

difficulty, was ascended on August 20 from Vereina (previous ascents—two or three in number only—having been made by a very roundabout way from the Silvretta Club hut) by the guides Guler and Schlegel, of Klosters. Four days later Guler led Herr Geisler, of the German A. C. (who had been left behind at the foot of the peak on the 20th, owing to bad weather), to the summit. The climb is described as difficult and dangerous, lying through a steep snow couloir and then over the rocks to the left. Two hours were required for the ascent from the *Bergschrund* and $2\frac{1}{2}$ for the descent.

The central and highest peak of the *Levanna* (3,640 mètres = 11,943 feet) in the Graian Alps has been climbed direct from Ceresole (*i.e.* from the north) by way of the rocky ridge, falling immediately from the summit. This was first done on August 10 last by Signor Simonetti, the Italian engineer charged with the new survey of the district, led by a local man, Blanchetti, and again on August 12 by the four Signori Sella, with Maquignaz and Bich. The latter party, who describe the ascent as not easy, took 8 hours (including halts) from the *Levanna* Alp to the top.

REVIEWS AND NOTICES.

Relazione sulle condizioni geologiche del versante destro della valle della Dora Riparia tra Chiomonte e Salbertrand. Del dottore Martino Baretta. (Turin: Camilla e Bertolero, 1881.)

This pamphlet is also connected with railway geology, as it arises from an investigation made by Dr. Baretta into the petrology and stratigraphy of the beds traversed by the railway from Modane to Turin, between Chiomonte and Salbertrand. The line was much injured by falls of rock last May, and there appeared a probability of others, so that Dr. Baretta was instructed to examine the geology of the district with a view of seeing how far these were due to the nature of the rocks. To this the second part of his pamphlet is devoted, from which it appears that in his opinion a portion of the line is highly unsafe, owing to the geological conditions, that all attempts at repair will be very costly and of dubious stability, and that (as we infer) some change in its course is necessary. To this report a brief sketch of the geology of the surrounding district is prefixed, which is of more general interest. From this it appears that three great formations may be recognised—the lowest, called the *Ancient* or *Central gneiss*—a formation consisting almost wholly of a granitoid gneiss, rich in porphyritic crystals of felspar; the next, or *Pietre verdi* zone, consisting of serpentinous and horn-blendic schists, opicalcite and crystalline marble, with gneiss and mica-schist rich in nodules of quartz; and lastly a group locally called *pietra marcia*, consisting of less crystalline rocks, limestone, gypsum, quartzites, and schists. The three appear to be unconformable, though, as we infer, the unconformity is not very strongly marked, and it is in the uppermost of these that the dangerous spots occur.

T. G. B.

Aperçu géologique sur la chaîne du Mont Blanc en rapport avec le trajet probable d'un tunnel pour une nouvelle ligne de chemin de fer. Par le docteur Martin Baretta. (Turin: Candeletti, 1881. 2 francs.)

The construction of a railway to Chamonix was popularly reported to have been one of the attractions held out to the natives of that district as an inducement to consent to transference from Italian to French rule. This hope has hitherto been unfulfilled, but now the idea is seriously entertained, not only of effecting this, but also of constructing another Franco-Italian railway and piercing the main chain of the Alps. At present, however, there seem to be rival schemes—one to utilise the railway already constructed and make a tunnel beneath the Simplon Pass; the other, to which this memoir relates, to follow the valleys of the Arve and of Aosta. The geology of the Mont Blanc chain has already been admirably described in the classic work of M. Favre, but Dr. Baretta has now examined a portion in greater detail, and published his results in the present memoir, which is illustrated by a map and sections. The proposed tunnel beneath the main chain would be 13,100 mètres long, and would run nearly in a direction from south-east to north-west. It would pass almost beneath the Mont Fréty, under the summits of the Tour Ronde, and the Mont Blanc du Tacul, to the north of the Grands Mulets, and almost under the right margin of the Glacier de Taconnaz. The petrographical character of the rocks to be traversed, both here and in the approaches to the tunnel, is described, and numerous valuable notes as to their dip and strike are recorded. These appear to indicate a general conformity between the protogine, forming the central part of the chain of Mont Blanc, the overlying schists, and the slates and limestones. This at first sight certainly seemed to favour the idea that they form a continuous series. A closer examination, however, of the published sections shows that this is hardly possible, and that there must be important faults, of which no indication is given. Still, although this memoir fails to throw much light upon one of the most important problems in modern geology, viz. the relations one to another of the various more or less metamorphosed rocks and their respective ages, it contains information which will be of much use when the complete discussion of this problem is undertaken.—T. G. B.

Scritti Varii di Argomento attenente all' Alpinismo. Anno IV. (Florence: Niccolai.)

Guida della Val di Disenzio (Appennino di Montepiano). Da Emilio Bertini. (Prato: Lici.)

Guida illustrata del Casentino. Da Carlo Beni. (Florence: Niccolai.)

The Florentine section of the Italian Alpine Club (though numbering only 192 members) is one of the most flourishing branches of that prosperous society, and we have another proof of its activity in the fourth volume of 'Scritti Varii,' which has been lately published. The actual condition of the section is set forth in a very interesting speech of the president, Mr. R. H. Budden, an honorary member of our own club and a gentleman known far and wide for the intense interest he takes in all Alpine matters, and the courtesy and readiness with

which he communicates his knowledge. Then we have an article by the lamented Signor D. Marinelli on ascents of Piz Zupo, the Marmolata, and the Glockner. Count Thomas de Cambray-Digny narrates his experiences on the Pelvoux and the Viso in a pleasantly written paper. The other articles relate for the most part to the Tuscan Apennines, and should be consulted by anyone wishing to plan rambles in that district. This patriotic attempt to open up the hilly portions of its own territory is a leading characteristic of the Florentine section, and, to foreigners at least, is chiefly evidenced by the number of local handbooks published more or less directly under its auspices. Among these are the works by Signori Bertini and Beni, mentioned at the head of this notice, both excellent specimens of the series to which they belong. Of the two, that by Signor Bertini, is perhaps made up to a larger extent of useful practical details; while Signor Beni's book is, from the nature of its subject, largely historical, and is illustrated by some lithographs, the effect of which is very pleasing, though they have at first sight a rather rough appearance.

Annuario della Sezione Lucana, 1878-1880. (Potenza.)

Here again we find a section of the Italian Club doing good work, and publishing its labours in a modest but very interesting volume. It was founded in 1878, and now appears before the world for the first time with its Annual, which we trust may be the first of a long series. This contains many articles relating to the Basilicata, the mere names of which would take up a larger space than we can afford. But there are also some articles of more general interest, from one of which we learn (pp. 264-6) that there exist at present no less than 39 distinct societies, which busy themselves with the mountains of their own or other lands—surely the best proof possible that the love of mountain scenery is still on the increase, despite all detractors.

Historique de la Vallée d'Aoste. Par J. B. Tillier, Secrétaire des Etats du Duché d'Aoste. (Aoste: Mensio. 2 francs.)

This is an edition (rearranged and thrown into a readable form by Canon Berard of Aosta, who has already deserved so well of his native valley) of that part of a seventeenth-century work by an Aostan which is concerned with the political administration of the duchy. It is of the highest historical value, and enables us to realise the almost independent position of Aosta with reference to the counts and dukes of Savoy. We trust that the present pamphlet will meet with sufficient recognition to justify the publisher and editor in reprinting the whole work of which this is a detached fragment. Few Alpine valleys have had so interesting a history as that of Aosta, and there are fewer still of which the natives have been inspired by local patriotism to treat their history in fitting detail. While writing of Aosta, we may draw attention to the interesting account of the passes in the Duchy of Aosta used in the seventeenth century, published by Signor L. Vaccarone in No. 46 of the 'Bollettino del Club Alpino Italiano' from old documents, and forming a sort of supplement to his former paper on the traces of former roads across the main chain of the Western Alps.

Alps and Sanctuaries of Piedmont and the Canton Ticino. By Samuel Butler. (London: Bogue, 1882. 21s.)

Mr. Butler's book is, strictly speaking, a contribution to sub-Alpine rather than to Alpine literature. This will be shown by a sketch of the ground he covers. His first halting place is Faido, on the St. Gothard, a neighbourhood the beauty of which long ago attracted Turner and his interpreter Mr. Ruskin. He describes visits to Fusio in Val Lavizzara, to Val Mesocco, to Locarno, to the hills about Varese and Arona, to the resorts of Piedmontese society in the Valli di Lanzo, to the Sagro di San Michele above the entrance to the valley of Susa, and to the pilgrimage shrines of Oropa and Graglia, near Biella.

His 'alps' are the alps of the country, the high pastures, not the snowy alps of tourists, geographers, and poets. His 'sanctuaries' are village churches or solitary chapels, as well as the more famous resorts of pilgrimage. The descriptions of the curious remains of art and architecture to be found by wanderers in out-of-the-way villages and on remote heights are the best part of the book. Mr. Butler writes well, and despite his many digressions shows a real sympathy for the matter in hand. Had he chosen he might have made a permanently valuable addition to literature. He has preferred to treat his subject in the desultory and discursive spirit of the holiday-maker, and his pages, therefore, though they will give pleasure to those who look only for the lively letterpress of an 'illustrated book,' are disappointing to readers interested enough to hope for something better.

It is hardly possible to describe the hill-country of North Italy without drawing many delightful pictures, and Mr. Butler's pen is a lively aid to his pencil in bringing before us mountain shrines and chestnut-draped slopes. But in his descriptions of the scenery of Canton Ticino he seems to us to miss the point so completely as almost to raise the suspicion that he is treating his readers to one of the paradoxes which are still dear to the author of 'Erewhon.' The exquisite valleys which meet at Locarno are unrivalled in the Alps for the purity and colour of their streams, for the way they exhibit in inexhaustible variety of combinations the architecture and foliage of the south thrown over mountain spurs and buttresses, which combine the rude strength of the central range with the harmonious outlines of Italian hills. But they have been denied one thing—a diadem of snowy peaks. It follows that the landscapes of the upper glens, above the crags and forests, are comparatively tame. To the lower gorges of Val Anzasca Monte Rosa is but a crowning splendour. But what would Macugnaga be without it? Yet it is not to Bignasco, but to Fusio and the glens behind it, that Mr. Butler is attracted. A quiet pasture valley with uniform slopes is a pretty thing in its way, but to fall down and worship it in the Italian Alps shows a taste which will not find many sympathisers. It is a disappointment to find that Ré, the pilgrimage shrine of the Val Centovalli, is not included in Mr. Butler's list. There (in exception to the general rule laid down above) the landscape is crowned by a superb view of the peaks of Monte Rosa. A lake nearly a mile long has been formed below it by a recent landlip. Of this catastrophe Mr. Butler makes no mention. Nor is he happy in his allusions to the two principal mountains of the

district, spelling Basordine throughout for Basodine, and boldly declaring that Piz Campo Tencia has no name on the Ordnance map. Of the 'Alpine Guide' he has apparently never heard. Indeed of Alpine literature in general Mr. Butler seems to know nothing, beyond Budeker. It is a pity, for the 'Guida alle Alpi Occidentali,' published by the Turin Section of the Italian Alpine Club, might have directed him to some curious survivals of the ancient customs and ceremonies in which he takes an interest.

Mr. Butler tells us that in Val Anzasca he bought some tobacco rolled up in the business accounts of a local tanner for the year 1797. Among the skins received, and between chamois and marmot, are mentioned 'goats.' It would be interesting to know what is the Italian word thus translated; for it seems quite possible that this entry may be a witness to the existence of bouquetin in this part of the Pennine Alps at the end of the last century.

The illustrations are very numerous, faithful, and well executed. They are devoted rather to sanctuaries than to mountains.

D. W. F.

Annuario della Società degli Alpinisti Tridentini, vol. vii. 1880-1881.
(Rovereto, florins L.50.)

The Trentino Society has from the commencement applied itself to the general illustration of its province, as well as to Alpine exploration. In the present volume we find, accordingly, several historical or scientific contributions, and some more legends of the Witches—for whom, as Mr. Symonds has pointed out in his recent 'History of Italian Literature,' this region had in the seventeenth century an unfortunate celebrity—while the portion devoted to mountain ascents is perhaps less important than usual.

The only *new expedition* chronicled is an ascent of the pinnacle immediately north of the Bocca di Brenta, by Signor Apollonio. This paper is illustrated by a map and panorama of the Brenta group, in which the author has done his best to put forward a new nomenclature derived from B. Nicolussi, the Molveno guide. He calls the Cima di Brenta, *Cima di Val Persé*, and his own peak the *Brenta Alta*, besides making other alterations. Most peaks have as many names as sides, and, as a general principle, it is inexpedient to unsettle a nomenclature based on the usage of the valley from which the peak is most often approached by strangers—in this instance, Val Nambino. But if the case can be made out, we see no reason to object to the northern peak being called the Cima di Val Persé. We should, however, follow Signor Apollonio with greater confidence if his map showed a more complete knowledge of the group. In the first place, he has forgotten to notice that at so long ago as 1874 a committee of his club considered the nomenclature of the Brenta chain. He has omitted five of its most important passes. He has misplaced the Cima Tosa relatively to the Crozzon di Brenta. He has contradicted, without giving any authority, a physical fact obvious, we should have thought, to anyone who has been on the two peaks, or either of them, that the Cima Tosa is loftier than the Cima di Brenta (di Val Persé).

The thanks of explorers of the Trentino Alps are due to the society for the erection of a solid hut near the Bocca di Brenta. They have two others in contemplation. We cannot help thinking small mountain inns would be a greater benefit to travellers. The châteaux in this region already supply a night shelter near enough to the peaks for most mountaineers, and the discomforts of a hut and a châteaux are nearly balanced.

D. W. F.

Le Pertuis du Viso. Etude historique d'après des documents inédits du XV^{ème} siècle conservés aux Archives Nationales de Turin. Par Louis Vaccarone. (Turin : Casanova.)

Most travellers who have penetrated to the valleys lying around the foot of Monte Viso will remember having heard of a tunnel pierced in the rocky wall which cuts off Piedmont from Dauphiné, and curiosity may have led some to verify these reports by a visit to the spot. For the information of those unfamiliar with this part of the Alpine chain, it may be stated that this tunnel (now 246 feet in length and 6½ in height) lies a short distance below the summit of the Col de la Traversette, which connects Crissolo and the valley of the Po with Abriès and the valley of the Guil, a tributary of the Durance. It is thus a little to the north of the Viso, and this is the pass meant when it is asserted that Hannibal crossed the Viso. The origin of this tunnel has been attributed to Hannibal or Pompey, the Saracens in the tenth, the Dauphin Andrew in the thirteenth, or Francis I. in the sixteenth century. But it has been known for some time (Moréri, in his great 'Dictionnaire Historique,' originally published in 1673, being the first to point out the fact) that, in truth, the credit of this undertaking was due to a Marquess of Saluzzo; and as Jacques Signot (or Signot), in a pamphlet published in 1515 describing all the passages across the Alps between France and Italy, states that the tunnel had been pierced twenty-four years previously, it is clear that the Marquess Louis II. (1475-1504) was the promoter of this bold undertaking.

But we believe that we are correct in saying that, though Malacarne mentions having seen them, the original documents have not hitherto been published. Signor Vaccarone discovered them in the Turin archives put together in a packet marked *Super negotio aperturæ collis Montis Visoli*, with the date 1475, and he has now printed them entire, prefixing a valuable introduction, from which most of the details in the present notice are taken.

From these it appears that Louis II., in order to procure his people a sufficient supply of salt from Provence, of which they stood in great need for their flocks, conceived the idea of piercing the range at the head of the Po valley in order to shorten the journey and to render it practicable in summer as well as in winter. He applied, in 1475, for support to the Parlement of Grenoble, which gathered all the information it could, and the Treasurer-General of Dauphiné was sent by the Governor of the province to take evidence on the spot. But the report was not presented to the King-Dauphin (Louis XI) till the end of 1477, and then only in consequence of a letter written directly to the

King by the Marquess. The King directed the Parlement to assist the Marquess in every way, the States of Dauphiné sanctioned the scheme, and we find that in 1478 an agreement was made between the Marquess (acting for himself as well as for Louis XI. and the Parlement) and two nobles, Martin de Albano and Balthasar de Alpiasco, by which the latter engaged to undertake the conduct of the works necessary for carrying out this scheme. The details of this treaty (given by Signor Vaccarone in his Appendix No. 6) are in the highest degree curious and interesting; the Marquess agreeing to furnish 12,000 florins, all wood and iron required, and to grant the undertakers the privilege of conveying a certain amount of merchandise through the tunnel without paying any customs duties. The project was approved by the Parlement of Grenoble and by René, Count of Provence; but disagreements sprang up between the Parlement and the Marquess, which delayed its execution for some time. The Emperor Frederick III. in 1480 gave the Marquess Louis the right of levying a duty on merchandise passing through the tunnel, provided he completed it and built at the entrance a chapel in honour of Our Lady and S. Christopher, with a chaplain attached to pray for the souls of all the Emperors. As a matter of fact, the building and foundation never advanced beyond the stage of a project on paper. Louis XI. having ordered the Parlement to resume the work, the plan was finally executed in the summer of 1480, thus anticipating the Fréjus tunnel by 390 years. From that time forth we find traces of the frequent use of this tunnel. Through it passed in 1494 part of Charles VIII.'s army on the way to the conquest of Naples. Francis I. of France constructed a good path on the French side, traces of which are said to exist, but were not discovered by the writer, who twice passed through the tunnel last summer. As long as the marquessate of Saluzzo remained in the hands of the French King (1528-1588) the tunnel was left open and the paths on both sides maintained; then it was closed by the Dukes of Savoy, in order to force the salt traffic to pass through the Maurienne or the Tarentaise. Though reopened about 1600, it had become choked up with *débris* in 1627, and, despite the petitions of the inhabitants of the valleys on either side, it was not reopened till 1803 by the Napoleonic sub-prefect of Saluzzo, Mons. P. B. Bressy. After several changes, it was arranged, in 1856, that the Commune of Crissolo should keep it open, and it has been aided in carrying out this obligation by grants from the Provincial Council and the Italian Alpine Club. An iron hand-rail now runs through the gallery, which makes an awkward bend at one point and which at the end of September is already glazed with ice. In the present condition of the tunnel and its approaches beasts of burden can certainly not come near it. It would seem from the length given in the documents of 1480 that it was then half as long again as it is now. In all probability this is an exaggeration, though there is no doubt that, owing to the crumbling nature of the rock, the gallery is steadily diminishing in length, and, in fact, on the French side an artificial covered way runs for a short distance. Iron rings have been found attached to the roof, presumably in order to hold lanterns, and there are certain hollows in the sides of the tunnel,

which are supposed to have been meant to meet the case of two caravans of mules encountering each other in the midst. The mouth of the tunnel on the Italian side is now marked by splashes of red paint, seen from a considerable distance.

Without doubt this tunnel ranks as one of the chief curiosities of the Alps, and is specially remarkable as having been conceived and carried out by a local potentate with aid from his more powerful neighbours. Signor Vaccarone has again earned the thanks of those interested in Alpine history for his most interesting book, the printing and general get up of which are most luxurious.

Illustrierter Glockner-Führer. Von Josef Rabl. (Vienna: Hartleben.)

Bekleidung, Ausrüstung und Verproviantirung des Hochtouristen. Von Julius Meurer. (Vienna: Spies.)

Das Finsteraarhorn. Von Julius Meurer. (Vienna: Spies.)

These three works are all published by the 'Alpenclub Oesterreich,' a society which, though founded a very few years ago, has already taken a high rank among Alpine clubs for its enterprise and activity, and numbers at present over 1,500 members.

The guide to the Glockner district is very well done, and is in fact a monograph on the Glockner, somewhat in the style of M. Durier's book on Mont Blanc. It contains, however, in addition a great many practical details. All the latest information as to new routes, tariffs, guides, huts, &c., is given, nor are the local manners, customs, and legends passed over without notice. There are many illustrations scattered through the book, and an excellent map on a scale of $\frac{1}{40,000}$, besides a sketch map. Some interesting statistics are given as to the number of the ascents of the Glockner from Heiligenblut and from Kals. We must not forget that it was this society which constructed the Erzherzog Johannhütte on the *Adlersruhe*, barely 1,000 ft. below the highest peak of the mountain. In the later chapters much information is given as to other portions of the Glockner district, and the book will answer all the requirements of travellers proposing to visit Kals or Heiligenblut. Its handy shape will further contribute to secure it an extensive circulation.

Herr Meurer is the president of this club, and sends us two lectures delivered before it, and reprinted from its organ, the 'Oesterreichische Alpen-Zeitung.' In the former, on the Equipment of the Alpine traveller, many useful hints may be found, though the author is perhaps inclined to what English climbers would consider undue luxury in the mountains. No two persons agree as to every detail of an Alpine kit, and we therefore cannot commit ourselves to unreserved approval of all Herr Meurer's recommendations. They are mostly, however, very sensible and practical, though we cannot accept the reason given why 'Stegeisen' are rarely used in Switzerland, viz. that their adoption would render expeditions so much easier that the guides would have to reduce their tariffs. We would rather attribute this holding back on the part of the guides to the fact that the ice and snow slopes in the Central and Western Alps are as a rule much longer and steeper than those in the Eastern Alps; consequently

such artificial aids would rather be a source of danger than otherwise. In his other lecture Herr Meurer describes his own experience on the Finsteraarhorn and briefly narrates the history of the early ascents, though he does not give any decided opinion as to the disputed claim to the honour of the first ascent. We would point out to Herr Meurer that the route re-opened by M. Cordier in 1876 has been taken at least once since that date, on which occasion the difficulties were found to be far less serious than had been supposed. Herr Meurer draws attention to the fact that no fatal accident has as yet occurred on this peak, a distinction which its neighbours are unfortunately rapidly losing. The Austrian nationality of the author comes out unmistakably in the amusing, if somewhat malicious, narrative of the experiences of a Prussian tourist on the Aletsch glacier.

Section Lyonnaise du Club Alpin Français. 3ème Bulletin. (Lyon: Pitrat, 1881.)

It is with great pleasure that we welcome the latest Bulletin (a substantial pamphlet of 125 pages) of this energetic section of the French Club. The 'Lyonnais' have always been to the front in the exploration of the ranges of Dauphiné and Savoy, and we hope will ever strive to maintain this proud position. This new publication gives fresh proofs of their activity. The school of climbers which aims at conquering lofty peaks and exploring little known regions is represented by Monsieur Sestier and Monsieur Benoist. The former describes an attempt on the Grande Casse (frustrated by weather), and his experience on the Aig. du Midi de Peisey, concerning which peak he will find some details (of which he seems to be unaware) in previous numbers of this journal.* Monsieur Benoist once more draws attention to the wonderful panorama to be had from the summit of the Grande Ruine, and narrates his passage of the Col Lombard, and attempted passage of a new col between the south and central Aiguilles d'Arves; the descent on the Valloires side proved impracticable, owing to a sheer precipice of 100 feet, and the party was forced to ascend the central Aiguille d'Arves (by the way taken in 1839) in order to escape from their unpleasant position. Monsieur Vignet gives a lively account of the Pralognan fête last summer, and Mons. Darnat publishes some rather pretty verses, though we miss the pieces which had such brilliant success at the aforesaid fête, for a separate printed copy of which we have to thank the accomplished author. Monsieur Catenod sketches in an amusing way the ascent of the Grand Veymont, a point near the Mont Aiguille, which it overtops by a good bit. M. Mital supplies a summary of the Alpine journeys (1841-1878) of the late vice-president of the Club, M. Anglès, whence we gather that as early as 1842 he visited the Oisans and the valleys near the Viso, in 1843 crossed the Col du Sellar from the Val Godemar to the Vallouise, and in 1847 explored the beauties of Cogné, the Val Savaranche, and the upper valley of the Isère. These early notices of visits to spots, even now unfrequented, are extremely valuable, and supplement the accounts of the English travellers, Brockedon and

* Vol. ix., pp. 98, 169, 238.

Forbes. Papers on the Vosges, the Pyrenees, and the Môle show that the sympathies of the Lyons section are not limited to their own part of France. It now includes no less than 545 members, and its library numbers 322 separate works. The whole history of the section goes far to show how advantageous it is from every point of view to have local societies or branches of a larger whole, which devote their energies to special districts of the great mountain chain. Yet excessive 'localism' is as much to be guarded against as excessive centralisation. The Lyons section seems to have hit the happy mean, and we hope will long continue its prosperous career.

Les Etapes d'une berline à travers le Tyrol, l'Engadine et les Grisons—Juin 1864. Par Louis Vignet. (Lyon: Pitrat, 1880.)

This is a most amusing account of a carriage journey from Verona to Coire by the Stelvio, Bernina, Maloja and Splügen, undertaken by the author and his wife. It is written with great *verve* and brilliancy, and could only be the production of a thorough Frenchman imbued with a keen appreciation of natural beauties. It is interesting also as giving an account of the Eastern Alps in the days before they had been opened up by the energy of certain enterprising explorers belonging to our own Club.

Zeitschrift des Deutschen u. Oesterreichischen Alpenvereins für 1881. (Vienna.)
Mittheilungen des Deutschen u. Oesterreichischen Alpenvereins für 1881. (Vienna.) Both edited by Th. Trautwein.

The German Alpine Club has now a larger number of members than any other Alpine Club in Europe. It is divided into 74 sections, which include over 9,000 members: hence it can easily support a *Zeitschrift* (appearing three times a year), in which long articles are printed; and *Mittheilungen* (ten numbers appearing a year), with shorter notes, reviews, reports from the sections, and business notices. In the numbers for last year we find many interesting papers, such as those of Herren Simony and Geyer on the Dachstein group, of our own member Dr. P. Güssfeldt on Alpine Travelling, of Dr. Moritz Hoernes on the Passes of Bosnia. There are besides several scientific articles on glacier phenomena as exhibited by the Pasterze Gletscher, the principles by which we should be guided in using and criticising a map, the method of drawing a panorama from a summit, &c. The short reviews in the *Mittheilungen* are generally very much to the point, and comprise nearly every important Alpine work which appears. Nor must we omit to mention the excellent maps, diagrams, and panoramas by which the publications of this flourishing club are always illustrated. Under its auspices there is now appearing an 'Atlas der Alpenflora,' to be completed in thirty-five parts, at the price (to non-members of the club) of two shillings a part. The specimen sent gives a favourable idea of the undertaking, which should meet with great support.

As a supplement to its periodicals the German Club has already published small and handy books on scientific subjects—e.g. Von Sonklar on Orography, Gümbel on Alpine Geology, Hann on Alpine Meteorology, and promises others on Alpine Anthropology and Botany.

Archives des Sciences Physiques et Naturelles. (Genève.)

Mons. Forel continues (in Vol. vi. No. 7 of this publication) his researches on glaciers already referred to (p. 285). A great many of his conclusions seem necessary consequences of modern discoveries as to the nature of glaciers. That the volume and pace of a glacier will vary according to the amount of overflow from the reservoir which feeds it, that the retreat of glaciers is mainly determined *not* by an increase of ablation at the lower end—by hotter summers—but by the falling off in volume and speed of the icy overflow from the upper region, are statements that invite our consent. And it is a matter of course that the advance and retreat of glaciers will follow, but not coincide with, the years of increased or diminished replenishment of their reservoirs, the interval being in each case dependent on the length and inclination of the ice-stream, and consequently being different in the case of different glaciers. Some observers have doubted whether the observed facts do not rather show a simultaneous advance of the Alpine ice. But, in our opinion, this objection would be fully met by a more minute observation of the records. Even a tourist can remember how the Glacier of Rosenlani led the way a quarter of a century ago in retreat, and in the last few years the Bossons has made its forward start before the longer and more level Mer de Glace. Personal observations of the glaciers of Mont Blanc last summer showed a most cheering state of things. One névé had risen some 20 feet against the rocks. The 'palaces of ice' on the high shoulders of Mont Blanc, which a few seasons ago lay in ruins, had been again upiled into towers and bastions, the upper ice-fall of the Bossons bristled with a new set of pinnacles.

The newest point made by Professor Forel is perhaps his insistence on the fact, that the rate of motion varies with the volume of the glacier, and consequently that any series of observations, to be complete, must extend over many years both of advance and retreat. But we fail to find any explanation of the slower winter progress recorded by Professor Tyndall.

On one point we venture to differ from Professor Forel. In arguing that *nothing* but an increased snow-fall is required to give Switzerland another glacial epoch, he has, we believe, greatly under-estimated the increase in the effects of ablation produced by every extra 100 feet of descent towards the valley. If he will take into consideration other mountain regions having a heavier snowfall than the Alps (and particularly the glacier phenomena of the Arctic regions), he will probably be disposed to admit that the sun and the warmth of the earth effectually check the advance of the ice beyond a certain point, and that the result he anticipates would require a much more general change in the European climate than he allows for.

The same number contains an elaborate but inconclusive article by Dr. Marcet on the influence of altitude on the human frame and its functions. It is beyond our power to enter into any detailed examination of Dr. Marcet's many and minute experiments. But one may humbly point out where our individual experiences, at heights between 12,000 and 18,500 feet, do not agree with the writer's. With most of

our companions we do not find cold at great heights so trying as equal cold in the plain. Mountain sickness or headache is not produced by cold, but by exposure to the sun's rays reverberated from snow and ice. And we must confess with shame that though at great heights we can go longer without food, or with little food, than in the plain, it is rather the *quality* of the provisions—when we have any—than the *quality* of the air which regulates our appetite. What is wanted before this problem can be settled is a series of experiments on a large number of subjects.

D. W. F.

La Chaîne des Alpes vue de l'Aiguille du Dôme de Milan: Panorama d'Orientation dessinés d'après Nature, avec un Texte explicatif. E. F. Bossoli. (Pirola. Milan: 1878.)

Signor Bossoli's Panorama is far superior to the ordinary ill-executed works often put forth under that name. His personal acquaintance with the mountains has led him to take special pains to preserve their characteristic outlines; and the identification of the numerous peaks seems, as far as we can judge, accurate and well done.

Guida Geologico-Alpina di Bassano e dintorni, con uno Schizzo di Carta geologica ed uno spaccato. Da A. Secco. (Roberti. Bassano: 1880.)

Signor Secco has written a compact little guide to Bassano and its neighbourhood, which, without aiming at anything very great, amply succeeds in its object of giving notices of the various excursions to be made in that neighbourhood. The geological and botanical details which are scattered throughout its pages will be found useful by travellers with scientific tastes.

Sui Popoli Antichi e Moderni dei Setti Comuni del Vicentino. Da F. Molon, 2da edizione, riveduta ed ampliata. (Burato. Vicenza: 1881.)

Signor Molon sets himself to prove two statements, 1—that the aboriginal inhabitants of this part of the Alpine chain belonged to the Italic race; and 2, that the actual inhabitants of the Tredici Comuni, near Verona, and of the Setti Comuni, near Vicenza, are descended from a colony of West Goths, part of the army of Alaric. Both propositions involve thorny and difficult historical and philological considerations, and the method adopted by our author is not in all points successful, though his conclusions are probably true. He is a devoted opponent of the theory which would make them Cimbri, and loses his balance of mind in the presence of 'Celtomania.'

ALPINE NOTES.

THE ALPS OF NEW ZEALAND (cf. vol. x. 237).—We learn that the Rev. W. S. Green (Carrigaline Rectory, Cork), a member of the Club, left England in November for the purpose of exploring the little known snowy regions of New Zealand. He was accompanied by Ulrich Kaufmann and Emil Boss of Grindelwald. Everyone interested in the opening up of new districts to mountaineers will wish Mr. Green and