

divided for the sake of convenience into six sections. The lectures are said to have been very much appreciated, particularly that on how to act in case of an accident, the zeal and interest shown being very great. A short examination (prizes being awarded) and a social evening concluded the proceedings. The Innsbruck section is to be congratulated on a distinct success.

REVIEWS AND NOTICES.

Zeitschrift des Deutschen und Oesterreichischen Alpenvereins. Jahrgang 1886. Band xvii. (München: J. Lindauer.)

THE strictly mountaineering portion of this volume becomes less every year. The most interesting papers are contributed by Herren Purtscheller, Lammer, Lorria, and Schulz, and have mostly been already referred to in the pages of the 'Alpine Journal.'

Herr Purtscheller ascended all three peaks of the Watzmann in a single day from S. Bartholomä. The mountain on this side is accessible only by a long couloir with precipitous sides, and interrupted here and there by short steep faces of rock. Where these cannot be climbed the sides must be scaled in order to turn the obstacle. The mouth of the gully is in the face of a cliff, and the ascent by this route is thought to be possible only in the early summer, when the snow-slopes reach up the cliff to the ravine. Herr Schück, with the guide Köderbacher (of Ramsau), climbed the central and highest peak (2,714 mètres = 8,905 feet) on this side (S.E.) in 14 hrs. on May 6, 1881. Köderbacher proposed to Herr Purtscheller to make a trial in the autumn. Leaving S. Bartholomä in the early morning of October 28, 1883, they got into the couloir only by a difficult and dangerous traverse, 2 hours being consumed in ascending about 50 mètres. In spite of Köderbacher's powers the first cliff could not be surmounted. The chasm between the snow and the walls was impassable, and at 9.30 A.M., after 8 hours' labour, they were forced to return. A second attempt was made on July 13, 1885, with the guide Preiss (also of Ramsau, and said to be quite as good a cragsman as Köderbacher). The access to the gully was easy, but the cliff which stopped them before was again found impassable. The side of the gully was climbed by a crack scarcely affording room for the tips of their fingers. In this precarious position Herr Purtscheller had to take off the guide's shoes, and he got up with the greatest difficulty. 'Those were exciting moments,' says Herr Purtscheller, 'such as I have seldom experienced in the Alps.' They soon had to enter the gully again. They had again to take off their shoes to surmount a second cliff. Here, whilst Herr Purtscheller was watching the movements of the guide above him, his footing gave way and he slipped down more than half a yard. He recovered his hold, but involuntarily clutched the rope with his left hand, thereby giving Preiss a jerk, which might easily have been fatal to both. The latter, however, only laughed instead of scolding, and went on as if nothing had happened. The

difficulties now became less, and they reached a broad hollow out of which the peaks rise. The S. summit was reached at 1 p.m., 11 hrs. from S. Bartholomä. The traverse to the central peak—generally reckoned very difficult—seemed only an agreeable walk. They reached it at 3.15 and descended by the Gugl Alp to Ramsau.

The next day the same party ascended the Hochkalter (2,629 mètres = 8,626 feet) direct from the Wimbachthal. As in the case of the Watzmann the only approach is by a gully terminating in a cliff. The entrance is reached by crossing smooth slabs of rock at considerable risk.* The summit was reached in 7½ hrs. On their return they made the first ascent of the highest summit of the Steinberg ridge, which they called Blaueisspitze. Thence by the Blaueis Glacier and the Scharten Alp they returned to Ramsau.

The adventurous descent of the Schreckhorn by the N.W. ridge made by Herren Lammer and Lorria is quite on a par with their rash ascent of the Dent Blanche in a snow storm.

Herr Schulz contributes an article on the early exploration of the Dauphiné Alps. This is tolerably complete, as far as it goes, from Ladoucette (Hautes Alpes, 1848) to Whymper (1864); but he dismisses very briefly, on account of lack of space, the subsequent explorations, referring only to the ascent of the western peak of the Meije in 1877 by M. de Castelnau, with the Gaspards, and to Mr. Coolidge, who has explored this group for seventeen years 'as no single climber ever explored a single district.' His references to modern maps are very complete, but the earliest old map which he mentions is that of Bourcet (1754), whereas the new 'Guide to Dauphiné' (soon to be published) will, we believe, reveal to us maps of a much earlier date. The article concludes with an ascent of the Barre des Ecrins by Herren Schulz and Purtscheller, without guides, on the same day (August 13, 1885) as a party of French officers.

Herr Grohmann gives an account of some of his first ascents (1863–1865) in the Dolomites, between Ampezzo and Caprile. Herr Petersen gives us recollections of a passage of the Col du Géant. The enterprising Frau Tauscher Geduly describes a traverse of the Fluchthorn from the Futschöl pass to the Jamthal hut. Herr Seeland contributes an additional chapter (number vii.) on the Pasterze Glacier.

Many of the articles on general subjects are of the highest interest and would deserve a lengthened notice. Space, however, allows only a mere enumeration of them.

Dr. K. Haushofer writes on the 'Origin of the Alps;' Dr. J. Hann on the 'Distribution of Temperature in the Eastern Alps' (to this is appended a table of the mean monthly and annual temperatures at no less than 264 stations); Herr C. Gsaller on the 'Orometry and Nomenclature of the Stubai Group;' Herr Brückner on the 'Höhe Tauern and its Glaciers;' Herr Hoffmann on the 'Frühmesserbuch of Martell' (a series of notes by a Pfarrer on local history, legends, and customs); Herr Grasberger on ballads, dramas, and artistic

* The descent by this route was effected by Herr Felix with the same guide in September 1881.

productions in the Alps; Herr Waizer on 'Customs at Birth and Death in Carinthia;' Dr. Lieber on 'Country Doctoring in Tyrol;' Herr Zimmerer on the 'Marmot.'

Dr. Oster discusses the route and object of an expedition made by Philip III. of Macedonia in 181 B.C. Herr Spichler contributes a second article on the Lechthal; Dr. Frischaut one on the Speikboden (2,519 m.), near Taufers, to which is annexed a panorama by Herr Ritter von Siegl, of Graz.

The Wendelstein (1,849 m.), E. of the Schlier-See and N. of Baierisch Zell, the most frequently visited summit of the Bavarian Alps, has nearly a quarter of the volume devoted to it. Its name, history, geography, economical conditions, population, &c., are treated of by Dr. Ratzel, its meteorology by Dr. Erk, and its botany by Dr. Dingler.

With this volume, besides the above-mentioned panorama, appear sheet No. 2 (Berchtesgaden) of the special map of the Berchtesgaden Alps, a panorama from the Wendelstein, and various views of mountain peaks. Amongst these several produced by a process in photography called 'Lichtkupferdruck' are so dark as to produce on the eye a disagreeable effect.

J. S.

Der Föhn: ein Beitrag zur orographischen Meteorologie und comparativen Klimatologie. Von Dr. Gustav Berndt. (Göttingen: Vandenhoeck & Ruprecht. 17s.)

In this book Herr Berndt renders good service to the science of meteorology, as well as to the subject of the Föhn, which is specially discussed in it. Without presuming to offer any new theory as to the origin of this remarkable wind he has collected together and examined the principal observations which have been made on it at many different times and places. He begins by reviewing the different theories which have been proposed, and dismisses as quite untenable that which assigns its origin to the heated desert of the Sahara (which was at one time supported by Sir Charles Lyell), as it is sufficiently evident that a wind arising there and moving northwards would in virtue of the earth's motion be converted into a S.E. wind somewhere about Asia Minor. He finds the theory of Dove (supported by Mühry, Hann, Billwiller, and others) the most reasonable—that the Föhn is caused by the presence of a barometrical depression in the N. or N.W. in a line between Ireland and the Bay of Biscay, the effect of such a depression being to produce a suction of air from the circumference to the centre. The air being thus drawn from the valleys lying on the N. slopes of the Alps, in order to restore the equilibrium masses of air rush violently from the S. side over the passes, gaining heat and dryness as they descend. The French meteorologists (Herbert, Faye, and others) combat this view, on the ground that the descent of the air, after passing the crest of the ridge, is contrary to the laws of force, and assign the origin of the Föhn to local depressions produced by the contact of the main cyclone with the Alps. The existence of such local whirls is, however, denied by the followers of Dove. The author admits that there are many points in connection

with the Föhn which Dove's theory does not sufficiently explain, and declares that much patient observation is required before the question can be definitely settled. He then proceeds to discuss in detail several points.

I. *The Topography of the Föhn*.—This is mainly confined to the portion of the chain of the Alps lying between Mont Blanc and the Bernina group. In the Eastern Alps it occurs with less frequency and violence, and W. of Mont Blanc it does not occur. This may, however, be the result of imperfect observation.

II. *Its Periodicity*.—Sufficient observations have not yet been made to prove that this wind is oscillatory over periods of years. It is certain that in the course of each year it occurs most frequently and violently in December and March, and is weakest in the summer.

III. *Its Phenomenology*.—In this section, which is by far the most important, Herr Berndt collects, tabulates, and compares the phenomena—meteoric, optical, and acoustic—which precede the Föhn; also those which accompany it—the variations in the pressure of the air and in its motion; the variations in temperature, saturation, &c. The barometrical observations in particular support Dove's theory, it being plain that when a south Föhn is raging the pressure is lowest in the north-west, and increases towards S.E. until in Southern Italy it is above the normal; the reverse is the case with a north Föhn when the centre of depression is over the Mediterranean. Under the three heads above mentioned there are introduced many interesting details of Föhn storms, particularly those of September 1866 and of November 1867. It seems quite established that the high stations so much recommended in the winter owe to the Föhn the clear skies and mild temperature which they enjoy often for weeks together whilst the plains of Switzerland are in fog and frost.

The work is illustrated by a general map of the parts of Switzerland subject to the Föhn, of the variations of the barometer and thermometer during the storm of September 1866 and of the distribution of temperature and moisture in the same storm; three maps of the Isobars in the storm of November 1867, and two of the variations of temperature at Trogen, in Appenzell, on December 7, 1869, and December 25, 1870. The succession of waves of alternately hot and cold air which characterises the Föhn is here remarkably seen. On December 6, 1869, between 1 p.m. and 7 p.m. the thermometer fell no less than three times to 12° Fahr., whilst the preceding and intermediate temperatures were 45° Fahr. and 32° Fahr.; whilst on December 25, 1870, in the space of 11 hours there were no less than seven similar changes, the extremes varying from 32° Fahr. to 1° Fahr. Dr. Berndt's work is one of the highest interest and should be read by everyone interested in the science of meteorology. J. S.

Rifugi e Guide nelle Montagne Italiane. Da F. G. and S. C. (Turin : Candeletti, 1885.)

Les Chalets et Refuges dans les Alpes Dauphinoises. Par Henry Duhamel. (Grenoble : Xavier Drevet, 1886.)

Schutzhütten und Unterkunftshäuser in den Deutschen und Oesterreichischen Alpen. Zusammengestellt von Josef Rosenthal. (Vienna : 1887.)

These three pamphlets have a similar end in view—a description of the exact position of and accommodation afforded by the Club huts built by several of the Alpine Societies.

The first on the list describes minutely no less than forty-one huts in the Viso, Mont Blanc, Monte Rosa, Bernina, Adamello, and other districts, all of which are built and maintained by the Italian Club. Notices too are given of thirteen small mountain inns, which are mainly dependent on mountaineers for their continued existence. Finally, we have a rather ambitious attempt to give the names of all the guides in every part of the Italian Alps, from the Viso to the Dolomites and Apennines. It seems very fairly full and accurate (though Bois' two little rooms at Fornet, in Valgrisanche, are omitted), but the compilers acknowledge that there are many gaps, and would gladly welcome any further information, which is to be sent to the headquarters of the Italian Club (Turin, Via Alfieri, No. 9). This is a very useful booklet, and must have cost enormous labour to draw up.

M. Duhamel describes all the huts in the Dauphiné Alps, whether built by the different sections of the French Club or by the Société des Touristes du Dauphiné. These are no fewer than twenty-four in number, besides several small mountain inns more or less subsidised by one of the Alpine Societies. In the almost total absence of decent inns in the district—though of late years there has been a marked improvement in this respect—good huts are essential, and with them Dauphiné is now well provided. The Refuge Cézanne has been rebuilt at the entrance to the Pré de Madame Carle, and a hut has replaced the uncomfortable Kastenstein-like hole dignified by the name of Hôtel Tuckett. We hope that the Refuge de Provence, on the Pelvoux, will soon be repaired—otherwise it will vanish entirely—and that the Refuge de l'Alpe will speedily be enlarged so as to accommodate the rapidly increasing number of travellers who seek shelter therein. How long too will it be before a small inn is opened at Ailefroide ?

Finally we are indebted to the German Club for a very compactly arranged eight-page leaflet giving some details as to all the huts and small mountain inns in the Eastern Alps from the Vorarlberg to the Karawankas Alps. In each case the approximate height is given, as well as the name of the Club (if any) which constructed the particular hut, the date of building, the starting-point in the valley, the distance from the peak to shorten the ascent of which the hut was erected, and a few facts as to the available accommodation and provisions. It is admirably done (as far as we can judge), the only improvement we can suggest being that the exact site should be indicated for the convenience of those visiting a district without previous local knowledge.

Such lists as these are very handy and convenient for mountaineers. Possibly the Swiss Club likewise issues a similar pamphlet, though it

has not come under our notice. If they were all to appear annually in June travellers could have the latest information as to the huts in the district which they propose to visit, for huts appear and disappear, and often their exact position is not known save to a few local men.

Europäische Wanderbilder—Wallis und Chamonix. Vol. i. *Wallis.* Von F. O. Wolf. Mit Illustrationen u. Karten. (Zürich: Orell, Füssli & Co., 1886. 8 francs.)

This guide-book to the Valais holds a middle place between the concise practical notes of Budeker or Tschudi and the romantic accounts to be found in the older editions of Murray. Its strong points are the great attention paid to local history, local legends and local customs, and the way in which all the most recent literature on the subject has been utilised.

The hurried tourist will not find herein the exact price of beds and dinners at certain asterisked inns, nor the precise beauties which he is to admire with the proper epithet attached to each; but anyone wishing to get a pretty full account of the Upper Valais as it was and as it is can scarcely hope for anything better than Herr Wolf's present volume, the matter of which is in strong contrast to the poor illustrations and to the district maps, the latter being only fairly clear and full. A special point, too, is made of the geology and botany of each valley. In fact, the work may be described as a collection of monographs of the valleys which make up the Upper Valais. Indeed, the book appeared in various parts, each part complete in itself—viz. *Von der Furka bis Brig*, *Brig u. der Simplon*, *die Visperthäler*, *Lötschen u. Leukerbad*, *Turtman u. Eifisch*.

More might have been made out of the early local history of Zermatt, but as a rule each valley is treated very fully and reference to the monographs in each case carefully given, so that any one wishing to investigate the subject fully knows at once what books to consult. We hope Herr Wolf will receive sufficient support in his undertaking to enable him to bring out his second volume, dealing with the Lower Valais and the tracks over to Chamonix and to Italy. It is a return to the guide-book of the eighteenth century to find so much space given to the political and social condition of a part of Switzerland, while the more purely Alpine part of the work is far fuller and more accurate than it was possible for the author of the '*Délices de la Suisse*' or for Ebel.

Guide du Haut-Dauphiné. Par W. A. B. Coolidge, Henry Duhamel et Félix Perrin. Avec 6 cartes. (Grenoble, 23 Grand' Rue: Alexandre Gratier, 1887.) 32mo. c. 450 pages. (8s.)

That portion of the Alps commonly known as 'Dauphiné,' and comprising (generally speaking) the district S. and W. of the Mont Cenis railroad and W. of the Italian frontier, has had the misfortune to strike the earlier English explorers in an unfavourable light in certain respects. Hence the old proverb, 'Give a dog a bad name, then hang him,' has unfortunately been only too truly exemplified with regard to the great mountain regions of the departments of Isère and the Hautes Alpes. A great deal of the prejudice against this district was formerly owing

to the very rough inn accommodation and the poor fare to be obtained. Happily those days are past, and there is now a good chalet inn at the great mountaineering centre of La Bérarde, while the accommodation at La Grave, Ville Val Louise, St. Christophe, Bourg d'Oisans, and other places is now very fair, and with more encouragement would probably become still better. These improvements are largely owing to the fostering care of various sections of the French Alpine Club and the Société des Touristes du Dauphiné, who have erected no less than fourteen mountain refuges or huts from which the more lengthy expeditions can be conveniently made. Many of the valleys of Dauphiné present a barren and wild aspect, owing to the absence of trees, but with regard to the majestic nature of the great peaks of the group few districts in the Alps present grander forms or offer more interesting work to the mountaineer. Until recently the only guide books that gave any practical information about the mountaineering capabilities of the district were the French guide book 'Joanne' and Ball's 'Alpine Guide,' but the later editions of Baedeker and Murray have given condensed information regarding certain expeditions. Now that the Dauphiné Alps have been pretty thoroughly explored by certain members of the English and French Alpine Clubs a suitable time has arrived for the publication of a pocket guide book to the district, giving full information about every expedition hitherto made in it. Future mountaineers in Dauphiné will find themselves able, upon consulting the 'Guide du Haut-Dauphiné,' to obtain all particulars regarding any expedition they may contemplate, together with full reference to everything that has been written about each peak or pass. The book is divided into sections, of which the Central or Vénéon portion is the most important; the peaks and passes (230 in number) are tabulated in topographical order, and the number of expeditions from different points in the district can be seen at a glance. One great advantage this guide book has is that nearly all the expeditions described in it have been made by one or other of the three authors of the work, and in the case of some of the more important expeditions by all three of them; and the book itself is the outcome of many years of careful research and exploration. From the central point of the district, La Bérarde, the number of first-class expeditions that have been made is something amazing, and it is a fact that from no one given point in the whole Alps (Zermatt itself included) can so many expeditions be made as from this neglected little hamlet, which stands at a height of 5,702 feet above the sea. Carefully drawn maps, the work of M. Duhamel, one of the authors, are to accompany the volume, which is plainly but substantially bound in leather, which ought to be able to stand the rough wear and tear of mountain travel. It so happens that the only map quite ready in time for the publication of the book is the 'Carte des Voies d'Accès,' which, as its name implies, shows the most convenient manner of approaching the Dauphiné Alps from various sides. When completed, the other maps (which are to be published in sections, covering the entire district) will be delivered to subscribers, but it was considered best not to delay the book on account of their non-completion, in order that the 'Guide du Haut-

Dauphiné' might be available for the forthcoming Alpine season. The letterpress is very clear and easily legible, and is well set off by the wide margins of the pages. It is a matter of congratulation to the authors that the guide book has met with a most cordial reception both in France and Switzerland, and nearly the whole of the first edition has already been disposed of. Besides the great central portion of the district the 'Guide du Haut-Dauphiné' comprises sections or appendices on the Grandes Rousses, Aiguilles d'Arves, Combeynot, Sirac, and Chaillol groups, in which no fewer than 112 expeditions are more or less fully described.

In order to secure greater accuracy of description than could be compiled merely from notes, no less than about 7,000 photographs, the work of M. Félix Perrin and M. Henry Duhamel, have been taken, and although not published they have been of immense use in the compilation of the Dauphiné guide book. But it is mainly owing to the work of Mr. Coolidge, extending over seventeen years, that the exploration of this intricate, and in many ways difficult, district has at last become so far completed as to justify the production of the 'Guide du Haut-Dauphiné,' the result being that the hitherto neglected district of Dauphiné is now as well provided in the matter of maps and guide book as any other part of the Alps, if not better. The guide book in its entirety has been compiled, revised, and issued under the joint authorship of Mr. Coolidge, M. Duhamel, and M. Perrin, and has been printed and published by M. Alex. Gratier, of Grenoble, who has done it full justice in the matter of printing, binding, &c.; and the price at which the book is published, considering the quantity of matter contained, is very moderate. There are still some virgin peaks left in Dauphiné, as a perusal of the guide-book will show, and although nearly all the more interesting and difficult ascents have been accomplished, there are some new expeditions left which will task the utmost capabilities of the best mountaineers.

FREDERICK GARDINER.

Histoire de la Vallée et du Prieuré de Chamonix du X^e au XVIII^e Siècle.
Par André Perrin. (Chambéry: A. Perrin, 1887. 6 francs.) 8vo. 253 pp.

In 1879 and 1883 Mons. A. Perrin published two volumes of documents relating to the history of Chamonix before 1550,* a most valuable and interesting collection. These he has now supplemented by a smaller work, which gathers under several heads the details contained in the documents. His new volume is thus not a consecutive history but a succession of detached essays, perhaps the best way of dealing with a mass of material which, large as it is, is by no means complete or continuous. It is naturally very interesting, but it is not well written, and abounds in irritating misprints, which ought to have been avoided, seeing that M. Perrin is a publisher as well as an author. The most novel and striking point brought out is that the village of Chamonix existed before the priory, round which it is commonly said to have grown up; for it is inaccurate to state that the grant of 1091

* See *Alpine Journal*, vol. x. p. 167; vol. xi. p. 484.

is the deed of foundation of the priory. It was only the gift of the valley of Chamonix to the great Benedictine house of San Michele della Clusa, near Turin. In 1202 we hear of the 'chaplain' of Chamonix and of Peter the prior of Mègève, who in 1205 is called prior of Mègève and Chamonix, the first independent prior of Chamonix appearing in 1224. It never seems to have been a religious house of any great size or importance, though it gradually drew to itself most of the political and territorial power in the valley. Mons. A. Perrin describes at length how the status of the heavily burdened men of Vaudagne was raised by their submission to the prior, while by a similar act the free 'Theutonici' of the Val Orsine were degraded, the privileges of the village of Chamonix forming the mean and the standard of freedom. A very large part of the book is taken up with a minute discussion of these privileges confirmed by the prior in 1292, and several times later. It is really remarkable to see how a comparatively small number of men were able to maintain their immemorial rights as against the prior. For instance, the priors only succeeded in securing the police or jurisdiction in petty matters, but the criminal jurisdiction remained in the hands of the men—we may almost call them the burghers—of Chamonix; and it was by their act and authority that many sorcerers and heretics (before the Reformation) were burnt or otherwise put to death. In fact, this part of M. Perrin's book is really a study in the local institutions of the Middle Ages, and is of very great value.

The 'advocates' or protectors of the priory were originally the Lords of Fancigny, then the Dauphins by marriage, and then the house of Savoy in its senior or cadet branches. One prior only, Richard de Villette (1255-1296), seems to have risen above the level of his fellows, and to have displayed considerable activity and zeal in increasing the rights of his house. In 1519 the then prior resigned, and by a bull of Pope Leo X. the priory was annexed to the chapter of Salanches, which held it for a long time. It was not till 1786 that the inhabitants finally secured full exemption from all taxes, and general independence, on the payment of a large sum of money. We note that Mons. Perrin gives no details as to the buildings or exact site of the priory. Is it because even his painstaking researches have not unearthed any details on these points? Our space will not permit us to speak more fully of this work, which, despite all its shortcomings (and from an historical point of view, they are not slight), we can recommend to our readers, for it contains a vast amount of local information on a well-known valley. The Bishop of Geneva visited it as early as 1411, and it is to be hoped that no one will ever again repeat the fable of its 'discovery' by Pococke and Windham. There are many mentions of bears, chamois, marmots, bouquetins, and avalanches, but the allusions to the glaciers are very few and far between.

It is to be hoped that the publication of this book may stimulate others, interested alike in mountains and in history, to work up the story of some of the chief Swiss valleys. The rough material abounds, but the workers have hitherto been few, for the combination of a knowledge of history and minute personal acquaintance with the valley

which forms the subject of research, is scarcely to be found, save among the summer visitors, who might well employ their holiday in the useful as well as agreeable task of collecting information about their temporary homes. We can assure them that their labours will be rewarded by the discovery of very remarkable parallels to far better known lands and institutions.

Führer für Forschungsreisende; Anleitung zu Beobachtungen über Gegenstände der physischen Geographie u. Geologie. Von Ferdinand, Freiherr von Richthofen. (Berlin: Robert Oppenheim, 1886. 17s.)

This admirable work on those departments of physical geography and geology which are concerned with the morphology of the earth's surface is an expansion of a previous smaller essay by the same author, and is meant for the guidance of those dwellers in little-known lands, such as missionaries and merchants, who, without being scientific specialists, take an intelligent interest in natural phenomena, and may, if properly instructed, collect valuable data for the use of the specialists at home.

After a short preliminary account of the proper way of travelling, a brief notice is given of mensuration and cartography, and of the methods to be adopted in making meteorological and biological observations. The main part of the book is made up of two portions. The former of them treats of the operation on the earth's crust of external agencies, such as the sun, rivers, ice and glaciers, lakes and the sea; while the latter deals with what we may call internal changes in the earth's crust, arising from the nature of the stones and the lie of the strata.

We would specially call the attention of our readers to two chapters. Book ii., chapter 6, contains in the short space of fifty pages a very complete and instructive account of the way in which ice has modified the earth's surface, and is modifying it now, much space being given to hints how to discover traces of former glaciation. Book iii., chapter 15, sketches very shortly the origin of mountains and the influence on the shaping of each peak of the movements of the strata of which it is composed.

The book contains no illustrations, but a number of diagrams, while references to previous writers are few and far between, being made up for by the authority and vast experience of the author. It is rather cumbersome for travelling purposes, containing 730 pages (besides a good index), but as it is not meant for the knapsack that perhaps is no great objection. Very possibly some remarks contained in it may rouse casual readers to observe things around them and thus render great service to scientific men in Europe, who have enough to do in classifying other men's observations, and can scarcely spare the time to make observations themselves.

Die Alpen: Handbuch der gesamten Alpenkunde. Von Professor F. Umlauf. (Vienna, Pesth, and Leipzig: Hartleben, 1887. Pp. viii. 488. 11s.)

This work has been coming out in parts for some time past, and has only just reached its completion. It is an attempt—and an ambitious one—to give an outline of all that is known about the Alps from every point of view, though it is obvious that such an outline must be very concise, looking at the vast field to be covered and the

enormous amount of literature in existence on the subject. The author fairly admits that his work is but an attempt to attain the object he has set before him, and we may at once say that *as an attempt* and *as an outline* his book seems to us to attain a high level. Specialists in one or other department can doubtless do much in the way of minute correction and supplementing, but we must remember that a general view of each was all that was aimed at. The five larger maps, representing the physical features, geological character, comparative elevation, river basins, roads and railways of the Alps, are clear, though some of them are on rather a small scale. The fifteen diagrams and small maps in the text are, as a rule, very well done, being obviously taken from the Government maps; but of the ninety-five woodcuts, large and small, scattered up and down the book, most are mere caricatures of the scenes they profess to reproduce, and all are far below the level of excellence which in similar works we may fairly expect. We must give a word of praise to the author for the very extensive bibliography which he appends to each chapter, and which is a most useful feature, though it is certainly not exhaustive. The Alpine Club may well feel flattered at finding its 'Journal' so often quoted, despite the fact that reference to it seems to be based on no very consistent or uniform scheme. A very complete index enables easy reference to be made to any part of the book, the main features of the eighteen chapters of which we must now proceed to point out.

After a brief general view of the Alps and a comparison with the other mountain chains of the world, Prof. Umlauf proceeds to describe and criticise the various schemes proposed for determining the limits of the Alps, and the groups into which the Alps may be divided for topographical purposes. This summary is exceedingly handy and valuable, as anyone can see at a glance the various schemes set out in tables, Mr. Ball's proposals (as set forth in the 'Alpine Guide') being given a high place in each case. Prof. Umlauf, however, prefers on the whole Neumann's (1882) suggestion for fixing the limits of the Alps, by which the Col dei Giovi (between Genoa and Novi) is taken as the boundary between the Alps and Apennines, while to the E. a line drawn from Wiener Neustadt through Gratz, Marburg, and Laibach to the Isonzo and Hadriatic marks off the Alps from the hilly country. He does not, however, consider that any final agreement has been reached as to the different groups into which the Alps may be divided, save the three great masses of the Western (up to the Great St. Bernard), Central (up to the Brenner), and Eastern Alps, and also a threefold division into northern, central, and southern zones. In points of detail he prefers Von Sonklar's system (1876). Two chapters on the building up of the Alps and their main geological characteristics lead on to the great 'topographical description,' which fills no less than 220 pages (*not* 320, as misprinted in the preface). We are not inclined to dispute the claim put forth that this is the most elaborate monograph as yet written on the topography of the whole Alpine chain, though we adhere to the opinion, expressed several times in these pages, that, without a very detailed map, such a description loses much of its value. Now, Prof. Umlauf does *not* give us such a map, and hence his

description at times becomes something very like a dry catalogue of peaks and passes. On the whole it seems to us that, as far as we have examined it, this description is remarkably well done and very fairly accurate. There are many slips in the lesser known parts of the Western Alps (30 pages), though not all the gross errors of former writers are reproduced; but the writer is clearly far more at home in the Central (120 pages) and particularly the Eastern Alps (70 pages). It is the natural consequence of his three-zone division, but all the same it strikes one as a little odd that the Bernese Alps (being a division of the N. zone of the Central Alps) come immediately after the Oetzthal group (another division of the central zone of the same mass).

Later chapters deal with Alpine valleys, Alpine rivers, torrents, and lakes, the effects of erosion and weathering (*e.g.* mountain falls, earth pillars, rock holes due to the action of stones whirled round by water, as in the 'Gletschergarten' at Lucerne), and the Alpine climate.

From this point, however, Professor Umlauf seems to have been obliged to curtail his original scheme as given in his prospectus, for twenty-three pages are barely sufficient even to indicate every variety of snow and glacier phenomena (including the sad spelling of 'névée,' which makes one doubt the writer's practical acquaintance with the subject), nor can Alpine botany and zoology be satisfactorily packed into ten pages. Railways and roads are dismissed in eight pages, while the great subject of 'Man in the Alps' (inhabitants, carvers, hunters, herdsmen, customs, art, mineral springs) fills only twelve pages, the special variety 'Tourist and Climber' being described in six. All these chapters are quite inadequate to discuss such extensive subjects, but we imagine the reason of their brevity is to be found in the unexpected dimensions to which the 'Topographical Description' extended. The fascinating subject of the history of the Alps is barely glanced at, and we must point out to Professor Umlauf that, as far as we are aware, there is no statutory maximum (whether 500 or any other number) to the possible members of the 'Alpine Club,' which heads the list of the twenty-one Alpine Societies enumerated. The order in which different classes of devotees of natural science have explored the higher Alps is quaint and perhaps worth noting. First come the botanists, then the entomologists and the geologists, and finally the orographers.

No doubt this is the best general book yet written on the Alps *as a whole*, and it ought to be in every Alpine library, were it only as a convenient guide to all wishing to investigate more minutely any special aspect of the Alps. It is best and most complete in all matters connected with natural science and with the Eastern Alps, but lacks the charming simplicity and vividness of Berlepsch's fascinating work on Swiss mountains and Swiss men.

Alpenwanderungen: Fuhren auf hohe u. höchste Alpenspitzen. Von A. W. Grube. 3te Auflage, neu bearbeitet u. ergänzt von C. Benda. (Leipzig: Ed. Kummer, 1886. 12s.)

We confess at once that we had never before come across Herr Grube's book, which is now published in a revised and very much

enlarged edition. It does not pretend to be a critical history of first ascents, but is simply a collection of narratives referring to many of the great peaks of the Alps. A short account of the conquest of each is given, and then one or more full narratives of the ascent, whether by the earlier or later climbers. So for Mont Blanc we have De Saussure's and Pitschner's descriptions of their respective ascents; for Monte Rosa, Ulrich and Zsigmondy are the chief sources; for the Finsteraarhorn (the genuineness of the 1812 ascent by Hugi's guides being maintained), Hugi and J. Meurer; for the Jungfrau, Agassiz and Dübi; for the Schreckhorn, von Fellenberg. The book is of course meant rather for the general Alpine public than the narrower circle of climbers, and this largely influences the choice of the papers reprinted. One feature which, as far as we are aware, is peculiar to this book is that it takes in not merely the Central but the Eastern Alps. Thus, besides the three great groups already mentioned, we have sections on the S. Gotthard, Rheinwald, Tödi, Bernina, and Silvretta districts in Switzerland; while in the third part, the Ortler, Oetzthal, Zillerthal, Gross Glockner, Gross Venediger, Dolomites, Dachstein, and Julian Alps all find their places. This feature appears to us the most useful in the book, for a man who knows well the classical narration of the conquest of the great peaks of the Central Alps will be glad to have in a convenient form other less-known accounts of the Alps farther to the East. It is to be regretted that no question is made of the Alps south of Mont Blanc, which constitute an extensive and important part of the Alpine chain.

The book is made for the German market, and, save Mr. Whympers' accounts of his attempts and final conquest of the Matterhorn, papers by Englishmen are not included, though of course English names appear very frequently. It is well got up and printed, and has stamped on the cover a glorious rock pinnacle glittering with silver snow. Of the illustrations in the body of the work, the less said the better; they are the very poorest we have seen for a long time and quite unworthy of the rest of the book.

Le Fond du Sac d'un Vieux Touriste : Rapsodies Alpêtres. 1^{re} série. Par Louis Vignet. (Bourg en Bresse : J. M. Villefranche, 1886.)

French books on Alpine subjects all but invariably differ from English and German works of a similar character. The Englishman makes for the highest peaks and the best inns, while he describes his journeyings in a mixture of slang and bad jokes. The German explores a small corner of a minor district, and writes a monograph on it which is very full, very accurate—and all but unreadable. A French writer avoids all these snares, and is consequently accused of being superficial and unenterprising. Whether this be true or not it is certain that he is always amusing, which his rivals are not, or at least not exactly in the way in which they would wish. Now M. Vignet's latest work is as French as French can be. It describes the 'Tour du Mont-Blanc' in 1841, visits to the Bernese Oberland in 1844 and 1872, to the Valais in 1872, and to the Maurienne and Tarentaise in 1878. No great adventures are described, and perhaps

no permanent addition to our knowledge is made; but the book is written with a light, occasionally witty pen, and the rambles in sub-Alpine districts are very pleasantly described. Above all it is most readable and an admirable specimen of lighter Alpine literature, though of course it does not pretend to come up to the immortal 'Tartarin sur les Alpes,' perhaps the one really witty book written on the Alps. It is not given to everyone to scale lofty peaks or to be a member of the Alpine Club; and with true modesty we have no hesitation in saying that to the vast majority of visitors to the Alps M. Vignet's sketches will be far more interesting, and even useful, than most of the articles which have appeared in our pages. If anyone disagrees with this opinion let him comfort himself with the thought that, even if he does not form part of 'ce cénacle fermé de sportsmen anglais' vulgarly known as the Alpine Club, he is not necessarily one of the common herd, though possibly he too may for a moment unbend and apply himself to the perusal of the rhapsodies of the 'vieux touriste' who, we hope, will some day give us more of the contents of his heavily-laden knapsack. 'Alpinistes' may not always be 'mountaineers' in the strict sense; but each may study the other, and each may very likely profit by such study.

Miscellaneous.

Signor F. Virgilio (formerly editor of the 'C.A.I. Bollettino') has published in pamphlet form an interesting paper which he read before the Royal Academy of Sciences of Turin on January 24, 1886.* He has set himself to prove the existence, in the glacial period, of a great lake in the stretch of the valley between Cogne and Lilla, now known as the Piano della Selvanera. This would have arisen from the damming up of the waters from the upper part of the valley by the great glacier in the Valnontey, of which the immense Tribulation glacier is but one fragment, and the case seems, as Signor Virgilio points out, to be parallel to that of the Lac de Combal in the Allée Blanche. The author appears to us to have made out his main points, but several minor considerations (e.g. whether the upper or lower part of the lake first disappeared) may be left to professed geologists. To the non-specialist, the most taking part of the paper is the description of the Cogne valley, with all its great glaciers at the time of the glacial period, which is a good instance of the use of imagination in scientific matters. An excellent map of the district, with two smaller diagrams inset, greatly help the understanding of Signor Virgilio's latest essay in a field where Gastaldi and Barette have wrought so well.

The Isère section of the French Alpine Club has lately issued the fourth and last of the albums of photographs which, some years ago, it undertook to publish.† It is devoted to a district which is probably quite unknown to foreigners, even to those who have visited the ranges

* *Di un antico lago glaciale presso Cogne in Valle d'Aosta, del dott. F. Virgilio.* (Turin: Loescher, 1886.)

† *Albums de la section de l'Isère du Club Alpin Français—Taillefer, Trièves, Dévoluy, Vercors.* (25 francs.)

of the Pelvoux and Meije. This is, roughly speaking, the country between Bourg d'Oisans, the old Roman town of Die in the department of the Drôme, and Grenoble. The limestone gorges of the Vercors are reported to be very remarkable, and are the subject of many of these photographs. Then, too, we have several views of that remarkable natural phenomenon, the Mont Aiguille, the first ascent of which was made as long ago as 1492 by order of Charles VIII.; but the panorama from the summit is decidedly disappointing. The Dévoluy, just south of the notorious pilgrimage place, La Salette, is said to be the stoniest part of Dauphiné, but the pictures of it in this book make us hope that this very evil reputation is not thoroughly deserved. The last few of the fifty photographs in this album represent various scenes on the Taillefer, S.W. of Bourg d'Oisans, one of the Lac Fourchu, with a distant view of the Grandes Rousses and Aiguilles d'Arves being very striking. Altogether, though this volume is not, perhaps, so interesting as some of its predecessors to the ambitious climber who requires his peak to be of a certain height, the photographs are as good as usual, and it may serve to bring to the notice of many a very curious and unfrequented district. Its publication is a fresh proof of the activity of the Dauphiné mountain-lovers, who have done so much to open up and make known their splendid Alpine inheritance.

We fear that even Herr Meurer's great powers have been overtaxed by his last undertaking.* This is no less than a map of the entire Eastern Alps from Chur to Lienz, from the Bavarian frontier to the Lago di Garda, on which are marked in red figures the number of hours required to go over each pass or up each peak, a red line indicating the general direction which must be followed. It is a work which must have cost infinite pains and trouble, and the printing is far more distinct than might have been expected. Herr Meurer's idea is, no doubt, that such a map will help travellers to decide at once on the ascents or passes they wish to make without the trouble of turning up the guide-book in each case. But the scheme seems to us to labour under two great disadvantages—the want of a fixed standard, by means of which a man can ascertain how long he himself will take, or how much he must add to or take from the times given (a drawback in all cases when it is attempted to accurately forecast the length of an expedition in which weather and legs play an even greater part than distance), and the real uselessness of the plan; for all who travel with their eyes open *must* ultimately consult the guide-book. Possibly, however, there may be persons who will find this map convenient, despite these drawbacks. At any rate, it is very handy as a general map of the whole of the Eastern Alps, and Herr Meurer's table of the 100 peaks in those parts of which the height exceeds 3,400 mètres (= 11,155 feet) is very interesting. Herr Meurer has, by his writings, done so much to make known the Austrian and Italian Tirol that we

* *Distanz- u. Reise-Karte von Tirol, Vorarlberg, Pinzgau u. den Dolomiten, mit Zugrundelegung von A. Steinhäuser's Karte, bearbeitet von Julius Meurer.* (Vienna: Artaria & Co.)

hope next time we meet him it will be in the discharge of a less ungrateful task than his present one.

It is scarcely necessary to do more than announce the publication of the fifth edition of Berlepsch's classical work on Swiss mountains and Swiss men.* No doubt many of our readers owe their first acquaintance with Swiss matters to the simply written but stirring pages written by an exile who had devoted himself heart and soul to his adopted country. The author himself died in 1883, and the present edition is brought out by his son, who has carefully revised it and inserted much new matter, as since the publication of the fourth edition in 1871 a great deal has been written on the country and considerable changes have taken place, the book being now composed of 566 pages. But we are glad to see that the dear old illustrations still hold their ground, notably the 'Wildheuer,' the goat-boy, and the hill chapel. We know of no book which gives a better idea of Swiss rural manners and customs; and the more we study them for ourselves, the more are we convinced that Berlepsch has been singularly successful in reproducing them for the benefit of stay-at-home people.

Zur Namens- und Landeskunde der Deutschen Alpen. Von Dr. Ludwig Steub. (Nördlingen: C. H. Beck, 1885.)

In this little volume of 170 pages Herr Steub has collected some of his reviews and notes (written between 1875 and 1885) on the subject of local names in the Alps, more especially in the Tyrol in its original and limited geographical sense.

The most generally interesting article to our readers will doubtless be the one which stands first. It is entitled 'The History of German Alpine Villages,' and is a review of two books of Professor von Inama-Sternegg, of Innsbruck. In the course of it Dr. Steub expounds his view of the ethnological history of the Tyrol, and we may say at once that though it makes that history a very intricate and complicated one, this theory seems to us to answer far better than any other to the actual facts of history. Put briefly, it is that in the Tyrol there are three ethnological strata, arising from three migrations or occupations—the Rætian, the Roman or Ladin, and the German. The first of these people were the original occupants of the land and have left traces of their existence in many local names (*e.g.* in the Vinstgau and between Brixen and Botzen), though only in the main valleys, and here along the streams and not on the hills, for, as Dr. Steub points out, there is scarcely a peak from the Ortler to the Gross Venediger the name of which can be certainly shown to be of Rætian origin. Later (during the first 500 years of the Christian era) came the Roman invasion, which has left far deeper traces than the Rætian. These settlers penetrated into the remotest and most desolate valleys, the land in which they cleared and cultivated. Here their presence is still

* *Die Alpen in Natur- u. Lebensbildern dargestellt* von H. A. Berlepsch. Mit 18 Illustrationen. Fünfte, sehr vermehrte u. verbesserte Auflage, umgearbeitet, vermehrt u. ergänzt vom Sohne des Verfassers. (Jena: Costenoble, 1886.)

shown by numerous local names, as in the upper Inn valley from Landeck downwards, in the Vinstgau, and around the ice-clad peaks of the Oetzthal. It was at this time that the Ladin-speaking folk of the Grödnerthal and Enneberg first came into the Tyrol. Finally we have the German occupation, Swabian in the upper Inn valley, Bavarian in the lower. In this way the Ladin villages were largely Germanised, though the Germans simply succeeded to the already cultivated and cleared lands, not opening up any virgin soil except in the Oetzthal, where the local names point to a very early and thorough German occupation. A very long and desperate struggle between the Ladin and German elements took place, which is even now far from ended. But it is surprising to find that as late as 1234 a large part of the inhabitants of Innsbruck were Ladins, while Botzen resisted Teutonic influences even longer. Trent, on the other hand, absorbed the small Teutonic element there, so that it is now part of 'Italia Irredenta.' In the upper Inn valley too German names of fields were extremely rare before the sixteenth century. Thus the ethnological history of Tyrol is very varied, and it is unique, for it is here only (in the case of the lands usually classed as Germany) that the German settlers found previous non-German occupants, and that we can trace out the ebb and flow of the linguistic tide. Hence it is that both Ladin-speaking and German-speaking Tyrol contains a population of mixed and not of homogeneous origin. It was in the Southern Tyrol that German influence was slightest, and where the Bavarians coming from the N. and the Lombards coming from the S. were absorbed most completely into the Ladin-speaking folk, the Grödnerthal and Enneberg representing advanced posts in the enemy's country. On the other hand in North Tyrol the Germans, always reinforced by fresh emigrants, carried all before them save in the case of local names, which remain to attest the presence of former non-German-speaking settlers, while the German advanced posts are the valleys described in Herr Leck's book, to be noticed in our next number, as well as the Val Sugana and the Sette and Tredici Comuni, near Vicenza and Verona respectively. In either case these isolated foreign villages represent unsuccessful attempts at occupation or colonisation. For this reason a map of Tyrolean dialects is repeatedly demanded by Dr. Steub, who points out that each valley differs in dialect, manners, customs, &c., and that it is only on the basis of countless monographs that the final and definitive linguistic history of the Tyrol can be written.

The history of the Pusterthal is peculiar, for there the German settlers were opposed by Slavonic settlers coming from the E.; and though Rhetian and Ladin names are found there (and the side valleys, such as Sexten, were long Ladin), yet in the W. part the Bavarians were very strong and the Slaves only succeeded in maintaining the ground already won. Dr. Steub's practical conclusion against Prof. v. Inama-Sternegg is that the Alpine villages are *not*, as a rule, of German origin, but originally settlements of Rhetians and Ladins, keeping in many cases their old names, but now Teutonised and forming a special chapter of the general Teutonising process in Tyrol; while, again, the theory that cultivation began on the hill-sides,

and only gradually came down to the swampy flats by the stream in the valley, is combated by Dr. Steub for the apparently good reason that the enormous number of Rhaetian names of villages by the banks of the Inn, and Adige, and Eisack prove without a doubt that the first settlers lived in the valleys and not on the hill-sides above. But these results are less important to us than the general sketch of the linguistic history of the Tyrol which, after Dr. Steub, we have tried to give above. Dr. Steub is very strong on the necessity of getting at the earliest possible form of local names, in order to settle their meaning, as the only sure basis for such a task. Here he is certainly in the right, and if such a course had been adopted we might have been spared many a wild etymology. He instances Trafoi, which cannot come from 'Tre Fonti,' which would form 'Tresfunz,' but from 'trifoglio,' or clover, 'trafoi' being the name for clover in the Grödnertal and Enneberg.

There is a curious account of the little hamlet of Schlinig, near Mals, in the Vinschgau (now consisting of twenty-one houses only), in a very remote position, where in the sixteenth century the inn-keeper was annually elected by the people, without the power of declining the honour, and a certain money advance was made to him to enable him to lay in at once a stock of wine, for this he was compelled to do within a fortnight after his election under pain of heavy penalties. The four gulden advanced were handed over to his successor at the end of the year. This is compulsory 'local option' with a vengeance.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL Meeting of the Club was held in the Club Rooms on the evening of Tuesday, February 1, 1887, C. T. DENT, Esq. (President), in the chair.

Messrs. R. N. ARKLE, C. C. BRANCH, J. VIRIAMU JONES, C. W. MEAD, G. H. MORSE, W. MUIR, E. BURCHELL RODWAY, and Lieut. F. E. L. SWAN were balloted for and elected members of the Club.

The HON. SECRETARY presented the accounts for the year 1886.

Mr. WILLINK moved that the maps belonging to the Club should be rearranged, as they had long been in disorder.

Mr. FRESHFIELD, who had arranged them himself eight years ago, seconded Mr. Willink's motion, and said the remedy was in the hands of the Committee. He called attention to the fact that the map room of the Royal Geographical Society (1 Savile Row) is free and open to the public every day from 10 till 5.

The CHAIRMAN promised to bring the subject of the maps before the Committee.

The accounts having been passed, Mr. GROVE brought forward the motion for the alteration of Rule XII., of which notice had been given, as follows:—In Rule XII., line 6, after the word 'approval' to leave out all words to the end of the sentence, and to insert the following: 'and after election the name of the new member, and the