get, for in any case the most important member of it must needs be left out; and he will find that the moments when his friends and guides put themselves into really artistic attitudes are surprisingly few. In the first place he sees them almost always from behind and below, and it is not thus that we get the noblest aspect of the human frame. In the second place the camera has a singular incapacity for looking upwards or downwards—that is, if you point it up or down when taking your picture the result always looks not as if it was above or below you, but only as if it was on the same level, and violently sloping where it ought to be vertical. Then when you are climbing on a level across a face there are almost always corners which get in your way and prevent your seeing the most interesting points till you are close on them yourself and your predecessors are over them. Furthermore, in such places it often happens that a general regard for the safety of the party must be your first thought. I have several times been tantalised by seeing most lovely bits which I could not take because I had to be hanging on with all my points of attachment to inferior holds, or carefully paying out the rope with both hands. According to my own experience it is only by constant watchfulness that you can hope, perhaps once in two or three climbs, to find yourself on an eligible standpoint with a takeable incident well arranged in front of you.

Nor can you hope to do much better even by climbing in the immediate neighbourhood of another party. The practice is one which is attended with considerable inconveniences of its own; and, apart from this, there are, I

imagine, in the whole of the Alps only a few spots where it is possible to take your stand at about the right distance from



another party as they are doing a difficult bit of climbing on a level with you. When you get to one of these, and then only, will you have found the initial conditions for doing work comparable with Mr. Wilink's. But there are a few such spots. The top of the Dent du Géant is certainly one. I would suggest to any aspirant that he should climb that peak with another party,

as Mr. Donkin did, and take a series of views from the lower peak as his friends go up that apparently vertical wall which leads to the higher. Such a series of snap-shots would be a unique possession.

Such are the somewhat narrow limitations of our work. Let us turn for a moment to the instruments with which we may hope to get such results as are attainable. I have no intention of discussing the rival merits of the thousand-and-one hand-cameras with which the market is now filled; my own work has all been done with the instrument known as the 'Kodak No. 3 Junior,' and I prefer only to speak of what I know by experience. In any case this instrument is that best suited to the beginner who does not want the trouble of learning any technical processes whatever. Most people are by this time familiar with the original 'Kodak,'

the little instrument which no self-respecting American tourist can be without. That machine is, however, worthless for the climber. The little round pictures which it takes are too small in themselves, and not worth enlarging. The technical reason for this is that the lens is of such short focus as to dwarf beyond recognition any objects which are not close at hand. Anything in the nature of a distant view is made simply ridiculous.

With the later and larger instruments of the same class the case is different. They have lenses of sufficient focal length, and produce pictures which will stand in favourable cases very considerable enlargement; and enlargement is now no longer the 'troublesome and expensive process' which it was when Mr. Donkin wrote in 1882.

With these larger instruments the makers (the Eastman Company) carry out the system which they introduced with the original toy-machine: 'You press the button, we do the rest.' When the exposures have once been made everything else can be left to them, down to the production of the finished print or enlargement. But I must confess that to me the development of my negatives has a charm of its own, and I am very reluctant to leave it in the hands of strangers. There is no more interesting occupation for a wet day in a mountain inn, and I think besides that when one has the personal interest as well as a fair amount of skill, one can often save by care and patience many an ill-exposed negative which a mere professional hand would throw away in disgust.

The chief difficulty with which I have had to contend is the extreme rapidity of the film. The light on a fine day among the snows is almost unmanageable even with plates of ordinary rapidity; with the celluloid film, which is much faster than any of the ordinary brands of plates, the difficulty is much increased. It is a great mistake to think that you cannot over-expose when you are taking an instantaneous picture. If your shutter gives an exposure of a tenth of a second when a hundredth would be ample, you over-expose as much as if you gave fifty seconds instead of five. My own camera has, however, means for shortening the exposure. These I unfortunately did not use at first; it was only after developing a number of negatives that I found out how much I had been over-exposing. This, by the way, forms a strong argument in favour of developing on the journey, instead of leaving it all till you return home. It is much easier to turn your bedroom into

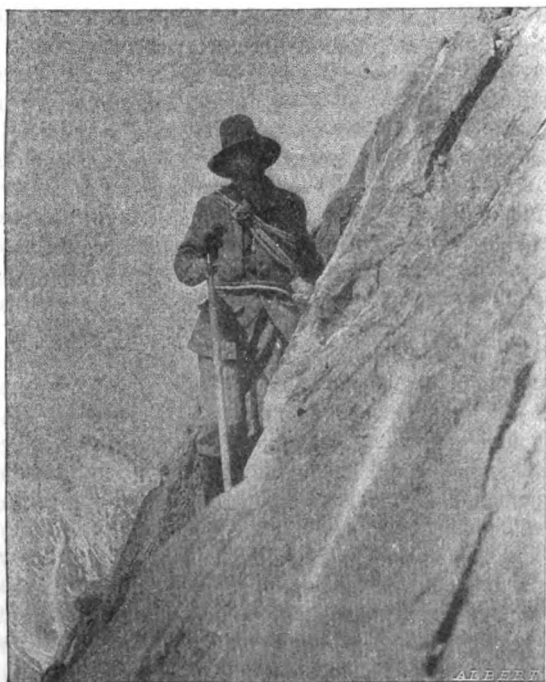
a temporary dark-room than the beginner might be inclined to suppose.

A few hints as to development in a bedroom may, perhaps, be useful. I confess to strong preference for the very unfashionable process of development by ferrous oxalate. In the first place it avoids all necessity for carrying anything in solution. With a couple of clean bottles, which one can always borrow at an inn, one can make sufficiently strong solutions of the oxalate of potash and the protosulphate of iron in a few hours. You must be sure, by the way, not to forget to put a fair-sized crystal of citric acid in each bottle. When you have your solutions you have no minute measurements to make; thus you are not in trouble if you break or lose your minim glass, as with pyro development. Indeed, you do not really require a graduated glass at all; the proportion of the two chemicals can be quite adequately measured with a spoon. Another great advantage of the process lies in the fact that the red colour of the ferrous oxalate forms a perfect protection if you happen to have any stray white light about, as you often have when you are making a dark-room with a couple of rugs stretched across a window. I have myself a strong feeling in favour of a certain amount of white, or at least yellow, light when I am developing; it rests the eyes, and makes it easier to find things, which are not always in the most obvious place when one is extemporising arrangements. The only red lamp I use is one of the simple threefold screens with pieces of translucent red fabric let into the sides. This takes no room in packing, and is unbreakable. The piece of tin which is commonly supplied to go over the top—sometimes with an elaborate little chimney—is quite useless, and gets too dirty to go into a portmanteau naked. If you want to cover the top, you can do it with a piece of brown paper or the like. But I generally leave the top open for developing; the light reflected from the ceiling is too weak to hurt your film in the few seconds which are required before it is safe under the developer; of course you would not leave it exposed for any length of time. Your bedroom candlestick will not always go conveniently into one of these threefold screens. An excellent candlestick can, however, be extemporised, if you are carrying a 'Kodak,' from one of the cardboard boxes in which the film is supplied. For a clearing solution after development and before fixing I use a weak solution of citric acid, which is tested by the taste; I should describe it as a fairly stiff

lemonade. One may have it always ready by putting a few crystals of the acid into one's carafe; but the worst of that is that one can hardly resist the temptation to drink off the whole of one's clearing solution when one comes back after a long day's walk. A better plan is to have a small bottle in which one can keep a strong solution. A few drops of this in a good deal of water will give lemonade or clearing solution as may be desired.

The whole of my outfit for developing purposes consists of the following list:—Six papier-mâché trays, four-ounce graduated glass measure, red screen, pair of scissors for cutting film, four dozen drawing pins for fastening negatives up to dry, spare box to hold film when taken out of camera. Chemicals: Two pounds oxalate potash, one pound protosulphate of iron, four ounces citric acid, four pounds hypo. This last must be taken in a glass bottle, as it is very hygroscopic, and would not improve the other contents of the portmanteau if left among them in nothing but brown paper.

These materials are amply sufficient for all the developing which I find time for on the off-days of a month's trip.



MOUNTAINEERING IN SOUTHERN COLORADO.

BY PERCY W. THOMAS.

(Read before the Alpine Club, Tuesday, May 5, 1891.)

IT was not with climbing intentions that I went out to Colorado last August. I went in the interest of the San Bernardo Syndicate, the possessor of a very promising silver mine in the rich mineral district of San Juan. My brother Wyan accompanied me.

We sailed from Liverpool in the *Teutonic* on August 6, when she made her 'record' passage from Queenstown to Sandy Hook in (to be exact) 5 days 19 hours 5 minutes, and on the evening of the 16th of the same month we reached Denver, after an uneventful journey from Chicago through the monotonous plains of Nebraska. I shall not attempt to describe Denver, and will only say that I found it a far finer city than I anticipated, and there can be no doubt that it is yet only in its infancy.

Our bedroom at the Windsor Hotel commanded a view of the Rockies, with Pike's Peak, 14,147 feet, the dominating point; and I confess that this first view of the range did not impress me. The peaks, though lofty, running up to 14,000 feet and more, do not present any striking variety of form; and I missed the distinctive individuality that belongs to most of the well-known peaks of the Alps. We spent a day in Denver, and then took the night train for Montrose, the junction for Ouray and the Red Mountain district. Our route lay over the Denver and Rio Grande Railroad—'the greatest scenic line of the world,' as its advertisements proclaim; and we certainly had a very beautiful and interesting journey. We passed through the Grand Cañon of the Arkansas and the Royal Gorge before we were up, but coming back we made a point of going through them by daylight. The railroad runs over a narrow track, the Arkansas River flowing alongside, and huge rock precipices tower upwards on either hand. Emerging from the cañon the line passes through a rocky, barren-looking country, not very interesting, up to Salida, but soon after commences the ascent of the famous Marshall Pass. The line, by a wonderful piece of engineering, winds up the mountain side in very steep curves and zigzags; and as evidence of severe grading I may mention that we passed a little watering station, each time of course at a higher elevation, no less

than four times. The summit of the pass is 10,852 feet above sea-level. The descent on the other side is nearly as steep, and looks alarmingly so for a railway train to go down; but a pilot engine is sent ahead to clear the track, and the train follows slowly after. Accidents occur sometimes notwithstanding these precautions—indeed, one happened a few days after we went over, resulting in loss of life; but they usually befall freight trains, where less care is exercised.

Beyond Gunnison is the entrance to the Black Cañon, which in my opinion is even grander than the Grand Cañon. The rocks are of strange form, and very precipitous; and, indeed, anyone fond of rock-climbing for its own sake might find plenty of occupation here, and of a pretty stiff kind, too! The show rock is what is known as the Currecanti Needle, which stands out by itself in the centre of the cañon, and has a very striking appearance. An ex-sailor who was working on the railroad—an Englishman, I believe—once climbed to the summit and left a flagstaff there as a record of his ascent, and he is said to have been the only man who ever succeeded in getting up.

At Montrose we changed trains, and I began to realise that we might by-and-by find something in the way of mountain scenery more in harmony with my ideas. Before us, and rather to our left, rose the mountains of the Uncompahgre group—a jagged ridge of striking rock peaks standing out grandly against the clear sky of a glorious summer's evening. I doubt if this range has been explored much. I could learn little about it, but the distant view made me think that amongst those queer-looking rock-teeth might be found a climb or two worthy of the name.

We were entering the Red Mountain district, famous in mining annals; and Ouray, our destination, combines the attractions of a mining camp and health resort. It is very prettily situated, steep mountains surrounding it on three sides, and its elevation is 7,640 feet above sea-level.

To our great pleasure, Mr. Mason, the managing director of the San Bernardo, was awaiting our arrival at the station, and we found that he had made all arrangements for our journey to the mines next day. And a long drive it was, some 75 miles over the most abominable roads I have ever seen out of Spain; and the extraordinary part was that one pair of horses did it, but, as Mr. Mason took care to explain, they were not the Company's, having been borrowed for the occasion from a neighbour!

We left Ouray at daybreak, and were in at Trout Lake, our destination, about half-past seven that evening. The scenery we passed through was not, on the whole, very interesting, but the weather was lovely, if a trifle hot.

They were busy building a new railroad along this route, which had brought a number of very rough (or 'tough,' as the term is there) customers into the district, and quarrels and shooting affrays were of ordinary occurrence, while, only a few days after we went through, the stage coach with the mails was 'held up' and robbed within a short distance of the place where we had lunched. We were never molested, and I would say here that, rough as the country is, I think it a mistake for strangers to go about armed, for one has a much better chance of not being interfered with if one does not make a profession of carrying a weapon. Next day we were able to realise what a charming spot we had come to. Trout Lake is 9,700 feet above sea-level, and the Lake is as beautiful a little lake as any I have seen. Hemmed in on three sides by the mountains of the San Miguel Sierra, brilliant in their colouring, with a pine forest growing to the water's edge on one side, and meadows bright with flowers sloping upwards on the other, it is a spot to be remembered pleasantly for all time. I think it is the purity of the Colorado atmosphere which lends sometimes a colouring, the like of which I have not seen in the Alps, and when the evening light is shadowing the peaks there comes over them a soft blue hue, which is exquisite in its fairy beauty. Our quarters at the little inn, which is kept by Mr. Chess. Greenwood, a hero of the great Civil War, and his wife, were very comfortable, if primitive, and our hosts did all they could to make us feel at home.

For some days my time was pretty well taken up with the affairs of the mine, but I made one ascent with our foreman, Mr. Murphy, to the highest point of the San Bernardo Mountain. The view was a fine and extensive one, and it gave me a fair idea of the lie of the land, and enabled me to locate Mount Wilson, the highest point in the San Juan, 14,309 feet, according to Nell's map, published in 1889; though some authorities give a slightly lower elevation. But I was most attracted by a marvellous rock-tooth rising out of the end of the ridge of Sunshine Mountain. That, my companion informed me, was the Lizard's Head, but he could tell me no more beyond that someone 'claimed' to have been up it. Even at that distance it looked formidable enough, but where man has been man can go, and if I had

the chance I determined to make its nearer acquaintance, provided I could find a suitable companion.

In this I was fortunate. Mr. N. G. Douglass, our second in command at the mines, I discovered to be an ardent sportsman (sporting in the Rockies means being a climber too), and quite ready for anything I proposed. He suggested taking rifles, as big game—bear, deer, and mountain sheep—was often met with where we were going; and so, armed in this way, and taking blankets and provisions on a led horse in case we had to camp out, we started up the gulch to the left of the San Bernardo Mountain. Some delay arose at starting, and we did not get off till 5.40 A.M. We continued up the gulch, and at its head passed through a pine wood and down again into meadow land, bordered on the opposite side from which we had entered by the long ridge of Sunshine Mountain, with the wonderful Lizard's Head standing up against the sky line at its extreme edge on our left.

We tethered our steed, breakfasted, and shouldering our rifles, made our way across the meadow towards a point which would bring us nearest our mountain.

On the opposite side of the meadow, we entered a fir wood again, and here we went softly, for there were traces of deer; but beyond traces we saw nothing, and we got above timber line without sighting game. We were nearing the Lizard's Head now, and at each moment it looked more formidable till, as we got up almost to its foot, our chance of making a successful ascent seemed as remote as anything could well be.

And now, as we mounted, I began to experience, in a degree which I had never previously felt, even at much greater altitudes in the Alps, a most inconvenient difficulty in breathing. As a rule, I have not been troubled by this. Occasionally, when out of training, I have experienced the feeling during the first expedition of a season, but only to a trifling extent. I was not in bad condition in the Rockies, and although, hitherto, I had always believed that shortness of breath and want of proper training were one and the same, I am now inclined to modify my opinion to the extent of admitting that climate may have something to do with it, and I am the more disposed to think so from the fact that I heard many of the natives complain of the same inconvenience.

We had no trouble in getting right up to the foot of the Lizard's Head, but beyond the foot we got no nearer to the summit. The sides are perfectly precipitous, and only at one

point did it seem possible to get on to the rock at all. We were able to make our way round the base on three sides to the ridge running northwards towards Sunshine Mountain; but it did not seem to me altogether a safe proceeding, as the rock is composed of a limestone formation, and is crumbling away, as was evidenced by the quantity of *débris* strewn round its base.

I was making for a big boulder on the ridge when an exclamation from Mr. Douglass made me look round. And a grand sight met me. Rising straight up from the ridge, sharply defined against the bright blue sky, towered the Lizard's Head, on this side absolutely precipitous from base to summit, for perhaps a sheer 600 feet or more. But one mountain that I know of can bear any comparison to it, and that mountain is the Aiguille du Géant. I was the more surprised at this grand appearance, as, although the mountain looks very fine from other points of view, there was nothing to lead me to expect a sight so imposing, and I think Mr. Douglass, who had never been up there before, was quite as much impressed as I was. We sat gazing for a time, and I bitterly regretted not having our camera, a mishap to which, unfortunately, prevented our taking any photographs while we were away.

We continued after awhile to follow the ridge towards Sunshine Mountain, for we found some traces of big horn or Rocky Mountain sheep, and were in hopes of getting within range of one of those wary animals, for one has the best chance by stalking the quarry from above.

We spent the afternoon in this way; but, although we found plenty of fresh tracks, we never got a shot, which after all was perhaps fortunate, as I discovered subsequently that the fine for killing one of these animals at that season of the year amounts to \$50.

We had a good scramble, and when we got back to Trout Lake towards evening, we felt we had earned our supper.

The next few days were spent in visiting various mines, and although I can assure you that I got through a considerable amount of pretty stiff climbing through drifts and shafts, stipes and winzes, a description would be out of place here. My mission, however, took me through some very beautiful scenery, and over some high passes, and in the course of a few days I gained a very fair idea of the topography of the district.

The Lizard's Head having balked me, my thoughts turned towards Mount Wilson.

We had tried, not very successfully, to gather some information as to the best means of attacking the peak, and it was thought we should learn something more definite if we rode over to the hot springs of West Dolores, on the other side of the range, where the inhabitants of the district do most resort to be cured of rheumatism.

Accordingly, on the afternoon of August 30, we left Trout Lake, our cavalcade consisting of Mr. Douglass, my brother, and myself.

After following the road to Rico for a short distance, we branched off across the meadows, over a faint bridle path, and after awhile rode through a pine wood, and then descended into a narrow ravine or gulch, through which a stream from Mount Wilson runs, on its way to the valley. At this point we had a very fine view of the massif of our mountain, which with its immediate neighbours, fine peaks, but apparently nameless, and with the wonderful Lizard's Head rising at its flank, formed a panorama worthy to compare with many a one in the Alps.

It looked to me as if a camp at the head of this gulch would form an admirable base from which to attack the mountain; but it also looked as if the climb from this side might prove a stiff one. In the event of failure from Dolores I made a mental note of this.

We continued our ride up some steep grass banks, and as we mounted the view became more extensive. It was lovely weather, and as the afternoon wore on into evening the lights and shadows became as beautiful as anything I have seen. We had passed into an open park-like country—a 'mesa,' as it is termed in Colorado—bordered on either hand by pine forests, which by their sombre colouring contrasted pleasantly with the golden hues of the meadow land and the soft blue tints upon the distant mountains. My brother compared the view to one he was familiar with in Perthshire, and anyhow I found it very beautiful. The sun was setting as we rode up to the collection of rough log huts forming the settlement of West Dolores. The place was full, but they managed to give us a room to ourselves, containing a couple of shakedown, one of which my brother and I shared, while Mr. Douglass took the other. We had a capital view of Mount Wilson from our cabin, and Mr. Douglass and I had a good look at it. I saw, as I thought, two distinct routes by which an ascent would be feasible; but the local people laughed us to scorn, and declared that no man could climb such steep rocks, and that if we made

the attempt they 'guessed' they would be seeing us back there if we didn't get benighted. They all persisted that we should never get up, and the balance of opinion was that the only chance was to circumvent the mountain by way of a mine called the Silver Pick, and one gentleman went so far as to declare that that was all right, as he himself had been to the top that way. As this same gentleman subsequently said he had been up the Lizard's Head, but, when pressed, admitted it was only 'as far as one can ride'—an ascent on a par with the Frenchman's ascent of Mont Blanc, 'jusqu'au Montanvert'—I am inclined to discount the statement. They so confused us with advice that Mr. Douglass whispered to me that we had better 'gang our ain gait,' and expressed himself quite willing to try any route I chose to select.

That evening we had an amusing experience. There was but one room to sit in, and here the miners and all of us congregated. There was chewing and spitting galore—we had got used to that by this time—smoking, and some card playing, but what amused us were the stories. Told in the quaint style they were, they were highly entertaining. Each one became more wonderful than its predecessor, till by the time we got on to the subject of bears we were prepared for pretty well anything, and in the States when once you get on to bear stories Ananias has to 'take a back seat.' With the prospect of an early start we turned in betimes; but in the small hours I woke to hear the rain pattering down on the roof of our shanty in a most distressingly persistent manner. This continued all the morning; but in the afternoon a rapid clearance took place, and Mount Wilson looked out from the mist, thickly powdered with fresh snow.

We had an idle day. My brother tried his hand with the trout, while Mr. Douglass and I amused ourselves by working out what our mine ought to do, a rather fascinating employment! The weather improved still further towards evening, and our prospects for next day brightened considerably.

We had another amusing evening, and an old-time miner became eloquent on the subject of his Australian experiences in the early days of the gold rush, which were rather interesting. We ended up with a most luxurious swim in the hot bath.

We were up before 6 next morning, and were glad to find the weather fair. We breakfasted, saddled our horses,

and were off by 6.30. For a time it was quite chilly as our route kept us in shadow. My brother left us before long to return to Trout Lake, whilst we rode on towards Mount Wilson. There was no trail to speak of, and in trying to find the best way, we had to lead our horses uphill through long grass, up to our knees, covered with hoar frost, which saturated our clothing in an uncomfortable manner. We then threaded our way through a pine forest; but with the great massif of Mount Wilson rising high above us, we could not go far wrong, and in due time we emerged into the open, and our route became clear. A few deer bounded by us, and were lost to sight in the forest; but we did not get a shot. At the limit of timber line we dismounted, and tethered our horses, and then commenced the serious part of the expedition.

We had a long look as we drew near to the foot, and my belief in the feasibility of the routes I had picked out increased. We both thought a route by the arête best worth trying, so we made for that. We commenced the ascent over loose shale, where it was a case of taking two steps forward and losing one, a tedious proceeding, and before we reached the arête I again felt that difficulty in breathing I had before experienced in these parts. However, we were up at last, and then the real climb commenced. I had always fancied that climbing in the Rockies would be mere child's play by comparison with the Alps, but here I found something more nearly akin to one or two well-known rock climbs than I expected. Indeed the climb along that arête, without presenting any real difficulty, was not to be despised, and had not Mr. Douglass been a good and plucky climber we might never have got to the top. Several places required climbing, and once we had to traverse some smooth rocks *à cheval*. The climb seemed long from the point where we took the arête to the top, and Mr. Douglass more than once when we reached a false top and found we had further to go expressed the opinion that it was 'a very discouraging mountain.' But the goal was reached at last, and at 12.40 we stood upon the summit. Unfortunately at this moment the weather, which had been threatening for some time, turned bad, and a cloud swept down upon us and it began to snow a little. Most of the view which I had been particularly anxious to see was obliterated, but here it was not as it is in the Alps on similar occasions, for, in spite of the mist, on one side, we got an almost uninterrupted view of the far-off plains of Arizona and the Great Divide

in Utah. There was no trace on the summit of any human being having been there before, so we erected a cairn and left our names, while Mr. Douglass planted a staff where I expect it will remain undisturbed for many a day. As we were fixing this staff it hummed exactly as I have heard ice-axes do in a storm, although a plain stick without any metal on it at all. It was somewhat chilly up there, so we did not rest long. We followed the arête for a short distance and then we thought we would try to descend by a couloir not far below the summit, which I had marked previously as a possible route up. For a while it went very well, but about half-way down it narrowed, the walls on either side rising smooth and perpendicular above us. Still the descent was not difficult, but it presently became troublesome from the fact that a stream flowing out of the mountain side was coursing down the couloir, and as it was only possible to descend where the water was coming down we got pretty well drenched. One or two nasty bits it required determination to descend, for the rocks were steep and the water leapt over them in quite a considerable fall. It needed care, too, for the rocks were worn smooth by the action of the water, and were very slippery in places. And here, again, I must bear testimony to Mr. Douglass's pluck and climbing powers, for to one who was not accustomed to Alpine work this descent might very easily have become alarming. We got down without mishap, but I felt glad that we had not selected that route for the ascent.

We soon rejoined our horses, saddled and mounted them, and rode off towards Trout Lake, leaving our friends at Dolores to think what they pleased about us. Search-parties, as far as I am aware, are not organised in the Rockies on the smallest pretext, so that it really did not very much matter whether they 'guessed' we were lost or not.

The weather had become beautifully fine again, and we had a charming ride back, except for a portion of the way, where we had to force our way through the forest. Mr. Green, in his book on 'The Selkirks,' has recently described the trouble attending this; and I can endorse what he says, and sympathise with the annoyance he experienced, although our difficulties were as nothing to his. It is perfectly wonderful, though, what these mountain horses can do. We saw more deer, but we had no time to go out of our way to stalk game; and as it was it was nearly dark before we rode into Trout Lake.

This ended my mountaineering in Colorado, such as it was, with the exception of a ride over the range by the pass between Telluride and Ouray, 13,000 feet or so above sea-level. This ride is worth mentioning on account of the splendid view we got of the great mountains of the district, with Mount Wilson standing out grandly as the monarch of the range. The pass is a nasty one for horses, and accidents on it are not rare.

We had quite a race to catch the train at Ouray, and I am sorry to say that the inducements held out to our steeds to hurry up resulted in the annihilation of two umbrellas and a fishing-rod! However, we got there in time, which was lucky, for had we had to delay our journey a day longer we should have come in for a bad railway accident.

The impression gained by my brief experience was that the San Juan district of Colorado is quite worth a visit by an organised mountaineering party, and without guides. There are plenty of high mountains, for in the State of Colorado alone there are some 130 measured peaks, ranging in height from 13,500 feet to 14,500 feet, the highest point being the dominating peak of the Sierra Blanca, 14,464 feet. The climate is delightful, the scenery is lovely, and in August and September there is very little rain as a rule. There are not the grand conquests to be made that there are in the Caucasus, the Andes, the Himalayas, and elsewhere; but there are many untrodden peaks, and, I will venture to say, many an interesting rock scramble, while if any member of the Club wishes to cover himself with glory let him climb, if he can, the Lizard's Head.

But it is not for climbing alone that a visit to Colorado is interesting. You meet in the mining districts with a state of society similar to that described so vividly by Bret Harte. Life is held very cheap; the majesty of the law has hardly a proper terror for evil-doers; crime as often as not goes unpunished. All men are accounted equal. And yet with all their peculiarities I like these Colorado folk. Going, as my brother and I did, prepared to accept the doctrine that one man is as good as another, we got on famously. We met with courtesy, almost invariably, and I am bound to say I found something very refreshing in this spirit of independence on the part of all, from the humblest upwards. We had to shut our eyes and ears to a good deal, but for that we were prepared.

We met with one or two amusing (in one case, perhaps, even alarming) incidents, of which I think the following

worth relating. We were sitting one evening in the saloon adjoining the hotel at Trout Lake, when there appeared at the door an extremely formidable-looking individual. He was dressed in rough mining costume, with the inevitable slouch hat and trousers tucked into the boots. Villain was written on his face, which was red and bloated, with eyes suggestive of an undue attachment to the flowing bowl. He stalked in with hardly a 'how d'ye do'—they say 'how do you do' in Colorado instead of 'good morning' or 'good evening'—and sat himself down. I saw the others, who were mostly miners from the San Bernardo, did not seem to much appreciate his company, and they went on with the conversation without taking any particular notice of his entry.

But very soon he put in his word, and with statements of such a kind that they seemed to be made only with the view of provoking contradiction, which out there is usually the prelude to a row. At last, on some unusually glaring misstatement being made, my brother in a rash moment ventured to differ somewhat decidedly. At this our visitor, like the Ancient Mariner, 'fixed him with his glittering eye,' and, after watching him thus for a little, rose, and touching him on the shoulder, somewhat to my consternation, said, 'I'll thank ye to come outside.' Now being invited to 'come outside' has generally a more alarming significance in Colorado than elsewhere. I saw the miners exchange looks and the barkeeper's hand wander furtively towards the shelf where the bar revolver lay always loaded and ready for use; but my brother stood up like a man and went out without hesitation. For a few seconds I experienced a feeling of suspense, and was on the point of following them, when back they came in a most jaunty manner, and, going up to the bar, my brother asked straight away what he would take to drink! I might have spared myself anxiety. It turned out that when they got outside our unwelcome guest had nothing more terrible to say than this: 'Stranger, I hev bin on the drunk for three days, and I haven't a cent. Will you stand me a drink?'

ALEXANDER SEILER: REMINISCENCES.

ALL Alpine travellers will hear with sincere regret of the death of Herr Alexander Seiler on July 10. I may say 'all' with scarcely an exception, for every Alpine traveller has visited Zermatt, and no one can have visited Zermatt during the last forty years without becoming familiar with the best of all landlords of Alpine hotels. On my last visit to Zermatt, I spent some ten days of perfect winter weather at the familiar Monte Rosa. Nothing could be more delightful. The hours of sunshine under the shadow of the Matterhorn are brief in January, and I did not care to attempt any long expeditions; but I strolled about, often recalling old days, and, therefore, constantly reminded of Seiler's hospitality. I had, indeed, daily reminders of his continued kindness, for he had opened the hotel expressly for myself and my friends, M. and Mme. Loppé, and every post brought up luxuries for our table, which were all the more welcome in the midst of Arctic scenery. I climbed to the old 'Riffel' inn, where Seiler had superintended the preparation for my first successful mountaineering expedition, and visited the monument which commemorates Hinchliff, always Seiler's most favoured guest, and lunched in the deserted *salon* of the 'Riffel-Alp Hotel,' which is a solid proof of the prosperity which Seiler had most deservedly won since our first acquaintance. That acquaintance began in 1858. Not many years earlier, if I recollect rightly, Professor Forbes, on his famous visit to Zermatt, had lodged with the village doctor.* The stream of tourists had rapidly increased, and in 1858 Seiler occupied the 'Monte Rosa' and the 'Riffel' inn, while the 'Mont Cervin,' rather superior in appearance to the 'Monte Rosa,' was in the hands of a competitor. The 'Monte Rosa,' however, soon became the favourite resort of all mountaineers—not as in itself more attractive, but from the unaffected friendliness of M. and Mme. Seiler. Every traveller, especially every true lover of mountain expeditions, was attracted to them, and if by any unlucky accident his first stay had been at the 'Mont Cervin,' his second and all succeeding visits were certain to be paid to the 'Monte Rosa.' Pleasant gatherings we had in those days! The well-known picture in Mr. Whymper's book, in which he has brought together the most familiar figures of the time in the little open space fronting the 'Monte Rosa,' is not, of course, strictly historical, but it represents a combination of the scenes which, with incessant variation in the performers, were constantly repeated during the season. Long and sociable were the talks in that shifting 'tobacco parliament;' many were the expeditions arranged with famous guides and trusty companions; and Seiler was always at hand with

* Dr. Lauber's house in course of time developed into an inn, and was sold by him to Herr Seiler in 1854. See Mr. Coolidge's *Swiss Travel and Swiss Guide Books* for a full account of the growth of Zermatt and its hotels. A well-informed writer in *Black and White* (July 25, 1891) says that Seiler had been a dealer in cheeses and cattle before buying the 'Monte Rosa' in 1854. He says that in later years he had often to provide for 1,800 or 2,000 guests daily.

useful suggestions and hearty willingness to co-operate in carrying out the designs there discussed and decided upon. As time went on, Seiler's prosperity naturally increased. He obtained by degrees the monopoly of innkeeping in one of the two or three most famous Alpine centres. The task of organising the army of waiters and hangers-on, and of sending up supplies from a distant base to this remote village, was no slight one; and the fact that it was successfully carried on for so many years, in spite of many obstacles from the natural conservatism of the worthy peasants of the district, shows that Seiler possessed great administrative abilities. Other landlords rose and vanished, bankrupt, or glad just to escape bankruptcy; but Seiler steadily flourished, and one could hardly conceive of Zermatt without him, any more than one can conceive of Zermatt without the Matterhorn, or than Crambe could conceive of a Lord Mayor without his gold chain and official robes.

The relation between landlord and guest is seldom quite harmonious, any more than the relation between publisher and author; and the reasons are partly the same. Whether one man lives upon another's talents or upon his amusements, the other is apt to consider himself in the light of a victim. We Alpine travellers, indeed, are generally enthusiastic—perhaps, I may say, are foolishly enthusiastic—as to the merits of our guides; for the guide is generally a poor man, and has shared our dangers and our triumphs. But we regard the landlord—as the limbs in the familiar fable regarded the stomach—as the fat, useless, lazy organ which does nothing but thrive upon the exertions of its subordinates. We forget too often, in particular, that a Swiss innkeeper has to make his harvest in a period of two or three months, and is liable to lose his whole profits by a few weeks of bad weather. As great caravanserais have taken the place of the friendly little hostelries, and a guest is a mere No. 365, instead of a personal acquaintance, the relation has become less human than of old. Now, Seiler began as an innkeeper of the old type. He had not so many guests as to be unable to have some personal relation to each. Everybody chatted with him, and everybody found him cordial as well as courteous. When an old friend turned up, or left him at the end of a visit, there used to be pleasant little meetings, at which Seiler provided plentiful supplies of punch and acted the host in the most amiable and generous fashion. We were as much at home in his sitting-room as old Izaak Walton in the fishing-inns, the mere description of which causes one's mouth to water. Though I had considerable experience of the inns of the time, I do not remember one to which I returned with such a sense of returning to an old home. Guides, too, were always anxious to go to the 'Monte Rosa,' where they were made comfortable, although Seiler had no need to resort to those questionable means of attracting guides for which their employers feel no gratitude. Seiler lived to be an innkeeper on a very different scale, the proprietor of two or three great establishments, replete, as the advertisements say, with every modern convenience. But the remarkable thing was that he was never spoilt. To some of us, indeed, it was matter of regret, though we could not regret Seiler's

prosperity, that the charming little inn of old had become only part of a large establishment, where the true mountaineer was elbowed and eclipsed by masses of tourists—no doubt excellent people in other respects, and not to be blamed for their sightseeing, but yet somehow incongruous with the old *genius loci*. Seiler, however, retained the kindly feelings of his old visitors. The change which has come over Zermatt is only part of a much wider change, of which it is useless, and would therefore be idle, to complain. It was no small merit that, in spite of that change, he preserved the qualities which had first gained for him the respect and friendship of a whole generation of travellers. Even Zermatt, great as are its charms, will have perceptibly less attraction for some of its old visitors now that they can no longer expect the cordial reception upon which they always counted when plodding up the long valley or descending from one of the mighty mountain ridges into the familiar little street. On looking back to the time when it was most familiar to me, I am really surprised to find how much the whole impression of the place seems to be permeated by the associations of Seiler's personal character. There are, I confess, one or two other mountain centres which I prefer upon their own merits; but when I think of Zermatt, I seem to be thinking of an old home—not a mere place of temporary sojourn—and chiefly, I believe, because I was there received almost as a member of the household of a thoroughly kindly, honest, friendly, and capable man. May Zermatt flourish, and may Seiler's example be followed by all his representatives! must be the wish of every member of the Alpine Club. It is a satisfaction to have known anyone for whom one has felt hearty respect and in whom one has recognised genuine and unobtrusive worth. It is rare enough to have such an experience in regard to members of a class to which one's relations are generally temporary and not always satisfactory. But I am sure that no one could have passed many days under Seiler's roof without becoming convinced that an innkeeper, without ceasing to be a thoroughly good man of business, might win the regard and confidence of his guests and establish a permanent claim on their affectionate memory.

L. S.

THE EARLY ATTEMPTS ON MONTE ROSA FROM THE ZERMATT SIDE.

By W. A. B. COOLIDGE.

STUDENTS of Alpine history are well aware that the published accounts of the early attempts on the *Höchste Spitze* from the Zermatt side in 1848 and 1851 present considerable difficulties of interpretation, so that some persons have been inclined to deny that any summit at all was reached, at least in 1848. (The 1847 party did not go beyond the *Silber Sattel*.) Of course Messrs. R. and W. M. Pendlebury and C. Taylor in their famous ascent of Monte Rosa from Macugnaga in 1872 were the first to traverse the whole arête from the frontier ridge to the summit, while later parties

coming from the Silber Sattel or the Zumstein Sattel have also repeated part or the whole of that portion of the 1872 expedition. On August 3, 1887, in order to see for myself how matters really stood, I made the ascent from the Silber Sattel, but while I found it much easier than I expected, and though I took very careful notes of everything I saw, I did not succeed in clearing up the mystery. Yet the key was in my hands, as in those of several other climbers, though we none of us apparently thought of applying it to open the lock in the door which barred our way. It was only in the autumn of 1890 that the solution of the puzzle suddenly flashed across my mind. I was a little bewildered at first by its simplicity, but on communicating it to Mr. W. M. Conway I found that he entirely agreed with me. And hence I am led to make a note of it in these pages, in order to settle once for all a troublesome point, premising that the solution may very possibly have been suggested before, though it was new to both Mr. Conway and myself.

The problem is this: What was the point which was ascended on August 12, 1848, by Professor Ulrich's guides, and on August 22, 1851, by the two Schlagintweits, and possibly by other parties in 1854, as to whom anon?

The view commonly accepted is that all these parties climbed the eastern horn of the highest ridge, or the Ost Spitze: but this theory fails to explain several doubtful points in the narratives of these expeditions.

1. *The Situation of the Peak Climbed.*

Professor Ulrich is rather vague as to this, but the Schlagintweits are more precise, and as it seems certain that both parties reached the same point, we may take their account as sufficient for both. When standing on the Silber Sattel they describe *two* points as visible—one to the west, which is defended on all sides by extremely steep walls of rock and is the higher of the two; the other rather more to the east, which is lower and which is the one they reached.

Now I think I am right in saying that though from the Silber Sattel you can see two points above you, these are *not* the Höchste Spitze and Ost Spitze, but the latter and a peak to the east which we will call X for the moment. My recollection is quite distinct on this matter, and is borne out by the very rough view (*valeat quantum*) which the Schlagintweits give on Plate X. of the atlas accompanying their book.* Hence, as the more easterly of the two peaks was climbed in 1848 and 1851, it must be not the Ost Spitze but 'peak X.'

2. *Difference in Height between the Peak Climbed and its Neighbour to the West.*

Here we naturally turn to the observations made by the Schlagintweits, from which it results that the peak they climbed was about 7 mètres (just over 22 feet) lower than its westerly neighbour. It is

* This, in a reduced form, is the strange view entitled 'Schlagintweit's Stuhl,' which appears in the *Murray* of 1856, and for several years afterwards. See my *Swiss Travel*, pp. 78-9.

well known that many who have been on the Ost Spitze or on the Hochste Spitze have been struck *—certainly I was very much struck in 1887—by the extremely small difference in height between these two peaks. Now the difference between the Ost Spitze and peak X is very perceptible, as may be seen by consulting the fine photograph numbered 172 in Signor Sella's collection, which is taken from the Signal Kuppe. This fact also favours the claim of X to be the peak climbed in 1848 and 1851.

3. *Appearance of the Summit Climbed.*

Both parties agree that it was extremely sharp. Only one of Ulrich's guides could stand on the top at a time; the others had to remain below, astraddle on the ridge. The Schlagintweits remark that its S.W. slope was less steep than its N. side. All this does not agree very well with the Ost Spitze, but admirably with peak X.

4. *View from the Summit.*

Both parties agree that from their peak they looked straight down on Macugnaga (the Schlagintweits marking their peak on their map as being on the frontier ridge and a good bit E. of the Hochste Spitze), the latest version of Professor Ulrich's story emphasizing this fact by saying that the precipice descended sheer 8,000 feet to Macugnaga. Now, whether or not you can see Macugnaga from the Ost Spitze, it is quite certain that that valley does not lie immediately below, as *the Ost Spitze is not on the frontier ridge, but it does so lie when seen from peak X.*

And these last words supply the key to all the difficulties. When we examine carefully the topography of the highest ridge of Monte Rosa, we find that it projects as a buttress towards the west from the great frontier ridge which runs high above Macugnaga between the Zumstein Spitze and the Nord End—in other words, this buttress *lies entirely within Swiss territory*, and the Dufour Spitze is therefore the highest summit entirely in Switzerland.† This buttress or highest ridge is crowned by two teeth of practically the same height—the Dufour or Hochste Spitze and the Ost Spitze. E. of the latter it sinks somewhat to a gap and rises slightly again on joining the frontier ridge, the junction being thus marked by a rocky point or knob which, being on the frontier ridge, is therefore rightly named on the Siegfried map the Grenzgipfel—and *the Grenzgipfel is my peak X.* In other words, I believe (and Mr. Conway agrees with me) that the 1848 and 1851 parties did not climb the Ost Spitze, but the lower Grenzgipfel, and that if we assume this all the greater difficulties enumerated above, as well as some minor ones as to times, &c., vanish entirely. The Grenzgipfel is quite a different peak from the Ost Spitze, and the two are carefully distinguished in Dr. Taylor's article on his ascent of Monte Rosa from Macugnaga, when the whole buttress from the frontier ridge to the Hochste Spitze was for the first time traversed.‡

* See *Alpine Journal*, vol. vi. p. 244.

† *Alpine Journal*, vol. xiii. p. 264.

‡ *Ibid.* vol. vi. p. 242.

It was on the Grenzgipfel that his party left a handkerchief under a stone, and then they went on to the Ost Spitze. Despite this very clear description, the two points seem later to have been jumbled together. The Siegfried map marks the Grenzgipfel accurately, and gives it the height of 4,631 metres, as against 4,638 given to the Hochste Spitze. This is just as it should be. The new Italian map in a slovenly way confounds the two points, placing the Hochste Spitze on the frontier ridge, perhaps in hopes of being able to claim half of it, in defiance of all topography. Climbers ascending Monte Rosa from Macugnaga or from the Zumstein Sattel must pass over the Grenzgipfel; those coming from the Silber Sattel strike the highest ridge just W. of the Grenzgipfel, and need not climb it unless they please.

One small point remains to be settled. Granted that the 1848 and 1851 parties climbed the Grenzgipfel, what point was ascended by the three English parties in 1854? It is generally assumed that they all climbed the Ost Spitze, but I think we must distinguish between them.

Mr. D. S. Bird on July 1854 reached a point 100 feet below the summit, and this (allowing for a vague estimate of the height) must, I think, mean the Grenzgipfel only. On the other hand, I am of opinion that Messrs. G. and C. Smyth on September 1, Mr. E. S. Kennedy's guide on September 8, and Mr. E. S. Kennedy himself on September 11 one and all reached the Ost Spitze, though why they did not cross the not at all difficult ridge to the Hochste Spitze I cannot make out.

Hence my conclusions are that the Grenzgipfel was climbed in 1848, 1851, and July 1854, and the Ost Spitze in September 1854, while Messrs. Pendlebury and Taylor's party climbed them both in 1872.

The original authorities from which I have got the information utilised above are: (1) For *Ulrich's* party, 'Mittheilungen der Naturforschenden Gesellschaft in Zurich,' i. 319-320 (1849); Ulrich's 'Die Seitenthaler des Wallis,' 69-71 (1850); 'Berg- u. Gletscherfahrten,' i. 260-263 (1859). (These accounts vary slightly and are here placed in the order in which they were published.) (2) For *Schlagintweit's* party, the work by the two brothers, entitled 'Neue Untersuchungen uber die physikalische Geographie und die Geologie der Alpen' (Leipzig: 1854), pp. 77-78. (3) For *the English parties of 1854*, the *second edition* (the section does not appear in the first) of Messrs. Hudson and Kennedy's 'Where's there a Will there's a Way' (London: 1856), pp. 122 sqq.

ALPINE NOTES.

THE PUNTA DELL' ARGENTERA.—This peak (10,827 feet), the loftiest summit of the Maritime Alps, was first ascended on August 18, 1879, by Mr. Coolidge, who explored the whole of the highest ridge, climbing its three highest points.* On all these his guides built cairns, his

* *Alpine Journal*, vol. ix. pp. 340-1.

card (in an empty preserved-meat tin) being left in that on the central point. This card was found in 1888 by an Italian party,* but the tin was empty in 1890. Several parties of climbers, Italian and French, have, since 1879, reached various points on the Argentera ridge; but their narratives were far from clear, owing to mist and other causes, so that from them it was impossible to determine the precise summit attained in each case. The latest number (No. 11) of the 'Bulletin de la Section des Alpes Maritimes du Club Alpin Français' (pp. 50-55) contains a short paper, by M. Maubert (who in 1889 twice gained the S., or highest peak, and in 1890 that on which is the tin), which clears up matters considerably. He has made careful investigations into the whole question, and his conclusions may be summed up under two heads:—

(1) There are properly two main summits on the highest ridge of the Argentera, of which the S.-most is distinctly the highest, while the N.-most is that on which the tin and card were left in 1879 (Mr. Coolidge's 'central peak'). Mr. Coolidge's N. peak is still lower, and does not deserve any special name, having been reckoned and climbed only in order to complete the exploration of the mountain.

(2) The S. and higher summit has been attained in 1879 and 1889 only, other parties having merely reached the N. peak or some lower point. The former summit is considered by M. Maubert to be rather S. of the figures 3,300 mètres on the Italian map, and its height (according to that gentleman's observations) is 3,317 mètres (10,883 feet).

COL DU TOUR NOIR.—I have received, by the kindness of the author, a copy of a paper from the 'Echo des Alpes,' entitled 'Le Col du Tour Noir—second passage (premier du côté suisse), le 28 juillet, par H. George Fordham.' Judging by the photograph appended to the paper, on which Mr. Fordham has marked his route, I believe that his party crossed the ridge a good way to the S. of the original pass. When I saw the head of the Glacier de Saleinaz for the second time in September, 1867, I was unable to identify the point where we crossed the ridge in 1863, or our exact line of descent. At that season the bergschrund was utterly impassable, and the whole wall looked so icy that it would have been probably impossible to cut steps enough during a day to ascend it. But my impression was then, and always has been, what Mr. Fordham's experience confirms, that, assuming the bergschrund to be passable from below, and the surface not all hard ice, the wall might be ascended with very severe labour almost anywhere, and that no line of ascent was likely materially to diminish the labour. I do not think the Col can be identified with any certainty from the Saleinaz side, but anyone who cared to go up from the Glacier d'Argentière could easily verify it. The Col is not far south of the Aiguille d'Argentière, perfectly easy of access, and from the level of the glacier looks a marked pass. I remember that we saw another similar gap, a little way to our right, or further S., and apparently a trifle higher, which we intended to have tried, had our first venture proved unsatisfactory. This may have been the point at which

* *Rivista Mensile del C.A.I.*, 1888, p. 305.

Mr. Fordham's party crossed. Substantially the two passes are the same. But in these days of microscopic differentiation of new routes, Mr. Fordham may, I think, claim, if he pleases, to have made a new pass.

HEREFORD B. GEORGE.

P.S.—I should like to repeat my protest against the change which the Swiss have introduced into the spelling of the name of the pass. In 1863 we called it *Col de la Tour Noire*, the adjacent peak being, as we understood, so named with very reasonable appropriateness. No doubt the masculine form is found in the not far distant *Aiguille and Glacier du Tour*, but I have never been able to discover any significance in the word. Moreover, if there is a *Col du Tour* within a few miles, all the more reason for letting the other bear a more distinctive name.

GÜSSFELDT SATTEL.—On August 11, 1890, Messrs. J. H. Wainwright, B. Wainwright, and E. J. Garwood, with the guides Martin Schocher and H. C. Grass, crossed the Güssfeldt Sattel (*Fuorcla Roseg*). Leaving Pontresina at 12.10 A.M. the foot of the Sattel was reached at 7. At 7.50 Schocher started alone to begin the step-cutting (which was expected to be a very long business), the rest of the party remaining at the base of the great bergschrund till 8.30, when they followed, but did not overtake Schocher until just at the top, which they all reached together at 9.40.

The points in this expedition were:—

1. The remarkably good and quick performance of Schocher, who cut up the whole of the ice wall by himself in less than two hours.
2. That it is believed to be the first time the Sattel has been crossed in one day, former parties having had the steps cut by the guides one or more days before.

There was a slight crust of hard snow on the ice, otherwise the short time taken on the wall would have been impossible. The return was made by the Sella Pass, and Pontresina regained at 6.30 P.M.

INUNDATION IN THE MARTELL THAL.—The Martell Thal, well known to most tourists who have approached the Ortler Group from the direction of Meran, has, for the third time in four consecutive summers, been ravaged by the bursting of a glacier lake. The damage done this time seems to have exceeded that of the previous occasions very considerably. The disaster is due to the blocking by the Zufall Ferner of the water coming from the neighbouring Langen Ferner and the ultimate giving way of the ice-dam. On the present occasion the gradual increase of the lake was watched, and warning was given by smoke signals as soon as the catastrophe occurred, in time to allow cattle and portable property to be got into a place of security; but in Gand, the chief village of the valley, a large part of the population are houseless. From the account given in the 'Mittheilungen des D.Oe.A.V.' for June 30 (No. 12 of the current series), it would appear that the outburst of the enclosed water took place about midday of June 17. In a little over an hour the flood had reached Gand, wrecking houses and utterly destroying crops and gardens. The Statthalter of Tyrol, and Count Wolkenstein, the Bezirkshauptmann of Meran, had a narrow escape. They had been at the glacier in the

course of the morning and returned to Gand, no immediate outbreak being expected. They took their midday meal in the little inn, and had scarcely left the house when the torrent came down. In a few minutes the inn, which stands close to the stream, was in ruins, and the water flowing over its site. A full account of last year's inundation by Dr. Finsterwalder, of Munich, with copious and clear illustrations, will be found on p. 21 and the following pages of the 'Zeitschrift' for 1890.

It is to be hoped that before next summer the resources of engineering skill will be able to cope with this recurring danger, and that some more effective method of dealing with the glacier may be found than sending high officials and eminent men of science to see how it is getting on when a disaster has become inevitable. We are glad to see, from some expressions in the 'Mittheilungen,' that operations of an effective kind are in contemplation.

The 'Times' of July 24 reports a similar disaster in the Schnalserthal; but up to the time of going to press we have seen no confirmation of this in any trustworthy quarter.

NAME OF SAN MARTINO PEAKS.—In the 'Oesterr. Alpen-Zeitung' for July 10 (No. 326) Dr. Diener takes exception to the forms adopted by Mr. Wood for the names of two peaks in this district, the ascent of which was described in the February number of this Journal.* Mr. Wood writes 'Cima Cugilio'; Dr. Diener corrects to 'Cima Cuseglio,' but gives no reason for his preference. With all respect towards the president of the Austrian Club, we can hardly accept his *ipse dixit* as settling a question of orthography; certainly not in a 'Wälsch' district. The difference in sound between the two forms amounts, as anyone who knows the peculiarities of the Venetian dialect will recognise, to little more than that between (English) *z* and *s*. Mr. Wood writes that he took some trouble to get the word in its correct form, and that which he ultimately adopted was written for him by the guide Barbaria after consultation with Bettega; as we gather, with the approval of the spiritual authority in the person of the local priest. The question, of course, can only be definitely settled when we can find out the etymology of the name.

Dr. Diener's other objection is to the name Cima di Pradidali. According to him this belongs to a peak on the other (the north-east) side of the Passo di Ball; that ascended by Mr. Wood being the *Campanile di P.* The latter, however, says that he found both names applied indiscriminately to his peak; and as 'Campanile' was much more appropriate to another pinnacle rising between his peak and the Cima di Ball, he preferred, exercising the right of a first visitor, to retain 'Cima' for the summit climbed by him.

It may be added that the peak which Dr. Diener would call Cima di Pradidali, Mr. Wood found to bear the local name of Cima da Lago.

The point is not very important, but the nomenclature of the lesser peaks about San Martino is still in a state of confusion, and any attempt to clear it a little should, we think, be welcomed.

* See p. 368.

THE PAYMENT OF GUIDES.—Are guides in future to be paid 'by the hour,' and are the old 'tariffs' to be abolished? This is the question which is being warmly discussed by members of the Austrian and German-Austrian Alpine Clubs, and which is the subject of various interesting papers in the 'Mittheilungen' and 'Touristen-Zeitung.' That such a question should ever have been asked seems to us rather surprising. When we find, however, that it is Herr Purtscheller who is the author and chief advocate of the proposal to pay guides, not according to the difficulty of the work done, and the skill required to do it, but simply according to the time consumed, we are compelled to give the matter more attention than it appears to deserve at first sight, for any opinion expressed by so eminent an authority on Alpine matters is, at least, entitled to respect. We may at once admit that there is a good deal in his arguments, and that he is successful in pointing out many disadvantages of the present system, though he fails, in our opinion, to make out a case for the system he advocates.

Herr Meurer proposes a *via media*, and would pay the guides, not by the hour, but by the 'half-day.' His scheme, moreover, involves the classification of all ascents and expeditions into various groups according to the difficulty, which is to regulate the scale of payment.

In dealing with the whole question, it must not be forgotten that all these regulations and tariffs are not for the experienced mountaineer, who mostly engages his guide for a certain time and on special terms, but for the novice, who is not likely to fall in with the best guides, and easily becomes a victim to the most unscrupulous of their class. What opportunities for unfair gain payment by time offers under such circumstances it is easy to perceive. A system, moreover, which involves elaborate book-keeping and possible questions on the termination of the engagement is hardly one which will commend itself to most travellers; nor do we think that the better class of guides will ever agree to a scheme under which their pay for, say, the ascent of the Breithorn with a slow walker, will be far better than for that of the Rothhorn with a tolerably fast one; it is putting a premium on incompetence. What is wanted is simplicity, and a system which makes it impossible for any differences to arise on money matters between employer and employed. The old tariff system has, on the whole, worked well. No one will deny that existing tariffs are far from perfect—grossly unequal in some cases and wanting thorough revision; but it cannot be beyond the powers of vast organisations like the foreign clubs to grapple with the question effectually, and to produce new tariffs which are fair and satisfactory all round. No other system will be found practicable, and any attempt to carry out Herr Purtscheller's proposal will only tend, not to raise, but to lower the standard of guides generally, and to add to the existing temptations to mountaineers of dispensing with guides altogether—a result which he perhaps would hardly deplore, but which would be most undesirable as far as the vast majority of travellers is concerned. All efforts should be directed towards making the companionship of a guide, not a burden and source of annoyance, but a pleasure, as it has been, and is still, in many cases. The relation as between employer and em-

ployed should be left out of sight as far as possible, and that can only be done when the terms are clearly understood beforehand, or when there is a well-established tariff to go by. F. O. S.

WATZMANN FROM S. BARTHOLOMÄ.—With reference to an incidental statement in the May number (p. 450) that this ascent has only been effected by Herren Pürtscheller and Merzbacher, with the guide Preiss (*vulgo* Punz), of Ramsau, Herr Otto Schück writes:—‘Would you kindly permit me to say that the *first* ascent of the Watzmann from S. Bartholomä was made in 1881 by myself, with the guide Johann Grill (Kederbacher)?’

NEW ZEALAND ALPINE CLUB.—We learn from Mr. G. E. Mannering that the preliminary steps towards the formation of this Club have been taken. It is proposed to admit anyone as a ‘subscriber,’ but to require a moderate qualification for ‘membership.’ Our brethren at the Antipodes are clearly men of resource.

THE LIBRARY.—The following additions have been made since May 16, 1891:—

Books.

- *Kalender des Deutschen und Oesterreichischen Alpenvereins für das Jahr 1891. Herausgegeben von Johannes Emmer. Small 8vo. München, 1891. (Presented by the Publishers.)
- *Baedeker (K.) The Eastern Alps, including the Bavarian Highlands, Tyrol, Salzburg, &c. Seventh Edition. 8vo. Maps. Leipsic, 1891. (Presented by the Publisher.)
- *— Switzerland and the Adjacent Portions of Italy, Savoy, and the Tyrol. Fourteenth Edition. 8vo. Maps. Leipsic, 1891. (Presented by the Publisher.)
- *Conway (W. M.) Climbers' Guide to the Eastern Pennine Alps. Small 8vo. London, 1891. Price 10s. (Presented by the Publisher.)
- *Broke (George). With Sack and Stock in Alaska. 8vo. Maps. London, 1891. (Presented by the Publishers.)
- *Svenska Turistföreningens Årsskrift för År 1891. 8vo. Illustrations. Stockholm. (Presented by the Publisher.)
- *Norske Turistforenings Årbog for 1890. 8vo. Map and Plates. Kristiania, 1891. (Presented by the Publishers.)
- Arnaud (Henri). Glorious Recovery by the Vaudois of the Valleys, trans., with a History of that People previous and subsequent to that Event, by Hugh Dyke Acland. 8vo. Map and Plates. London, 1827.
- *Oesterreichische Touristen-Zeitung. Vols. I. to VIII. 1881-8. 4to. Wien. (Vols. I., II., IV.-VIII., presented by the Oesterr. Touristen-Club; Vol. III. purchased.)
- *Società degli Alpinisti Tridentini, XV. Annuario. Guida del Trentino di Ottone Brentare. Trentino Orientale, Parte 1*: Val d'Adige inferiore e Valsugana. Small 8vo. Bassano, 1891. (Presented by the Society.)
- *Meurer (Julius). Handy Illustrated Guide to Vienna and its Environs. Small 8vo. Engravings and Maps. Vienna, 1891. (Presented by the Publisher.)
- *Quatrième Congrès International des Sciences Géographiques, tenu à Paris en 1889. Tomes I., II. Compte Rendu publié par le Secrétaire Général du Congrès. 8vo. Paris, 1890-1. (Presented by the Congress.)
- *Zeitschrift des D. u. Ö. Alpenvereins. Jahrgang 1891, Bd. XXII. 8vo. Wien, 1891. (Presented by the Club.)

* Presented.

Photographs.

- *Grand Combin, from Col des Otanes.
- *Rock-Climbing.
- *Mauvais Pas, Aiguille de la Za.
- *Mont Pleureur, from S.W. arête.
- *Summit of Aiguille de Botzeresse.
- *Combin de Corbassière and Petit Combin, from Col des Otanes.
- *Aiguille de la Za, South Face.
- *On the Dent Perroc.

From Kodak Negatives by Walter Leaf. (Presented by Walter Leaf, Esq.)

DUPLICATES FOR SALE.—The following Library duplicates are for sale. Application to be made to the Assistant-Secretary. Unless otherwise specified, the volumes or parts are in paper covers:—

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Nos. 13, 15, 22. 1s. per number.

Rivista Mensile del C. A. Italiano. Vol. II., No. 4; Vol. III., No. 4; Vol. IV., complete; Vol. V., complete except No. 1; Vol. VI., Nos. 1-6, 8-10. 5s. the lot.

Vol. V., Nos. 9, 12; Vol. VI., No. 3; Vol. IX., No. 6. 6d. per number.

Società degli Alpinisti Tridentini, Annuario 1877, 1878-9, 1886-7, 1888. 2s. each volume.

Club Alpin Français, Bulletin, No. 4, December 1875. 6d.

Bulletin Trimestriel, 1876; 1877, Parts 1, 3, 4; 1878, Parts 1, 2; 1879, Part 4; 1880, Parts 3, 4. 1s. per part.

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Annuaire du Club Alpin Français, 1876, 1877, 1878, 1879. 5s. per volume.

Section Lyonnaise C.A.F. Nos. 1, 3-6. 1s. per number.

Appalachia, Vol. V., 1887-9. 4 parts. 5s.

Norske Turistforenings Årbog, 1878, 1882, 1886. 1s. per volume.

Echo des Alpes. No. 1, 1870; No. 3, 1878; No. 1, 1879. 6d. per number.

Oesterreich. Alpen-Zeitung. Vols. I.-VIII., 1879-86, wanting Nos. 1, 3, 5, 8-10, 26, 66, 89, 104, 109, 110, 123, 135. 20s. the lot.

Jahrbuch des Ungarischen Karpathen-Vereines. Vols. I. and XV., 1874, 1888. 1s. each volume.

Giornale delle Alpi. G. T. Cimino. Anno I., Fasc. 1-4, 9-12; Anno II., Fasc. 1-6. 1864-5. 7s.

Jahrbuch des Oesterreich. Alpen-Vereines. Bd. I. 1865. 5s.

Mittheilungen des D. u. Oe. A.-Vereines. 1878, No. 2; 1879, No. 1; 1889, No. 6. 6d. each number.

Bibliotheca Carpatica. Von Hugo Payer. 1880. 2s.

Rassegna di Alpinismo. Da F. Carega di Muricce. Anno II., Nos. 1, 3-5, 7, 8, 10-13. 1880. 2s. the lot.

Zeitschrift des D. u. Oe. A.-Vereines. Vols. 3, 4, 17, 1872, 1873, and 1886. 5s. per volume.

1873. Heft I. only. 1s.

Bollettino della Sezione di Brescia, C. A. I. 1874. 6d.

C. A. I., Sezione di Agordo. Adunanza Straordinaria, 1 Settemb. 1878. 6d.

La Vaudaine: Etude sur le Vallon de la Vaux-Daine. H. Fernand. 1879. 6d.

Deux Ascensions au Popocatepetl. F. Carega di Muricce. 1878. 6d.

Suggestions for the Exploration of Iceland. W. Longman. 1861. 9d.

Die Stubai Gebirgsgruppe. Barth u. Pfandner. 1865. 7s. 6d.

Les Alpes du Dauphiné. E. Debriges. 1885. 6d.

Mont-Blanc. Italian Ode translated into English Verse. 1879. 1s.

* Presented.

- Materiali per la Carta Geologica della Svizzera. Vol. XVII. Appendice ed Indice [only]. 1880. 6*d*.
- Bibliothek der Sektion Bern des S.A.C. 1887. 6*d*.
- Alcune Varietà Alpinistiche nel 1878. C. Isaia. 1879. 6*d*.
- Sketch of a Journey through Switzerland. Duchess of Devonshire. 1816. 1*s*.
- Anleitung zu wissenschaftlichen Beobachtungen auf Alpenreisen, D. u. Oe. A.-V. 5 parts, 1878-82. 10*s*.
- Wanderstudien aus der Schweiz, Osenbrüggen. Bde. 1, 6. 1867, 1881. 2*s*. 6*d*. each.
- La Caverna del Rio Martino. G. B. Araldo. 1885. 6*d*.
- Report on a Journey among the New Zealand Glaciers. Green. 1882. 6*d*.
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- Pontresina and its Neighbourhood. Ludwig. 1876. 1*s*.
- Itinerarium für das Excursionsgebiet des S.A.-C. für 1882, 1883. E. v. Feltenberg. 1882. 6*d*.
- How to See Norway. J. R. Campbell. 1871. 1*s*.
- Hochalpenstudien. Tuckett. 1^{er} Theil. 1873. 3*s*.
- Ueber Eis und Schnee. Studer. Bde. 2 u. 3. 1870-71. 3*s*. the lot.
- Aus der Firnenwelt. Weilenmann. Vol. I. only. 1872. 2*s*.
- Les Plantes des Alpes. H. Correvon. 1885. 5*s*.
- Sulzfluh: Excursion der Section Rhätia. 1865. 1*s*.
- Verhandlungen des Oesterr. Alpenvereines. 1^{er} Heft. 1864. 1*s*.
- Mittheilungen des Oesterr. Alpenvereines. 2^{er} Band. 1864. 2*s*.
- Jahrbuch des Schweizerischen A.C., II., 1865, and Artistische Beilagen. 5*s*.
- " " without Beilagen. 2*s*. 6*d*.
- " " XVI., 1880-1, without Beilagen. Half-calf, 4*s*.

REVIEWS AND NOTICES.

Climbers' Guide to the Eastern Pennine Alps. By William Martin Conway. (London: T. Fisher Unwin. 1891.) 10*s*.

THE second half of Mr. Conway's 'Pennine Guide' is as good as was expected, which is no faint praise. The sections included are the Breithorn, Valtournanche, Ayas, and Gressoney Ridges, Monte Rosa, the Loccie and Weissthor Ridges, the Saas Grat, and Weissmies Grat. Throughout this district there is probably no one person who can speak with greater authority than Mr. Conway. His work is most careful and accurate, and the many references to publications of foreign Alpine Clubs and to books of travel show the great labour he has bestowed on his guide-book.

There is, however, a passage in Mr. Conway's preface which ought not to pass without remark. He seems to think that the new edition of 'Ball's Guide' will necessarily 'diminish what little demand might have arisen for special books dealing with minor districts,' and thus prevent the publication of climbers' pocket-books. This we cannot believe would in any way be the case. 'Ball's Guide' and a climber's pocket-book are so entirely different in their scheme and object that it is practically impossible that the one should come into competition with the other. There is plenty of room for both of them. When Mr. Conway says that if the old arrangement of 'Ball's Guide' is maintained 'the guide-book will no longer be a climber's guide,' he forgets that 'Ball's Guide' never was a climber's guide pure and

simple, and there is no likelihood of its scope being thus narrowed in the new edition. Thus Mr. Conway is a little unreasonable when he says that the Alpine Club has 'directly interfered to prevent his publishing a guide-book to any of the less frequented districts.' He tells us that, in consequence of the republication of 'Ball's Guide,' he has decided not to publish a climber's guide to the Lepontine and Ticino Alps, which 'exists in a form ready for the press.' That Mr. Conway should have come to this decision is of course to be regretted, for any contribution to Alpine literature from his pen is welcome. Perhaps he will yet think better of it.

GUIDE-BOOKS.

The Engadine. By F. de B. Strickland. (Samaden: Tanner. London: Sampson Low.) 5 frs.

Guida del Trentino. Di Ottone Brentari. (Bassano: Sante Pozzato.)

Das Kaisergebirge. Von Th. Trautwein. (Munich: Lindauer'sche Buchhandlung.) 1 M. 30 Pf.

There was a time, perhaps not yet wholly in the past, when the 'local' or 'special' Guide-book was a byword for silliness, vulgarity, and superficiality. Intelligent people seemed to think that the minute description of a limited district—its natural features, its history, its various points of interest—was beneath their dignity; and the task was left to be performed as best it might by some one who took his literary style from the local newspaper, and made feeble and not over-refined jokes do duty in place of careful description and accurate research. Books like the three before us show how far—in the Alps, at any rate—we have got from those days. Mr. Strickland's book, already in its second edition, is probably familiar to many of our readers. Though it embraces the whole of the Engadine, the Upper Valley (perhaps naturally) receives the fuller treatment. In its conception it is almost a model of what a book of the kind should be, containing, in addition to the needful tourist's instructions, chapters on the history, the language, the natural history, the climate—all by persons well qualified to write on these matters. Thus Mr. Symonds sketches the history of Graubünden; Pfarrer Pallioppi, son to the most eminent of modern Romanisch scholars, and himself well qualified to continue his father's work, discourses on the language (which we wish he would not call by a name which is certainly not English, and which we have never heard from the lips of any native, whether he was speaking his own tongue or German—'Romansch'); Herr Caviezel treats of the flora; Dr. Holland, of air and water, from the physician's point of view; and Mrs. Main gives a few brief but eminently practical counsels to beginners in the art of mountaineering. After these introductory chapters come descriptions of the chief places in the valley, and of excursions to be made from them. Here we rather desire some more systematic arrangement. The reader is bewildered when he is taken from Maloja to Samaden, and back to Sis, having started from St. Moritz *via* Pontresina; or when, in the Lower Engadine, he is carried up from Tarasp to Zernetz, and back

at a leap to Sent (in which he may fail to recognise Sins) and Remis. It would surely be better to take the main valley straight through, down or up. Other suggestions for a third edition which we would make are that a table of contents be given; that the map (which is just the Dufour map—very good, of course, but not quite up to date) be revised, if possible; and, perhaps, that a word or two of caution be added to make the inexperienced tourist realise that many mountains, the ascents of which, if the right way be found, doubtless 'partake more of the nature of walks than of climbs,' can nevertheless offer plenty of exceedingly dangerous places to those who are unused to mountains. We can imagine such people misconstruing a phrase like the one we have quoted, and getting themselves into considerable trouble thereby. The Engadine tariffs of guides offer much matter for thought; but this is not the moment to pursue that subject. There are, as is inevitable when a book written in English is printed abroad, a good many small misprints. And why is the map in some copies stuck to the cover in such a way that while it is unfolded the book cannot be read?

Professor Brentari's 'Guide,' which forms the 15th 'Annuario' of the Society of Tridentine Alpinists, is in reality a complete history and geography of the country with which it deals. Its 450 closely-printed foolscap octavo pages only carry the work through the first part of 'Trentino Orientale'—that is, the lower valley of the Adige (without the lateral valleys) and the Val Sugana. The fun, if we may so speak, is therefore all to come; at least we may assume that most Alpine readers will find more of this ingredient in the Dolomitic districts on both sides of the Adige and in the Presanella group (all of which belong to the Trentino as at present understood) than in the historically interesting, but, from a purely mountaineering point of view, somewhat tame regions with which the book before us deals. We are taken, indeed, in the latter pages to the summit of the Cima d'Asta, and, as it were, left in sight of the Promised Land, into which we may hope presently to be guided. Meantime, the book is indispensable to everyone who visits the parts described in it, and wishes to know all that is to be known about them. With all his learning, Professor Brentari condescends to the details about inns and routes, without which no guide-book is complete. We only regret that he has not included any map.

In 'Das Kaisergebirge,' Herr Trautwein deals with a district even more limited. The very name is probably unfamiliar to English readers; but those who have travelled from Munich to Innsbruck may have noticed, as they passed the frontier station of Kufstein, a mass of fine rocky peaks away to the left (or east) of the line. Their highest summit, the Elmauer Haltspitze, does not quite reach 8,000 feet, but they are reported to offer some excellent scrambling, and, to judge from the list of the flora appended to this little book, they must be a happy hunting ground for the botanist. In spite of the saying of an old guide, which Herr Trautwein quotes, to the effect that, so far as concerned himself, he would go anywhere, but that at all events in the particular excursion under discussion he would not take the

responsibility of a tourist, we imagine it is just the kind of district in which a party of guideless climbers would find much amusement, especially if equipped with the really beautiful map, on the scale of 1 : 50,000, executed by Herr Petters and the author, and included in the volume. We have omitted to mention that the volume itself contains less than 100 pages, and could be carried in a breast-pocket without being felt.

Den Norske Turistforenings Aarvog for 1890. (Christiania :
Kaptein W. v. Munthe af Morgenstjerne. May, 1891.)

The annual publication of the Norsk Tourist Club, though wofully late, seems to bring with it an invigorating sniff of glacier air.

Herr Carl Hall, a member of the Alpine Club, has contributed a paper on new ascents which he made in 1890. His best expedition, a new pass in the Horungtinder range, was exceedingly difficult, and in 1889, though it was attacked on two days by a very strong party, it was undoubtedly impracticable. The Maradalsbræ, up which Herr Hall ascended, is an exceptionally fine glacier, and is headed by very grand rocky peaks. We most heartily congratulate our fellow-member on his well-earned success.

An English lady has broken new ground by ascending a peak overlooking the Raftsund in one of the Lofoten Islands, and has written a short paper upon it in English.

The present writer has also contributed a paper in English, accompanied by a map, which he has partially corrected, in which he has tabulated the different passes, ancient and modern, over the Justedalsbræ, and has given an account of new passes over this snow-field, and of an adventure on Lodals Kaupe.

There is an interesting paper on a journey through Tellemarken made in the year 1824, and of a plucky ascent of the Gausta Fjeld.

One Norskman, not contented with the comparative simplicity of the names of his own mountains, has climbed Popocatepetl (*vulgo*, 'Pop the cat in the kettle') in Mexico, and has given an admirable account of his expedition.

The secretary of the club describes a tour made by him through Jotunheim, and gives most interesting information respecting the new mountain huts, the hardness of their beds, &c. One piece of news is certainly startling—viz. that it is proposed to establish sledging—presumably with reindeer—on an easy pass over the Justedalsbræ. This is feasible enough in early summer. So it might be over the Petersgrat or the Claridengrat, but the mere thought of it at midsummer makes one shudder. It is easy to imagine how case-hardened and callous the drivers might become in process of time from not being able to see their danger, with the result that some fine day the reindeer, the sledge, and all its occupants would without the slightest warning fall into one of the many huge crevasses which exist almost everywhere on this immense snow-field.

The 'Aarvog' is well illustrated, and reflects everywhere the energy of the club and of its indefatigable secretary. W. C. S.

Swenska Turistföreningens Aarskrift för aar 1891. (Stockholm : Wahlström & Widstrand.)

Though the annual publication of the Swedish Tourist Club this year is of a more sub-Alpine character than has previously been the case, we are, nevertheless, introduced to some grand mountain scenery in Swedish Lapland which is almost unknown. One enthusiastic botanist describes the scenery on the Swedish side of the Oxetinder and Rös vand in Norway, a region of sharp peaks and glittering glaciers, in latitude 66°. Another writer describes in graphic language his visit to Sulitelma, the name of which mountain we are all familiar with since the days of childhood, when we read with delight Miss Martineau's 'Feats on the Fjord.'

There are admirable papers on life in Lapland, reindeer, bear-hunting, and fishing. Our Swedish friends, with their usual energy, are reducing the difficulties of travel by building numerous and comfortable mountain huts where most needed, and certainly show that they mean to explore for themselves the weird glaciers on their western frontier, and to scale their most rugged peaks. In this laudable endeavour we wish them much success.

W. C. S.

MOUNTAINS AND HILLS IN ART.—1891.

A FEW years ago every picture exhibition contained its quota of Alpine pictures. There was always a 'Wetterhorn from Rosenlauri,' a 'Matterhorn,' and a few other well-known subjects. The exhibitions this year (with the exception of the Institute, which I saw too late to notice in this place) are remarkable for the absence of all such work. There is only one snow-mountain in the Academy: a view of the Piz Bernina from the Palù Glacier, by Mr. E. T. Compton (617). I did not observe a single water-colour of the kind so popular a few years ago. This phenomenon is probably to be accounted for by the change in character of all progressive landscape, brought about by the influence of the French school. It is possible by neglecting atmosphere to plot down a detailed plan of a mountain view; but if the atmosphere is taken into consideration, and the relative values of light-intensity, received from different planes, are expressed, the character of the whole being in any degree rendered, it is obvious that all detail must be omitted, that sharp outlines must be disguised, and that only a broad and partial semblance of the parts of a scene can be preserved. A single picture, the 'Eiger,' by Stott of Oldham (New Gallery, 95), is the first example I have seen of any effort to depict mountains in what must be the style of the future. The picture is remarkable, original, ugly, and very important. It was badly hung. The artist endeavoured to minimise the difficulties of his problem by placing his mountain in a misty moonlight. He thus gets rid of sharp outlines and of intruding detail, the rendering of which on any canvas destroys all possible effect of scale. The picturesque element in misty moonlight is, however, a soft sparkling brilliancy in the mist

itself, and this the painter has not succeeded in catching. His work remains a clever effort in the right direction, but not a beautiful thing in itself.

A collection of seventy-six of M. Loppé's pictures was exhibited in the month of May at the Fine Art Society's Galleries. M. Loppé's work is so well known to members of the Alpine Club, and so deservedly popular, that we are not called upon to notice it here at great length. A thorough artist by temperament and training, he manifests his skill in nothing more than in the choice of subject. He seldom attempts what the conventions of his art do not admit of his accomplishing. His bits of glacier scenery are amongst the best of his works, and the 'Crevasses on the Mer de Glace' (68) is a good example in this kind. M. Loppé, too, has made his own the Alpine sunset beheld from some lofty standpoint. Looking westward over a vast horizon, when the sun is low, all the details of earth vanish within the glowing colour of the air, and a panoramic subject thus becomes possible of treatment on a small canvas. Nos. 3, 24, 37, and 61 were all good works of this type, three of them representing sunsets from the Grands Mulets and one from the summit of Mont Blanc. But the exhibition was chiefly remarkable for its revelation of the winter glories of Switzerland. When centrists no longer congregate in their summer haunts then do the minor mountains hold high state, and the valleys put on the robes of majesty, usurped in summer by the giants for themselves alone. M. Loppé (in No. 45) shows that the nobly-formed Mythen, wreathed in snow and wintry mist, possesses all the splendour of Ushba. He bears witness to the aggrandisement of Pilatus (No. 58), and many another point of equally low degree, measured by summer estimates. Some of his pictures bring us in presence of the valley bottoms, especially the Zermatt valley, when they are flooded, and the banks of their streams are corniced and often arched from side to side, with snow. Most mountain-painters use clouds as a mask for their difficulties. Many a Scotch example of this trick could be quoted from the Academy exhibition. But with M. Loppé clouds exist for their own sake. He feels their decorative value, and paints them decoratively, sometimes making them fully as important both in form and mass as the mountains that are their foundation. In one of the sunset pictures (No. 3) there is depicted a remarkable array of clouds, coming up the glacial valley from the west, fiery red, like a charging phalanx of flame.

At Paris I only saw the Old Salon (in the Champs Elysées), and noticed in it but one mountain picture, by—I forgot what artist. It purported to represent the lake under the Riffelhorn, and was painted in a conventional manner. On the right was the base of the Riffelhorn. Left of that, where the Lyskamm ought to have appeared, was a long flat thing, apparently the Alphubel; and left of that again was the upper level of the Furggen glacier, in the neighbourhood of the Theodul Pass! While on the subject of mountain pictures by foreign artists, I may mention a striking series of paintings of Norwegian fiords, by A. Normann, three of which I saw at the Continental Gallery in New Bond Street, one or two more at a dealer's in Liverpool, and one—the

least attractive—at the Royal Academy (No. 1,040). All these are strongly painted, and give a dignified and often impressive rendering of mountain mass and form. I also noticed at the Continental Gallery a picture of the mountains bordering the Straits of Magellan, painted by H. Schnars-Alquist.

Mr. Philip Burne-Jones's large painting of 'Earth-rise from the Moon,' in the New Gallery (190), certainly comes within the area of my survey, but need not delay us. The rock structure should have been its strongest, and is its weakest feature. The picture is neither beautiful, nor scientifically true. There is not, for instance, a single patch of cloud across all the continents and oceans of the earth. The best mountains in the New Gallery were in the pictures of Signor Costa and his follower, Mr. M. R. Corbett, both of whom render with so much success the fair colouring of the lower Italian ranges. The Alban hills appeared in one of Signor Costa's works (No. 122), and the graceful contour of the Pisan mountains in two pictures by Mr. Corbett, both doubtless painted in the neighbourhood of Bocca d'Arno. The Earl of Carlisle's rendering (No. 107) of the same subject was less successful. Amongst Scotch scenes the best was painted by Mr. A. J. Ryle—an autumn landscape from the far north, where the colours are daring and the mountain forms are bold.

Of Scotch pictures in the Academy there was a full supply, but none of special excellence. The Skye Hills are feebly imaged by Mr. H. W. B. Davis, R.A. (184), and the same artist's 'West Highlanders' (395), all fussed over with useless detail, is equally ineffective. Mr. Peter Graham's 'Morning Mists' (238) is a stalwart but not very successful attempt to depict the broken foreground, rocks, and mist forming the Scotch landscapist's stock-in-trade; the picture lacks depth, and the detailed distance dwarfs the whole. By stretching a point we may reckon three of Mr. Brett's works (424, 600, and 1,029) among mountain views. Mr. Brett, in his well-known 'Britannia's Realm,' has shown that he can bring the vastness of the ocean within the limits of a canvas, but the vastness of the hills escapes him. He is so fascinated by the beauty of their details, the most dangerous beauty of their many brilliant colours and visible complexities of form, that he embroiders his picture all over with them, and lo! grandeur, of necessity, vanishes.

Art is not Nature, but only one view of Nature—Nature with everything left out that the eye does not grasp in a single impression. Thus it often happens that the mountain spirit is better caught when mountains are not the subject, but only the background accessories of a picture. This is the case in Mr. J. J. Inglis' 'Spring's First Flood' (485); but in his 'Sunset over a Highland Loch' (650) the same painter makes a remarkable, and, on the whole, a successful attempt to wrestle directly with a mountain scene. The conception in this case is powerful and bold, and the lonely landscape forms an admirable scaffolding for the diabolic and horrible splendour of the colouring. Bold massing of the lights, and broad and effective handling of the material, in Mr. Majoribanks-Hay's water-colour, entitled 'Glen Strae' (1,349), make it, on the whole, the best of all the Scotch

pictures of the year. It is an impressive and admirable piece of work by the hand of an artist not previously known from any exhibits at the Alpine Winter Meeting. His portfolios doubtless contain leaves that we should gladly have an opportunity of seeing.

The large landscape of the Isles of Loch Lomond and the surrounding hills (515), by Mr. F. Goodall, R.A., demands no praise. There is a pleasing softness and ideality about it, but of a cheap and commonplace kind. Mr. Sidney Cooper, R.A., contributed an example of a fossil style of landscape art in his view of Land's End (1,136), where there are Cuypp-like cows standing in the calm sea, while a little further off a yacht is racing before a merry breeze; the Longships rock appears to be formed of well-squared masonry.

It is pleasant to be able to mention in this place a landscape by that charming artist, Mr. Alfred East, entitled, 'Reedy Mere and Sunset Hills' (142). The hills, indeed, are but a graceful line along the far horizon, but the picture could not exist without them. Hills similarly, but less prettily, introduced form an essential part of Sir J. E. Millais' 'Lingering Autumn' (293) and Mr. MacWhirter's 'Highland Bay.' The Alps behind Venice, seen from the Lido, are conventionally rendered in a picture by Mr. Bryan Hook (536). Mr. J. Farquharson contributed a pleasant study of Nile scenery, in which the fine wall of cliffs that the limestone Arab chain opposes to the west is bathed in the pleasant sunshine and soft atmosphere of Egypt. Finally, I may be permitted to refer to the delicious background of blue hills, crested with distant clouds (or snow), forming the far margin of the African valley into which the Panthers look in Mr. J. M. Swan's most beautiful painting (110).

W. M. CONWAY.

SIGNOR SELLA'S 1890 CAUCASIAN PHOTOGRAPHS.

THE encouragement given to Signor Vittorio Sella, by the award of the Murchison grant of the Royal Geographical Society, has been productive of another very complete collection of photographs, which formed an attractive feature at the last winter exhibition of the Club. It will be remembered that Signor Sella took with him three Italian porters, and spent the greater part of last summer, from July to October, photographing in detail the peaks, passes, glaciers, forests, village architecture, and inhabitants of the central chain of the Caucasus. The party visited and photographed amongst three distinct races: the Ossetes and Aryans, mostly Christians; the Tartars, or Mohammedans; and, lastly, the Georgians. The work, therefore, is of interest ethnologically as well as topographically. As far as concerns ourselves, it is difficult amidst so many representations of ice and snow to select the best picture or group of pictures. Some good judges give the palm to the panoramic views of the Adai Choch district, and from Mr. Freshfield we understand that in 'two districts Signor Sella's work renders possible a reconstruction of the map of the Adai Choch, and the making of a map of the Suanetian glaciers, two

of which—those descending towards Mestia, among the most important in the whole chain—are left out in the five-verst map, and in the maps, such as that in Reclus' "Géographie Universelle," unfortunately founded upon it, which has done so much to spread among geographers a wrong idea of the characteristic features of the Caucasus.'

The views are about three hundred,* the larger proportion being 16 × 12 inches, whilst the smaller size are about 7 × 5 inches. They are all silver prints, and are very clear and sharp, the lenses used being of extraordinary power. Signor Sella possesses the art of manipulating the negatives in the dark room to a marvellous degree. It is no easy matter to climb with a camera of the size of a 16 × 12-inch negative to an altitude of 13–14,000 feet, and then, having mounted guard, wait the opportunity of catching the subject of the picture free from cloud. Signor Sella must be endowed with an abundance of patience, a quality Mr. Donkin laid down as being above all things of the greatest necessity in the Caucasus.

It may be affirmed that Signor Sella has never produced a more artistic series of photographs.

G. P. B.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING OF THE CLUB was held on May 5, 1891, Mr. HORACE WALKER, *President*, in the chair.

The PRESIDENT referred to the new edition of Ball's 'Alpine Guide,' which is being prepared under the direction of the committee, and invited the cordial co-operation of all members of the Club in the work.

Mr. PERCY THOMAS read a paper: 'Mountaineering in Southern Colorado.'

Mr. L. NORMAN NERUDA read a paper: 'Three New Ascents in the Bernina Range.'

Mr. J. BRYCE, M.P., made some interesting remarks about travel and scenery in Colorado; the latter, though suffering from a want of snow and ice, had great beauty and charm, and presented delightful effects, resembling those of the East, which he ascribed to the great clearness of the atmosphere. One of the features of the country was that there were about forty or fifty peaks attaining a height of about 14,000 feet, but not a single one that reached 14,600. Travelling was easier in the mountains of Colorado than in the Selkirks, where the forests were most difficult to penetrate, owing to the quantity of undergrowth. Colorado presented a curious kind of society, which, however, he would hardly describe as dangerous. His rule was always to preserve a calm exterior; he had never found it necessary to carry a revolver, and had never experienced any difficulty. He further referred to the great difficulty of breathing felt by both residents and travellers, mostly before reaching a height of 9,000 feet.

* A catalogue with prices may be obtained at Messrs. Spooner's.

Mr. ECCLES remarked on the absence of glaciers in the district described by Mr. Thomas; in other parts of the Rockies glaciers existed, and a number had been photographed by Mr. Chapin.

Mr. DENT thought the difficulty of breathing referred to was to be ascribed to the daily great variations of temperature, fluttering of the heart and pulse being often associated with such conditions.

Mr. Norman Neruda's paper was then discussed, and Messrs. LAYTON, C. E. MATHEWS, and CONWAY spoke and congratulated the author on the success of his expeditions.

The meeting terminated with a cordial vote of thanks to the readers of both papers.

A General Meeting of the Club was held on June 2, 1891, Mr. F. A. WALLROTH, *Vice-President*, in the chair.

Messrs. F. Gonella, Guido Rey, and G. C. Smith were balloted for, and elected members of the Club.

Mr. H. W. HOLDER read a paper: 'A Month among the Southern Valleys and Mountains of the Caucasus.'

Messrs. WOOLLEY, DENT, and CONWAY took part in the discussion which followed.

A large collection of Caucasian views from photographs by Messrs. Holder, Baker, Sella, and Woolley was shown by means of the lantern, and Mr. Harold Topham exhibited and explained an interesting series of views taken by himself and Mr. Huber, illustrating his recent explorations in the Selkirks.

A hearty vote of thanks was accorded to Mr. Holder for his excellent paper, and to the other members who, by exhibiting their photographs, had contributed to the success of the meeting, which was very numerously attended.

The Annual Summer Dinner was held at the 'Queen's Hotel,' Richmond, on Thursday, June 25, and was attended by thirty-five members and guests, Mr. HORACE WALKER, *President*, occupying the chair.

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A MONTH AMONG THE SOUTHERN VALLEYS AND MOUNTAINS OF THE CENTRAL CAUCASUS, WITH ASCENTS OF TSFORGA, BOORDOIL (BORDJULA), AND ADAI CHOCH.

BY H. W. HOLDER.

(Read, in part, before the Alpine Club, June 2, 1891.)

I HAVE nothing of importance to add to all that has been already written concerning the routes to the Caucasus. My companions and I myself have generally found the Black Sea troublesome, and have been glad that our medicine-chest contained chalk and opium and cognac in fairly liberal quantities. But this has not been the universal experience, so I merely state it for what it is worth. With a giant stride or two, then, we will, if you please, imagine ourselves transported with incalculable rapidity from London to Batoum. Cockin received me at Batoum with great enthusiasm, and with a consideration which was remarkable, taking into account the combined rôle of English plutocrat and Eastern prince which he had previously been playing. At the door of his room I found a native of Tsageri, Merun Formovitch Kugawa by name, armed with native dagger and, I suspect, Birmingham-made revolver, who, as I thought, viewed with suspicion if not with distinct hostility, my approach to the *doma* of his lord. However, when he learnt that I was to have the honour of sharing in the payment of the roubles which served to provide him with weapons and recruit his wardrobe, he took me also under his protecting care, and proved a faithful, devoted, and courageous servant. He gave us a testimonial when we parted from him, speaking highly of our characters, wishing us every blessing

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we might desire, and especially assuring us that so great was his interest in and satisfaction with us that he was at all times ready to serve with the same fidelity—always presupposing, of course, a small *douceur* of about three roubles a day—any of our friends who might at any future time be visiting his country.

From Batoum we proceeded, as rapidly as circumstances would permit, to Gebi, by way of Kutais and Oni, having finally decided—after much discussion, and on grounds that we afterwards, with more perfect knowledge, and when it was too late, rejected as entirely insufficient—to attack first the Adai Choch group. I must pass over the incidents of this journey: the trials of patience, the difficulties in procuring horses, and the endless suggestions of *safta* (tomorrow), which soon led to the adoption of *loshade* (horses) and *safta* into our commination service; the offers of hospitality of the princes we met *en route*, especially when their hearts were warmed with wine; and, finally, our visit to the Nachalnik of Oni, who received us with the gravest courtesy, and who afforded us the greatest aid in procuring horses for the remainder of the journey to Gebi.

Thirteen versts from Oni, on the Mamisson road, there is a post station, Ootzera, with a *duchan*, where good wine may be obtained. The track to Gebi turns to the left from the Mamisson road, about seven versts from Ootzera, and it is quite possible to drive as far as this point.

We aimed for Gebi because we gathered from Freshfield that this was the best point of attack for our group of mountains. We were consequently much disappointed to find on arriving at the village that the Adai Choch group was not known by name to the natives, and that certainly there would be one or two days' journey ere we could reach our base of operations. Gebi is most prettily situated, commanding interesting views of mountains in almost all directions. On our first visit we were civilly received, and the Starshina gave orders to his servant, whose main official duties seemed to be to take charge of the cancellaria, to act as guide for us the next day in the direction of Tsforga, an outlying peak of the Adai Choch group, marked on the 5-verst map as Gurdzivsek, from the pass on its eastern flank.

Our way led through a beautiful birch wood, over cleared fields and rich pastures, ascending nearly all the time, with beautiful views of a low snow mountain on the left called by the natives Domba, which looked as though it might prove an easy but interesting climb. On reaching

the plateau which sweeps westwards from the southern spur of Tsforga, a fine view of Boordooil burst upon us. As we were overtaken by a thunderstorm as soon as we had crossed this southern spur, and as Tsforga itself looked as though it would repay the time and energy spent in an ascent, we hurriedly pitched our tent and camped for the night. The natives called the place Tsmindaveleb. At 2.45 A.M. the next day we started for the ascent of Tsforga. Climbing along the ridge under which we had been encamped, we walked briskly through the long grass with which the lower part of the ridge was covered, and then scrambled over shale and rock, fondly imagining that this ridge would easily and speedily lead us by pleasant rocks to the summit of our peak.

But, after two-and-a-half hours' work, we concluded that by this route it would take a longer time than we had at command to complete the climb. We consequently descended to the glacier on the right, and as we looked up at the broken masses of the ridge that we had left, and saw the array of 'gendarmes' to be climbed or turned, we congratulated ourselves that we had abandoned our original design. We kept mainly to the true right of the glacier, swerving occasionally towards the left to avoid crevasses, and having surmounted the icefall without serious difficulty, took to the rocks which lead to the final slope of ice by which the top is gained. The rocks varied in character, but were generally loose, and occasionally, in consequence, somewhat dangerous. We did not find it necessary, however, to rope till just below the ice slope, so that when we discovered the stone man at the top without any record, we conjectured that native hunters had climbed thus far in their search for game. We are, however, glad to congratulate S. Sella on being the builder of the cairn. We reached the lower or eastern summit at about 11 A.M., and, after a good hour's rest, strolled, in about forty minutes, to the top of the western peak (c. 13,600 ft.). Far away to the west we saw our old friends Shkara, Dychtau, Koshtantau, and other giants of the central group. Immediately to the east lay Boordooil, which it was clearly necessary to climb ere we could learn any details of the Adai group. Just over its shoulder, indeed, some higher peaks were visible, and it was evident that we had so far only touched the fringe of the district we were anxious to explore.

On our ascent we had observed a depression in the eastern ridge of our mountain, from which a tongue of snow

descended to the glacier up which we had made our way. We purposed working back by this, and made tracks rapidly



VIEW FROM THE SUMMIT OF TSPORGA, LOOKING TOWARDS THE EAST.

Boordool in the right foreground, whilst the highest point of Adal Choch is seen under the figure 1, and the top of the double-headed rock peak under the figure 2.

through the deep snow. There must have been an awkward bit of rock on the western side of this depression, so that we were tempted to descend too far, or else we greatly miscalculated its distance from the mountain top; for when we first sought our tongue of snow we could find nothing but steep, rotten, and impracticable rocks. Consequently we went boldly down the north-eastern face, and, working cautiously through the icefall, struck the ridge again much lower down. From this point we were able, by a tributary glacier, to reach the great glacier on to which, in the morning, we had descended from the ridge.

Instead of climbing back to this ridge, and so proceeding to our camp by our morning's route, we decided to follow the glacier to its snout, and then, at what we imagined to be about the level of our tent, to work straight along the grassy slopes on which we had encamped. Unfortunately we descended too far. The spring torrents had carved in the hillside innumerable channels, which, of course, became wider and deeper as they descended to the valley. And as the day wore on, and night fell upon us, we found ourselves clambering up and down these trackless hollows, moving steadily, as we hoped, in the direction of our tent. We were all heartily sick of the wearisome monotony, and I had well nigh come to the conclusion that I should prefer to finish the expedition the next day in the light, when the barking of a dog revealed to us the fact that we were at

last within a hundred yards of home. We arrived at 8.45 P.M., having spent some eighteen hours in our training climb. I do not recommend the experience, and am strongly of opinion that one such climb as an introduction to a season's work, especially after the enervating influences of the Black Sea and hot Caucasian valleys, will suffice for the most ardent mountaineer.



OUR CAMP ON MOOTSANSARA, WITH BOORDOOIL.

Having moved our tent eastwards across the intervening valley, fording with some trepidation a broad and rapid mountain torrent on our way, we prepared to climb Boordooil, from which we hoped to view our promised land. Mootsansara, we were told, the alp was called where we rested. The name must, I think, connote peace and rest and beauty. It was certainly a charming spot. It was enclosed by undulating slopes on the north and south. In the background, to the east, Boordooil rose, conveying somehow much more of the sense of majesty than the photographs suggest. Away to the west there were picturesque rocks and the ice-crowned Shoda. There was rich pasture for the horses,

clear, bright, sparkling water for man and beast, the shadow of great rocks in the noonday heat, and a stillness unbroken save by the hum of insects, the flapping of the wings of great birds, the thundering crash of the icefall and the rush of the glacier stream. We started for this peak one morning at 2.35. The way led along a grass-covered ancient moraine, then by the right bank of the glacier stream, and over more moraine, recently deposited, till, at 4.25, the snout of the glacier was reached. Two ribs of rock divide the glacier into three large streams of ice, up the westernmost (left) of which we at first worked our way.



VIEW OF BOORDOOL, SHOWING THE DIVIDED GLACIER AND THE FACE OF THE MOUNTAIN UP WHICH WE CLIMBED.

Stupendous fantastic-looking blocks of ice were piled up at the head of this stream, and as we reached the rib of rock immediately on its right, we heard a crash, and saw, just behind us, the shivered fragments of great masses which had given way. Forty minutes' climbing up the rocks brought us to the undivided glacier, and at its edge we stopped for about twenty minutes—5.10 to 5.30. We cut steps, made piles of stones to guide us on our return journey, and without serious trouble had in little more than an hour crossed the *schrund*, and were working over rocks, loose stones, and finally a slope of snow, towards the south-eastern ridge of the mountain. At 8.5 we stopped for breakfast, and while Almer was unpacking and preparing the tins of soup, I proceeded a little towards the east, and endeavoured to secure photographs of the magnificent panorama which lay before me. The sun was shining brilliantly overhead, though over the Adai group clouds were beginning to gather, and running from south-east to west there was an almost un-

broken line of mountains. To the south-east, and below, there lay the great snow basin, round which the chief mountains of the group are ranged. In the centre rose a rugged mass of rock, which largely masked the highest Adai peak, and the two double-headed peaks so conspicuous in this district. Further east Dechy's peak was clearly visible as a blunt rock tooth. Then came, in the distance, rock-peaks with little snow, and so round to the ice-capped Shoda. Vanity of vanities! Not one of my views has stood the test of the developer's art. All, I am told, were over-exposed. At 8.50 we made a fresh start. It was good rock-climbing nearly the whole of the way to the top. It has been suggested that the Caucasian Mountains are almost entirely snow-mountains, and that there is very little to tempt a good rock-climber. Boordooil, at any rate, is an exception. Yet Freshfield, looking at it from a distance, judged it an easy climb. The route he contemplated was probably that by which Signor Sella actually made the ascent some days after us—viz. by the north-western ridge. But Signor Sella refers to this as a 'difficult ascent.' And certainly the rocks of our arête, with the occasional traverses of awkward gullies, were anything but work for the mountaineering tyro. We were kept on the alert all the time. As, however, the rocks were unusually firm and reliable, the exhilaration was extreme, and we were all, I think, sorry when, after about two-and-a-half hours' climb, we came upon the snow slope which leads to the summit. This slope was short, only taking about fifteen minutes to surmount, and at 11.45 our task was done. There were no signs here, at any rate, of any previous ascent. Neither hunter nor mountaineer had preceded us, and we felt again something of the emotion we had experienced two years before, when we had conquered some of the giants of the central group. But the clouds had gathered, and we could glean but little definite information concerning the range of mountains east of the great snowfield which lay at our feet. Our height was approximately 14,300 ft.

Three high peaks, and three only, were visible during the two hours we spent upon the top. Of these we were convinced that of Adai Choch the summit we afterwards climbed was the highest, that the double-headed peak came next, and that the third was the lowest of the three. I cannot now be certain whether this third was Dechy's peak or one of the two heads of the remaining double-headed peak of this group, the other head being concealed by clouds. We judged that the highest peak would best be attacked by striking

almost due east across the snowfield, and then turning at right angles northwards along the base of the two double-headed peaks till we could find a feasible line of ascent. And so we made our plans.

We left the top at 2.5, and indulged in a change of route on our descent. By variations of easy rocks and snow and glacier on the eastern aspect of the mountain we, in less than an hour and a half reached the edge of the watershed at a point somewhat east of the glacier up which we had ascended in the morning. Thence by a steep glacier and loose rocks we descended to a shaly and grass-covered ridge which led in the direction of our tent. At 5.55 our day's work was done.

The best idea of the Adai Choch group will be obtained by imagining a large snowfield, approximately rectangular in shape, of some twenty square miles or so in area, surrounded on all sides by mountains, the loftiest lying towards the east. In the centre of the field there rise great irregular masses of rock, some entirely covered with snow and ice of enormous thickness. There must be ten or twelve peaks in all,



VIEW OF (2) THE DOUBLE-HEADED ROCK PEAK, (3) THE DOUBLE-HEADED SNOW PEAK, (4) (PROBABLY) DECHY'S PEAK, FROM A COL AT THE SOUTH-WEST OF THE GREAT SNOW-FIELD.

lying at irregular intervals, and varying considerably in height, around this snowfield. Some are of most interesting appearance: on one side a narrow stair of snow leading from base to summit, whilst on the opposite side the rocks are steep and apparently almost unclimbable. In the double-headed rock peak two parallel ribs of rock seem to run from base to crown, separated by a narrow strip of snow. The other double-headed peak presented at its summit the

appearance of two truncated sugar-loaves, covered as they were almost entirely with snow.

Some parts of this snowfield are at lower level than the watershed and consequently snow and ice are constantly pouring into it. There are, however, great outlets: to the north is the Karagom glacier; to the south-east a glacier sweeps along the bases of both double-headed peaks and then falls rapidly into the Rion basin; and to the south a glacier which feeds a stream that ultimately joins the Rion river.

One fine morning at 12.30 we started to try our luck—or skill—with the highest peak. The first part of our route was practically the same as the last part in our descent from Boordooil. We reached the crest of the watershed at 5.5. After a few minutes' rest we struck across the undulating snowfield in an easterly direction, intending, as we had arranged when reconnoitring from Boordooil, to turn the central masses of rock and make our way between them and the double-headed peaks to the base of our peak.

From the central mass of rock a ridge runs down into the snowfield. Reaching the foot of this we discovered that between it and the double-headed peaks there lay, hundreds of feet below, a glacier instead of a level field of snow as we had anticipated. Two courses were open to us; we could either descend to the glacier by what looked to be steep and broken rocks, and then continue up the glacier in the direction we had first decided on, or else we could climb the central mass of rock hoping to find an easy descent from this on the northern side. We chose the latter alternative. We cut up the snow-covered ridge for about twenty minutes, and then, at 6.37, stopped for food. At 7.15 we continued our ascent of the rocks, and at 8 we reached the summit. We turned eastward, and descended by rocks and snow to the snowfield, which we reached in about half-an-hour. Then for nearly an hour we were tramping over this snowfield in a straight line to the foot of the lower icefall. At this time the sky was almost cloudless and the sun shone brilliantly; the snow glittered and sparkled like diamonds. The magnificence of the snowfield, surpassing anything we had previously seen, profoundly impressed us all. Silently we marched, each possessed by his own thoughts and feelings, and gradually the heat, the glare, and the monotony of the march began to tell, and we almost fell asleep as we finished this part of our journey. There was no crevasse to stumble over; nothing to strain our energies; no demand on skill and previous experience: simply a steady tramp through the snow. We reached the foot of the lower

icefall at 9.20, then for about fifty-five minutes cut steps straight up the mountain side to a plateau where for half-an-hour we halted. At 10.45 we started again, making straight for the schrund immediately under a well-marked depression in the ridge. We reached the schrund at 11.10, and the ridge at 11.30. Keeping to the ridge we, by a tedious and uninteresting climb chiefly over snow—the last part being, however, over loose stones—reached the top at 12.50, after a little more than twelve hours' work. Again we were unfortunate in our view. The clouds came sweeping up the mountain sides so that it was impossible to obtain a satisfactory idea of the glacier system of this district. We did, however, get a view of all the mountain-tops of the group with the exception of one lying immediately east of us, whose lower part was covered with rocks arranged like spines symmetrically, which gave it a most unique and interesting appearance. By the use of the clinometer we were again convinced that we had selected the highest of the group.

On our return, instead of crossing the central mass of rock, we, by way of variation and additional exploration, turned to the right, and then worked round till we came upon our morning track. But, as I have already stated, snow and ice are constantly pouring into the hollows of this basin, and we had to work our way through séracs and crevasses down to the lowest level, and then up again to the watershed on the southern side. Much time was consequently lost, and we did not reach our tent till 9 P.M.

This Adai Choch group would, I imagine, prove an admirable district for mountaineering without guides. We had no semblance of difficulty with its highest summit, and it was clear that the second highest peak (the double-headed rocky one), and probably the third highest (for M. Dechy's ranks only sixth or seventh in the group) would yield to any vigorous effort made by sturdy mountaineers. There are several smaller peaks which could be taken by way of training, and the district is fairly accessible from at least three sides—north and east and south.

I was anxious to see the central mountains and Ushba on the southern side, and as, without moving much further east, an attempt on the remaining high peaks of this group would necessitate a repetition of much of the work we had already more than once accomplished, we decided to move westward with the least possible delay, though, as Cockin remarked, "idleness here is mighty pleasant."

I have already* spoken of the difficulty we experienced in securing horses, and of our method of overcoming it. Our return to Gebi was practically by the same route that we had previously travelled in the reverse direction.

The natives of Gebi were wonderfully civil. A young lady, inhabiting with her mother an enclosure opposite the cancellaria, made advances by sending her younger brother with unripe pears and potatoes. We responded with a few kopeks. The villagers brought us eggs and fowl and beef. We bought French beans also, the preparation of which for dinner proved a severe trial to Almer's patience. The Starshina concluded the arrangements for the supply of horses for our journey, and early on the second day after our arrival we prepared to start. By six the horses were packed, and we were glorying in the prospect of so good a beginning of our journey. But troublous times were in store. Freshfield says somewhere, I think, that the men of Gebi are keen bargainers. They are that and more. They illustrate a maxim that in the early stages of civilisation men hold but lightly to their contracts. The Starshina had gone to look after his harvesting, and just as we were ready to start, one of the owners of the horses made a demand for increased terms. We offered a slight concession, which was declined. We refused any further increase, and then, after a conference, both owners unpacked the horses and threw our luggage to the ground. I trust the recalcitrant owner will be boycotted by future visitors. They will have no difficulty in recognising him: he has a wooden leg. S. Sella's interpreter—Solomon Finkelstein, of Vladikavkaz—was stopping at the cancellaria, and he advised that we should promise all that was asked, and then at the end of the journey repudiate the bargain, paying only what had been arranged with the Starshina. We scouted such a proceeding as not only dishonourable, but impolitic, and likely to embarrass future travellers. But we resolved we would not be trifled with. So we sent Merun to Chiora to procure horses, if possible, and decided that in the event of failure we would, with our one horse, work the distance by stages until we could meet with other horses in the country.

This was, I think, the only occasion on which Merun showed signs of wavering in carrying out our orders. Seeing, however, that we were in earnest, he rode off to Chiora, and soon after noon brought back the horses required.

* *Alpine Journal*, vol. xv., p. 318.

As soon as he reappeared our natives rushed off as if they had a final card to play. We feared mischief, and packed the horses as rapidly as possible. The usual consequence followed: what had been hastily done had been badly done. And our first horse had hardly turned the corner of the cancellaria when his pack rolled off. We repacked and started again. The path, after leaving Gebi, follows for three or four miles the left bank of the stream, and then crosses to the right. The picturesqueness of the valley is in summer spoilt by the river's bed. The water is contracted to narrow channels, and the rest of the bed is filled with stones and shingle and *débris*. But the hills on each side are well wooded. The summits of the ridges are sharp, and interesting valleys open out of the main valley on both sides of the stream. Our progress was but slow. Twice within the first two hours the loads had to be taken off, carried for some distance, and then replaced on the horses' backs. The first occasion was when, at a short distance from Gebi, the path ascended the hillside, and became too narrow for a horse to travel with packs on both sides. The second was when we reached the bridge by which we crossed from the left to the right bank of the stream. This bridge was so roughly and carelessly constructed as to be almost unsafe even for men to cross. The packs were therefore carried over, and the horses driven to ford the glacier stream as best they might. Four oxen were being driven over just as we arrived, and from the buffeting they received I feared our horses might come to grief. However, they crossed in safety, and, after the usual delay, we set out again. The loads were constantly in need of readjustment, owing partly to bad packing and partly to the roughness of the way. But after the first few miles it proved a very pleasant journey—now over level pasture, now by steep paths, but always amid the stillness of the forest, with fine beeches towering above us, and the hazel and rich undergrowth bordering our path. We caught glimpses of snow peaks—of the double-headed peaks of the Adai group—of Tsforga, Boordooil, and others, in the range running from east to west, which were quite unknown to us. At seven, as it was growing dark, we halted, spread out our sleeping-bags upon the long grass, made a good fire close to the river, and prepared our modest evening repast; then, covered only by the protecting branches of the trees, and lulled by the noise of rushing waters, we slept well till daybreak. Somehow, I did not at first take kindly to this *al fresco* kind of

entertainment. But the blaze of the fire restored me to my wonted cheerfulness. I thanked Prometheus, and felt prepared to climb any number of Caucasian peaks to deliver him from his cruel fate, so great was my gratitude for the service he had rendered man.

It was very delightful the next morning to awake in the midst of this Caucasian forest. We got off soon after six, and for about two hours followed the right bank of the river. Then, when the glacier from which the Rion apparently takes its rise was well in view, we turned to the left, and in about two hours had reached the top of the pass we had to cross—the Goribolo.

Having rested awhile, we descended to the rapid glacier stream, the head of the Skenes Skali river.

Up to this point our Chiora driver had been most tractable, but here he commenced to give us trouble: he refused to cross the river without a promise of further roubles. We declined to make any definite promise, but assured him we would take all the difficulties of the way into consideration when we arrived at Lashkete. He seemed at first half afraid of the rushing torrent. But when Merun had led one of his horses across, and he saw that the rest of us had waded over in safety, he unpacked the horse he had been leading, and made a rush to secure the one that had already crossed. The attempt failed, and we threatened an appeal to the authorities if he refused to complete his bargain. The odds were too great for him—four to one—and he ultimately gave in.

All trace of track was lost as soon as we reached the right bank of the Skenes Skali. The course of the river was our only guide. Had we all been mounted, this part of our journey would have been more pleasant. But as Cockin, Almer, and myself were without horses, we had to make tracks first on one bank, then on the other, as either offered the better path. We had frequently to cross the stream, which occasionally was no easy matter.

Finally, the night closed in upon us, and we had again to camp by the rushing torrent, this time on a stony beach, a soft and level place for our sleeping-bags being impossible to find. Our Chiora driver, after his discomfiture, had worked magnificently: he splashed through the river leading the horses, and was most energetic in making a roaring fire as soon as we had concluded that we must encamp. The next day our difficulties were even greater than any we had hitherto encountered. On one occasion our baggage was saved from

a ducking only by a fine jump of the horse at a critical moment. Repeatedly we had to make tracks through the brushwood wide enough for our horses with their packs to pass. Huge trunks of trees lay across the path. The horses rebelled. Once, after great effort, we succeeded in planting the two fore feet of one of the horses over a great trunk, whilst his heels remained behind, and his belly rested on the tree. Such is not an easy situation from which to extricate a quadruped. Later we had an altercation with our driver as to the best method of working up a steep bank from the river's bed. He was tired of unloading and reloading. We set to work with our ice-axes, and prepared a passable path. But on turning round to bid our Jehu lead on his horse we found him blubbing like a child. He had evidently quite lost heart, or feared that he had indeed fallen into the hands of the Philistines and would never see his home again. We petted him and encouraged him, assuring him that in good time he would receive his reward. In places there were slight tracks along which sheep had apparently been driven; but about midday, having lost all traces of any path, we came upon a bend in the river where the channel contracted, and the waters, several feet in depth, rushed wildly between two steep and inaccessible walls of rock. We had completely lost our way, and there seemed no means of escape. We retraced our steps and scouted. Ultimately we discovered a track leading, at some distance from the river, across an open pasture into the depths of the forest, full of magnificent beeches, pine, and fir. Soon we came upon some woodcutters, and our hopes revived that we should ultimately reach our journey's end. The path, now good, led to the river's edge. The bridge had been carried away by the spring floods, and we had, with difficulty, to wade across. Then on for some distance on the right bank of the river, when the path doubled back to the river, and we crossed to the left bank again by a good bridge. The path doubled back again, and at a point where the river was broad and the waters were deep we were compelled (the bridge having been carried away) to cross on horseback with considerable danger to ourselves and to the beasts. Then our troubles were over. The road was good; the forest through which we passed was magnificent. I almost wished we might be benighted here that at least one night might be spent under such glorious trees. But we had no time to lose. On and on we pressed, hoping against hope that we might reach Lashkete ere nightfall. No such good fortune was to be ours. By eight we had reached a little village

called Malashe. It was quite dark, and we were still at least two hours journey from Lashkete. So, with a barn for our hotel, fresh straw for beds, and calves for our boon companions, we turned in for the night. The next morning early we reached Lashkete, the journey from Gebi having occupied nearly three days, instead of, as we had been told would be the case, a little more than one. At Lashkete we bade farewell to our Chiora driver. As we parted from him he, in an impressive manner, gave us his blessing, and wished us God speed.

Travelling and Mountaineering in the Caucasus.

I cannot refrain from moralising. I am convinced that mountaineers visiting the Caucasus with good Alpine guides should confine themselves to mountaineering—should with the least possible delay make their way to the district they intend to explore, and stick to the mountains.

Up to Lashkete we had spent eleven days in travel, and we spent eight more before we had finished our expedition, a total of nineteen out of thirty-five which I had at command in the country, leaving—making allowances for necessary off-days—less than a fortnight for mountaineering proper. Trudging through hot valleys is enervating, and is distinctly demoralising to the guides, to whom it is distasteful, and who, so far as our experiences have gone, display few of the qualities of the 'dragoman.' I enjoyed the travel: I found it interesting and stimulating, and I greatly appreciated the largeness of the acquaintance with the southern side of the central portion of the Caucasian chain which I obtained. But we accomplished much less climbing than in 1888, when we settled in one district and made ourselves well acquainted with the mountains there. To drag Almer with us day after day, through hot valleys and along the beds of streams, was a waste of guide-power, and, indeed, tended to diminish rather than increase our enjoyment. And from the time we had at our command to spend among the mountains our mountaineering successes were not commensurate with the cost. For the giants of the Caucasus, guides—and first-rate well-experienced guides—are, to my mind, indispensable unless men are prepared to run great risks and endure inordinate fatigue. But until natives are trained, climbers in the Caucasus, would, in my opinion, do well to be willing to be dubbed 'centrists,' and to settle down to climbing in some particular district. I am glad that my opinion is shared by my friends. Cockin fully endorses it; and when Woolley returned in 1889 almost

his first words to me on his expedition were: 'Holder, I am a confirmed one-valley man.'

Is the Caucasus Played Out?

I have more than once heard the expression that the Caucasus is played out. By no possible interpretation does this seem to me to indicate a truth. Certainly many of the highest peaks have during the last three or four years been ascended for the first time. But there still remains unconquered the southern peak of Ushba, which looks as though it would not be undeserving of the title of 'the blue ribbon of the Caucasus.' In the same district there is Mestia Tau. The highest peak of Janga has not been ascended. Mishirgi Tau has hitherto defied the attempts which have been made upon it. Very little climbing has been done on the southern side of the central chain, and our attempt on Janga, of which I will later on give a few particulars, will indicate what glorious work awaits the ardent mountaineer. In the Adai Choch group there are still several virgin peaks, and north east of this group Gumaran Choch,* accessible from Vladikavkaz, will, I suspect, amply repay if necessary, a whole summer's effort.

Here are surely sufficient possibilities of 'first ascents' to satisfy the most voracious appetite; and, though I do not depreciate the charm of a first ascent—a charm quite distinct from any mere vulgar desire for reputation—yet, if these possibilities be set aside, there are grand and unexplored passes for the Caucasian wanderer. Very few have yet beheld the glories of this range; it is still free from the visits of the ordinary tourist; the natives retain many of their primitive characteristics; there are no crowded hotels or pensions, 'crosses between health resorts, mountaineering centres, and the headquarters of matrimonial agencies.' Nature can be seen in all her original charms. Perfect freedom, the most complete change from the ordinary avocations of civilised life, and the most absolute rest can be secured. Played out! They have hardly yet had an innings. And it is to be hoped that, in spite of the occasional tedium of the journey many members of the Alpine Club, true lovers of mountains, will yet visit this wonderful and magnificent range.

An Attempt on Janga from the South.

More is sometimes learnt from failure than from success. An unsuccessful expedition is often stored with the richest

* See p. 558.

memories. Certainly I more frequently revert to our unsuccessful attempt on Mishirgi Tau in 1888 than to any of the successful ascents we that year accomplished, and I look back with the greatest interest on our attempt on Janga in August last. As our time was so limited we could not spare days for reconnoitring, but must needs attempt to take the mountain by one grand *coup de main*. We intended, marching up the Kalde valley, to sleep as high as possible, so as to start fair the next morning; but a storm coming on in the afternoon, we preferred dry shirts and the shelter of a kosh in the valley to exposed rocks for our resting-place at night. We started from the kosh at 3.20, a ridiculously late hour, which is only to be explained by the facts that all our watches were an hour or more late, and that we, of course, did not care to reach the icefall much before daylight. In the early part of our journey we lost time owing to the difficulty of crossing the glacier stream, which was remarkably broad and deep, and in the end we thought it best to cut steps over the huge arch of ice at the glacier's snout, under which the torrent flows. A short walk up the right bank of the glacier brought us to its eastern arm, over which without difficulty we made our way to the foot of what appeared to be, as I have elsewhere stated,* a huge buttress of rock leading right to the summit of the mountain. Though we had spent more than three hours in reaching this, yet we had great hopes of success, as the rocks did not appear to be difficult. At 7.30 we began zigzagging our way up this buttress, keeping the peak as much as possible directly in front of us. We found the rocks loose but not steep, and for $1\frac{1}{2}$ hour we made good progress. Then a rock-tower necessitated a descent on to the eastern side of the ridge for about half-an-hour. A short snow-wall was crossed. Then we attacked the arête again. At 11 we came upon a slope of ice, up which, for a little over half-an-hour, steps had to be cut.

Then, owing to numerous towers, we turned on to the west side of the ridge, and advanced slowly, mostly over rocks, which in some places were by no means easy, till we had reached a height of from 13,500 to 14,000 feet. On our left was a magnificent couloir, unfortunately filled with ice, so that we could make no use of it either in our ascent or on our return. At the height of 14,000 feet we discovered

* *Alpine Journal*, vol. xv. p. 318.

that between the ridge we had been climbing and the final peak there was a glacier at a depth of several thousand feet. The ridge turned sharply to the west. Here it was covered with snow. In half-an-hour we had arrived at the highest part of this ridge. From 2 till 2.30 we rested. We then descended by a snow-covered ridge, requiring care, to the head of the glacier which separated us from the mountain. Without difficulty this was crossed, and we worked vigorously for about two hours up rocks which we hoped would lead us to the summit. We were all in good condition, and up to this time had hardly allowed ourselves to dream of failure. When, however, at 5 P.M., we emerged from a small couloir up which we had been climbing, and saw, still towering above us, enormous masses of rocks, whilst the true top of the mountain was still hidden, we felt bound to call a council of war. Immediately above us the rocks looked smooth and difficult; yet we had little doubt but that they could be surmounted. But the question was, How soon could we hope to reach the top? Almer's estimate was at least two hours; and I did not think this was extravagant, for above the rocks there was a final ridge of snow or ice. In two hours it would be dark. Suppose we reached the top, we should, therefore, either have to spend the night upon the top or scramble down the mountain-side in the dark. We none of us cared for the prospect of spending the time till daybreak, especially as our food and drink were well nigh done, at a height of some 17,000 feet, and we all clearly recognised that the descent during the night would be perilous in the extreme. As we were deliberating, I remembered the wise words of our secretary—'Remember, Holder, that mountaineering is only recreation; it is not the main business of life.' And most reluctantly, yet unhesitatingly, when the full bearing of our situation had been ascertained, we all voted for an immediate return.

Before we were across the glacier night was on us. We thought perhaps we might get through the icefall and descend by the main glacier on the east of the ridge that we had climbed. From a distance the route seemed easy. There appeared to be innumerable bridges and few crevasses to bar our progress. But when we began to work our way there, yawning chasms presented themselves on every hand. The lantern shed its light but a short distance, and, after several fruitless attempts, we ascended to the ridge, intending to spend the night in a sheltered spot we had observed in our morning's climb. Our sleeping-place was the summit of a

ridge sloping slightly to the north, and thus affording some protection from the winds which might blow in this direction, whilst, on the south, a ridge of snow had drifted and frozen, forming an efficient barrier against wind or snow coming from the south. But though the night was clear and there was little wind, the cold was intense. Soon Almer and I were kicking our toes and shivering, and declaring that it were better to run any risks rather than be frozen to death—in whole or part. So we decided to move slowly and cautiously down by the route up which we had ascended. Our plan was to work for a while until we were well warmed, and then to rest in a convenient place until the cold compelled us to renew our energies and again to descend. It was, doubtless, perilous work. We had but one lantern, and when the leading man had found a footing, it had to be passed back to enable the rest to reach him. However, we slowly and surely made our way down, and at noon had reached without accident the kosh from which we had set out.

We returned to the priest's house at Kal, and were hospitably entertained. Our tent had been pitched upon his lawn, and his nephew was most assiduous in attending to our wants.

I only had time afterwards to reach Mazeri, and to spend one night away from tent, in the fond imagination that an attempt on Ushba would be possible. I had to abandon it, and the only additional valuable information I can give is that by hard riding I was able in just over three days to reach Kutais from our camp about a mile above Mazeri.

I append a list of prices of articles which we purchased from the natives, as it may be useful to future travellers:—

Bread.—Ordinary barley cakes, 12 per rouble; ditto, with a layer of cheese, 5 to 8 per rouble. Polenta cakes, 5 to 8 per rouble.

Wine.—30 to 50 kopeks per bottle.

Vodka.—30 to 40 kopeks per bottle.

Cheese.—15 kopeks per small cheese.

Fowls.—25 to 40 kopeks each.

Sheep.—1 rouble 60 kopeks to 3 roubles each.

Eggs.—1½ to 2 kopeks each.

Horses.—1 to 3 roubles a day, including the services of a driver. At Gebi we were asked 4 roubles a day.

[We hope to be able, in the February number, to give a map of the Adai Choch, illustrating Mr. Holder's journey]

CHANBION AND OTHER PLACES: AN EARLY HOLIDAY.

BY W. LARDEN.

AFTER eight summers of Switzerland in August, I find myself now obliged to go early in June, and to come away about the middle of July. This first experience of so early a summer holiday has been disappointing as regards climbing; all the more, perhaps, as things were particularly backward. Still some account of my quiet experiences may be of interest.

I travelled *viâ* Paris; had time at Berne to post my Gladstone (under 20 kilos.), rope, &c., to Innertkirchen, to have breakfast (the station restaurant, by the way, feeling very comfortable and homelike, after France), and to get a map at Francke's; and, after a very beautiful trip down the lakes, reached Meyringen early in the afternoon of June 12.

Setting off thence with knapsack, I reached Gadmen, after a very leisurely walk, in the evening. Having been moving ever since 11 A.M., Wednesday (June 10), I was tired in head and body, and looked forward to a good dinner and a rest. But here, alas! I found that June is not August. After offering me 'whatever I liked,' they supplied me with soup containing garlic, sausage also containing garlic, a *very* heavy omelette made mainly of flour, and poor bread. Naturally my sleep was not good after this. On such fare I had to live for two days, until some meat arrived from Meyringen.

However, the people were very friendly; and I found the landlord, Herr Tännler-Weissenfuh, a very intelligent as well as honest and obliging man. I reaped the fruit of some solitary 'grind' at German, as I found him interesting to talk with. I was the only guest.

A day's excursion to the Engstlen Alp showed me the hotel empty—I was the first visitor—and the grass still brown from snow, some of which, too, lay about in patches.

As soon as Stein was opened I went up there—still the first guest. However, a non-climbing friend joined me in two days' time.

The walk to Stein is very beautiful; even in June such colour in rocks, trees, and whortleberry bushes, and the nooks so filled with flowers, ferns, and mosses. And then the views back as one rests on the zigzag ascent! To one used to the valleys running up to the Monte Rosa group

these Bernese Oberland valleys are very lovely—so much more colour, so much less desolation. Then the villages are so different. Here, we have bright-looking picturesque châteaux of the ideal Swiss type, made interesting, too, by the inscriptions branded on them. All suggests a clean and sunny life. There—well! just look at Haudères beyond Evolena! One wonders if the people who invented such a place can be of the same order of beings as those who built, say, Adelboden. But man is conservative, and I still retain an affection for the blackened, dirty, ruinous Rhone-valley kind of village. One feels there that there are age and history, while in the Bernese Oberland one thinks of prosperity, visitors, and—toy shops!

Stein has a grand air, and should be a fine place for amateur, and other, climbing; but weather was against it then, and my friend wished to leave for Adelboden. I did not feel equal to more solitude in bad weather, so I went too.

Adelboden is certainly a beautiful village. A fine old plane tree in the churchyard, and the inscriptions on the houses prevent one from feeling it to be a toy village. From a little way off the tree and church formed a comfortable centre to the houses, and one almost thought of England; the whole felt rural. While there, I found a way (whether the right way or not I cannot say) up the Lohnerhorn. I have never seen more rotten rocks; they are not so much rotten as apparently made in small pieces, and put together afterwards. For the Wildstrubel I had no guide, and the weather was bad; hence I had to leave it alone. After five days we went off to Binn.

The Binnenthal was quite a revelation to me, even after the Bernese Oberland. The trees, magnificent firs and larches, the flowers and ferns, the rocks, and, perhaps above all, the beautiful streams—not *gletscher* water, but clear and of a delicate green tinge—formed a whole that was charming. After such valleys as the Val d'Hérens, from Sion to Evolena, it is wonderfully refreshing and homelike in the Binnenthal. And the waterfalls! There is a fine fall above Heilig Kreuz; and above that, on the Ritter Alp, a still more wonderful slide of water of great length and of bewildering energy. And the stream that descends from the Geisspfad See is well worth a day's ramble along its banks.

Nor is snow lacking. The Ofenhorn crowns one valley; and the Hüllehorn shows above the trees up another.

Moraines are missing in the views; but even the most enthusiastic lovers of mountains have no love for these types of desolation and waste. The grandeur of Saas Fee one has not at Binn, it is true; but there is room in Switzerland for both, and one does not want to be soothed and stirred at the same time.

Binn itself is a quaint village. It is very black and very dirty; and the 'approach' to the hotel lies between manure heaps. But the hotel itself stands above all smell; and the whole view of irregular, weather-stained, tumble-down chalets, huddled together for warmth and mutual support, of white church, and of green pastures, of dark pine woods, with enough snow mountain rising above them to raise the mind to the snow world above, is singularly restful and satisfying. The shorter walks are very delightful: so much of stream and rock, of wood, fern, and flowers; such pleasant shade; such absence of Alpine desolation. And the climbs, if not hard, are yet interesting, and do not involve the tedious and hot descents such as almost spoil the end of many a day at Zermatt or Saas Fee. At Binn one strolls home in the shade, and bathes under a waterfall on the way.

One day we went up to the Ritter Joch—a grand view there. Then I took our 'guide,' much to his alarm, a slightly new way (an easy one) up the Helsenhorn. His ideas were original. He had 'no fear on the snow'—*i.e.* would tramp over a covered glacier without a rope—but he was alarmed at the rocks. 'If one became giddy?' We had glorious glissades down in soft snow; a new feature to me, used as I was to August slopes. I should have been glad of the leather 'trimmings' adopted by some of our practical and regardless-of-appearances Swiss brethren.

Among the attractions of Binn I must not omit to mention two—the landlord, Herr Schmid, and the telephone, especially in combination. The former is all one can desire or imagine as regards courtesy and goodwill. Moreover he is a really interesting man to talk with, and the more one hears his views the more one likes the man. (Second reward of my private grind at German.)

Then the telephone! Any wet day one can pass an hour full of amusement by sending a telegram (of any sort, to anyone, anywhere) and by being present at its despatch. The message goes first to Aernen by telephone. Now the family live partly at Binn and partly at Aernen. Naturally, then, there is much preliminary family talk, in the quaint Swiss dialect. Though somewhat one-sided to the audience,

one can guess the inaudible replies. Thus Miss Gardner telegraphed for Xaver Imseng to Saas Fee; telegram 'to follow' if he were away. The message began with enquiries as to a most interesting family event in Fiesch. We were all pleased and relieved to hear that all was well and 'that it was a boy.' After a time the real message began. Xaver's name took a quarter of an hour. It was pronounced in various tones, and spelt forwards (and backwards?) 'Faire suivre,' latter word two very distinct syllables, took twenty minutes. We had plenty of time, so enjoyed the performance much, going away at intervals to laugh in distant places. We went to dinner after a time, and the telegram was finished before we went to bed. The guide got the main part of the message rightly; 'faire sui-ver' had worked. I should add that the telephone is Herr Schmid's barometer, and that, at the time, there was 'thunder about,' which caused the instrument to bubble and fry more than usual.

One day Miss Gardner, Xaver Imseng, and I went a pleasant excursion up Cherbadung. We came back along the arête on the Schwarzhorn. There Xaver set up a stone-man, no sign of travellers being seen. We then struck a new way down, towards the Geisspfad route, the steep snow at that time not requiring steps. Feeling that I, who was descending first, was not wanted on the rope, I untied and had a magnificent glissade in two pieces. First a long steep slope, managed sitting, the ice-axe buried and tearing up the snow in fine style. This ended over rocks, at which the brake enabled one to stop. A short scrambling descent and traverse took one then on to long snow slopes below a small hanging glacier, and there was another long but rather rougher glissade, for which the powerful ice-axe brake proved 'necessary and sufficient,' as mathematicians say. In August these slopes would probably need steps all the way down. The walk to Imfeld was down a beautiful valley by the torrent before mentioned. I thought of trout. The whole expedition was most enjoyable and not tiring. I cannot help thinking (with Mr. Conway?) that such expeditions should not be so neglected as they are. We go out for holidays and refreshment, and are too apt to divide our time between long and exhausting strains, and 'loafing' about an hotel in a village crowded with tourists of all nations. At Binn one is in the country; the mind is satisfied and rested.

Then we went up the Hüllehorn the wrong way and came down the right. The rocks at the top afford (especially when

snow-bedecked) a pleasant scramble whichever way one goes, and one can easily make a climb up the lower part—as we did.

Some time before, an elderly Swiss artist, by name M. Lugardon, whom I had met several times at Arolla, a most kind man and one devoted to the mountains, had written to me telling me I ought to visit Chanrion. I am a member of the Geneva section of the Swiss Alpine Club, and so felt especial interest in seeing the new *cabane*, the more so as it lies near Arolla.

So, on descending from the Hüllehorn, I packed up and got down to Sion that night. Next day the 4.45 A.M. train to Martigny, then the *Postwagen* to Chables. There I got a nice young porter, called Edouard Bruchez, to carry my things (including some provisions) and set off in a broiling sun at 1.30 P.M. We reached Mauvoisin at 6 P.M. Some time later the porter stayed behind for some milk, and I went on alone. I had no map, and only a vague idea as to where Chanrion might be, as I had never been farther than the path off to the glacier 'Lyrose.' After crossing to the right-hand bank of the stream I got pretty high up and then lost the path at a place that I will call 'A.' But I chose the best defined track that I could see farther on.

Passing round a corner and along scree I crossed a stream. I supposed it to be the stream from the Otemma Glacier; but, without map, with mist about, and gathering dusk (the sky was clouded over) I could not be sure. On the other side I followed the path as well as I could, guided partly by occasional stones set up on end. But at last, finding a moraine to my left, and snow (spring or winter snow remaining) in front of me, I halted. It was 9.30 P.M., and so dark, on account of the mist, that I had to light a match to see my compass. I found I was going due south. With a map I should have found that I was near the top of the Col de Fenêtre, and had the little Glacier de Fenêtre on my left.

I turned round, and by the expedient of laying my head on the ground was able to see the stones spoken of against the sky at intervals. But I soon lost the way, and had to feel for a route in the dark. Finally I came down to the Otemma torrent by the side of the moraine of the Glacier de M. Durand. Till one tries it one can have no idea how difficult, and without care how dangerous, an ordinary hill-side is in the dark. Of course I had my axe with me; otherwise I could not have got along at all, as I could, by sight

alone, not distinguish between a black patch and a hole between boulders.

I found the bridge again, and finally returned to place 'A.' Here I lost the path again. Vainly I looked for a lantern in search of me! I mounted various small heights, but saw nothing. At last a light appeared far below, on the route to Mauvoisin. I lit numerous matches, but without response. Very tentatively, and with much probing with ice-axe below me, I got down bit by bit; and at last struck the path, and so found the bridge leading to Mauvoisin. Blundering along on the other side, I suddenly came on a strange sight—a group of moving forms, emitting tinkling sounds, and lit up, especially about the feet, with fitful fire. Phosphorescent goats! What could it mean? After tumbling over a cow or two I reached the group. All was explained. A milk hut had its roof flush with a slope; the goats had walked on to the roof, and through the chinks of this came light from a huge fire demanded by some midnight incantations in which curds took the place of toads in the caldron and two *bergers* answered to the three witches. And it was intermittent light shown by the opening and shutting door that I had taken for a moving lantern!

It was now 12.30. I was very hungry, but had kept off an 'empty' feel by drinking much water—a good plan, by the way.*

The *bergers* could not help me. So, fearing that the porter and M. Lugardon would be looking for me all night, I turned out of the glow of the hut and sat on a high knoll in the quiet and dark. At last I saw a veritable lantern far away back at place 'A.' I lit responsive matches, and the lantern stopped to look; clearly it had seen my matches.

To cut matters short—or less long—I will add that I stumbled up to meet the lantern and found that my porter bore it, while a small boy—M. Lugardon's factotum—accompanied him. We reached the *cabane*, by a path at places invisible even with aid of the lantern, at two o'clock. I was tired indeed! Thirteen hours the day before, and now 12½ more without food, besides coach and railway travel. Old M. Lugardon, who did not know I was coming, turned out to comment on the noise at this late hour, but finding that it was I, and hearing my story, he showed his usual kindness and comforted me with hot cocoa and other nice things.

* [We should like a medical opinion before recommending for general use this means of producing a sense of repletion.—ED.]

Next day I looked round. It is a grand place. Placed some 8,000 feet above the sea, in fine air, it commands alps dotted with small lakes in the foreground, while farther off stand up a ring of snow mountains.

I found M. Lugardon established there with painting materials, photographic apparatus, two goats, and a small boy to tend them. He shared with me the milk (not too plentiful), and also other good things, as cocoa, &c. ; for my hastily-obtained provisions were not at all satisfactory.

One day I went up Mont Avril for a view, and had a fine series of glissades down. Another day I scrambled up the Pic d'Otemma. My late porter happened to be up at the hut again, and went with me for the fun of the thing. He was rather amused at being guided up by a traveller; but he did not mind it, and took mental notes of the way for future use. He was only 19 years of age, and inexperienced; but he seemed sure-footed, and was certainly a courteous and intelligent companion.

More than this I could not do, not having companion or guide, but my four days at Chanrion have left such an impression on my mind that I mean, if possible, to stay there for a time next year and to get Joseph Quinadoz over from Arolla. If only I could find a companion at that time! But I fear it is too early.

Such was my uneventful holiday this year. It was too early, and the season was, they told me, about three weeks late. One merit I can claim: I was not 'centric.' In fact my route to Chanrion, *via* Col de Fenêtre, was decidedly eccentric.

[P.S. If this paper meet the eye of any friend who also is in want of a companion for a holiday in Switzerland next year between about June 9 and July 15, I should be very glad to discuss plans with him. It has occurred to me that one might camp out at Chanrion with satisfactory results; or perhaps try what Tyrol is like in the early summer.]

ACCIDENTS.

THE year 1891 has, perhaps to some extent in consequence of the bad weather, been singularly free from accidents in the High Alps. In fact, only three, or at the most four, deaths appear to have resulted from conditions which might not almost equally well be fulfilled on Dartmoor. We will deal with these first.

On June 28 Signor Leopoldo Lanza, a young member of the Turin Section of the C.A.I., ascended the Roche Melon by the usual route from the Casa d' Asti. Within 100 ft. of the summit his foot slipped on a slope of ice covered with snow; he fell a height of 1,600 or 1,700 ft., and was, of course, instantly killed. He had a porter with him, but the account in the 'Rivista' of the accident makes no mention of a rope.

Two months later Colonel Filippo Zucchi, of the Italian Engineers, started alone to ascend the same peak from the Hospice of Mont Cenis. He was spoken with later on at the Alpe du Tour, but was not seen again. Up to the end of September all search for him had been fruitless.

On Friday, July 31, Herr Weber-Imhof, of Winterthur, a well-known Swiss climber, ascended Piz Bernina by the 'Scharte' with the guides Schocher and Schnitzler. Descending by the usual route, they reached the Boval hut at 9. The weather had been bad, and Herr Weber, not wishing to pass the night in wet clothes, decided, after a quarter of an hour's halt, to push on for Pontresina. Lanterns were lighted and the party set out—Schocher in front, Schnitzler behind, the traveller in the middle. A little below the spot called the 'Cheminée' the path passes over wet ground, and some stepping-stones have been put down. On one of these Herr Weber seems to have tripped, and to have fallen head foremost down a low rocky wall not more than 20 ft. in height, which at that point borders the path on the right. Help was fetched at once; but Herr Weber, though still breathing when it came, died before noon at the Morteratsch Restaurant. This disaster appears to have been as purely accidental as any could be. The path is used by cattle, and no reasonable precaution for traversing it in the dark seems to have been omitted. The guides behaved well, especially Schocher, who wrapped his Herr in his own coat, and sat for three hours supporting him until Schnitzler returned with help. We are glad to draw attention to their conduct, as Pontresina guides are, not undeservedly, for the most part in low esteem with mountaineers.

On August 20 a party consisting of Herr Rothe, of Brunswick, Count de Favernay, three guides, and two porters reached M. Vallot's hut on the Bosses du Dromadaire. The weather the following morning did not allow them to complete the ascent of Mont Blanc, and in the afternoon of the 21st they began the downward journey. Their party was increased by four of the men employed in connection with M. Janssen's proposed observatory. As they descended from the Grand towards the Petit Plateau a mass of ice and snow falling from the Dôme du Goûter started an avalanche, which caught those in rear

and swept five of them—Herr Rothe, his guide, Michel Simond, the porter Armand Comte, Count de Favernay, and one of his guides into the great crevasse. All but the first two were extricated, Comte with serious injuries, but the bodies of Herr Rothe and Simond were only recovered a few days later. The whole party, eleven in all, appear to have been on one rope, and when the fall took place this parted—it is said on both sides of Comte. It is hard to say in a case like this, when the mass of snow dislodged was very considerable and the distance traversed by the party in falling very short, whether the presence or absence of a rope would have made much difference, but it would surely have been more prudent for the party to have broken up into small detachments instead of thus 'putting all their eggs into one basket,' and there seems no doubt that either to save a little time, or straying from the right road in the mist, they had kept too far to the left, and so brought themselves within range of the missiles discharged by the Dôme.* There appears no ground for the ungenerous insinuation of one English newspaper that Herr Rothe was duly warned of danger, and that his guide was with reluctance persuaded to accompany him.

The remaining accidents, of which we need only give a few typical specimens, are almost without exception instances of falls on rocks, in most cases with the addition 'climber alone.' Thus Herr W. Behr, of Hamburg, left Cortina on August 13 to climb the Becco di Mezzodi, a peak of no particular difficulty. As he did not return the guide Barbaria went in search of him, and found him next morning with his skull smashed at the foot of a precipice some 260 feet high.

On Friday, August 7, two Vienna schoolboys, aged 17 and 18, set out to walk from Radstadt to Gosau over a pass called the 'Stiegl,' which, it may be remarked, is 'markirt.' Shortly before reaching the lower Gosau lake they lost their way, and the elder, Joseph Kraus, fell over a precipice some 300 feet high and was killed. The other lad, Karl Karger, reached the body and went for help, but in his bewilderment lost his way and wandered off towards the Dachstein. Not till the Sunday did he reach the Gosau See. A party then went up and with much difficulty brought down the body. Similar accidents of course occur in every mountainous district. There is little to choose between a fall of 100 feet and one of 100 metres, and the lower ranges of the Alps differ from Welsh or Cumbrian mountains only in the fact that, the distances being greater, those who lose their way run a greater risk of being overcome by hunger or fatigue before they can reach shelter.

Of all the accidents of the year perhaps the most melancholy, because, so far as can be seen, the most recklessly incurred, is that by which Signor Mario Andreis, treasurer of the Italian Alpine Club, lost his life on July 19. A party of members of the club having gone on a Sunday excursion from Turin to the famous sanctuary of San Michele, Signor Andreis, accompanied by the well-known mountaineer, Signor Fiorio, proposed to arrive at their destination by clambering up

* See Hudson and Kennedy, *When there's a will, &c.* Second Edition, pp. 96, 97.

the precipice below the monastery known as the Salto della Bell' Alda. After an hour's climb they came to a path, and Signor Fiorio proposed that they should abandon the rocks and follow it. Signor Andreis, however, begged to be allowed 'a little more gymnastics,' and they proceeded to scramble upward. After about half the remaining distance had been achieved Signor Andreis, while prospecting ahead up a difficult chimney, lost his hold and fell in several bounds to the wood below, being killed instantly. He was close upon forty years of age.

The 'Echo' of August 21 recorded the death of a French officer, who 'fell from a height of 1,500 feet whilst ascending one of the ridges of Mount Chambeyron, which has an altitude of 12,000 feet and . . . has always been considered inaccessible;' but no intelligence of this disaster seems as yet to have reached the 'Rivista' or any other organ of Alpine information. Both Chambeyron peaks were ascended by Mr. Coolidge in 1879. The highest is 11,155 feet.

We may congratulate ourselves that in the present year not only no member of the Club but no Englishman has lost his life in the mountains. We can read the diatribes of well-informed writers on 'the alarms and excursions of Alpine climbers, their perilous jealousies, their lamentable record of deaths and casualties,' 'the spirit of competition which has made mountain-climbing a thing to be enjoyed in proportion to the risk run,' 'the *quorum pars fui* vainglory, which plays a very significant part in the endeavours of those who risk their lives in climbing such peaks as the Jungfrau or Mont Blanc,' 'the perversity of mountain-climbers,' and so on, and feel that this year, at any rate, their fables are not narrated of us.

NEW EXPEDITIONS IN 1891.

[It is thought that the time has arrived when the fact that an expedition is 'new' hardly confers sufficient importance on it to make its classification under a separate heading necessary. Of course so long as any points from which the ground falls on all sides remain untrodden, and the depressions between them untraversed, it will always be possible to find 'peaks' and 'passes' to which the term 'virgin' may be applied, and which may very well serve as goals for the enterprising climber. But it can hardly be said that the relation of his success in attacking them will add more to our knowledge of the Alps, or convey any more generally valuable information than the accounts of many another expedition, which does not profess to have been done for the first time. In future, therefore, reverting to a former practice, one section will be devoted to 'Alpine Notes and New Expeditions.']

Dauphiné.

S. PIC DU SAYS (3,409 m.=11,180 ft.). July 6.—Mr. J. H. Gibson, with Ulrich Almer and Fritz Boas, starting from La Bérarde, climbed this peak from the Petit Glacier du Chardon by the long couloir that descends to it from the arête running between the N. and S. Pics du Says. From the top of the couloir the arête was followed to the summit. The ascent took 8 hours, nearly 4 being spent in the

couloir, where stones fell frequently. The descent was made by the western face by the rocks almost immediately below the top, and occupied 4 hours.

THE MOST WESTERLY OF THE FOUR AIGUILLES DU SOREILLER (being that immediately to the E. of the Col de Burlan). *July 8.*—The same party, starting from La Béarde, made the first ascent of this peak, marked 'vierge' in Mr. Coolidge's 'Guide-Supplément.' The route to the Col de Burlan was followed until the party reached the snow-field lying at the base of the Aiguille du Plat, the Col du Burlan, and the peak in question. Here they kept to the right, so as to strike the bottom of the midmost of three diminutive couloirs that hang from the S.E. face. Keeping up this couloir for a few yards, they took to the rocks on the left, and then bending to the right, so as to make for a steep chimney quite conspicuous from below, they struck the arête some distance to the right of the highest pinnacle. The ascent took 6 hours, and is not difficult except in the chimney referred to, but the rocks are loose in many places on the face. No signs of any previous ascent could be seen.

PIC CENTRAL OF THE MEIJE FROM THE GRAND PIC. *July 13.*—The same party, starting from the Refuge Chatelleret, climbed the Grand Pic of the Meije by the ordinary route, and, after descending to the eastern arête, passed along it to the Pic Central, which was reached in 4 hours after leaving the Grand Pic. The descent from the Grand Pic to the first gap was distinctly difficult; the rocks slope the wrong way, are loose in many places, and give little hold, and in addition at the date of this expedition were coated with ice and snow, which had to be cleared away as the party descended. A spare rope of 150 ft. was in constant requisition. From the top of the most westerly of the four great teeth a fragment of the rope left by Messrs. Zsigmondy and Purtscheller in 1885 was seen hanging. It was impossible, however, to ascend as they descended, as the rocks overhang; the party succeeded, however, in ascending by a crack that, starting from the bottom of the pinnacle, bends round on to the La Grave side of the tooth. This was much the most serious part of the expedition, but it is quite short. Once on the top of this tooth all real difficulty ended. The snow was in excellent order, and the route followed by Messrs. Zsigmondy was reversed. La Grave was reached at 5.30 P.M., the whole expedition from the Refuge Chatelleret occupying 15 hours, including halts. [This route, though practically the reversal of that followed by the Zsigmondys and Herr Purtscheller in 1885, and described in 'Im Hochgebirge,' p. 337 *sqq.*, has not before been taken in any direction by an English party, nor indeed by any party since the first. Moreover in the case of a peak like the Meije it requires to be proved that a route which has been followed in one direction is practicable in another; so that Mr. Gibbon's expedition has as fair a claim to be called 'new' as most.]

St. Bernard District.

MONT FOURCHONS (2,909 m.=9,554 ft., I. map; 2,900 m.=9,514 ft., S. map; see Conway, 'Pennine Guide,' p. 5). *July 18.*—Mr. and

Mrs. Alfred G. Topham and Mr. H. H. Winterbottom, without guides, made the first ascent of this point. Having ascended the Pain de Sucre, they descended by the N.E. face into a col separating it from the Fourchons, and ascended by an easy ridge of snow and rock in one hour from the Pain de Sucre (4 hours from the St. Bernard Hospice). They erected a small cairn on the top, and descended by N.E. face. The Fourchons could also be easily reached by a long undulating ridge from the Col de Fenêtre. The position of the Fourchons is clearly and accurately denoted on the I. map, the S. map having the name written considerably to the S.W. Mr. Topham adds: 'The Pain de Sucre is really the only *peak* seen in the S. view from the Hospice. Ball mentions it, but on looking through the "Journal" I can find no mention of an ascent, though it is said to be a well-known point for tourists.' It would seem, indeed, to have been so long before this Journal came into existence.

Val de Bagnes and Combin District.

MONT DE LA GOUILLE (3,223 m. = 10,574 ft.). July 18.—Messrs. G. W. Prothero and Walter Leaf, with Clemenz Zurbriggen, of Saas, ascended this peak by the N.W. buttress and arête, and descended by the E. face to the Glacier de Valsorey. The whole expedition was perfectly easy. Times, very slow; ascent from Bourg St. Pierre, 5 hrs.; descent, 3 hrs.

This appears to be the first recorded ascent; but the peak is a favourite resort of chamois, and is said, doubtless with truth, to have been frequently reached by hunters.

LE RITORD (3,568 m. = 11,705 ft.). July 21.—The same party made the first ascent of this peak, which is a prominent object in the view from the Val d'Entremont, near Liddes. Mounting by a path through the woods at the back of St. Pierre, they reached the Alp of Challand d'Amont in 1½ hr., and the top of a huge moraine, which here skirts the range of the Maisons Blanches, in 3 hrs. Crossing a nearly level snowfield for half an hour, they reached a couloir running up to the ridge to the S.E. of the peak. Up this they mounted for 55 min., then took to the rocks below the summit, which was gained in 1¼ hr. more—5 hrs. 40 min. from St. Pierre. The descent was by the N.W. arête and a steep snow couloir, back to the large moraine. Time to St. Pierre, 2 hrs. 25 min.

LE MOINE (3,574 m. = 11,725 ft.). July 23.—Mr. Prothero, with Clemenz Zurbriggen, made the first ascent of this peak. The route of the Col des Maisons Blanches was followed from St. Pierre to the hut on the Grande Penna. The prominent couloir to the W. of the peak was ascended in 1 hr. 50 min., and the summit gained by the N.W. arête in 35 min. more. Descent by the same route. Total times: 5 hrs. 20 min. up, 2 hrs. 35 min. down.

(The point ascended is called Le Moine in the Siegfried map, but locally that name is given to a comparatively insignificant tooth at the head of the large couloir on the other (N.) side of the Aiguille des Maisons Blanches.)

COL DES CHAMOIS and MONTE CORDINA. *July 25.*—Messrs. G. W. Prothero and Walter Leaf, with Clemenz Zurbriggen and Auguste Ballay, of Bourg St. Pierre, crossed the Col de Valsorey, descended about 1,000 feet on the S. side, and bore to the S.W. across slopes of *débris* till they got near the foot of the long couloir which descends from the Col des Chamois. Finding this impracticable on account of frequent stone avalanches, they ascended by the rocks to the N.E. These presented considerable difficulties, but ultimately brought them to the ridge at a point between the actual col and the summit of Monte Cordina. The latter point was reached in a few minutes. Returning to the col, they crossed the glacier without difficulty, and joined the ordinary route from the Vélán.

(By Monte Cordina is meant the point S.W. of the Col de Valsorey, and by Col des Chamois the well-marked notch beyond it. The name Mont Capucin,* according to Ballay, belongs, not to this point, to which Mr. Conway attributes it, but to the point 3,467 further S.W., which is supposed to resemble a monk at his prayers. The height of M. Cordina is probably about 11,200 feet, the col some 200 feet lower.)

BEC DE LA LIAZ (3,454 m. = 11,332 ft.). *August 14.*—This name is given in Ball's 'Alpine Guide' ('Western Alps,' p. 270) to the meeting-point of the ridges enclosing the Glacier de Botzeresse. It is proposed to retain it, the peak being the highest point of the ridge running N.E., and called locally Les Mulets de la Liaz,† a name which in the Siegfried map has been transferred to a ridge lying farther to the S., and quite unconnected with the Alpe de la Liaz, the position of which is immediately under the former ridge. Mr. and Mrs. F. Baker-Gabb, with Clemenz Zurbriggen (Saas) and his son, starting from the Hôtel Giéroz, Mauvoisin, followed the route taken by the first party to the summit of the Aiguille de Botzeresse. They then descended to the gap on the W. of the Aiguille, and followed the ridge connecting it with the highest point, which was reached in 50 min. from the Aiguille. No trace of a previous ascent was found. The peak commanded a particularly fine view of the Grand Combin. The descent was made by the S. face, bearing always to the left.

POINTE DE LA GRANDE LYRE (3,348 m. = 10,984 ft.). *August 17.*—Mr. F. Baker-Gabb, with the same guides, left the hut at Chanrion at 4.35, and, ascending the Glacier de Breney, reached the foot of a snow couloir between the point now known as the Pointe des Portons‡ and the point ascended. This couloir was mounted to the ridge overlooking the Glacier of Les Portons, and the ridge was then followed to the summit, which was reached at 8.40. From there the ridge was followed with occasional deviations on to the face to the summit of the Pic d'Otemma, 2 hours from the Pointe.

GRAND COMBIN BY S.E. ARÊTE.—On September 10 Messrs. C. G. Monro and O. G. Jones, with Antoine Bovier and Pierre Gaspoz, of Evolène, left the Châlets de By, in Val d'Ollomont, at 4 A.M., and reached the W. Col de By in about two hours. Thence they traversed

* See p. 258.

† See p. 299.

‡ See p. 473.

the Glacier du Mont-Durand, keeping at first up to the left towards the Col du Sonadon and then making a sweep round to the right. Having thus avoided the most crevassed part of the glacier, they reached the foot of the S.E. ridge, which descends from the Aiguille du Croissant to the Glacier du Mont-Durand. It consists chiefly of loose, shaly rocks, with occasional beds of snow, and is, on the whole, of no great steepness. The going was very slow, owing to the illness of Mr. Monro, who had to be left behind at a height of about 13,500 ft., the others going on. They cut up a slope of hard snow and along the left-hand side of a sharp snow ridge that led directly to the foot of the great rock which forms the chief difficulty of the ascent. As this side of it looked very formidable they traversed 40 ft. to the left and found themselves at the base of a chimney about 15 ft. high. This was ascended, and then a somewhat similar chimney above it. There was a little trouble from loose rocks. From here the route was evident—first to the right along the edge of a sloping face of rock till a cleft in the topmost ridge could be reached and the narrow ridge climbed. Then came a little step-cutting to the left of a very pretty cornice, and then easy snow-slopes led to the summit. The difficult part of the rock-climb is about 60 ft. high; the ascent of the rock took 40 min., its descent, 20 min.

In the descent the same route was followed, and By was reached about 5 P.M. Under ordinary circumstances the summit could easily be reached from By in about 7 hrs.

TÊTE DE CORDON* (3,406 m. = 11,166 ft.); TÊTE D'ARIONDET (3,550 m. ?).—On September 8 the same party left By at 5.20 A.M. and went, in 2 hrs. 40 min., to the Col de Valsorey; here they turned left and followed the top of the ridge which runs west from the pass. Having crossed Mont Capucin and passed over the Tête de Cordon by easy snow-slopes, they made the ascent of the next point to the W., to which the name of Tête d'Ariondet has been given. It is a sharp ridge, the N. and S. faces of which are very steep. The party went up the steep eastern ridge, and, as the snow was very hard, a good deal of step-cutting was required. The summit, which was gained at 11.45, consists of a very sharp, nearly level snow ridge, with two little snow points of about equal height at its W. end. The next point to the W. is that from which the S. ridge of the Vélán starts. Clouds so obscured the view that the party were unable to see the great couloir by which Mr. Conway descended,† and which probably starts from the gap between the Tête d'Ariondet and the point to the W. of it.

The descent was effected by the same route.

Arollo District, Val d'Hérens, and Val d'Anniviers.

DENT PERROC (3,680 m. = 12,074 ft.) BY POINTE DES GÉNEVOIS (3,679 m. = 12,070 ft.). July 27.—Mr. Alfred G. Topham, with

* Compare Mr. Leaf's account of Col des Chamois and Mte Cordina (p. 544). It must be noted that Mr. Leaf's 'Mte Cordina' is Mr. Monro's 'Mt Capucin,' while Mr. Monro's Tête de Cordon is on the other side of the Col des Chamois.

† See p. 301.

Jean Maître and Pierre Maurice, left Arolla at 1.30 A.M. and reached the summit of the *Pointe des Génevois* by the S. ridge at 7.30. The ridge between here and the *Dent Perroc* is very sharp and jagged, the most serious obstacle being a deep cleft about half-way across. A descent was made into this by means of a reserve cord. From here a means of avoiding this descent was seen and tried—viz. by descending the E. face diagonally, traversing below the 'gendarme,' and so gaining the cleft. This was invisible from the ridge owing to overhanging rocks, and would be useful to anyone going in the reverse direction. The other gendarmes presented no serious difficulties, and the *Dent Perroc* was gained in $2\frac{1}{2}$ hours from the *Pointe des Génevois*. The ridge between these two is very strongly recommended, and should be followed by anyone ascending the *Perroc* or the *Génevois*, the whole expedition affording most interesting rock-climbing.

GRANDE DENT DE VEISIVI BY E. ARÊTE. *Sept. 3.*—Messrs. C. G. Monro and O. G. Jones left *Ferpècle* at 4.20 A.M., and, crossing the bridge below the hotel, turned left and mounted to the left bank of the *Glacier du Mont-Miné*. They followed the moraine till a point about $\frac{3}{4}$ hr. distant from the hotel was reached, where a passage was with some little difficulty found up the rocks to the right, to the steep grass slopes above. They went straight up these slopes to the foot of the eastern arête, which was reached at 7.40, and followed to the top in 3 hrs., including a halt for breakfast, not far below the summit. The rocks are good and afford a very pleasant scramble. In the descent the usual route to Arolla by the *Col de Zarmine* was followed.

DENT DES ROSSES (3,620 m. See 'Ferpècle group' in 'Pennine Guide'). *Sept. 2.*—The same party, plus Mr. W. D. Monro, with Ant. Bovier and Pierre Gaspoz, of *Evoléna*, as guides, and Bovier, junior, as porter, left the hotel at *Ferpècle* at 3.45 A.M. They followed the path to *Bricolla* for 35 min., and then, turning left, followed a path which mounts steeply to the *Alpe des Rosses*. From hence they inclined to the right, crossed the rt. moraine of the little glacier which descends from the W. face of the *Dent des Rosses*, and got on to the ice at the point where the glacier begins to slope more steeply upwards. The glacier was followed to its head, from which a conspicuous couloir runs to the right, up to the gap in the ridge immediately S. of *Dent des Rosses*. This couloir was ascended for about three-quarters of its height, and then, as the snow gave place to ice, the party went straight up the rocks on the left, which are good, though difficult in places, and thus attained the S. ridge of the mountain, consisting of easy snow-slopes. These were followed to the summit, which was reached at 11.15. In the descent the party followed the S. arête to the top of the above-mentioned couloir, and, keeping to the left along the highest névé on the W. side of the *Moiry Glacier* below the ridge leading to the *Pte de Bricolla*, reached the *Col de la Pte de Bricolla*, by which they descended to *Ferpècle*.

LO BESSO (3,675 m. = 12,057 ft.), FROM LE BLANC. *July 31.*—Messrs. G. W. Prothero and Walter Leaf, with C. Zurbriggen, made an expedition which is possibly not new, but appears not to have been

recorded. It is well worth notice as a most interesting climb for a short day.

Leaving the Mountet hut at 8.20, they mounted in 1 hr. 55 min. to the highest point in Le Blanc, at the articulation of the main ridge with that which runs S.W. behind the Mountet. Hence they followed the N. ridge all the way to the summit of Lo Besso. The descent to the col immediately S. of Lo Besso was difficult, and the whole route afforded capital climbing. Time from Le Blanc to summit, 2 hrs. 10 min. Return to hut by ordinary route, 2 hrs. 40 min.

It appears from a note in the visitors' book at Zinal that in July, 1877, M. Javelle, with two friends, boys of 10 and 14, and without guides, ascended Lo Besso by the S. arête, having gained the col at its foot by a difficult climb direct from the Glacier du Besso. Messrs. Prothero and Leaf found the whole difficulty of the expedition to consist in the descent to this col from the S., the ascent of the actual peak by the S. arête being a good climb, but not particularly hard.

Bernese Oberland.

RITZLI PASS (about 3,050 m., or 10,000 ft.). *August 14.*—Messrs. Legh S. Powell and Frank Gare crossed a gap in the rocky ridge immediately south of the Ritzlihorn, from the chalets of Matten, in the Urbachthal, to Handegg, and they propose the above name as a suitable one for the pass. The chalets were left at 8 A.M., and the alp behind was ascended in the direction of the Steinlaunen Glacier as far as the spot marked 2,805 on the Federal map, which was reached at 11 A.M. The rocks to the left were then ascended, and the ridge was struck at 1 P.M. at a place considerably higher than the col, and not far from point 3,132. After a halt of 50 min., a descent, occupying 40 min., was made to the col over very interesting rocks. The col is marked by a remarkably slender and sharp pinnacle of light-coloured rock. A shorter and better way would have been to have attacked the rocks immediately below the col and nearer to the Ritzlihorn. On the east side the Aeren Glacier meets the gap on a level. As it was considered probable that difficulty would be met with at the cliffs below the glacier if an easterly direction were pursued, it was decided to take the more prudent but longer course of skirting round the valley to the south as far as the Gruben Glacier, and thence by the moraine to the lower part of the valley. From this point it was noticed that the cliffs referred to were in many places covered with grass, and apparently quite practicable. No difficulty whatever was encountered in the route taken, but the moraine was extremely long and trying. Handegg was reached at 6.30 P.M. The times given include several considerable halts.

HANDEGG TO THE FURKA BY THE GELMERHÖRNER. *August 15.*—The same party crossed the ridge of the Gelmerhörner by a gap, marked 3,089 (= 10,129 ft.) in the Federal map, which lies at the head of a small nameless glacier situated to the south of the adjoining Alpli glacier. The route as far as the gap lay by the Gelmersee, the Gelmeralp, a long moraine, and an easy snow-slope. The drop to the

Rhône Glacier, fully 300 feet, was exceedingly precipitous. However, a rock couloir near to point 3,166 m., was attempted, and it proved practicable, but required considerable care. The latter part of the route was by the Rhône Glacier.

It was subsequently discovered that two more direct and much easier passages are known to the south of the above gap, one of which is probably at the point marked 3,101 m. on the map.

This and the preceding pass may be highly recommended to anyone, proceeding from Rosenlauri, or even Meiringen, to the Furka, who prefers mountain solitudes to the crowd of the Grimsel.

Uri Alps.

GLETSCHJOCH (about 3,150 m. or 10,330 ft.). *August 20.*—The same party, without guides, crossed from the Göschenenthal to the Tiefengletscher inn, on the Furka road, by a pass which lies between the Gletschhorn and the Winterstock. The pass, which it is proposed to call Gletschjoch, is a very direct route between the two places. The ascent, exclusive of halts, occupied 6 hrs.; but a quantity of fresh snow rendered the ascent of the steep rocks on the side of the Göschenenthal very laborious. It is estimated that under favourable conditions it could easily be made in 5 hrs. The descent was effected in 2½ hrs. to the Tiefengletscher inn. The pass, although hardly coming within the definition of easy passes, cannot be called difficult or dangerous; such difficulty as does exist will always be greater on the north than on the south side, owing to the steepness of the snow and the large slabs of rock.

The route taken lay by a path leading to the moraine on the right bank of the Wintergletscher. The moraine was followed as far as the great snow gully which descends from the Winterlücke. This was ascended for a short distance, then a traverse was made in an upward direction across a ridge of rock and grass to a second snow gully descending from the summit of the Winterstock. This was crossed, and the stony face of the mountain traversed upwards until the steep N.N.E. ridge of the Winterstock was reached. This was at first quite easy, but became steadily steeper, and consisted of rocks interspersed with patches of snow and occasionally a little ice. It was ascended for a couple of hours or so to a spot somewhat higher than the level of the col, and not far from the summit of the Winterstock. This course was rendered necessary on the day in question in order to avoid crossing the very steep snow-slope which lies directly under the pass on the north side, the snow being in a very uncertain condition. A short traverse to the right, over snow less steeply inclined, soon led to the watershed, whence the col was readily gained by a short descent.

The route to be taken in descending on the south side of the pass starts close to the east of the pinnacle which is at the head of the steep snow-slope on the north side of the pass. A long and pretty steep rock-gully, partly filled with snow, descends diagonally in a westerly direction right down to the Tiefengletscher. This gully is descended for about 300 ft.; the east side of it must then be

climbed, whereby an easy slope, partly stones, partly snow, is gained. Descending the slope in an easterly direction, some large smooth granite slabs are soon reached. By keeping well to the left a fairly easy but tortuous passage may be effected down these slabs to a snow cirque which lies at the base of the Winterstock. This is traversed, on a level, to the opposite ridge, which is covered with large boulders. By following the ridge, which falls away very abruptly on every side, to its end some steep grass patches are hit upon, affording a practicable descent to the alp and rock which form the northern boundary of the lower end of the Tiefengletscher. Hence to the inn the route is so obvious as to need no further description. With the exception of the short bit in the gully (about $\frac{1}{2}$ hr.) and a few minutes' work over the granite slabs, no kind of difficulty was experienced in the descent, though it is quite possible that in some seasons the snow cirque might be icy and require step-cutting. A small cairn, containing a bottle and record, was built on the pass at the head of the rock gully. It may be added that when, a few days previously, the same party reconnoitred the route on the south side, the col was reached in 4 hrs. easy going from the Tiefengletscher inn.

It should be mentioned that Herr Seelig, with two other Swiss mountaineers, gained the same col by a somewhat similar route to the one described from the Göschenenalp on June 2, 1888, and attempted a descent on the south side, but in the end they were forced to retrace their steps.* In 1887 Herr Seelig crossed the summit of the Winterstock from the Göschenenalp to the Tiefengletscher. The difficult descent appears, however, to have been effected directly down the face of the mountain, and the route from the col was joined at the snow cirque.†

Mr. Jacomb also crossed the chain in 1864 from the Göschenenalp by an apparently very difficult route, but it would appear to have been at some spot between the Gletschhorn and the Tiefenstock.‡

PEAKS NEAR THE THIERBERG, marked 3,446 m. (11,306 ft.) and 3,440 m. (11,286 ft.) in the Federal map. August 29.—The same party ascended these peaks from the Trift hut. The summits are the highest in the Dammastock range north of the Eggstock, and they exceed by upwards of 300 feet the well-known neighbouring Thierberg. The route taken in the ascent was by the Thälisstock ridge, leading due east from the hut. No difficulty of any kind was encountered in reaching the northern snow-point, the time occupied being $3\frac{1}{2}$ hrs., including halts. The more interesting and apparently higher peak to the south was gained in 35 min. more. An extremely grand and commanding view was obtained. The descent was made by the steep rocks to the south-west, and they afforded a very exciting scramble, lasting about 2 hrs. No stoneman or other record of previous ascents having been discovered, two small piles of stones were erected.

This short expedition is to be recommended pre-eminently for the sake of the view.

* See p. 87. † *Alpine Journal*, vol. xiv. p. 258. ‡ *Ibid.* vol. i. p. 435.

Lepontine Alps.

HÜLLEHORN OR PUNTA MOTTISCIA* (3,186 m. = 10,451 ft.). *July 8.*—Mr. D. W. Stable and the Rev. G. Broke, with Adolf and Basil Andenmatten, made the second ascent of this peak, and the first from Bérisal. Leaving the hotel at 2.30, they went up the Steinenthal, and reached the col between the Gibelhorn and Hüllehorn at 6. Thence they ascended the broad snow-shoulder in a S.E. direction, waiting for half an hour at 7 o'clock for the weather to improve. Getting a brief glimpse of their peak, they kept on by compass up the snow to the watershed just to the S.W. of the final peak, which might perhaps have been scaled directly from this point, but the rocks were all covered with fresh snow, and they therefore went right round the peak on the snow, and finally scrambled on to the N.W. ridge from the E. at about 100 yards from the actual summit, which they reached along the arête at 8 o'clock. The top consists of two points of apparently the same height, and on the northern and more difficult one a bottle was found containing the names of Alexander Seiler, jun., and Aloys Supersax, of Fee, who made the first ascent of the mountain on September 30, 1890. In the descent the E. foot of the peak was reached in half an hour, an hour more brought them back to the col, and another hour and a half to Bérisal. The peak is well seen from a point on the Simplon road about a mile and a half above Bérisal.

Monte Rosa District.

SENG PASS (3,615 m. = 11,860 ft.). *July 10.*—Mr. D. W. Stable and the Rev. G. Broke, with Adolf and Basil Andenmatten, made the first crossing of this pass, which lies between the Rossbodenhorn and the point 3,625, which might be called Sengkuppe. Leaving Simplen at 2.0, they passed the Rossbodenalp at 3.30, and at 4.30 halted for half-an-hour at the point 2,361 on the left moraine of the Rossboden Glacier. The icefall of this glacier seemed practicable, but it was thought quicker to turn it by the easy rocks on the N. They went up these, chiefly on the N.W. side, till they were above the icefall, occasionally going on to the upper snows of the Griesseren Glacier, and then crossed the rocks to the Rossboden Glacier, and roped at 6.15. They ascended the glacier for an hour, and then, as the amount of new snow made the rocks immediately below the pass appear impracticable, they got on to the rocks well to the right, but got off again almost directly, and tried a little more to the left at 7.30. After mounting a short distance they met with serious 'platten,' and had to traverse back to the right to the crest of the buttress. After breakfast—8.40–9.15—they kept straight up very steep smooth rocks, unable to go to the left till 10.30, when they worked across the heads of two or three couloirs, and finally reached the ridge at 11.30,

* From a note on p. 301 of the *Rivista Mensile* for September, it would appear that in strictness these names belong to two different peaks, the Punta Mottiscia being the point where the ridge in which stands the Hüllehorn forms an angle with the frontier ridge. The Hüllehorn, the summit of which is entirely in Swiss territory, is the higher by about 100 feet.

60 yards to the N. of the true pass. After three-quarters of an hour on the col the Gruben Glacier was descended without any difficulty, and the rope taken off at 1 o'clock. Later in the year the pass would probably be much easier, but would always be difficult from Saas, and if taken from that side it might be better to pass along the ridge to the Sengkuppe and descend straight down its N.E. arête without touching the Rossboden Glacier. In any case it would be easier to round the rocks on the left to the Griesseren Glacier, as it would be possible to glissade for a very great distance along its southern edge.

STRAHLHORN, by the S.W. ridge * (4,191 m. = 13,750 ft.).
July 18.—The Rev. C. H. Gould and the Rev. G. Broke, with Adolf Andenmatten and Aloys Burgener, left the Fluh Alp at 2.45, and went up the centre of the Findelen Glacier till they had passed the point 3,208. Then they slanted up to the left over snowbeds and *débris*, halting 20 minutes for breakfast, till at 5.30 they were exactly under the peak 3,993 (Adlerhorn). From this peak three or four small couloirs descend, with a very large one beyond them to the E. Taking to the easy, but rather rotten rocks on the W. side of the big couloir, they ascended for 35 minutes to a point at which the couloir divides, and then crossed both branches in 15 minutes to a rock rib beyond, up which they climbed till it faded away just below the top. Thirty feet of step-cutting and the destruction of a small cornice placed them on the ridge a little to the E. of the Adlerhorn at 7.20. Hence it took 8 minutes to the lowest point of the depression between the Adlerhorn and Strahlhorn, and 40 minutes more along a wide easy snow ridge to the top of the latter. The descent was made by the Adler Pass.

ALPHUBEL BY THE N.E. FACE. *August 25.*—Mr. A. F. de Fonblanque, with Xaver Imseng and Isidor Buman, left Saas Fee at 2 A.M., and followed the Mischabeljoch route for 4½ hours to a point immediately below the apparent summit of the Alphubel as seen from Fee. They then struck straight up the face for 2 hours over steep and heavy snow-slopes, and, after crossing a rather troublesome bergschrund, came to the foot of a wall of hard ice of extreme steepness which stretched right across the face. An hour and a half was occupied in cutting up this wall. The way then lay over more steep snow and through some easy séracs to the summit ridge (which was struck almost exactly at its centre), and thence over the plateau to the true summit, which was reached at 11. The main difficulty of this route is the ice-wall, which is at most points quite impracticable, and is nowhere easy. A rope of 60 feet was found inconveniently short, and any future party should take 100 feet or more.

The descent was made by way of the Alphubeljoch in 3½ hours. Having regard to Mr. Conway's note ('Eastern Pennine Guide,' p. 97), it may be useful to mention that this route offered no difficulty whatever, the snow being in splendid condition, and not a single scrap of ice being met with all the way.

* See *Alpine Journal*, vol. xiii. p. 173, and *Pennine Guide*, part ii. p. 81.

ALPINE NOTES.

MONT BLANC FROM COURMAYEUR, AND THE DÔME-HUT ON THE AIGUILLE GRISE.—In 1891 the Italian Alpine Club opened a cabane (10,236') on the Aiguille Grise in order to facilitate ascents of Mont Blanc from Courmayeur.

It must be stated that what is usually called the ascent of Mont Blanc by the Aiguille Grise has nothing to do with the Aiguille Grise. The upper névé of the Italian Miage Glacier is divided into three parts by two spurs: the *Aiguille Grise* on the west, and the *Rochers du Mont-Blanc* on the east. The former joins the chief arête of the Mont Blanc chain between the Aiguille de Bionassay (13,324') and the Dôme du Goûter (14,210'); the latter between the Bosses (14,961') and the summit of Mont Blanc (15,782'). The glacier between the two spurs is called *Gl. du Dôme*; that on the west of the Aiguille Grise, the *Upper Miage Glacier*; that on the east of Rochers du Mont-Blanc, *Gl. du Mont-Blanc*.

It is by the Glacier and the Rochers du Mont-Blanc that travellers used to reach the top of Mont Blanc from Val Vény and the Lac de Combal. There are two cabanes on those rocks; the lower one (10,171'), built in 1875, is now out of use; the upper one, Quintino Sella Hut (11,057'), built in 1885, is in good order.

The way up to Mont Blanc by the Rochers du Mont-Blanc (which reaches the main ridge above the highest Bosse), is not considered to be extremely difficult, though certainly long, and it wants a good man to do it well; but during the afternoon it is exposed to the danger of falling stones, therefore climbers, after having reached the summit by the Rochers du Mont-Blanc, used to descend to Chamonix. Recently an easy and safe way has been discovered on the Italian side—I have not heard by whom*—which enables the traveller to return directly to Courmayeur.

The first part of the new route coincides on the descent with the Chamonix route as far as the Dôme du Goûter, from which it continues to follow the main arête in a W.S.W. direction. At the point 12,763', between the Dôme and the Aiguille de Bionassay, the way leaves the arête, turns to the left, and leads over tolerably steep snow-slopes to the bottom of the upper Dôme Glacier. As soon as the level of 10,200' is reached, you take the Aiguille Grise rocks on your right, and arrive a short time afterwards at the Dôme Hut. It is to be remarked that on the whole way down you do not touch a single rock except within the last 20 minutes.

On my expedition (September 10, 11, and 12, 1891) I was accompanied by Emile Rey, Laurent Croux, and Laurent Proment, of Courmayeur. The climb from the Cabane Sella over the Rochers du Mont-Blanc to the top took us 8 hours 50 minutes, of which seven and a half

* The route must correspond in part with that taken by Mr. F. Brown in 1868 (see vol. iv. pp. 261 *sqq.*); but he appears to have struck the main ridge at or near the summit of the Dôme.

were spent in actual walking. We reached the summit at 11.8 A.M. (September 11), the Vallot Hut at 12.50 P.M. From thence we started at 1.45, reached point 12,763' of the snow arête at 3.30, and arrived at the Dôme Hut at 5.36. There were no serious difficulties to overcome on the descent except in the séracs of the Glacier du Dôme; but travellers ought always to mind the cornice of the main arête between the Dôme and Aiguille de Bionassay.

If the Glacier du Dôme is in good condition (as usually in July and August), you can descend in 5 hours from the top of Mont Blanc to the Dôme Hut, and even in less time if a previous track exists; it takes 5 more hours to get to Courmayeur. Therefore, during the period of long days and short nights, travellers who are anxious to dwell as little time as possible in the upper regions can arrive at Courmayeur the same day on which they started from the Sella Hut. Good conditions of rocks and snow supposed, it would require 17 to 18 hours actual walking. Signor Gonella, the well-known Italian mountaineer, who ascended Mont Blanc by the Dôme Hut route and went back on his track, arrived the same day at Courmayeur.

The appended table gives the results of my own measurements, founded upon the known heights of Courmayeur, Lac de Combal, and Mont Blanc; it has been drawn up because it takes the place of an accurate description of the route.

I wanted to draw the attention of my fellow-mountaineers to the expedition described above not only because it is one of the finest in

Table of Heights.

—	Mètres	English Feet
Courmayeur	1,215	3,986
Cantine de la Visaille	1,650	5,414
Lac Combal	1,940	6,365
Moraine of the Miage Glacier	1,940-2,070	6,365-6,789
Junction of Miage and Mont Blanc Glacier (about)	2,450	8,038
Spring in the grass slopes	2,645	8,678
The lower hut on Rocher du Mont-Blanc	3,100	10,171
The upper, <i>i.e.</i> Q. Sella Hut (pseudo-Aig. Grise Hut)	3,370	11,057
The little snow plateau	3,650	11,975
Difficult passage (séracs, bergschrund)	3,710-3,800	12,172-12,468
The lower Mont Blanc rock arête	3,845-4,400	12,615-14,436
Snow arêtes, snow slopes	4,400-4,510	14,436-14,797
The upper Mont Blanc rock arête	4,510-4,680	14,797-15,355
Its junction with the chief arête	4,700	15,421
Summit of Mont Blanc	4,810	15,782
The upper Bosse	4,560	14,961
The Cabane Vallot	4,380	14,370
Junction of the Chamonix and Dôme Hut route	4,300	14,108
The Dôme Hut route leaves the snow arête	3,890	12,763
Dôme Hut on the Aig. Grise	3,120	10,236
Dôme Glacier joins Miage Glacier (about)	2,680	8,793

the Alps and combines two routes of very different character, but also because it belongs to the domain of Courmayeur. At a time when some of our best old hunting-grounds are played out, we have to look out for new mountaineering centres. I venture to say that Courmayeur is particularly entitled to become one, because it answers to the fundamental conditions of good mountains, good guides, and good accommodation.

DR. PAUL GÜSSFELDT.

The following account has also reached us of an ascent by the route which Dr. Güssfeldt took in descending:—

MONT BLANC BY THE GLACIER DU DÔME.—As I was reputed, at Chamonix, the first Englishman, and the third traveller, to have made this ascent, some account of it may be interesting, especially as the new Italian club-hut on the Aiguille Grise seems at present almost unknown.

We left the Cantine of Visaille—which I found dirty, bad, and expensive—about 1 P.M. on August 13, and walked up the most uninteresting Glacier du Miage to the foot of the Aiguille Grise. There is a good and easily-found path up to and some way beyond the old *gîte*.

I was a total stranger to the district, and neither of my guides had been there before, but there was no missing the path as far as a small snowslope. There were traces of someone having crossed this slope; so we followed, but before we had gone a few yards all traces disappeared. The only likely place to get off this snow was an unpleasant-looking rock couloir; so up it we started. It was not difficult, but full of loose stones, which it was not easy to avoid dislodging, and which occasionally dislodged themselves above us. Moreover, it was very wet. It was about six o'clock when we reached the top, and we had no idea whereabouts the hut might be; but I spied a footstep in a bit of snow showing at the top of the couloir, so we were happy, and sat down to eat and drink. The snow, however, was too soft and steep to follow on to at that time; we, therefore, kept away up some easy rocks to the left, and when well out of the couloir all three scattered to search for the hut.

In five minutes we were in it; and a model hut it is—quite new and admirably fitted, and water within easy reach. We started the fire, and set on the soup, and then the guides went out to reconnoitre the route. They returned in about an hour, saying it seemed all clear. I judged the hut to be slightly higher than the Grands Mulets.

We being strangers could not do much in the dark, so did not start till 3.30, first over some easy snow, then easy rocks, and at last on to the glacier. Here there are some magnificent séracs and crevasses, and I can imagine in some seasons it may well be impassable; but, except in one place, fairly low down, we found no difficulty. That once we kept away too much to the right, and had to make a rather long circuit to the left, which delayed us a little. The upper part of the glacier, however, was quite easy, though, the snow being hard, steps were required nearly all the way, and we got on to the ridge between the Aiguille de Bionassay and the Dôme du Goûter without encountering any formidable bergschrund or other difficulties.

Here the new part of the route ends, though I believe this ridge has

not very often been traversed.* However, we found not the slightest trouble in it, beyond the labour of step-cutting, which, as halfway up it turned to ice, was considerable.

On the shoulder of the Dôme du Goûter we were met by a bitter north wind, which almost blew us off the arête; but, after half an hour's warming in M. Vallot's hut, we started again, and reached the summit at 9.45. We left at 10, stayed 20 minutes in M. Vallot's hut, 30 minutes at the Grands Mulets, an hour and a half at the Pierre Pointue, and were down in Chamonix at 4.30—i.e., notwithstanding the step-cutting, the expedition took us, exclusive of halts, less than ten hours.

W. MAUDE.

ISENFLUH AND THE SAUSTHAL.—In vol. xiii. of the 'Alpine Journal' (p. 423) the Rev. W. A. B. Coolidge has given an account of his crossing the Sausgrat with Christian Almer, the younger, and, in describing their route through the Sausthal, says that 'instead of taking the path to the Obersaus Alp indicated on the map (for it apparently led up and over very precipitous rocks), we kept to the well-marked stony path on the left bank, by which (having passed a very fine waterfall) we gained the glen to the N. and W. of the Mettlenberg ridge.'

The route taken by Mr. Coolidge has certainly the advantage of affording a good view from below of the fall referred to, which comes from the Obersaus Alp; but the view from above the fall is incomparably finer, and this is obtained by taking the path which Mr. Coolidge avoided. I have seldom seen a more fascinating fall, or, as perhaps it would be more correctly designated, water-slide. And from a projecting rock on the N. side, above the fall, the whole of it is visible. Except the Tosa fall, the view of which from the bridge immediately above the fall is extremely grand, I hardly know any other cascade which can be so fully viewed from above. The Schmadribach is very disappointing in this respect. The precipitous rocks mentioned by Mr. Coolidge present no difficulty whatever. If the excursion consist, as mine last June did, of a day's walk from the charming *pension* at Isenfluh to the head of the Sausthal and back, one cannot do better than go by the Obersaus Alp, which leads to the cairn-crowned hillock mentioned by Mr. Coolidge and joins his track there, and return by the lower path. The homeward way may be varied by turning to the N. just opposite the fall, and ascending to the Sausboden, and traversing it and the Suls Alp, and descending by the Unter Suls See (at the foot of the Sulegg) and the Guferswald to Isenfluh. The Sulegg, 7,913 feet, is a very fine standpoint, equalling in some respects the Schilthorn, and far superior to it in the northward, eastward, and westward views.

The views from the Gummen Alp, above Isenfluh, towards Grindelwald, Lauterbrunnen, and Interlaken, are also most charming. Neither the inn at Isenfluh nor that at Gimmelwald is given in the

* It was in all probability by falling from this ridge in the storm of August 19-20 last year, that Count Villanova, with his guides Maquignaz and Castagneri, perished. (See p. 274.)

list in Mr. Coolidge's admirable book, 'Swiss Travel and Swiss Guide Books.' Possibly he deemed them hardly within the category of mountain inns, and yet they seem to be as much so as those at Beatenberg, Trachsellaunin, and others. FRED. STRATTON.

POINTES DE MOURTI.—No account of the ascent of these peaks in the ridge between Val d'Hérens and Val de Moiry appears to have been published.* Mr. C. G. Monro reached the summit of the western one (3,585 m. = 11,762 ft.) on September 1 last, and found a stoneman containing records of ascents by Captain Utterson-Kelso in 1882, and by M. Charles Montaudon in 1890. The line taken was N.E. from the Alpe des Rosses, till the W. ridge of the peak was reached, and followed without difficulty to the top. A stoneman was also seen on the Eastern point, the height of which is usually given at 3,570 m. = 11,713 ft. Mr. Monro, however, considered that it looked the higher of the two; but it must be remembered that of two neighbouring summits of nearly equal height the one which you are not on always appears higher to the eye, unless you have a level horizon.

GROSS VENEDIGER (3,660 m. = 12,005 ft.).—On September 3 an expedition, organised by the Salzburg section of the D.Oe.A.V., was made to the summit of this popular mountain to celebrate the fiftieth anniversary of its first ascent. The veteran Dr. Anton von Ruthner, who made the ascent, of which he has given a most charming description in his well-known work 'Aus den Tauern,' on September 3, 1841, was one of the party, but was not able to go beyond the Kürsinger Hütte, which stands at a height of about 8,700 ft. on the right bank of the Ober Sulzbach-Kees, and in which on the previous day a memorial tablet in his honour had been unveiled. Here he awaited the return of the younger generation from the summit. It is curious to read that this peak, perhaps the most easily accessible of its height in the Alps, was long regarded as inaccessible. Even the enterprising Archduke John was driven back from it by an avalanche (which nearly ended the life of one of his guides) in 1828; and no further attempts upon it seem to have been made until Dr. von Ruthner's successful attack, when a large party reached the top. It has now been ascended from almost every direction, the last 'new route' having been achieved by Dr. Guido Lammer this year on August 25. He reached the summit by the north-west face, after three hours' hard step-cutting through 8 inches of powdery snow, and crossed the enormous cornice which in most years prevents access to the actual highest point. This route would seem to be chiefly interesting as forming the only dangerous way up the Venediger.

SIGNOR ALESSANDRO SELLA.—We regret to have to record the premature death of this member of a well-known mountaineering family. Signor Alessandro Sella, the eldest son of the statesman, who died on July 24 last, at the age of 34, of an illness contracted during his recent tour in Abyssinia, will be best remembered as one of the party who

* See *Pennine Guide*, part i. p. 86.

first found the way to the top of the Aiguille (or, as the Italians like to call it, Dent) du Géant. He had, however, made many ascents in all parts of the Western Alps.

PETER JENNI.—Those who knew Pontresina in former days, when it was more of a climbing centre and less of a fashionable summer resort, and possessed more than one guide capable of better things than loafing about with a badge on his hat in the intervals of going the 'Diavolezza round,' will regret to learn the death of a man who in his time led many parties to the conquest of the Engadine peaks. Peter Jenni died in the course of last June in the hospital at Chur, being, it is said, at the time of his death in extreme destitution.

HUTS.—Among the new huts completed in the course of the present year attention may be called to the following:—The Turin section of the C.A.I. opened in August a hut on a spur of the Aiguille Grise, on the right bank of the Glacier du Dôme, at a height of about 10,500 feet, and 1½ hr. above the Chaux de Pesses, to facilitate the ascent of Mont Blanc from Courmayeur by the glacier in question (or, perhaps, rather the descent to that place) which, by the ordinary 'Aiguille Grise' route is rendered dangerous in the afternoon by falling stones. The first ascent from the new hut was made by Signor Gonella, with Julian Proment and Joseph Croux, on August 13. No doubt the tracks seen by Mr. Maude (see p. 554) were due to this party. Dr. Güssfeldt also sends an account of the descent by this route, which will be found on p. 552. This hut is known as the *Capanna del Dôme*.

The fine group of mountains separating Val Viola from the Valtellina, of which the culminating point is the Cima de' Piazzi, lying almost exactly midway between the Bernina and the Ortler, has been much neglected, probably owing to the lack of accommodation. This will be in some measure supplied by the *Cupanna Dosdè*, just erected by the Milan section on the pass of the same name, which leads from Val Grosina, by its western arm, Val Vermolera, into the upper part of Val Viola Bormina. The altitude of the hut is 2,850 m. = 9,335 ft. It is well placed for the western part of the chain, but, unfortunately, is of no service for the ascent of the Cima de' Piazzi. In the account of the opening festival* we notice a statement that on the following day a party made the first ascent of the Corno di Dosdè. Unless two peaks bear this name there must be a mistake here, for the Corno di Dosdè was ascended, September 7, 1866, by Messrs. Thomas, Lewin, and Finney, as may be read in this Journal (vol. ii. pp. 407 *sqq.*) Their ascent is also mentioned in the 'Alpine Guide,' § 36, Rte. M. It may be worth noting here that a new inn has recently been opened at Livigno.

In the Lower Oetzthal the Innsbruck section of the Oe.T.C. opened, on September 7, a hut in the Fundus Thal, a side valley near Umhausen, at the foot of the Feiler (3,076 m. = 10,090 ft.)—a fine point of view, but one which has hardly yet found its way into the guide-books—for the benefit of tourists wishing to ascend that moun-

* *Rivista Mensile*, pp. 263-4.

tain, but unequal to the walk from Umhausen. The hut has been named *Frischmann Hütte*, in honour of a neighbouring landowner who gave much assistance in the work.

Lastly, we must mention what seems to be the newest thing in huts. Prof. K. Müller, of Teplitz, has erected on the Pfaffenieder,* or col leading from Stubai to Ridnaun, between the Oestlicher Pfaff and Wilder Freiger, at a height of about 10,500 ft., an edifice of quite novel construction. Instead of the solid stone walls with which we are familiar the *Müller-Hütte* is formed of a framework of stout beams, boarded on the outside and covered with tarpaulin, and lined inside with slabs of cork about 2 in. thick. A steel wire rope passes round the building, and is made fast in four directions to the rocks. Herr Meurer, who passed the night of August 30 there, in bad weather, gives in the 'Touristen-Zeitung' for September 15 an enthusiastic account of the warmth and dryness of the hut. It remains to be seen how the structure will weather the storms of winter; but, should the result be favourable, we may expect to see Prof. Müller's pattern widely copied. The profits of the hut are to be applied in perpetuity to the relief of the poor of the Ridnaunthal.

The hut to be erected next year on the Signal-Kuppe is all ready at Gressoney. When the Queen of Italy visited that place on August 15 it was put together; and, after an open-air Mass had been said near it, her Majesty was pleased to 'christen' it in her own name, and it will be known as the 'Capanna alla Regina Margherita.'

CAUCASUS.—We learn that Herr Purtscheller's party had, in spite of weather, a fairly successful tour in the Caucasus, ascending, among other peaks, Tetnuld from the Zanner glacier, Dongusorun, the highest peak (which they found difficult), all three peaks of the Leila, Adirsu-bashi, and Mr. Cockin's peak of Janga by a new route. An attempt on Ushba failed through the great quantity of snow. After Herr Purtscheller's departure, his companion, Herr Merzbacher, ascended Kazbek and Gumaran Choch (c. 15,700 ft.). Their guides were Kehrer and Hofer, of Kals.

NEW ZEALAND.—The New Zealand Alpine Club is now fairly launched. At a meeting held on July 28, at Christchurch, twenty-seven members and five 'subscribers' were elected, rules were considered and adopted, and officers were appointed. Mr. L. Harper is president; Mr. A. P. Harper, secretary; Mr. G. E. Mannering, editor of the journal; Messrs. Mannering and Dixon, with the officers, forming the Qualification Committee. Besides these there are four vice-presidents and five other members of the executive committee. 'Subscribers' will have the privileges of the club, but no voice in its management. Encouragement will be given to the formation of sections for the various centres in the colony. We are glad to see that a proper spirit of independence already prevails—if we may judge from the only business, besides the organisation of the club, which was done at the first meeting. 'Mr. Dixon

* See *Alpine Journal*, vol. xiii. p. 127.

- Zeitschrift des D. u. Oe. Alpen-Vereins, 1873. Heft I. only. 1s.
 Bollettino della Sezione di Brescia, C.A.I., 1874. 6d.
 C.A.I., Sezione di Agordo. Adunanza Straordinaria, 1 Settembre 1878. 6d.
 La Vaudaine: Etude sur le Vallon de la Vaux-Daine. H. Ferrand. 1879. 6d.
 Suggestions for the Exploration of Iceland. W. Longman. 1861. 9d.
 Die Stubai Gebirgsgruppe. Barth u. Pfandler. 1865. 7s. 6d.
 Les Alpes du Dauphiné. E. Debriges. 1885. 6d.
 Mont Blanc. Italian Ode translated into English Verse. 1879. 1s.
 Materiali per la Carta Geologica della Svizzera. Vol. XVII. Appendice ed
 Indice [only]. 1880. 6d.
 Bibliothek der Sektion Bern des S.A.C. 1887. 6d.
 Alcune Varietà Alpinistiche nel 1878. C. Isaja. 1879. 6d.
 Anleitung zu wissenschaftlichen Beobachtungen auf Alpenreisen, D. u. Oe.
 A.-V. 5 parts, 1878-82. 10s.
 Wanderstudien aus der Schweiz. Osenbrüggen. Vols. 1, 6. 1867, 1881.
 2s. 6d. each.
 La Caverna del Rio Martino. G. B. Araldo. 1885. 6d.
 Itinerarium für das Excursionsgebiet des S.A.C. für 1882, 1883. E. v. Fel-
 lenberg. 1882. 6d.
 How to See Norway. J. R. Campbell. 1871. 1s.
 Aus der Firnenwelt. Weilenmann. Vol. I. 1872. 2s.
 Sulzfluh: Excursion der Section Rhätia. 1865. 1s.
 Verhandlungen des Oesterr. Alpenvereins. Heft. I. 1867. 1s.
 Mittheilungen des Oesterr. Alpenvereins. Band II. 1864. 2s.
 Jahrbuch des Schweizer. A.C., II., 1865, and Artistische Beilagen. 5s.
 " " without Beilagen. 2s. 6d.
 " " XVI., 1880-1, without Beilagen. Half-calf, 4s.

THE LIBRARY.—The following additions have been made since August 1, 1891:—

- Gomis (D. Cels). Botánica Popular ab gran nombre de confrontacions. Small 8vo. Barcelona, 1891. (Presented by the Associació d'Excursions Catalana.)
 Türlér (E. A.) St. Gotthard, Airolo, und Val Fiora. Pittoreske Beschreibung der Natur und Landschaft des St. Gotthardgebirges. 8vo. Plates. Bern, 1891. (Presented by the Author.)
 Chrouschoff (Michel de). Pau: Souvenirs et Impressions. 8vo. Pau, 1891. (Presented by the Author.)
 Fischer (Andreas). Zwei Kaukasus-Expeditionen. 8vo. Maps and Plates. Bern, 1891. (Presented by the Author.)
 Annuaire du Club Alpin Français. Dix-septième Année, 1890. 8vo. Plates. Paris, 1891. (Presented by the Club.)
 Jahrbuch des Schweizer. Alpenclub. Sechszwanzigster Jahrgang, 1890 bis 1891. 8vo. Plates. Bern, 1891. (Presented by the Club.)
 Smithsonian Institution. Annual Report of the Board of Regents, showing the Operations, Expenditures, and Condition of the Institution to July 1889. 8vo. Washington, 1890. (Presented by the Institution.)
 Bollettino del Club Alpino Italiano per l'anno 1890. Pubblicato per cura del Consiglio Direttivo. 8vo. Plates. Torino, 1891. (Presented by the Club.)
 Annuaire de la Société des Touristes du Dauphiné. Seizième Année, 1890. 8vo. Grenoble, 1891. (Presented by the Society.)
 A Handbook for Travellers in Switzerland. Part I. Switzerland without the Pennine Alps. Part II. The Alps of Savoy and Piedmont, the Italian Lakes, and Part of the Dauphiné. Eighteenth edition. 8vo. Maps. John Murray, London, 1891. (Presented by the Publisher.)
 Richter (E.) Geschichte der Schwankungen der Alpengletscher. Separatdruck aus der Zeitschrift des D. und Oe. Alpenvereins, 1891. Band XXII. 8vo. Plates. Wien, 1891. (Presented by the Author.)

Zeitschrift des Deutschen und Oesterreichischen Alpenvereins. Jahrgang 1891. Band XXII. (Presented by the Club.)

Jahrbuch des Ungarischen Karpathenvereins, 1891. (Presented by the Club.)

GENERAL MEETING AND WINTER DINNER.—The annual general meeting will be held on Monday, December 14. The dinner will take place on the following day, and the Picture Exhibition will be open in the afternoon and evening of that day, and throughout the following day, Wednesday, December 16. It is requested that all communications relating to loans of pictures may be sent as early as possible to the Honorary Secretary.

REVIEWS AND NOTICES.

Der Gebirgsbau der West-Alpen. Von Dr. Carl Diener. (Vienna: Tempsky. Leipzig: Freytag.)

The leading object of this work, as stated by the author in the preface, is, after a survey of the structural features of the Western Alpine system, to determine what relation this system bears to that of the Eastern Alps; to define the boundaries of both; and to decide whether, and under what modifications, any of the structural units of the former are continued into the latter. Both Studer and Desor recognised that the structure of the Alpine chain was interrupted beyond the eastern end of the St. Gothard massif and near the Splügen. Mojsisovics was, however, the first, as pointed out by Dr. Diener, to insist upon the actual independence of the Eastern Alps relatively to the Western both in their history and structure, and his researches led him to conclude that the southern chains along the boundary of the two systems afforded proof of an older bow-shaped curve of the Eastern Alps, with its concavity turned towards the Adige, which was anterior to the formation of the half-bow curve of the Western Alps. But while this question is of very great importance, Dr. Diener's treatment of it, though by no means inadequate, yields in interest to his remarkably clear and comprehensive description of the structure of the Western Alps and the relations of their various members to each other.

The author follows in the main Lory's classification of the Western Alps from the Mediterranean to the St. Gothard into four zones, which correspond with the general trend and strike of the mountain chains; and each of these zones is characterised by certain constant or well-recognisable and distinguishing structural features. These zones are:—

1. The zone of Monte Rosa, or the zone of the Inner central massifs.
2. The inner Kalk-and-Schiefer zone of the Western Alps, or Zone of the Briançonnais.
3. Zone of Mont Blanc, or zone of the outer central massifs
4. Kalk-zone of Dauphiné. (Lory's 'Zone des Chaînes subalpines' corresponds with the 'nördliche Kalkzone der Schweizer Alpen.')

In addition to the zones mentioned, the investigations of Alphonse

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and Ernest Favre and Maillard have established the existence of a least constant zone between the last zone and the molasse, extending in three well-marked curves from the Arve to the Lintbthal, which is called

5. The Zone of the Chablais.

Beyond which comes the zone of the molasse and the chain of the Jura.

Of the zones enumerated, those of Monte Rosa and Mont Blanc are much the most important.

The zone of Monte Rosa, the innermost of the concentric segments of the great curve, the concave side of which bounds the Western Italian plain, extends from near Cuneo, in Piedmont, to the mountain group of the Adula on the north of Lake Maggiore. As distinguished from the other great crystalline zone of Mont Blanc, in which the continuity of exposure of the crystalline rocks is frequently interrupted, the zone of Monte Rosa is a broad, connected series almost entirely made up of gneisses, mica schists, kalk-schists, hornblende, and chlorite schists and serpentines. It comprises on its inner line the central nuclei (Centralkerne) of the Cottian and Graian Alps, of the groups of Monte Rosa and the Mischabel, and of the Ticino Alps, and, near the convex boundary of the zone, the approximately parallel series of the massifs of the Vanoise, Monte Pourri, and the Grand Combin—this second series being limited to the western portion of the zone. The arrangement of the beds is, broadly speaking, comparatively uniform throughout, consisting mainly of a series of regular anticlinals of moderate inclination, affected only by local disturbances in the western part, while further eastwards, in the central portion of the zone, steeper dips and generally more complicated conditions prevail. Here overthrust folds of considerable intensity come in near the northern boundary, while the southern is characterised by step-faults and folds. Commencing with a regular westerly dip in the Cottian Alps, the gneisses and overlying 'grüne Schiefer' and kalk-schists in, at first, an incomplete anticlinal, strike northwards into the Graian Alps, where the anticlinal arrangement is fully developed. The strike turns to N.E., and the gneisses and other crystalline rocks attain their greatest thickness in the district of Monte Rosa, the lowest beds of which, seen at the head of the Val d'Anzasca, are probably the lowest of the whole series, and possibly correspond with the Antigorio gneiss, so well seen on the Simplon road near Gondo. This lowest gneiss of Monte Rosa is followed upwards by garnetiferous mica schists, and these by a series of serpentines, 'grüne-schiefer,' and kalk-mica schists (the same series as that seen in the Cottian Alps), which are again overlaid by the younger gneisses of the Mischabel and Lepontine groups. These gneisses correspond in horizon with the Sesia gneiss on the south side of the Monte Rosa anticlinal, which, after dipping to the S., terminates in a series of step-faults, parallel with the trend of the beds and abuts against a remarkable amphibolitic band extending from Ivrea to beyond the northern end of Lake Como into the Veltlin. The gneisses and schists on the northern side of the anticlinal ultimately abut against the Inner Kalk-zone in an overthrust fold, which causes the

schists and limestones of the Binnenthal to dip under the gneisses. This overthrusting of the gneisses and schists of the greater crystalline zone over the more yielding beds of the Inner Kalk-zone is, in a greater or less degree, a normal feature along the line of junction of the two zones, and in the region of the Lepontine Alps and in Ticino the overthrust is at its maximum. The anticlinal which is so strongly marked in the Monte Rosa and Mischabel groups continues, in a more modified form, in the Ticino Alps, becoming much flatter in the centre until, on approaching the Val Leventina, the beds become almost horizontal. The structural features of the zone near its north and south boundaries are similar to those already noticed in the Lepontine Alps and in the region of the amphibolite band, but the strike has changed from N.E. to E., while on the western slopes of the Val Leventina a tendency to W.N.W. to E.S.E. strike is observable. Beyond this limit a sudden change takes place. Along the eastern side of the Val Blegno and Val Leventina a chain running south from the massif of the Adula extends with a *southern* strike directly across the trend of the Monte Rosa zone. Further east, also, both folding and fractures agree with the new direction of strike, and this chain is the westernmost step of a row of folds with southern strike which make up the mountain system as far as Oberhalbstein. It is clear, therefore, that with the appearance of the Adula system of strike and folds with a certain amount of overthrust folding to the W. over the Ticino gneisses at the line of junction, the zone of Monte Rosa comes to an end.

The amphibolite band of Ivrea already mentioned is the limit of the Monte Rosa zone on the south. Against this band the Sesia and Ticino gneisses are faulted, and it occupies an area of depression. Its south-eastern border corresponds with another fault, and beyond this the Sericite gneiss of Strona appears which has been considered by Gerlach and Taramelli to be the equivalent of the Sesia gneiss. This gneiss dips towards the amphibolite band, but at a little distance becomes anticlinal and dips towards Lake Maggiore. In spite of a certain resemblance to the Ticino gneiss Dr. Diener holds that the Strona gneiss west of Maggiore, with the massif of Monte Ceneri and the Sericitic gneisses along the south side of the Val Tellina, constitutes an uniform structural zone belonging to the Eastern Alpine system, and which is bordered by the southern Kalk-zone of the latter; and he concludes that the zone to which he gives the name of 'Zone of the Veltlin,' together with the accompanying Kalk-zone, is not only sharply divided by the amphibolite band from the zone of Monte Rosa, but differs from the latter both in respect of its development and structure. The common occurrence of overthrust folding in a southern direction in the Veltlin zone, which never occurs in that of Monte Rosa, gives some support to Dr. Diener's conclusion.

In sharp contrast with the zone just described, from which it is separated by the intervening inner Kalk-and-Schiefer zone, the zone of Mont Blanc has been subjected to much greater disturbance, and is a region of intense lateral pressure. Commencing in the Maritime Alps it extends in a curved line of crystalline masses, which are frequently covered up by the mesozoic formations, to the valley of the Rhine near

Chur. The southern portion of the zone from the Maritime Alps to the Pelvoux massif is complicated by the movements which have accompanied the formation of the mountains of Provence. It is sometimes impossible to dissociate this zone from the next following on its outer boundary, the Kalk-zone of Dauphiné, when the crystalline core takes, as it were, an underground course and is covered by the sedimentary beds of the latter zone. This is especially the case in the region between the N.E. end of the Mont Blanc massif and the S.E. end of the Aar massif, where the crystalline schists disappear under the Dent de Morcles, and are covered up by the jurassic beds of the Haute-Cry and the Wildstrubel, to re-emerge from under the Balmhorn and Mainghorn. The two zones may be said to blend together in this district, but they resume their original relative positions on the re-appearance of the crystalline rocks. True fan structure is characteristic of the Mont Blanc zone, and is strongly marked in the massifs of the Pelvoux, the Aar, and the St. Gothard. As to its existence in the Mont Blanc massif, which was formerly cited as a typical example, opinions are now sharply divided, Alphonse Favre holding to the old theory, while Lory maintains that the protogine and crystalline schists are arranged synclinally; that the schists belong to the upper or chloritic series, and that the protogine, instead of being the oldest rock of the crystalline series, as formerly held, is the youngest. The crystalline centres of this zone are the Maritime Alps, the massifs of the Pelvoux, Les Rousses, the Belledonne, Mont Blanc, and the Aiguilles Rouges, the Aar massif, and the St. Gothard massif. In all these there is approximately vertical arrangement of the gneisses and crystalline schists. Carboniferous strata occur in the massifs of Les Rousses and of the Aiguilles Rouges, and in the latter group the conglomerates at the base contain fragments of protogine and of crystalline schists showing foliation, and similar phenomena have been observed in the group of Les Rousses. This foliation being anterior to the deposition of the strata in which the fragments are found points to pressure and possible elevation of the foliated rocks before the carboniferous epoch. This inference has previously been indicated by Bonney. There is ample evidence of great earth movements and elevation subsequent to the deposition of the carboniferous strata. Triassic and liassic formations rest unconformably on the abraded edges of crystalline schists, which in several localities include carboniferous beds within their folds. Mountain chains therefore must have been formed at some period between the formation of these carboniferous strata and the trias epoch. Undoubtedly the movements during the later miocene period were more general, and are now more apparent, but they also tended to obliterate the evidences of older earth movements. North-east of the Dent de Morcles no carboniferous strata have been observed in situ in this zone, except a small infold in the district of the Tüdi.

In the Bernese Alps along the whole line of contact of the Mont Blanc zone with the northern Kalk-zone is a region of intense northerly overthrust folding, and lateral pressure reaches its maximum between the Jungfrau and the Gstellhorn where the infolding of the sedimentary beds of the Kalk-zone into the crystalline series is horizontal.

Beyond the Haslithal the relations of the two zones become less complicated and the unconformity is more obvious. Eastward beyond the Reuss the crystalline schists are covered up gradually by the sedimentary beds of the Tödi group, and appear for the last time below the mass of the Calanda near Chur. Beyond the Rhine valley, therefore, concludes Dr. Diener, the zone of Mont Blanc has no continuation.

The inner Kalk-and-Schiefer zone, which separates the two great crystalline zones, extends in a well-defined continuous band from the Gulf of Genoa to near Reichenau in the Rhine valley. It is an area of depression and intense folding, accompanied by great parallel fractures along the greater part of its contact with the other zones. Sedimentary formations from the carboniferous to the eocene are represented, while crystalline rocks of the older series are almost entirely absent. In the districts of Briançon and the Tarentaise a series of sandstones (passing into quartzites), dolomites, gypsum beds, and rauchwacke attain a considerable development, and associated with these is a great thickness of crystalline rocks of a type differing from the great masses of crystalline schists of the two other zones, which are known as 'Glanzschiefer' or 'schistes lustrés,' the age of which has not been satisfactorily determined and which have given occasion to much controversy. While Lory, on account of their supposed infraposition to rhætic beds with *Avicula contorta*, and their superposition to the sandstone and dolomite series just mentioned, assigns them to the trias, the Swiss geologists Heine, Von Fritsch, and others claim the north-eastern extension of the series in the Val Bedretto, Val Piora, and the Lukmanier as liassic or jurassic, because certain fossils have been supposed to be found therein near the Nufenen pass and the Lukmanier, and they also bring this forward as an instance of the conversion of sedimentary rocks into crystalline by dynamic metamorphism. Bonney combats all these views. He proves that the alleged occurrence of fossils in the crystalline rocks in both the localities mentioned rests upon an error in identifying an undoubtedly sedimentary rock with an unfossiliferous crystalline one, the juxtaposition being probably due to folding or faulting, and maintains that the conclusion arrived at as to the conversion of jurassic rocks into crystalline schists falls to the ground; while as to Lory's claim that the 'schistes lustrés' are a part of the trias, he admits the probability of beds of triassic age being infolded among the 'schistes,' but contends that there is no ground for including the whole series of those rocks, the greater part of which, he maintains, have a true crystalline facies, in the trias. Dr. Diener agrees with Lory as to the triassic age of a considerable portion of these schists in the south-west part of the zone, and is even inclined to admit the schists of the Binnenthal into the same series. But in the case of the Val Bedretto and Val Piora schists he upholds Bonney's contention, and is of opinion that the occurrence of jurassic fossils in some of the beds of the series which may have undergone a certain degree of metamorphism is by no means sufficient to establish the jurassic age of certain other associated schists of a highly crystalline facies which appear to belong to an earlier type. He shows that the series of rocks to which the

collective name of 'Bundner Schiefer' has been given consists of at least four different classes of rock, and that the objection just quoted in respect of the Val Bedretto and Lukmanier beds applies equally to these. Jurassic fossils have only been found, or, rather, said to be found, in the kalkschiefer or 'Bundner Schiefer' within this well-marked zone, while outside its limits in the strike of the St. Gothard or Adula massifs no fossil has ever been found in the kalkschiefer, or, in other words, where in a limited zone kalkschiefer and jurassic beds are crushed and folded together into what appears to be one series, the jurassic fossils which may be found are sometimes attributed to the kalkschiefer, in which, however, outside the zone and without the accompaniment of jurassic beds, no fossils have been found.

In the south-west of Piedmont the zone extends into the Ligurian Apennines in a series of highly-inclined folds and troughs, where a talcose gneissoid rock of great thickness occurs between the carboniferous and the trias. The evidence on which Zaccagna assigns these intermediate beds to the permian is not considered by Dr. Diener as unassailable. The course of the zone is then traced to the Val Ferret and the Valais, and the remarkable section between the little St. Bernard and Mont Blanc is described. Near the former pass the boundary of the zone with that of Monte Rosa is a fault combined with an overthrust fold, and the carboniferous sandstones are seen dipping south-east towards the fault and against the crystalline schists of the Ruitor. Under these sandstones dips the talcose gneissoid rock, just mentioned, and again under these dip beds of gypsum, quartzites, and rauchwacke, and then the limestones of the Cramont. All these are in inverted order. From this point as far as the Allée Blanche all the foregoing beds, except the carboniferous, are repeated, but in normal succession and with little variation of dip, showing a complete synclinal fold. This is faulted against the jurassic strata of the Allée Blanche, which rest on the gneiss of Mont Blanc. The reversal of the triassic beds is continued into the valley of the Drause, and when the carboniferous strata are brought into contact with the crystalline rocks of the Monte Rosa zone, the former are pushed over the mesozoic strata and are again, in their turn, overthrust by the mica schists of the Grand Combin. Throughout the Western Alps the direction of these overthrust folds is almost invariably towards the outside curve of the chain, and cases of the reverse folding are rare, and generally due to the development of fan structure, as on the south side of the St. Gothard massif. This zone, after leaving the trough of the Valais near Brieg, continues along the Binnenthal into the Val Bedretto, across the Lukmanier and the Greina pass into the Lungnetz, and dies out before reaching the Rhine Valley.

The three preceding zones describe concentric curves, stretching uninterruptedly along the whole range of the Western Alps. It is otherwise with the outer sedimentary zones, and especially the two to be now referred to—the Kalk-zone of Dauphiné and the 'Zone des Chablais.' They form in no sense coherent zones, but seem to replace each other, the Chablais zone especially supplementing or replacing the Kalk-zone, when the latter thins out on approaching the chain of

Mont Blanc, or disappears between the Dent du Midi and the Aar massif. Both are composed chiefly of jurassic, cretaceous, and early tertiary formations, and in both the folding is very strongly developed. Commencing with the Maritime Alps, the Kalk-zone forms an independent curve projecting to the S.W. Then comes the Kalk-zone proper of Dauphiné, surrounding the southern extremity and western side of the Pelvoux massif in a curve exceeding a semi-circle, finally striking N.E. along the massif of the Belledonne in the direction of Mont Blanc. In this district the zone is subject to great longitudinal faulting, and the outer part strikes away north, partly under the miocene formation, and ultimately forms the range of the Jura, the boundary line, before actual separation, being a fault running along the strike through Rencurel, by Voreppe, to Chambéry, where the molasse of the Swiss miocene plain commences.

On approaching the Arve the Kalk-zone curves round to the east, but soon resumes its normal N.E. strike towards the Dent du Midi; its breadth is considerably diminished between the Arve and the Rhone, but here, as it were in compensation, the 'Zone des Chablais' commences on the N.W., and extends in three irregular curves from the Arve, near Cluses, to the Linththal, and is separated from the kalk zone and the zone of Mont Blanc by a well-marked fault along the whole line. The course of the Kalk-zone is then traced along the north-west flank of the Aar massif, a region of intense folding and overthrust, and further through the Glarus Alps. Dr. Diener describes this district in detail, and gives reasons for disagreeing with some of Heim's explanations of the double-folding of the southern part of these Alps. Unlike the two zones last described, the Kalk-zone extends beyond the Rhine into the Vorarlberg, curving round the triassic promontory of the Rhätikon and the strike of the former assimilates itself to that of the latter, which is N. and S. on the western side, while on the northern it turns to E. and W., and its folds, like those of the Adula, have a distinct tendency to a westerly overthrust. Beyond the Rhine the Kalk-zone resumes its normal strike, and, bordered on the south by the trias zone of the Eastern Alps and on the north by a belt of eocene sandstones, thins out gradually until it dies away a little distance beyond the Iller. The eocene sandstone belt continues, replacing in a manner the Kalk-zone, and is a recognised member of the Eastern Alpine series. It is worthy of remark that in the Flysch of the Vorarlberg occur instances of isolated crystalline rocks similar to those of the Habkenthal, and in some measure to the singular masses of granite found at Tanninges, in Savoy, near the junction of the Kalk-zone with the 'Zone des Chablais.' One of the masses in the last-named locality is $1\frac{1}{2}$ kilometre long. It is equally difficult to imagine the glacial origin of such a mass and to explain its occurrence by weathering or denudation from a former granitic surface.

In the western part of the Eastern Alps it is shown that a marked uniformity of structure prevails in the group of the Adula and in the triassic groups of Oberhalbstein and Arosa, on the south-west of the crystalline mass of the Silvretta. The lines of folding and fracture

run north and south in the southern part, and trend N.E. in the northern parts of these groups. There can be little doubt also that both the Arosa group and the Rhätikon are parts of the same eastern trias zone, separated from each other by the Flysch area of depression of the Prättigau. This conclusion is rendered inevitable by the fact that the strike and folding of these groups are in the same general direction, and conform almost exactly on the west and north with those of the Silvretta, and also by the inclusion of triassic strata in the folds of the latter massif on its extreme western boundary.

The author claims to have established the following conclusions:—

1. That the Adula system, striking approximately at right angles to the trend of the zone of Monte Rosa, cannot be a part of the Western Alpine system, but is structurally connected with the northern trias zone of the Eastern Alps.

2. In the outer zones of the Eastern Alps, where these are immediately opposed to the eastern end of the zone of Mont Blanc, the normal E. and W. strike of the former is changed to a southern one, or at right angles to the strike of the latter zone. There can, therefore, be no continuation of the zone of Mont Blanc into the Eastern Alps.

3. The Adula group and the Rhätikon are interrupted segments of a curve, the convex side of which is turned to the N.W., and extends across the strike of the Western Alps, and this curve is analogous to that formed by the latter round the Piedmontese plain.

An important argument is also drawn in favour of the structural independence of both divisions of the Alps from the widely differing conditions of deposition of triassic strata which existed in each, those of the Western Alps being characteristic of shallow water, while the trias of the Eastern Alps is in great part a deep sea formation; and the author points out that the structural boundary of the Eastern Alps agrees with the western limits of the extension of the Austro-Alpine trias, the most westerly beds of this facies occurring in the Splügen district on a part of the Adula system. The work concludes with a summary of the great movements which have played a part in the elevation of both divisions of the Alps. The occurrence of folding of the schists in the pre-carboniferous period does not, in the author's opinion, justify the inference that mountain ranges must then have existed. Evidence of a pre-triassic upheaval is limited in the Western Alps to the zone of Mont Blanc. Dr. Diener holds that there is no reason to suppose that the zone of Monte Rosa was in any considerable degree affected by the earth-movements of that period: no carboniferous strata have been found therein, and the apparent conformity of the so-called permian beds of the Vanoise to the underlying schists, if their doubtful permian age is conceded, would indicate an absence of great disturbance. In the central zone of the Eastern Alps the evidence of a pre-triassic elevation is even plainer and more general than in the western zone, and in the Adula group triassic strata lie unconformably on the folded crystalline schists which strike almost at right angles to the direction of the Mont Blanc zone, so that even at this early date the rudiments of the two independent

curved chains of Eastern and Western Alps existed, and had assumed the general direction of strike which they now exhibit. But, as the author is careful to point out, if the principal folding and elevation of the zones of Monte Rosa and the Briançonnais are to be assigned to the miocene period, it involves the necessary conclusion that the Adula group was affected by the same or a later series of movements, inasmuch as the schists of that group cut off the continuation of the former zone, and are overthrust against both zones where it comes in contact with them.

The foregoing is a summary, necessarily incomplete, of some of the chief points of interest in this comprehensive treatise. That the author's main conclusions are fully established it would perhaps be premature to affirm; but he makes out a very fair case for the independence of the two great curves of the Eastern and Western Alps, and with regard to the structural geology of the whole of the western system the book contains probably the clearest and most general description, brought down to the latest researches, which can be found in any single work. The scheme is well thought out and elaborated, and the ultimate aim is never lost sight of. Dr. Diener's intimate knowledge of the wide range of the literature of his subject is quite remarkable, and the extraordinary number of references in the present volume to the researches and writings of others in the same field attest the scrupulous care which he bestows on all points connected with his theme.

J. E.

A Handbook for Travellers in Switzerland. Part I. Switzerland without the Pennine Alps. Part II. The Alps of Savoy and Piedmont, the Italian Lakes, and part of the Dauphiné. 18th edition, thoroughly revised, with travelling maps, plans of towns, &c. (London: John Murray. 1891.)

Mr. Murray has again been most fortunate in his editor. The sixteenth edition (I have not seen the seventeenth) of his 'Handbook to Switzerland' had the advantage of being remodelled by a writer specially qualified to deal with the literary form and treatment of the subject, besides possessing a firm grasp of details, and the initials appended to the new one, just issued, are the highest possible guarantee for the almost flawless execution of the task of bringing up information to date.

Mr. Coolidge must be universally admitted to be more accurately acquainted than any Englishman, and probably than anyone living, with the minutæ of Alpine topography, and his long experience in dealing with such materials, combined with his wide knowledge of historical and other subjects connected with Switzerland, constitutes him an ideal editor of such a work. That his task has been carefully and thoroughly performed an examination of these volumes must convince everyone, and criticism has rather to give place to a brief statement of some of the special points which characterise them. Amongst these are an improvement in the form and type of the two indices; the addition of much valuable matter in the introduction, bringing it well up to date; a useful enlargement of the list of hotels at desirable halting-places; fresh and fuller descriptions of towns, and greater clearness and completeness in their plans by the introduction of colour and

additions of new hotels, public buildings, &c. ; more distinct colouring of snow- and ice-covered regions in the maps; full engraving of that of the 'W. valleys of the Pennine Alps,' which was previously *au trait*, and the introduction of a useful new one of Davos Platz and its neighbourhood, together with fresh and valuable topographical details and important additions to the bibliography of the subject.

Per contra I will just notice two or three matters which have caught my eye, lest I should be thought to have read with too exclusively rose-coloured spectacles. Part I., forming the first volume, excludes the Pennine Alps, and, though the text of Part II. deals with them fully, its title scarcely suggests the fact. In the list of some of the 'most remarkable summits' in the various groups the omission of the Mönch and Eiger (in VI.) seems regrettable. At p. 61 of the introduction there seems to be a slip where '*Infusoria* of the genus *Disceræa*' are subsequently referred to as 'plants.' Again, at p. 91 the total of the German-speaking population should be 2,092,479, instead of 2,992,479. From the title of the map of the Italian Lakes 'No. 2' should have been removed. The plan of Aosta (p. 533) seems misplaced, and should, I think, have been inserted at p. 523. The maps of the Lake of Lucerne, the Bernese Oberland, and the Italian Lakes would be more handy for reference if they had faced the other way (forwards instead of backwards), as the bulk of the text which they illustrate follows them.

However these are minor points, and, having taken some pains to form a correct judgment, it gives me great pleasure to find these volumes such as we should have been led to expect from the past achievements of the editor on rock, snow, ice, and paper. It would be difficult to give them higher praise, and publisher, editor, and public may be alike congratulated on the completion of such a thoroughly satisfactory piece of work. F. F. T.

Zwei Kaukasus-Expeditionen. Von Andreas Fischer.
(Bern: Schmid, Francke.)

Mr. Fischer's narrative, which appeared originally in the pages of the 'Bund,' is now published in the form of a small volume containing several phototype illustrations and a map of the Bezingi and Dych-su districts. The two expeditions described are that of Messrs. Donkin and Fox, whom the author's brother accompanied as guide in 1888, and that of the search party in the following year.

After briefly tracing the 1888 expedition as far as the Dumala Glacier, Mr. Fischer relates his own experiences with the search party—the journey from Meyringen to Vladikavkaz, the ascent of Kazbek, the crossing of the Ceja, Saluinan-chiran, and Bashil-su Passes, and the discovery of Donkin and Fox's last bivouac.

The incidents of travel and impressions of Caucasian scenery are described with freshness and vigour, and the fact that they are related rather from the guide's point of view than from that of the 'Herr' gives Mr. Fischer's account of them a special interest. In the concluding pages, which are devoted to a comparison of the Alps with the Caucasus, the surpassing grandeur of the eastern mountains is freely acknowledged.

ALPINE SECTION OF THE GEOGRAPHICAL EXHIBITION AT BERNE.

As might have been expected, the Alpine section formed a very prominent feature of the exhibition held in connection with the International Geographical Congress in Berne. Some sixteen rooms in the new Federal Palace were devoted to this section. Through the courtesy of Dr. H. Dübi, President of the section, and M. Charles Montaudon, the writer was enabled to see the various exhibits before they were thrown open to the public.

It was only natural that a large amount of space should be devoted to maps, which, indeed, were almost too numerous; owing, too, to the principle adopted of employing them in great part as mural decorations a thorough inspection was impossible. Many possessed a purely antiquarian interest. It seemed a pity that, so far as could be judged, little attempt had been made to arrange maps of Switzerland or of portions of the Alps in some chronological order, so that the student of cartography might have been enabled to trace the gradual evolution from the rough and fanciful, if graphic, diagrams that did duty as maps in old times, to the modern perfection of accuracy, clearness and detail shown so conspicuously in the Siegfried Atlas.

The promoters of the section had evidently worked hard to collect all that might be of interest, and some old views of the city of Berne, and towns such as Lausanne, were very curious, if only as illustrating the comparatively slow rate of growth in these places. Of still wider interest were some of the old panoramas exhibited by the Swiss Alpine Club, for the original drawings were shown. One remarkable panorama, dated 1755, and signed by Micheli Ducrest, was described as 'Prospect géométrique des Montagnes neigeées, dites Gletscher, telles qu'on les découvre en tems favorable, depuis le Château d'Arbourg, dans les territoires des Grisons du Canton d'Ivry, et de l'Oberland du Canton Berne.'

Another original drawing, bearing the same date, by Stouder (*sic*) the elder gave a view of the Oberland from the terrace of Berne. In addition there were two by G. Studer, dated respectively 1824 and 1829. The former showed the panorama from the Stockhorn, and was marvellously delicate in drawing. The second, the 'Aussicht vom Signal auf dem Vuilly,' not only displayed Herr Studer's accuracy as a draughtsman, but was, in addition, very beautiful in colour, and was evidently finished with the loving care of one who admired as he understood the mountains. Another sketch, dated July, 1826, showed a view from Mürren. Mürren itself was represented by a single chalet. A fair collection of water-colour drawings had been got together, the one perhaps of most general interest being a drawing of Zermatt, dated 1785. As might have been expected from the date, it was finished up to the corners with minute care, and was quite as successful a rendering of the Matterhorn as any work of more recent times, though it had not the questionable advantage, from the artistic point of view, of including a variety of hotels in the foreground.

Occupying the greater part of a room was the famous relief, modelled by Herr Simon, of the Oberland mountains. The accuracy of detail was remarkable, while the general features of the mountain range were well preserved. The relative heights of the mountains, too, were given with surprising fidelity. A sketch of the Rhône glacier showing the retrogressive movements since 1874, only made one regret that the accurate observations now systematically carried on had not been undertaken at a much earlier date. It really needed but a glance at such sketches as this and at Herr Simon's relief to convince the observer that, however the decay of the glaciers may be arrested from time to time, their slow progress towards extinction is inevitable. Photographs, of course, abounded, but the general level of excellence was not very high. A few of Mr. Donkin's well-known enlargements occupied a place of honour, and a selection from the familiar views of Signor Sella was displayed; but it was evident that, so far, no one has arisen who can challenge the supremacy of these two leaders in mountain photography. The absence of any attempt at composition, or of any effort to make pictures of the photographs, to reveal or to record the beauties of the sub-Alpine world, was especially noticeable.

The collection of objects of Alpine interest was not very remarkable. A number of medicine chests and cases containing a complete medical outfit, designed for use in huts, may have been intended primarily as a warning, but they seemed rather out of place in an exhibition of Alpine appliances. So complete was the store of drugs in some of the cases that it was quite distressing to imagine the condition to which a tourist might reduce himself who did not feel quite well and was turned loose among the contents, free to take any drug that he fancied might do him good. We still believe that the suggestion first made in the 'Alpine Journal' of providing automatic machines with a 'penny-in-the-slot' arrangement and a pill-delivering drawer at the other end would answer as well, and diminish the risk and discomfort consequent on amateur doctoring.

Some ice-axes exhibited by F. Jörg, of Zweilutschinen, seemed well made and practical, but the sticks were for the most part too long, and the point and edges of the axe head far too sharp. Some axes, fitted with moveable heads, showed that the problem of making instruments of this description which shall be of the least use to anybody still remains unsolved. Of the various mountain lanterns exhibited, the Italian 'Excelsior' pattern seemed on the whole the best. Crampons were exhibited in profusion, but as no member of the Alpine Club is supposed to know anything about these implements they must be passed by in silence, and it suffices to express a hope that they do not in practice, as in appearance, resemble ancient instruments of torture.

On the whole the Exhibition was decidedly interesting and varied, though in the matter of Alpine appliances it could not compare for a moment in completeness with those got together by the Committee of the Alpine Club at the winter dinner exhibitions a few years ago.

C. T. D.

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Errata.

- Page 22, last line, for 'feet' read 'mètres.'
 " 57, line 30, for 'Derboren' read 'Derborence.'
 " 106, line 24, for 'us' read 'up.'
 " 157, line 15 from bottom, for 'Neufelgin' read 'Neufelgu.'
 " 166, line 3, for 'Helvia' read 'Stelvia.'
 " 197, line 8 from bottom, for 'Besloch Pass' read 'Bies Joch'; and in the following line for 'de Diablons' read 'des D.'
 Page 229, line 25, for 'Forster' read 'F-ster.'
 " 229, line 37, for 'The First Passage' read 'Mr. Moore's Passage.'
 " 240, line 14, for 'Trudière' read 'Frudière'; and for 'ft.' read 'mètres.'
 " 255, Note on Illustration, line 4, for 'valleys' read 'villages.'
 " 293, line 26, for 'Point' read 'Pic.'
 " 297, line 8 from bottom, for 'ascent' read 'descent.'
 Page 3-7, 3-8, for 'Fee' read 'Fée.'
 Page 312, line 26, for '1868' read '1889'; and in the next line for 'by a new route' read 'by a route taken only once before, and in the contrary direction.'
 Page 371, lines 15, 16, for '5 per cent.' and '3 per cent.' read '50 per cent.' and '30 per cent.'
 Page 371, line 20, after '400 francs' add 'per annum for three years.'
 " 372, line 13, for 'Tantarin' read 'Tartarin.'
 " 375, line 21, for 'Herr C. Seellig' read 'Herr August Nef.'
 " 473, line 29, *dele* 'here reproduced.'
 " 473, lines 39, 40, *dele* 'These doubts . . . illustration.'

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AND

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