

promise. It only remains to be added that the pictures generally are well arranged, and that the light is good.

The remainder of the exhibits, comprising Alpine equipment and an interesting series of mountain-tops, collected and exhibited by Mr. Gardiner, calls for no special comment. The limited time at the disposal of the Committee unfortunately precluded any attempt to bring together objects of historical interest in connection with mountain exploration. Such a collection would, however, it must be admitted, have proved of more interest to mountaineers than to the general public, and the exhibition was framed rather to attract the latter. Still such a collection we hope to see one day.

C. D.

REVIEWS AND NOTICES.

Register zu den Publicationen des Deutschen u. Oesterreichischen Alpenvereins, 1863-86. Von Th. Trautwein. (Munich: Lindauer, 1887. 44 pages. 1s.)

IN 1877 the German and Austrian Alpine Club published an index to the contents of the periodicals issued up to 1877 by that society and the two earlier societies which in 1873 were fused to form it. This extended to twenty-eight pages. The new edition (also due to the patience of Herr Trautwein) goes down to the end of 1886 and extends to forty-four pages. The four main divisions are, as before, Science (eleven pages), 'Touristisches' (twenty-two pages), Club matters (three pages), and maps, views, &c. (seven pages). The first of these has been treated in a very elaborate way, comprising no fewer than fifteen different heads. The second is the one most interesting to climbers, the peaks and passes being arranged under their districts, which are mostly in the Eastern Alps, the 'foreign districts' only taking up two pages. It will be very useful to anyone wishing to know the exact state of exploration in the Eastern Alps. A word or two might, however, have been added to explain the principle on which the different sub-groups have been formed. By an amusing slip the Grand Combin is reckoned among the *Italian Alps*, though it is of course wholly in Switzerland. The array of illustrations and maps is a stately one. We note that there is no attempt to give an alphabetical list either of travellers or guides, a work of infinite trouble and infinitesimal value. The peaks are more important in Alpine literature than their conquerors, for they remain and the others pass away. Time alone will show whether the index is accurate, as it should be, but we welcome it at once as a most useful key to an important department of Alpine literature. This index is far less elaborate than those published by the Italian and Swiss Clubs, or, we may be permitted to say, than that (now in preparation) to the publications of the Alpine Club. For many reasons it is to be regretted that a uniform plan was not drawn out and adopted by the different Clubs; but that was probably impossible in the case of first attempts at indexes such as these, though we may hope that in days to come an international commission may be formed to lay down general principles and to ensure that they are acted on with some approach to uniformity.

Lieder-Buch des Deutschen und Oesterreichischen Alpen-Vereins. Von J. Bletzacher. (Hanover: A. Nagel, 1887. 4 francs.)

We often hear it said that Englishmen are by nature unmusical. However this may be in general it is certainly true in the matter of Alpine music and song. No doubt there are exceptions. Our thoughts fly at once to Mr. Leslie Stephen's amusing description of how the final slope of the Viescherjoch was won to and by means of the strains of a Welsh ballad sung by a Welsh member of his party, and there may be a few other cases. But these exceptions only serve to prove the general rule. Abroad matters are different. Guides are fond of singing, often at very inconvenient hours, and no one can have travelled with foreign climbers or attended a congress of one of the foreign Alpine Clubs without noticing the prominence of singing in the programme. It is no doubt for this latter reason that a book of Alpine songs has been compiled by Herr Bletzacher, who is, as his title-page informs us, a member of the Royal Prussian Opera Company. His collection includes eighty songs and ballads, with accompanying music, in part expressly composed for the book. In an appendix are twenty-one more, without music. Doubtless both words and airs will suit those for whom they are intended, but we do not venture to criticise them as being one of those to whom the musical sense is generally denied. However we may say this much, that in many cases the words are very inspiring, though we miss any song expressly meant for celebrating a first ascent. Many of the number are popular ballads having little to do with the Alps. It is a pity too that some of the best known Swiss songs were not included. We have 'Andreas Hofer,' and we long for the 'Rütli,' while 'Heil dir im Siegerkranz' might well find a mate in 'Ruffst du mein Vaterland?' The rhymed version of the regulations for a Club hut (No. 10 in the appendix) is amusing, and the comparative absence of hunters' songs is striking. The get-up of the book is good, and it is of a very convenient shape for the pocket. It no doubt supplies a want, and will be very popular, in which case the non-musical Englishman may perhaps be converted in the course of his Alpine wanderings this summer; and who knows whether in that case we may not presently have to review a similar book of English origin?

Der Tourist in der Schweiz. Von I. von Tschudi. 29th edition. (St. Gall, 1887. 10s.)

A few days only after the death of its author the last edition of his guide book was published, which will be personally revised by one who knew and loved his fatherland so well, though it is hoped that the decease of Herr von Tschudi will not entail the decease of his guide book. We have so often spoken of former editions, and have expressed ourselves so strongly in its favour, that we may content ourselves this time with saying that it has been thoroughly brought up to date, and that even the new expeditions of 1886, chronicled in our pages, are mentioned in their proper places. For compactness, for accuracy, and for the latest information there is no Swiss guide book better adapted for mountaineers who wish to know the exact state of exploration

in any group of the Swiss Alps or of the ranges in their immediate neighbourhood. Full accounts of the routes (as in Ball) will not be found; but the general indications given are sufficient for all but specialists, and will, indeed, help to create specialists by showing how much remains to be done even in the central ranges of the Swiss Alps. The minute exploration of the Alps is still in its infancy, and those who best know the Alps will be the first to admit this statement—at first sight a rather startling one.

Walliser und Walser : eine Deutsche Sprachverschiebung in den Alpen. Von Julius Studer. (Zürich : F. Schulthess, 1886.)

Deutsche Sprachinseln in Wälschtirol : landschaftliche und geschichtliche Schilderungen. Von Hans Leck. (Stuttgart : K. Aue, 1884.)

These two pamphlets treat of a similar subject—German-speaking villages isolated in a Romance-speaking land. But these villages had a very different origin in the two cases. In the first case they are German colonies settled in a foreign land; in the other, the remnants of the old German settlers who once occupied nearly the whole of the South Tyrol.

Herr Studer's booklet treats of an extremely interesting subject—the settlements of colonies from the Valais (whither the German settlers had come from Hasli in the thirteenth century) in the lands north, south, and east of their original home. He first takes those villages in the valleys around the foot of Monte Rosa, politically Italian, linguistically German, and German of the Valais dialect. He fully acknowledges his obligations to the classical work of Schott ('Die Deutschen Colonien in Piemont,' Stuttgart, 1842), the general argument of which he accepts. Many original documents have, however, been published since 1842, and by the aid of them Herr Studer is able to construct an outline of the early history of the valleys of Macugnaga, Alagna, and Gressoney, in which it is shown that the German settlements at the head of these glens came from the Valais through the connection of the lords of these districts with the Valais, and took place at the end of the twelfth and in the course of the thirteenth centuries. The whole section is most interesting and will give much new information to those who have hitherto thought of these valleys rather as centres for ascents than as possessing a very curious local history. Two striking items are the facts that the upper course of the Anza stream, in the Macugnaga valley, is still locally called the 'Visp,' while in the Alagna valley it was formerly the custom to act Passion Plays in German, all the actors (save the representatives of the Devil and of the executioners) coming to church before the performance began and receiving the benediction of the priest. Herr Studer then passes on to the German colonies south of the Simplon (e.g. Simpel, Gsteig or Algaby, Ruden or Gondo, and Zwischbergen), which belong to the Confederation; but far more interesting is his brief notice of Urnäsch or Ornavasso, in the Val d'Ossola, where German has disappeared save in a few local names (il Dorf, il Bach), but where the tradition of its colonisation from the hamlet of Naters, near Brieg (which is perfectly

certain and took place some time between 1275 and 1307), lingered on as late as 1871, when the men of Ornavasso, now thoroughly Italian, named one of their streets 'Via Naters' in remembrance of the old connection. Then we come to the Germans in the Pommatthal, or Val Formazza, and especially at the little hamlet of Gurin or Bosco, in Val Cavergha (still Swiss). At the last place widows with a certain amount of property voted with the men in the election of representatives as late as 1740.

All these settlements were made by men coming from the Valais; and these penetrated to the north also, making themselves homes in the valleys of the Kander, Lauterbrunnen, Grindelwald, and Meiringen, the Lötschen pass and the Grimsel offering easy roads. It is undoubtedly to some such settlement that the tales must be referred of men from the Valais coming across the glaciers to have their children baptised at Grindelwald; it was simply the Valaisan settlers at Grindelwald who brought their children to the parish church of their adopted home. Herr Studer then turns to those German settlers in Romance-speaking lands often known as 'Walser,' a distorted form of 'Walliser,' for these too came from the Valais and obtained special rights and privileges. Their chief centre seems to have been Davos (the famous air-cure place), which was granted by a document of 1289 to certain colonists from the Upper Valais; thence they spread in all directions—Aversthal, Valsertal, Hinterrhein, Splügen, Prättigau, Lichtenstein, and Vorarlberg. In many cases they can be traced as having directly come from Davos. One of the proofs of these facts cited by Herr Studer is that there are in those parts many churches dedicated to St. Theodul (the Bishop of Sion and the patron of the Valais), that this dedication occurs only in the case of the 'Walser' villages, and that his feast on August 16 is still kept there, sometimes (as at Triesen) in ignorance of the real reason why it is so kept. This is an interesting line of investigation, which in England has been followed with considerable success by Mr. Thomas Keralake, of Bristol, with the object of ascertaining the exact limits between the conquered Britons and the conquering English towards Cornwall and Wales, and which can be recommended as very sure and yet beyond the chance of wilful falsification.

According to Herr Studer's estimate the German-speaking population in the valleys around Monte Rosa (including the Val Formazza) amounts at present to about 8,000 souls; but though in some cases (especially Gressoney, Macugnaga, and Val Formazza) German holds its ground, Italian is, as a rule, gaining on it, and will do so in the future through the schools, as in the case of English and Welsh in Wales. The German population in the Graubünden, &c., amounts to 7,000 or 8,000 souls. Here German is maintaining itself well, and even increasing.

We heartily thank Herr Studer (who must not be confounded with his better known namesakes) for a very interesting and valuable contribution to Alpine history. The pamphlet contains nothing absolutely new in itself, but gathers together and focusses bits of information from many sources, so as to present a picture of the remarkable migrations

which had their rise in the Valais, originally inhabited by a race partly Keltic and partly Burgundian, and later Teutonised.*

Herr Leck's work is more directly polemical than Herr Studer's, for it is written in the interest of the 'Deutscher Schulverein' in Vienna, a society which, through the schools, is striving to maintain the use of German in certain parts of South Tyrol, which, though historically connected with the Sette Comuni, are politically Austrian, while these latter form part of the kingdom of Italy. Herr Leck describes very pleasantly his visit in 1883 to those three German-speaking islands just E. of Trent, surrounded on all sides but one by a Romance sea—the Fersenthal or Val Fersina (where German is spoken in the villages on the left bank of the stream and Italian by those on the other side), Luserna and St. Sebastian, both on the borders of the territory of the Sette Comuni. Their general appearance and that of the inhabitants, as well as the occupations of the latter, seem to be very much like those of any other Alpine valley, though Herr Leck apparently considers them more or less singular and remarkable. He decidedly, and rightly, rejects the theory that these settlements (and those of the Sette Comuni) are of Keltic origin. They are certainly German, but it is bold to fix the precise date at which they took place. Herr Leck is of opinion that they may have begun as early as the defeat of the Alemanni by Clovis in 496, who were received and protected by Theodoric, the Ostrogothic king, and were probably continued gradually in Carolingian and later times. He is inclined to think that in the Fersenthal (where the inhabitants are known as Mocheni, a name of uncertain origin) the Bavarian dialect prevails, while Alemannian and Bavarian are side by side in Luserna and at St. Sebastian, Alemannian coming to the front particularly in the Sette Comuni. Herr Leck also appends a map, from which it would appear that in long-past ages all the South Tyrol south of Botzen, and extending from Pinzolo to Primiero, was occupied by Germans, the names being carefully given and the result being really amazing. Probably, however, these small settlements were gradually swallowed up in the great majority of non-German-speaking colonists ever coming up from the Lombard plain.

Both pamphlets are worth reading by all who care about the history of the Alpine lands as well as their physical features.

Die Gemse: ein monographischer Beitrag zur Jagdzooologie. Von F. C. Keller.
(Klagenfurt: Joh. Leon, 1887. 12s.)

The author of this book has a reputation as a sportsman and zoologist that extends a good deal beyond his own district. In addition, he knows how to write—a further qualification not always considered necessary by authors who fall to bookmaking. The work professes to be a monograph on the chamois, and certainly appears to fulfil its promise. No doubt a certain amount of redundant matter is contained

* Probably the 'Theutonici' whom we find established in the Val Orsine in 1264 and 1285 (according to documents in the Chamonix cartulary) were also emigrants from the Valais, like those of the same race in the valleys of Sixt and Abondance. The Valais in the thirteenth century seems verily to have been an 'officina gentium.'

in the five hundred odd pages before us. Books dealing with any form of sport are nearly always too wordy, the authors treating them, like they do their trophies of the chase, to a good deal of stuffing. Herr Keller's stories, however, are so well told, and show everywhere such keen enthusiasm for sport, that we can readily forgive him. Of a truth, if the chamois, as seems only too probable, is before many years to be hunted off the face of the earth, this work will form a fitting monument to its memory. The work is of high merit, from a scientific point of view, and teems with information on points of natural history. To those who have formed their ideas principally of the nature and habits of the '*Capella rupicapra*' from the specimens preserved for the delectation of tourists and the profits of hotel-keepers, or the wood carvings in Swiss shops, this work may be a little disappointing, for hard science certainly trims off a little of the romance. Thus on p. 8, where the author speaks of the size to which the animal may attain, we come across no mention of such phenomenal giants as every guide is able—and very willing—to describe from his own experience. Neither, according to Herr Keller, is the natural term of the chamois' life so long as is generally supposed, not exceeding, in his opinion, twenty or twenty-five years (p. 50). There seems to be a popular idea that the age of a chamois can be told, on the same principle as that of a tree, by the number of marks on its horns. Remarkable results can easily be obtained by a manipulation of figures founded on a mistaken assumption. Unfortunately, this method of arriving at the fact that chamois live to a patriarchal age is demolished at once by Herr Keller, who explains clearly the mode of growth of the horns. But if the scientific part of the work disabuses our minds of some cherished traditions, certain of the stories—shall we say 'yarns'?—which the author reproduces lead us to the conclusion that the chamois hunter is, after all, but mortal, even as the angler or the man who shoots driven grouse, and that chamois 'shop' is a conversational exercise which has the merit of making demands upon the imagination; so at least we infer from a perusal of chapter ii. and other parts of the book.

The curious fact that chamois are frequently affected by snow-blindness is well established by the author (pp. 14 and 127). This generally occurs in the spring after a fresh fall of snow, and we judge from the author's remarks that the disease usually takes the more serious form, affecting the deeper parts of the eye. On the mountain-climbing powers of the animal the remarks of the author are full of interest. It is not unnatural that popular superstition should give it credit for almost supernatural capabilities in this direction. The author cites an instance from his own observation (p. 78) where a chamois leapt from a height of 120 feet on to a rock, and was able to escape apparently unhurt; such a result after a fall from this height is less marvellous when we consider that the animal would probably land on all four feet, and that owing to the inclination of the arm and thigh bones the force of the impact is very much broken up. If a man were to jump from a height of only a few feet and land on his heels with his legs outstretched, he would probably fracture the base of his skull, for here the force of the impact would be transmitted directly up through the spinal column. Still, as the

author mentions elsewhere, it is no uncommon occurrence to find chamois that have been killed by falls from inconsiderable heights, a fact from which mountaineers may derive what consolation they can. A very curious and interesting chapter is devoted to the abnormalities and diseases to which the chamois is liable; one remarkable specimen is figured having no less than six horns, all well formed, an apparition which might have recalled Hubert himself to his neglected duties as effectively as the more mythical monstrosity referred to in the legend.

The reader will probably be surprised somewhat at learning of the extensive distribution of the chamois as shown on pp. 173 *et seq.* Having set forth with great minuteness all details of the natural history and habits of the chamois, the author proceeds to elaborate instructions as to how he may best be destroyed. Here the didactic tone fitting to a scientific treatise is a little dropped, and the ardent sportsman makes himself felt in every line. The enthusiasm, indeed, is evidenced in print by notes of exclamation rather profusely scattered about, some of which might have been appended with more meaning to certain of the stories. A few hints on mountaineering proper are contained in this part of the work, and will be found on p. 375 and elsewhere. As a means of allaying thirst when walking, the author recommends smoking. It is probable that the undoubted relief to thirst derived from smoking is brought about in two ways: one that the mountaineer keeps his mouth shut, and the other that the act of sucking leads to secretion of saliva. *Pace* Herr Keller, therefore, we are disposed to think that the best effect would be produced when the cigar is held in the mouth and not lighted, for a stream of hot smoke can but tend to dry the mucous membrane, and mountain thirst is more often due to a local dryness of the mouth and throat than to a general craving for liquid. Crampons, as might be supposed, are recommended, for the author's hunting ground has chiefly been in Carinthia. We are glad to notice that Herr Keller speaks decidedly against the employment of that most unsportsmanlike refinement, the explosive bullet (p. 325). Although a chapter is devoted to hunting with dogs, the author has not much to say in favour of the method, and prefers the excitement of the drive. A chamois drive is not like a grouse drive. To some extent the two systems may be compared to battue shooting and shooting partridges or grouse over dogs, the latter constituting a form of sport it is hard to beat. It is for those who wish to indulge in chamois hunting to consider which is most in accordance with sporting morals. The life of a beast so persecuted as the chamois cannot be one of unmixed delight, and it is satisfactory to learn that they have their moments of pleasure and innocent enjoyment. Thus Herr Keller describes how on one occasion he saw a number of chamois glissading down a snow slope apparently for the fun of the thing, for when they reached the bottom they climbed up again to renew the exercise. The subject would have been worthy the pencil of Ernest Griset. To the inexperienced mountaineer it may be a satisfaction to know that one of the young ones engaged in this diversion lost its footing and went flying head over heels. No doubt it performed this escapade merely for the

delectation of the rest of the party, as usually is the case, according to his own account, with the biped overtaken by a similar disaster.

It remains only to be added that in binding, type, and get up the work is thoroughly admirable. Some appendices contain a quantity of useful information to the sportsman, including a glossary of technical terms, from which it appears that the chamois hunter has almost a complete language of his own. One serious omission, however, is to be noticed—there is no index.

To those who seek to distinguish themselves in the mountain fields of this fascinating sport we can most confidently recommend this work as complete, reliable and sound. The illustrations, too, are much above the average, while from first to last the book is eminently readable. C. D.

Panorama du Massif de l'Oisans, d'après une photographie prise du sommet de la Barre des Ecrins. Par J. Mathieu. (Lyons.)

Why is it that pictures of the Alps and illustrations to Alpine books are as a rule so inaccurate and unlike the reality? There are a few—very few—exceptions, and these are not always well known or popular. No doubt the early Alpine artists were overpowered by their subject, and had no scale by which to arrive at a right estimate of the proportions of the great peaks. Their successors were free from this drawback, but have been inclined to paint and draw the ideal rather than the real, the result being the delight of those who do not know the great mountains and the despair of those who do. Similarly in the case of illustrations to books. The early sketches were too vague, the later too picturesque, while the improvement of the processes of reproduction has not entirely removed these faults. The only answer to our question which we have ever received is that artists are not bound to be accurate, but only to convey to others their impressions of the scenes they profess to reproduce. This may be true from the professional point of view, but it will not satisfy those who desire exact representations of their summer friends, whether for the purpose of recalling pleasant recollections or for topographical investigations. These will betake themselves to men who do not aim at making a picture, but at reproducing as exactly as possible the forms of the great peaks. Mr. Donkin's photographs are perhaps the only case in which accuracy and picturesque treatment are found in combination. The numberless panoramas by Herr Gottlieb Studer, following in his father's footsteps, and by other Swiss draughtsmen, are, for the mountaineer, of infinitely greater value than pretty pictures, though it must be confessed that these panoramas not seldom lack artistic merit. But then it must be remembered that they lay no claim to it. The fashion of panoramas started with views of mountains from the towns. These views of the higher mountains were taken from lower peaks, such as the Buet, Faulhorn, &c. Now we have panoramas taken from the higher peaks, such as those of Mr. Donkin from the Weisshorn and of Signor Sella from the Matterhorn and Grand Paradis. It is to this latter class that M. Mathieu's panorama from the Ecrins belongs. In many ways the Ecrins deserved such a compliment. Not only is it the highest point of its district, and very nearly as lofty as the Mönch

or the Aiguille Verte, but it stands in the centre of a group of which the other points are of sufficient height not to appear dwarfed when looked at from above, while the topographical value of such a view is very great, certain sides and slopes being seen here in quite a new aspect. M. Mathieu was very lucky in having selected a day which was perfectly clear, such as was July 16, 1885, in Dauphiné, and consequently his photograph had everything in its favour. It has now been reproduced and circulated at the expense of the active Lyons section of the French Alpine Club, and forms a roll which is no less than five feet and a half long when spread out. It is a most interesting document, and one which will be prized by all its possessors. The reproduction, however, is rather rough and coarse; and no care has been taken to bring out clearly the mountains beyond the Pelvoux group. Hence its interest is largely local, and in some ways this makes it all the more valuable. It is one more sign—if any were required—that French climbers (amongst whom M. Mathieu holds a very honourable place) are devoting themselves to the exploration of the French Alps, so long neglected save by a few foreigners. The Dauphiné, though not widely known in Alpine circles, is well known by all those who have been there, for it attracts again and again all lovers of nature who abhor Cook's tourists, and still more the fashionable and crowded mountaineering centres where climbing is but an incident, and a comparatively unimportant incident, in the day's programme.

Die Gebirgsgruppe des Monte Cristallo. Von W. Eckerth. (Prague: H. Dominicus, 1887. 8vo., 35 pages. 1s. 6d.)

This is a very satisfactory monograph on the Cristallo group, near Cortina. Dr. Eckerth has, as all frequent visitors of Schludersbach know, been engaged for many years in the exploration of the Cristallo, and in this pamphlet he gives to the world the result of his researches.

The first and main part of the booklet is devoted to the topography of the group, and is very well done; but the second part, relating to the ascents made therein, is more open to criticism, for five ascents only are described, and the narratives are not written with the care and pains which we observe in the topographical portion of the work. The history of the early ascents is a mere outline, and we miss especially a bibliography of the literature relating to the Cristallo, a feature which ought to occupy a prominent position in a monograph. Climbers, however, will be thankful for the list of the unascended points—even though they are of small importance—in the district. The map appended to the book is simply a reproduction of the Austrian Specialkarte, though the author might well have corrected on his map the faults of the original which he points out in his text.

It is much to be desired that every group in the Dolomites should be made the subject of a monograph like Herr Eckerth's, which we can warmly recommend despite the blemishes we have pointed out. It is even more to be desired that a good map of the Dolomites should be made, for the want of it is much felt by all who visit the district.

A. LORRIA.

Die Schweiz. Von J. J. Egli. (Leipzig: G. Freytag, 1886. 1s.)

This book of 200 pages forms part of a popular series of handbooks, and is intended to give a general outline account of Switzerland as it actually is, not only as the playground of Europe, but in its historical, economical, social, and political aspects. It seems to us very well done, though of course the space given to each department is very limited; e.g. in the history section the battle of Sempach is not mentioned. Nearly fifty illustrations are to be found in the book, and, despite its marvellous cheapness, they are very well done and well chosen. The print and paper are good, and we can recommend Dr. Egli's carefully-written pamphlet (for it is scarcely more) to all who wish to gain a general idea of Switzerland and the Swiss people. Its perusal will show that the 'Fremdenindustrie' is not everything in Switzerland, and that its institutions and politics are quite as well worth study as its peaks and passes.

Alpwirtschaftliche Volkschriften. Von R. Schatzmann. (Aarau: Witz-Christen, 1887. New and cheap edition. 2 vols. 3 francs.)

Club huts, no doubt, do away, to a certain extent, with the necessity of sleeping in the cheese-makers' huts on the 'alps,' but for many expeditions we must still resort to the latter. Now it is beyond doubt that a very great number of those who have sought, or do seek, hospitality from the herdsmen are English, while probably few of them have ever cared to enquire into the subject of the management of the 'alps' and the making of cheese. Yet the subject is one of very great historical and economical interest, dating back to far past ages and dealing with an important side of the industry of a pastoral country. Swiss herdsmen, and Swiss cheese-makers too, are found in all parts of the great Alpine range, and hence if we gain a clear idea of the way in which a Swiss 'alp' is managed we may apply our knowledge to non-Swiss districts (save in a few unimportant particulars). In the work before us the author endeavours to give a popular account of the mountain pasturages. Though meant primarily for the practical purpose of improving the methods commonly employed, the simple enquirer may gain much interesting knowledge from his pages. There are no fewer than 4,559 'alps' in Switzerland, Neuchâtel, Bern, and the Grisons standing in point of numbers far above all the other cantons, the most productive being those in Bern (net profits over 2,000,000 francs a year), Grisons, and Vaud. Of these 2,488 belong to individuals, while of the other 2,071 (or 54·6 per cent.), 1,527 are owned by communes, 80 by communes and individuals jointly, 453 by guilds or associations, and 11 by the State. Considerable space is devoted to the influence of avalanches and the Föhn wind on the high pasturages, and there is a long section on the grass, &c., grown there and on the 'Wildheu.' There is a very curious report (by the author) on the 'alps' of Frutigen, Interlaken, and Hasle, to which prizes are awarded by the Bernese Agricultural Society. It tells us all about the competition of 1872, when of the 21 runners (if we may apply such a term to an 'alp') nine were placed in the first class (the first being the Gummen Alp, above Brienz) and six in the second.

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Some of the practical details and hints are amusing. We have, too, a draft set of regulations for a model 'alp,' and those actually existing on the 'alp' of Iselten, below the Scheinige Platte, near Interlaken. Finally comes a minute description of some 'model alps' in the Simmenthal, Vaud, and Schwyz, meant, no doubt, to stimulate the owners of others to improve their pastures by making use of scientific discoveries, and specially to protect them from harm and damage. Altogether the book is most interesting and contains much information which it is very hard for a foreigner to procure. There is, however, no glossary of technical terms used on the 'alps,' for which one must refer to that given at the end of Miaskowski's remarkable work on Swiss 'Allmends,' whether arable or pasture (Leipzig, 1879).

Die Bäche, Schneelawinen und Steinschläge, und die Mittel zur Verminderung der Schädigungen durch dieselben. Von Elias Landolt. (Zürich: Orell, Füssli, & Co., 1887. 140 pages. 4 francs.)

It is hard for summer visitors to Switzerland to realise what life is in the higher valleys during the other nine months of the year. They admire the foaming torrents, the awe-inspiring avalanches, and the great moss-covered boulders by the side of the road; but they do not fully take in that each of these represents a constant source of danger to the inhabitants, particularly in the early spring. Were no precautions taken against these foes the area of arable and pasture land would, as has happened in other parts of the Alps, diminish steadily and finally vanish, while even at the best it is scarcely sufficient to supply the chief wants of the natives. Hence, in Switzerland more especially, a constant warfare has to be carried on against the forces of nature, which of late years has been carefully organised and well planned. Slopes, stripped of the forests which once covered them, have been replanted with young trees, and the mountain forests are now under the control of the Federal Government. Herr Landolt is the head of the forest organisation, and in his latest work explains how the area of productive land may be defended against the ravages of torrents, avalanches, and stonefalls. The sins of torrents form the main part of the book, and it is scarcely less interesting to read his spirited descriptions of the damage done by mountain torrents than his detailed accounts of the various ingenious means by which man tries to assert his superiority over nature. These torrents, indeed, are by far the most destructive of the three agents discussed, for they affect a far larger area of land. Avalanches and stonefalls do far less permanent damage, because they occur mainly in regions which are too high for arable cultivation and fit for pasture only. Herr Landolt gives over fifty diagrams of the various embankments, dams, walls, &c., which have been found useful and efficient. It is true that there are many technical details in the book, which is meant as a handbook for those actually engaged in the task of protecting the productive land in Switzerland; but non-professional readers will find much that is interesting in it, and will understand the meaning of various piles of masonry and balks of timber which may have puzzled them as without any apparent object—at least in summer.