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- Norske Turistforening. Årbog for 1893. Illustrated. Kristiania, 1893.

REVIEWS AND NOTICES.

Beiträge zur geologischen Karte der Schweiz. Einundzwanzigste Lieferung. Geologische Beschreibung des westlichen Theils des Aarmassivs, enthalten auf dem nördlich der Rhone gelegenen Theile des Blattes XVIII. der Dufour-Karte, von Dr. Edmund von Fellenberg und Dr. Casimir Mœsch. I. Beschreibung desjenigen Theiles von Blatt XVIII., welcher zwischen dessen Nordrand, dem Südabsturz der Blumlisalpette (von Gasteren bis in's Lauterbrunnenthal) und der Rhone liegt, von Dr. Edmund von Fellenberg, mit petrographischen Beiträgen von Professor Dr. Carl Schmidt. II. Geologische Beschreibung der Kalk- und Schiefergebirge auf der Nordwestecke des Blattes XVIII., von Dr. Casimir Mœsch. (Bern: in Commission bei Schmid, Francke und Co. 1893.)

THE scope of this volume, the twenty-first of the memoirs issued by the Geological Survey of Switzerland, is expressed by its lengthy title; but many pages would be required if we attempted to give an adequate idea of its interesting and valuable contents. The first and larger part sums up the results of many years' labour by one who is no less distinguished as a geologist than as a mountaineer. Dr. von Fellenberg's route map, which incidentally illustrates the thoroughness of his examination, extends from the line of the Haslithal to that of the Gemmi Pass. His description is illustrated by several illustrations and diagrams, and by a separate atlas of nineteen plates. These include eleven mountain views printed from photographs, on which the names of the different rocks, and their lines of contact, as far as possible, are imprinted in colour. The numerous sections render the principal feature of the geological structure of the western part of the Aar *massif* sufficiently clear. Briefly stated, they lead to the following conclusions: Before the present Alpine chain existed a thick mass of sedimentary materials was deposited on a widely extended floor, consisting of much more ancient crystalline rocks. Of the former the oldest group is of Carboniferous age, but very little of this appears in the region described. It is followed by a group of rocks of much more frequent occurrence, though irregular in character, which are often inclusively designated

by the name Verrucano, are largely composed of materials derived from the underlying crystalline mass, and are probably in most cases of Permian age. To this succeeds the Trias, also rather irregular and variable. This was the forerunner of a great series of deposits, which follow in due sequence up to the Eocene. When the mountain chain was made the two great masses were folded together, so that in certain cases the older one is bent or even thrust over the newer. The sections given in the atlas seldom indicate the existence of faults, but in many places folding alone is insufficient to explain the collocation of the various rocks, and it is necessary to appeal to faults, especially to overthrusts. The crystalline floor consists of rocks of various ages and different mineral characters. A mass of gneissoid granite (*Granitgneiss*) is flanked on both sides by a group of schists, which are variable in mineral constituents, but are frequently of a green colour. The former mass, though often conspicuously foliated, is proved to have an igneous origin by its sending off veins, &c., into the latter. Of this rock the central and generally wildest portion of the region is composed. South of the schist is a considerable mass of gneisses, differing from those of the central mass and associated with mica schists. Of this group very little is seen on the N. Lastly, there is a mass of granite of more normal character, named, from the locality in which it is typically developed, the Gasteren granite. This rock is much less affected by mechanical agencies than is the 'Granitgneiss,' or 'protogine,' of the central mass; hence the authors consider it to be later in date than the post-carboniferous Alpine folding, but to be older than the overlying verrucano, and thus earlier than the close of the Permian—in other words, they refer it to the eruptive disturbances which produced the Valorsine and Bernina granites, with the porphyries of the Windgülle and of the Italian Lake district. The petrographical description of the schists N. and S. of the central zone of 'Granitgneiss' indicates that they form a 'complex' of rocks, various in mineral character and in origin. As to the latter question, it is no doubt necessary to be cautious in the present state of our knowledge; but we think that something more might have been attempted in this respect than we find in the present volume. The same remark applies also to the marginal gneissic masses, which are probably, on the whole, still more ancient. But there can be little doubt that, in the main, the rocks of which both groups consist are extremely old, belonging most probably to the Archæan era.

We might be disposed to differ on some minor details from the authors of this part, but a petrological discussion would be out of place in these pages, and none of the questions are important enough to affect our estimate of the work as a whole.

We must also forbear to dwell, for want of space, on the part contributed by Dr. Mœsch, describing the wonderfully folded region all around the Kienthal, and content ourselves with welcoming the book as a treasury of valuable facts and a most important contribution to Alpine geology, honourable alike to its authors and to the Geological Survey of Switzerland.

T. G. B.

Der Bergsteiger im Hochgebirge: Alpin touristische Schilderungen nach den Berichten hervorragender Hochtouristen. Zusammengestellt und erläutert von Julius Meurer und Josef Rabl. (Wien, Pest, Leipzig: A. Hartleben. 1893.)

A good beginning counts for much, and the compilers and authors of this work commence well by declining to make any apology for high mountaineering. From the preface we gather that the work had long been in contemplation. The scheme was that of a readable text-book on mountain craft, the materials for which were to be drawn from the published experience of various writers and given in their own words. The modest function of the editors was to be merely selection, collation, and setting in order. The increasing number of Alpine accidents had struck both, and it was thought that a plain setting forth of the various difficulties and dangers of mountaineering, as summed up in the experience of men well qualified to rank as authorities, could not fail to be profitable. While the work was still in progress two publications appeared in England both dealing with the subject generally of mountain craft, viz. the Badminton volume on 'Mountaineering' and Dr. Claude Wilson's smaller and admirable work bearing the same title. The present volume, it seems to us, in no way crosses the path of the books mentioned, but rather, while preserving complete independence of opinion, forms an excellent supplement to works which are necessarily somewhat didactic.

In the Badminton volume, as the reviewer can testify, personal reminiscences were, perforce, almost entirely omitted, in order that the book might be compressed within the necessary limits. Yet there was scarcely a rule laid down which might not have been illustrated, and perhaps emphasised, by quoting some serious or fatal accident: over and over again to sentences enjoining the observance of precautions might have been added the words, 'It was owing to the neglect of this rule (often a well-established one) that a fatal accident occurred on such and such an occasion.' The readers of Messrs. Meurer and Rabl's book may easily gather as much for themselves, though by judicious selection the authors have contrived to avoid a series of chapters of accidents and to infuse throughout their volume a spirit of adventure. Although the work consists, for the most part, of extracts it is far from being a mere collection of snippets. In every sense of the phrase the authors have known what to cut out. Moreover the quotations are so skilfully strung together that little jerkiness of style is manifest, and the work may be read continuously without any of the irritation so often engendered by a mere compilation. Comparatively little is said about the pure technique of mountaineering by the editors, and indeed one of them has already, in his 'Handbuch des Alpinen-Sport,' very completely dealt with the subject. It is satisfactory to find that, notwithstanding the obvious temptations besetting writers whose publishers demand work that shall be 'readable' and attractive, the authors have maintained perfect orthodoxy in their views of what mountaineering should be. The readers of the book are told for the fiftieth time what the rules are: it is impressed upon them that such rules are simple, and that they must be learnt and

obeyed. Further, the extracts give immediate opportunity of judging what happens if the clearly indicated laws are disregarded. We may hope for the best, but it is to be feared that the reiteration of maxims which all who go into the mountains should know will not diminish the number of accidents. At the same time, though the fact remains that the number of lives lost annually increases, it is tolerably sure that the number of accidents in the High Alps from purely preventable causes does not increase proportionately with the number who take their pleasure in high places. The list is swelled by disasters occurring below the snow-line. A sub-Alpine text-book is still needed, and, still more essential, a race of pedestrians and mountain rambles able to apply the knowledge they might gather from such a work; for wanderers on grass mountains and rambles on mountain peaks which yet may be as dangerous as any 'course extraordinaire' pay little heed to Alpine text-books. Mountaineering precepts, they think, are only needed for high climbers. But the real fact is, that the list of accidents to really sound climbers, well grounded in the craft, is a very short one, while mountaineers who attack the higher, but not necessarily more difficult, peaks and passes having greatly perfected their technique, go in safety not only in high mountains but in the lower regions, conscious of the difficulties or dangers that may beset them on the way. The sub-Alpine climbers are still prone to believe that they need observe no rules at all in pursuit of their favourite amusement. Page after page of admirable rules for step cutting, the avoidance of falling stones, cornices, steep ice-slopes and such like do not concern the middle-region tourist. 'These,' he says, 'are not for such as me; I do not go high, or if I do I take a guide.' So he slips and falls on treacherous dry grass slopes or on the wet rocky terraces of little limestone hills; and the Alpine obituary lengthens year by year.

We are glad to see that the importance of snow craft is properly appreciated in this book, nearly twice as many pages being devoted to it as to rock-climbing. To editors who know the Dolomite region so well this is little less than an act of self-abnegation. The subject of falling stones is treated judiciously and at some length. The tendency that exists in so many quarters to minimise this serious risk is not followed. Indeed, it is hard to understand how it could be by those who have climbed in the Dolomite regions. We should have liked a rather longer section on the use of climbing-irons, for Austrian climbers have always been the chief advocates of the value of these implements. The reviewer is still disposed, even at the risk of appearing thoroughly insular and narrow-minded, to maintain that, though of great use on certain occasions on skilled feet, the value of climbing-irons is a good deal overrated, and that in the Alps at any rate the occasions are rare when a party provided with irons will do much better or be more safe than a party without them. In Tyrol the guides, in obedience to paternal legislation which is little better than well-meaning, put on their climbing-irons at every opportunity. A little experience in this district during the past summer did not convince the writer that the men were any steadier or could go faster

than travellers who understood what balance meant and were provided with properly nailed boots.

That the work under review is one of much authority cannot be doubted, and in our opinion it would have been still more so if the editors had not kept themselves so much in the background. Quotations are largely made from such experts as Messrs. Güssfeldt, Zsigmondy, Heinrich Hess, Weilenmann, Tyndall, and Whympfer, to mention only a few of the names.

We are glad to see that the authors disapprove of solitary mountaineering. In one or two instances the advocates of this most irrational craze for notoriety are made to condemn themselves by their own writings. Still we could have wished that the authors would venture to express their own opinion rather more strongly. The warning would have come with much authority from the president of an important club and the editor of an influential Alpine publication. Here, again, the value of the book would be enhanced by a little more boldness and plain speaking on the part of the editors.

We wish we could speak favourably of the illustrations, but these are altogether unworthy of the volume. A convenient if conventional method of damning with faint praise would be to say that the pictures are of unequal merit. We fear that we cannot signify even this qualified approval. Neither in the drawing of rock nor snow is the artist at all happy, and sometimes he confuses the two, as on pp. 99 and 123. We need only cite a few instances in justification of our criticism. The illustration on p. 20 appears to us to pourtray what we believe to be an entirely new development of mountaineering, for it represents a one-legged man in the act of climbing up a slightly overhanging rock. Some of the drawings, as on pp. 22 and 155, suggest too close imitation *qua* composition of Mr. Willink's drawings in the Badminton volume. On p. 129 the faulty proportion of the figures leads one to suppose that the extremely diminutive tourist in the middle is not springing into the arms of a colossal guide but is scaling independently a very distant mountain. On p. 70 the leading guide is depicted as walking well on to the cornice of whose existence he has had ample opportunities of judging. If the art of 'Abeeilen' in any way resembles the illustration of it given on p. 75, the less it is practised the better. Illustrations in a book like this ought to be technically accurate even at the expense of artistic merit. In any future edition we trust that this considerable defect may be remedied.

In conclusion we are glad to see that the authors call attention to the present dearth of good guides and to the increasing number of bad ones. Guides of the very first rank are still to be found, though they are rare; yet there are, perhaps, as many of the first rank now as there ever have been. Strong men may come to life after Agamemnon as well as have lived before. The demand is so prodigiously great now that the second-class guide, or the young fully qualified guide who has made some little reputation for brilliancy, is often employed as leader on work which may easily overtax his powers. There is no more pressing question at the present time in connection with mountaineering than the proper training of young guides, and it is in this direction

that the European Alpine Clubs might with great advantage exert their influence and authority. C. T. D.

Bollettino del Club Alpino Italiano per l'anno 1892. Vol. xxvi. (Turin, 1893.)

The last volume of the 'Bollettino' opens with a short memoir of Signor Felice Giordano, the veteran climber and geologist, whom readers of Mr. Whymper's 'Matterhorn' will remember as having, in 1866, spent five days and nights at the 'Cravate,' and who met his death in July 1892 by a fall in the dark over a little cliff some 30 ft. high in the neighbourhood of Vallombrosa.

The next paper, cast in the form of a letter from Signor Gonella to the President of the Club, gives a detailed account of the tour made last year by the Duke of the Abruzzi, to which we referred at the time.* Though highly creditable to the Duke, who appears also to be a competent photographer, the expeditions undertaken do not offer any features of novelty. Still, taking them with what we record elsewhere of his aunt, the Queen of Italy, we can say that the credit of the House of Savoy, from a mountaineering point of view, is being well maintained. Indeed, since King Peter of Aragon made his guideless ascent (the first recorded) of the Canigou (2,785 m. = 9,132 ft.), about the middle of the thirteenth century, and told his courtiers some real mountaineer's stories when he got down, we suppose that no royal personage has done so much in the climbing way. It is interesting to note that in crossing the Matterhorn the party saw a 'Brocken spectre,' differing, however, from that seen on a memorable occasion by Mr. Whymper in that each person saw only his own image in a luminous disk.

Signor Gaudenzio Sella contributes a brief account of the progress made in the erection of the observatory on the Signal Kuppe, or Punta Gnifetti, from which it appears that the work has cost something under 600*l.*; and Signor Guido Rey follows with a brightly-written paper on the various ascents of the southern peaks of Monte Rosa from Val Sesia. Incidentally he tells the story of the recovery by his party of Commendatore Perazzi's jacket, dropped into a crevasse near the head of the Sesia glacier in 1876, and disgorged sixteen years later at a point 2,550 ft. lower down. Signor Rey notices as characteristic the fact that the ascent of the Punta Gnifetti by the south-east ridge, which he recounts in several pages, was described in some twenty lines in this Journal. 'The English system,' he says, 'is perhaps the better; but that depends on the differences of national disposition; and on this I might have much to say if I did not fear that I had already given you reason to prefer the English system.' We can assure him that it all depends on the writer, and that when English readers come across a narrator as graphic and as entertaining as himself national disposition is by no means on the side of cutting his story short. The account of a bivouac at the height of 3,800 m., just below the Signaljoch, is, though in a different style, the best description of an often-described class of incident which we have read since that which Mr. Justice

* See p. 272.

Wills wrote, a generation ago, in the first series of 'Peaks, Passes, and Glaciers.'

A long notice of Dr. Nansen's book, under the title of 'The Largest Glacier in the World,' demands at least the mental use of Géronte's indispensable phrase; but we soon return to the proper study of an Alpine association. In one of those thoroughgoing monographs which are almost a speciality of the 'Bollettino' Signor Prudenzini tells us pretty well all there is to be told about the district lying to the north and north-east of Breno, in Val Camonica, a region unknown to Bädeker, unknown to Ball—'him even.' The summits do not range much over 8,000 ft., but the valleys are comparatively low, so that the relative height is great. The scenery appears to be such as is associated with the prevailing geological formation, which, again, seems to be very similar to that of the district known *par excellence* as 'the Dolomites.' This part of the subject, by the way, Signor Prudenzini does not touch; but Professor Arturo Cozzaglio does it for him. The same writer returns to the district on his own account, in a paper discussing the origin of some curious little 'pot-holes' called the 'Laggetti di Esine.' These seem to have a troublesome habit of coming suddenly into existence, preferably in the direct course of a frequented road; and Signor Cozzaglio attributes them to the action of a subterranean current, which eats cavities in the subjacent dolomitic rock. Into these the overlying alluvium falls, leaving pits on the surface, which then become partially filled with water.

A paper on the Cortina Dolomites, by Signor de Falkner, contains an ascent of the Sorapis by a new route from the new Pfalzgau Hütte, on the north side of the mountain; and one by Signor de Breugel Douglas deals with the group of the Dent du Midi, in which great molar, to borrow a phrase from Mr. Mathews, the writer appears to have discovered some yet unascended cusps.

Signor de Stefani has an elaborate orographical paper on the mountain ranges of Italy; and Professor Antonio Aloï one on the eruption of Etna in 1892, with a historical glance at preceding eruptions. Space does not allow us to do more than mention these, but students of their subjects will doubtless find them interesting.

Of all the contributions to the volume the one which has most mountaineering interest is Signor Fiorio's account of his ascent by himself, in company with SS. Vigna, Devalle, and Rey, of the Becco della Tribolazione. No one seems to have been there since the first ascent by Signor Vaccarone, in 1875. (Incidentally we may here point out that the references, on p. 105 of the index to this Journal, to vol. xii. 416, 514, do not belong to this peak, but to the quite different Testa di Tribolazione.) The party started from the Piantonetto Refuge, crossed the Bocchetto della Losa, worked round the west base of the peak to the Colle dei Becchi, and thence reached the summit. Three very effective cuts, from photographs taken by Signor Rey, illustrate various moving incidents in the climb. It may be here mentioned that Signor Bobba has this year reached the central peak of the Becchi.

The article on the Maritime Alps, by Herr L. Purtscheller, which

follows, is a translation of one which has already appeared in the 'Zeitschrift' of the D.Ö.A.V. Without containing any item of novelty it bears testimony to the activity of that eminent mountaineer.

A paper on the use of photography as a means of recording gradual movements (*bradisismi*) of the earth's crust, particularly in mountain districts, by Signor Salmojrighi, concludes a very interesting volume of the 'Bollettino.'

Den Norske Turist Forening's Aarbog for 1893.

Our Norsk friends celebrated the twenty-fifth anniversary of the foundation of their Turist Forening by a commemorative dinner on May 27. The 'Aarbog' contains a full report of most excellent speeches made on that occasion, as well as twenty-five portraits of the various presidents and principal officers of the club since its foundation to the present time.

As usual there are several very good papers, the most interesting being one by Herr Peter Annæus Øyen on the glaciers of the Jotuu Fjelde. He describes their distinctive features, and gives the results of a number of observations regarding the temperature of the water issuing from various glaciers; he also describes the formation of glacier ice, and draws attention to the grandeur of the Leirungsdal and glacier, which are wholly neglected by tourists. He explains the reason of the intermittent filling and draining of a little tarn in the Melkedal, but, strange to say, he makes no reference to the weird little tarn in Svartdal, which is formed by the terminal moraine of the Svartdal's-bræ.

Herr Hall has contributed a good paper on the ascent of a little aiguille in the Lofotens. He has taken the opportunity to moralise on the evils of dizziness on the mountains. Writers in the 'Aarbog' are very fond of writing about this subject, some of whom seem to imagine that it is the most formidable monster to be met with in the Norsk wilds. Surely the British plan of ignoring it altogether is preferable. Herr Arentz describes the first passage by a tourist of the large Spørtegræ. There is a capital paper on a long sledge journey in winter in the far north.

There are several English papers. One, which is well illustrated, deals with the Horung-tinder in bad weather. Another treats of a journey on 'skie.' In another paper the writer says that the Lyse Fjord 'wants to be more known.' As this fjord is especially beautiful and can be very easily visited it is to be hoped that its wants will be supplied.

The present writer has supplied a paper, 'Down to the Valley Again,' which describes happy days of failure. He has endeavoured to show that present failures are often merely stepping-stones to future success.

At the general annual meeting of the Tourist Club the vital question under discussion was whether a little steamboat should be put upon Lake Tyin, a most beautiful Alpine lake. In case this were done the fuel would probably be peat, and the smoke would be terrible. Fortunately this act of Vandalism, almost comparable to the construction

of the railway over the Little Scheidegg and Wengern Alp, is postponed for the present.

The 'Aarbog' is, as usual, well illustrated, and reflects great credit upon the editor and other officers of the club. W. C. S.

Camaldoli e suoi Dintorni. Da Ranieri Agostini. (Florence: Ducci.)
Montepiano e sue Adiacenze. Same author.

Though not precisely Alpine the districts of which these little books treat are distinctly mountainous. Near Camaldoli the summit of Falterona, known to readers of Dante, reaches 5,400 ft., and there are several points of not much inferior height; while about Montepiano, some thirty-five miles to the westward of the former centre, the tops seem to range from 3,000 to something over 4,000 ft. Camaldoli is of course the better known, as the Casentino, at the upper part of which valley it lies, is visited by many tourists, and is surrounded with famous place-names and historical memories. Montepiano lies just to the N. of the range dividing Tuscany and Lombardy, almost in the direct line between Florence and Bologna, and appears, so far as may be judged from the indifferent photographs with which the little guide book is adorned, to be placed amid pleasant hill scenery and within easy reach of sundry interesting remains of antiquity. Signor Agostini's two unpretending but practically arranged little works, in which, after the Italian fashion, natural in a land of so many associations, history has its place as well as topography, will be found of considerable service to all persons of active habits, who, finding themselves at Florence or Bologna, may wish for walking exercise in a country which the average tourist has not yet discovered.

Karte der Hochalpen-Spitze und des Ankogel-Gebietes, von Gustav Freytag, mit Beiträgen von F. Kordon und P. Oberlercher. (Wien: Freytag.)

A boldly drawn map, on the scale of 1 : 50,000, of an extremely interesting district, hardly at all known to English climbers. The Hochalpen-Spitze (3,355 m.) is the most easterly peak of the Alpine chain which rises from true glaciers. East of it only one peak comes within 1,000 ft. of it in height; and both in form and surroundings it forms a worthy conclusion to the great snowy chain which begins at the Argentera. The map before us gives an excellent notion of the district and much detailed information. Contour-lines are drawn at levels of 100 m., every fifth hundred being indicated by thicker lines (for the thousands) or dotted (for the odd five hundreds). The system of shading adopted is curious. The light is conceived as coming from N.W., or thereabouts, with the odd result that in each valley the 'Schattenseite' is bright, while the side which catches the midday sun is in deep shadow.

Routes in the higher regions are indicated, so far as knowledge of the district enables us to judge, with great accuracy.