DUPLICATES FOR SALE.—A list of the Library duplicates for sale will be found in No. 114, p. 559. The following, however, have been sold, and should be struck off the list:—

Società degli Alpinisti Tridentini, Annuario, &c.
Oesterr. Alpen-Zeitung, Vols. I.–VIII., &c.
Jahrbuch des Oesterr. Alpen-Vereins, &c.
La Vaudaine, &c.
How to See Norway, &c.
Verhandlungen des Oesterr. Alpen-Vereins, &c.

REVIEWS AND NOTICES.

Zeitschrift des Deutschen und Oesterreichischen Alpenvereins. Band xxii. (Lindauer: München: 1891.)

The first article in this volume, by Prof. E. Richter (Graz), on the 'History of Glacier Variations,' is the subject of a separate notice.* Several other articles are of so technical a nature that they seem equally to require a specialist to treat them properly. Dr. S. Finsterwalder (Munich), in an article on the 'Erosion of Glaciers,' gives an account of a series of experiments on various kinds of stone which were alternately frozen and thawed at various pressures under the air-pump. These he thinks may tend to elucidate the question and reconcile contending theories. Dr. Franz Walker (Vienna), after observing that the study of any science enhances instead of detracting from the enjoyment of a tour, proceeds to discuss the origin of the limestone Alps and the different animal structures of which they are built up, with too many scientific terms for any but a geologist. From science we pass to poetry and painting as directed to Nature and life in the Alps. Herr Hermann Ritter (Würzburg), after a general disquisition on the changed ideas about the Alps in different periods, illustrates these by quotations from poets from the earliest times to the present day. The first entire poems devoted to this subject were 'The Alps,' by Albert Haller, a Swiss (1708–1777), and the 'Parthenais' by Jen Baggesen, a Dane (1764–1826). In quoting Schiller and Goethe, Herr Ritter observes that the former, while describing the Alps like a born mountaineer, had never seen them, whilst Goethe had paid them frequent visits. Passages from Byron's 'Childe Harold' and 'Manfred' are quoted, of course in a German translation. The Alps are said to have only received their due meed of admiration in the present day, and this fact is visible in the increasing number of poets who write about them. As the Alps were neglected by poets, so they were by painters. For centuries after the great revival of the middle ages artists were content to go on copying old models without studying nature or life, least of all in the Alps. Dr. Hans Schmolzer (Trient), after giving some account of this, devotes the greater part of his article to an account of an artist of Innsbruck, Placidus Altmutter (1780–1819). His father, Franz, was also a painter after the old style, engaged chiefly in frescoes for churches,

* See p. 72.

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&c. The son was meant to follow in his father's steps, but was led astray by the passage of the various armies, and painted many military scenes, and from there was led to represent many incidents of peasant life. He still worked with his father, but his delight was to produce scenes from real life. These were mostly executed in 'sepia' or Indian ink. They were highly valued, and many are still to be found in Innsbruck. The article is illustrated by a series of eight drawings. The artist was unfortunately too much of a boon companion, and some of his best productions are from 'Schenke.' After a revel at Schwaz, on November 22, 1819, he was missed, and his body was found twelve weeks afterwards in the Inn. Dr. Eduard Magner (Vienna) writes of the different industries which are carried on by the Alpine population in their own houses. There are three of these industries—in wood, in metal, and in textile materials. The first of these is carried on in various places, especially in the Grödner Thal. In many cases it would be unprofitable if the State did not supply wood at an almost nominal cost. The second is, of course, chiefly found in the neighbourhood of iron mines, as at Waidhofen, on the Ybbs, and Trattenbach. The third is followed in almost every province of Austria. All these industries, which were at first highly profitable, now suffer greatly from competition. The population increases, though slowly, whilst the profits diminish. It is hoped that members of the Alpen Vereine will do what they can to encourage them. It would be a great thing to get rid of the middleman, who here, as in so many other places, intervenes between the producer and the customer.*

Dr. Ferdinand Bischoff (Gratz) discusses the 'Bergbrief,' or code of mining regulations of Schladming. This document is supposed to date from 1308 A.D., but more probably is a century later. It served as a model for many similar codes. That of Rattenburg in 1463, and of Salzburg in 1477, are taken from it almost verbatim. There are several articles on districts of the Austrian Alps which are almost like guide-books on a small scale. Herr M. v. Prielmayer (Munich) describes the valley of the Krimmler Ache, the excursions, guides, inns, huts, &c. The latest addition to these last is the Warnsdorf hut, situated near the Krimmler Thörl, at a height of about 2,500 m. (8,200 ft). This was opened in July 1891. It contains ten beds and can receive twenty. It will be opened as an inn in summer.

Dr. Hans Wödl (Vienna) contributes a second paper on the Lesser Tauern. His first covered the ground from the Greater Arlthal to the Radstadter Tauern. The present one extends to the Waldhorn Thörl E. of the Hoch Golling, the highest mountain in Styria. This little-used pass connects the Schladming Unterthal with the Lessachthal (Murthal).

Herr L. Purtscheller, after a full description of the Schober group, north of Lienz, describes an excursion in the group from July 24 to August 3, in the course of which he ascended thirty-three peaks.

* In the Grödnerthal the prices seem low enough. I saw near Gries-am-Brenner a life-size Christus, which would have been a credit to any sculptor (put up 1890), cost 80 gulder (less than 7*l.*).

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These ascents were greatly facilitated by the Lienzer hut (1,990 m.= 6,525 ft.) at the head of the Debantthal, six hours from Lienz.

Herr O. Vorweg (Herischdorf, i. S.), in describing an ascent in Norway, complains that no guides are to be had, and that the results of a mountaineering tour in Norway are very small compared with the time, trouble, and expense.

Dr. Alfred Philippson (Berlin), who has been travelling for several years in the Peloponnese in the interests of geology and geography, comments on the insufficiency of maps, guide-books, and guides, and is kind enough to offer his assistance to any intending tourist. He describes two ascents of Mount Chelmos (2,355 m.=7,726 ft.), the ancient Aroania, the central peak of the range dividing Arcadia from Achaia. The first ascent from the north-east, through the gorge of the Styx, was accomplished with some difficulty by the passage of an unpleasant ledge nearly half a mile long, the second, more easily from the west by paths accessible to cattle. The view is grand, extending over nearly the whole of Græcia Antiqua. In conclusion, he gives some useful hints as to equipment and mode of travelling. The inns, except at Patras and Athens, are of the most primitive description.

Dr. K. Boeckh was accompanied in his Himalayan tour by the guide Hans Kehrer,* of Kals, who had been with him in the Caucasus in 1887. The tour was hindered by almost continual rain. In the Western Himalaya he ascended Panchakuri (5,185 m.=17,012 ft.), and a higher summit on the east bank of the Milam glacier, which the local guides refused to ascend. In trying to make a kind of high-level route from Milam to the sources of the Ganges by the Dung-pani valley and Utadur pass, he had to make a most adventurous and dangerous passage through the avalanche-swept ravines of the Girti valley. In the Eastern Himalaya, in last October, he reached the Chumbab La mountain (about 18,000 ft.), but the season was too late to attempt high ascents. He found the coolies, on the whole, more tractable and useful than Mr. W. W. Graham in his journey appears to have done.

A notice of the Pasterze glacier (No. XI.) is contributed by Herr F. Seeland.

In this volume, or attached to it, are nearly 100 illustrations, a general map of the Eastern Alps, and a special map of the Ortler district on the scale of 1-50,000. J. S.

Jahrbuch des Schweizerischen Alpen-Club (Bernschmid, Franke & Co.)

This volume appears for the first time in an enlarged form. In accordance with a generally expressed wish, it has blossomed from a duodecimo into an octavo. The illustrations are no longer cramped as formerly, and the volume now matches in size with the case of maps and drawings attached to it. Herr A. Wäber has remained another year as editor, since the plan of putting the editorship in commission

* The same guide has just returned from an excursion with Herren Purtscheller and Merzbacher in the Caucasus, in which they ascended several new peaks. See vol. xv. p. 558.

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was not settled. He has filled the post for more than twenty years.* Between those members of the Club who wish to see the number of scientific or literary articles increased and those who would gladly see them altogether excluded he has had a somewhat difficult task.

The present volume contains but few new excursions (and most of them are only variations) which have not been already noticed in the 'Alpine Journal.'

The first passage of the Col du Tour Noir from the Swiss side was made by Messrs. J. Jacottet and H. G. Fordham, with the guides J. Bernard and H. Aulet and a porter. In passing the 400 m. (1,312 ft.) from the bergschrund to the col 6½ hours were occupied in step-cutting. No date is given. (See vol. xv. p. 497.)

The first ascent of the Tour Sallières (3,009 m. = 9,873 ft.) from the S.E. was made on September 13, 1890, by MM. Chanoine-Troillet, A. Coquoz, and J. Gruyer, with the guide Jos. Fournier.

The Bec de Termin (3,052 m. = 10,013 ft.) was ascended by MM. Archinard, Amey, and Chapponière without guides from Fionnay, in the Val de Dranse, on August 21, 1890.

The first descent from the Täschhorn (4,498 m. = 14,758 ft.) by the east side was made by Messrs. A. de Fonblanque and G. F. Berney, with X. Imseng and Th. Andermatten, on August 23, 1890. In 1876 Messrs. Watson and Wethered ascended by this route. Mr. Norman Neruda, with the guide Klucker, descended from the Dom direct through the séracs of the Hohberg Glacier on August 21.

One of the peaks of the Gastlose (1,994 m. = 6,542 ft.), a rocky summit near Jaun, was climbed on April 14, 1890, by Herren C. Montaudon, R. Konig, and R. Thomas. The climb of 689 m. (2,261 ft.) from Abländschen occupied 6 hrs. 10 min., on account of the snow.

The Obere Bächlilücke (3,100 m. = 10,170 ft.) was reached (for the first time by tourists) by Herren C. Montaudon, E. Farner, and F. Mounard, without guides. The descent to the Bächli Firn without artificial aids is impossible. Some excursions of Herr C. Seelig and Herr A. v. Rydzewsky are mentioned farther on.

In the special district the members of the section Scesa Plana have been more than usually active. Herr E. Imhof had made seventeen ascents of the Scesa Plana, and declares he felt as much pleasure in the eighteenth as in the first. He describes various routes over the ridge between Montafon and the Prättigau, and in particular an ascent of one of the peaks of the Drusenfluh (2,829 m. = 9,280 ft.) on October 5, 1890, with a local guide, Johann Sprecher, from the Schamella Hut † above Seewis. This mountain has been very seldom ascended, and, to judge by the appearance of its summits in the illustrations, they must all be difficult. Herr A. Ludwig, who was himself once a cowboy in the Prättigau, gives some interesting particulars about the Alps and the manner in which they are used. He made an attempt alone upon the

[* We learn that the editorship has now been definitely accepted by Dr. Dübi.]

† This hut is in such a state as to require rebuilding or thorough repair. S. A. C., after some discussion, voted 1,000f. (40*l.*) for the purpose.

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Kirchlispitzen (2,535 m. = 8,316 ft.) between the Scesa Plana and the Drusenfluh. These have probably never been ascended. Herr A. v. Rydzewsky (Davos) made several first ascents in the district. On June 25, 1890, with the guide Guler, he ascended the Klein Fergenhorn (2,847 m. = 9,340 ft.); on July 18, with Jann and Guler, the Fergenkegel (2,857 m. = 9,405 ft.); and on July 24, with Guler, the Gross Fergenhorn (2,868 m. = 9,441 ft.) These summits are a little to the west of the Gross Litzner. The ascents were rendered more difficult by the great snowfall in the middle of July.

Herr Otto v. Pfister, who has made so many excursions in the Rhaetikon, describes a visit he made in 1883 to the caverns of the Sulzfluh, in the course of which he had a narrow escape on a 'karrenfeld,' which was partly covered with snow. He slipped through the snow into a crevice, fortunately without breaking a limb, but he stuck so fast that he had great difficulty in getting out. The mosses of the district are described by Herr J. Amann (Davos). A very interesting account is given by Herren F. G. Stebler and C. Schröter (S. Uto) of some attempts to acclimatise valley grasses in the upper Alpine pastures. A spot was selected for this purpose on the Fürsten Alp (about 1,800 m. = 5,988 ft.) above Trimmis (near Chur). These experiments have been going on for ten years, and the writers have each year spent a large part of the year between June and September on the Alp. A piece of ground was inclosed, and divided into a number of plots, which were then planted with grasses and other nutritious plants in various mixtures. The results are valuable, but they are of opinion that more may be obtained by attention to the Alpine pastures, by manuring, &c., than by any other method.

Amongst the excursions out of the special district there is in the European Alps nothing that is new. Herr E. W. Bodenham (St. Gall) and Herr L. Purtscheller visited the Maritime Alps in the early summer, but they record nothing new and nothing particularly interesting. The most conspicuous matter is the trouble to which they were subjected by the Italian douaniers. Some ascents were made by novel and somewhat difficult routes and several 'ridge-walks'—*i.e.*, Cima del Baus, Cima Brocan, Borriglione, and Cima Mercantour, on June 25.

Dr. W. Gröbli (Uto), in his visit to Dauphiné, effected ascents of the Grand Pic de la Meije (the 13th), of Les Ecrins, and the southern Aiguille d'Arve. He also visited Mont Aiguille (2,097 m. = 6,880 ft.), near station Clelles, south of Grenoble. This mountain was ascended perhaps earlier than any other of the same height, in A.D. 1492. M. Paul Montandon (Bern) and a friend made the first ascent of one of the peaks of the Pointe de Mourti (3,585 m. = 11,762 ft.) from the Hotel d'Herens, near the Ferpècle Glacier.*

Herr A. Zollinger (Burgdorf) describes the ascent of Lo Besso and the passage of the Trift Joch.

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* See *Alpine Journal*, vol. xv., p. 556, and make the necessary corrections. M. Montandon confirms Mr. Monro's view that the eastern peak looks the higher.

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Herr A. Rzewuski (Davos), a tour in the Alps of the Valais, including an ascent of the Matterhorn. He blames the Zermatt guides for too frequently recommending this mountain to inexperienced climbers.

Dr. H. Dübi (Bern) tells us of the most enjoyable holiday which he and his family spent at Saas Fee in 1890. With the guides Abraham Imseng and Alphons Supersax, he effected a variation in the ascent of the Ulrichshorn (3,929 m.=12,890 ft.) by the south-east side, and also in the descent direct to the Bider Glacier.

A new hut (Oberaletsch) was opened on July 13, 1890, at the point where the routes leading to the Gross Nesthorn and Aletschhorn divide (2,650 m. = 8,722 ft.)

Prof. Schiess-Gemuseus, who is a veteran climber, on his first visit to the Dolomites ascended the Cristallo and Pelmo. Here, as in some previous articles, needless particulars are given about the manners and customs of the country.

Herr Emil Huber (Uto) and Herr Carl Sulzer (Winterthur), two well-known members of the S. A. C., take us to an almost virgin field —the Selkirk mountains, a group enclosed by the great bend of the Columbia River. Their head-quarters were at Glacier House, a station on the Canadian Pacific Railway, just south of Roger's Pass (about 1,300 m. = 4,265 ft.), where there is a comfortable hotel. Here, between July 21 and September 4, 1889, they made a number of excursions, some of them of considerable mountaineering difficulty, notably Mt. Sir Donald, which is a grand rocky peak (3,250 m. = 10,663 ft.) The summits in no case exceed 3,300 m. (=10,827 ft.), but the labour of the ascents was greatly increased by the want of everything which aids such excursions in the European Alps. There were no guides and no paths; they had frequently to force their way over fallen timber, and without the tent which Mr. W. H. Topham lent them they could have done little, since they were obliged sometimes to camp out for days together. A number of ascents were made. In part of them Herr Huber was joined by Mr. Topham and a friend. This party failed, from bad weather, to reach the highest peak to the south, Mt. Dawson (3,300 m. = 10,827 ft.) Herr Sulzer, on the north side, reached a peak (not the highest) of Roger's Mountain, which he named Swiss Peak (3,250 m. = 10,667 ft.) The valleys in this group are exceedingly intricate.

Herr Huber adds some valuable remarks on photography, especially on the advantage of celluloid over glass, and dry plates over wet.

The late Professor Gottlieb Studer, so Herr Dübi tells us, in the course of his life made more than 600 ascents over 10,000 feet. These extend over the period from 1825 to 1883. At the age of 68 he ascended Mont Blanc, and at 78 the Matterhorn and Pic d'Arginol (Evolena).

Professor H. Graf (Bern) has collected a number of interesting facts about early ascents. Johannes Müller-Rellikon, so called from his birthplace, Rellikon, near Bern (where he was Professor of Greek and Theology), ascended the Stockhorn seven times between 1528 and 1538. He also wrote a poem on the Stockhorn, which was published in

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Gesner's 'Historia Montis Fracti' (1555), and also in Scheuchzer's 'Oreographia.' Benedictus Aretius (Prof. Marli, 1505-1574), Professor of Greek, Hebrew, and Theology at Bern, wrote in 1560 a description of this mountain and of its flora, fauna, &c. He exhibits herein a sense of the beauty of Alpine scenery quite unusual at that time; he writes that 'nothing is so pleasant as an Alpine excursion, where you find flowers, birds, stones, woods, waterfalls, fine views, good air, precipices, overhanging rocks, caverns, and icefields.' He corrects Tschudi's error in naming the Simme Kander (or Kandel), since the latter comes from Frutigen, and other topographical errors.

Joseph Rudolf Rebmann, born 1566, at Bern, who died at 39 years of age, devoted the last days of his life to completing a poetical dialogue between the Niesen and the Stockhorn. Samuel Bodmer (1652-1724) was an eminent geographer. His description of the new road over the Gemmi was published by Scheuchzer in Vol. III. of his 'Natural History of Switzerland.' Bodmer was employed in verifying the boundaries of Canton Bern. His report is contained in 247 folio pages of MS., to which are attached three volumes containing 561 hand-drawn maps. Professor Graf closes the series of 'pioneers' with Wolfgang Christ (1680-1745), who wrote a description of his travels in the Bernese Oberland. According to this, the region round the central mass of the Alps is an icefield; the valleys contain many rare metals and minerals, gold, silver, &c. In the Kienthal sulphur is so abundant that you are sometimes knee-deep in it. He refers, but only cursorily, to the great find of crystals on the Zinkenstock. A fitting close (says Herr Graf), since in 1728 Victor Haller wrote his great poem, 'The Alps,' and in 1739 the first* ascent of a mountain over 10,000 ft., the Titlis, was made by a monk of Engelberg.

Herr A. Zuricher (Wildhorn) describes a map of Switzerland of date 1570, drawn by a Dominican monk, Ignazio Danti. This is in the Palazzo Vecchio, at Florence, in an inner room which was once the wardrobe of the Duke of Medici. In the cases round the walls are 53 maps by the same hand, in which are represented the countries of the world as they were then known. Curiously enough, Switzerland is found, not in a map of Germany, but of France. The writer explains this by the supposition that, as the Alps were regarded as the northern boundary of Italy, and the Rhine the southern boundary of Germany, Switzerland, naturally, was added on to France. It is so represented in many smaller atlases still. A *facsimile* of this interesting map is in the case attached to the 'Jahrbuch.'

Professor G. Meyer v. Knonau gives an account of Felix Hemmerlin's work, 'De Nobilitate et de Rusticitate Dialogus,' written about 1450, in which he abused the men of Schwyz; for which abuse he paid by being imprisoned for life at Luzern. In his eleventh report on glaciers Dr. Forel tells us that all the Mont Blanc glaciers are advancing, a good many in the Valais, and a few in the Oberland. In Glarus and the Grisons they are either still retreating or stationary. The

* This ascent is said to be doubtful: the first authentic ascent of the Titlis was not made until 1786.

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change from decrease to increase seems to be passing from west to east.

During the last ten years two interesting attempts have been made to acclimatise plants and animals in the Alps. A garden was opened for Alpine plants at Geneva in 1883, but this was found to be too low. In 1888 the Government of Valais resolved to establish three such, at Sion (521 m. = 1,709 ft.); at Zermatt (1,620 m. = 5,342 ft.); and at the col of the Great St. Bernard (2,472 m. = 8,110 ft.) This last was at far too high an elevation, and all the gardens were upon too limited a scale. Finally, in 1889, at the instigation of the Society for the Protection of Plants, aided by various persons, amongst whom were Sir John Lubbock and Mr. G. Romanes, of London, a piece of ground, 2½ acres in extent, has been laid out at St. Pierre (Great St. Bernard), 1,693 m. (= 5,554 ft.) above the sea. This is named 'La Linnaea.' It is divided into terraces, which are assigned to particular Alpine regions, Central Alps, Tyrol, Pyrenees, Spanish Sierras, Carpathians, Caucasus, &c.

It is only in process of formation, but already (1890) numbers 2,500 plants, mostly from the gardens at Geneva. A number of plants from Tyrol and Carinthia have been sent by the botanical garden of Vienna. Some varieties have come from the Pyrenees and Caucasus, and even from the Himalaya.

The other attempt was to acclimatise the 'steinbock' in Switzerland. This animal was once abundant on the Rhætian hills, but is said to have become extinct about 1630.* Proposals to introduce them were made as early as 1869, but it was found very difficult to obtain pure-bred animals, and at last they were obliged to content themselves with cross-bred animals, 13 of which were obtained from Turin, and set free in the Welschtöbel, near Arosa, with two goats as nurses for the kids, on June 28, 1880. For some time they seemed to thrive very well, but it was found that they dropped their kids in the coldest part of the year, and the young could not bear the inclemency of the weather. They came for the fodder provided for them in the winter, but it was impossible to get them under cover. In spite of the addition of three other animals, by the end of 1886 they were reduced to three. In 1888 three pure-bred 'steinbock' were procured at the price of 60*l.* But all was useless: the animals died, one after another, down to two, which were sent to Basel in 1890, and the attempt was discontinued. Valuable experience has, however, been obtained, in case of future attempts.

In an ascent of the Mönch, made by Herren C. Seelig and E. Weber-Imhof, with the guides C. Jossi and R. Kaufmann, on January 3 and 4, 1891, the Bergli was reached from Grindelwald in 12 hours. Leaving next morning at 4.50 A.M., the summit was reached at 11 A.M. There was a violent wind, and the thermometer fell below zero Fahrenheit. The descent was commenced at 11.30, and the Bergli Hut was reached at 1.55. Here they remained until 3 P.M. Grindelwald was reached at 9.35 P.M. Herr C. Seelig, though he has got this year into no difficulty like that in the Voralpthal two years ago, goes a long way towards

[* He existed in Tyrol till within the last fifty years.]

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doing so. On one of his Sunday visits to the Göschenen Thal, August 17, 1890, he reached Göschenen Alp at the late hour of 9 A.M. He was without the faithful Joseph Zgraggen, but persuaded a cowherd, Joseph Mattli, who had done nothing harder than the Alpiglen Lucke, to go with him. The ascent to the Gral was here and there so difficult that Herr Seelig wished himself back on the Alp. At last, after a severe struggle, a point was reached at 6.45 P.M. close to the top of the Tiefenstock. Herr Seelig could neither stand nor sit, but was obliged to hold on to the rocks whilst Mattli remained some 20 yards behind. At 8 P.M. they were in the gap between the Tiefenstock of the Gletschhorn, and proceeded to descend the couloir cautiously. In five minutes they were stopped by a cliff. A ledge, however, enabled them to traverse the rocks on the right, and here, at 9 P.M., it being quite dark, they had to bivouac at a height of about 3,300 m. (=10,827 ft.) Wraps they had none. An extra pair of stockings, gloves, *stauchen*, a pocket-handkerchief, and necktie were equally divided between them. Exposed as they were, they passed a miserable night. The morning was fine, and at 4.30 they started; the glacier was reached at 5.30. Presently, passing beneath the Gletschhorn, they were induced to ascend it. The top was reached at 9.15 A.M. Mattli was greatly delighted. He had never imagined there could be so many mountains. The Tiefen Glacier was reached at 11 A.M. and the hotel at 1 P.M. Here they enjoyed themselves, and afterwards walked together to Göschenen. Here Mattli, who was with difficulty persuaded to take some well-earned francs, returned to his Alp, whilst Herr Seelig reached Zurich by a late train. It must require exceptional capacity on the part of Herr Seelig to be able to resume business at 9 A.M. on the Monday after these excursions. On this occasion he was a day late.

The mountaineer in Algeria is exposed to some quite exceptional difficulties. Herr Emmenegger was unable to attempt the ascent of Djebel Amarkaddon on account of the numerous panthers. One thousand two hundred of these animals have been killed in the last fifteen years.

The Grünhorn Hut, from which so many ascents of the Tödi have been made, is now superseded by the Fridolin Hut, on the Biferten Alp, at a height of about 7,000 ft. This was opened on August 17, 1890, and can accommodate twenty-two persons. English mountaineers seldom make use of 'steigeisen,' though they are commonly used in Tyrol. It is certain that on moderately inclined surfaces of ice or hard snow they save much waste of time in step-cutting, and also, when steps have to be cut, they enable persons to stand in the steps much more firmly. There is a great variety of opinion as to the advantage of their being with or without divisions. M. P. Montandon recommends a new sort, made in one piece. A ring is fixed in the heel of the boot, through which a hook attached to the 'steigeisen' passes, whilst the front is strapped over the boot. He claims for these the advantages of solidity, lightness, facility of putting on and off, and of packing. The point (or blades) may be arranged according to order. They are made by Messrs. Wanner, Terrassière, Geneva, and cost 14 francs the pair.

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The Club huts are said to be, on the whole, in a very bad condition —*e.g.* the Schamella Hut, already referred to. A committee has been appointed to make an inquiry and report.

Besides numerous illustrations in the volume, there are, in a case accompanying it, a map of the Saas-Monte Moro district (in the new shading), two panoramas of parts of the mountains of the Prättigan, one from Mont Avril, &c.

At the end of 1890 the Club numbered 3,400 members. The expenses of that year exceeded the receipts by about 6,000 francs (240*l.*). The difference had to be met out of the reserve, which has now dropped to 33,800 francs (1,352*l.*). J. S.

Bollettino del Club Alpino Italiano per l'anno 1890. (Torino.)

The twenty-fourth volume of the 'Bollettino' recalls in its opening the gloom which overspread the latter part of the mountaineering season of 1890. The first article contains full memoirs of Castagneri, Maquignaz and Carrel, written respectively by SS. G. Rey, Alfonso Sella, and L. Vaccarone, with very effective portraits of the three guides. The memoirs do not call for much remark, except perhaps the truism that the Italian style of doing these things is so unlike ours, that we are hardly qualified to express any judgment on them. Incidentally it may be observed that Signor Vaccarone is hardly quite correct in saying that the Matterhorn was in 1857 'the last peak of the Alps of which the ascent yet remained to be made.'

Signor Bobba follows up his 'monograph' of last year on the Val de Rhèmes with one equally painstaking and instructive on the Val Grisanche. Several panoramas serve to illustrate rather than to adorn the text. The bibliography of the subject seems to have been carefully studied, and there is a short appendix of four pages containing 'Noterelle storiche' to show that the interest of the Val Grisanche and the neighbouring valleys is not limited to the opportunities which they offer to climbers. The next paper, by Signor Vaccarone, on the Punta Grifetti, opens with a statement (which it would have been as well to verify before publication) to the effect that Monte Rosa is 'an eminently Italian mountain, by position and by right of conquest.' We were under the impression that the actual summit of Monte Rosa was some hundreds of yards within the Swiss frontier, and that the first ascent (which presumably is meant by 'conquest') was made by others than Italians. Indeed, with the exception of Farinetti, Giordani and Grifetti, there does not appear to be a single Italian name among the early explorers of the mountain. However, if Signor Vaccarone likes to call Monte Rosa (or Ben Nevis for that matter) 'an eminently Italian mountain' no one is the worse; and meanwhile his account of Grifetti's doings, given mainly in the explorer's own words, is an interesting contribution to the early history of Monte Rosa. Signor Porra, of the Cremona section, writes on the 'Capanna-Osservatorio' to be erected on the Punta. The next paper, by Signor Gerla, describes the ascent of the Pizzo d'Andolla from Val Loranco, an expedition which the writer considers 'neither long nor over difficult.' He was under the impression that he was making a new route to the summit,

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but found that Herr von Kuffner, of Vienna, had preceded him by a few days. The article contains a specimen of guide's wit which the present writer, at least, does not remember to have seen before. 'Suddenly Aymonod, who had hooked himself on to a projection to explore, called out, "On peut avancer encore quelques mètres, puis il n'y a plus moyen de monter." I thought of obstacles, and my countenance fell;' but, to cut the story short, the facetious Aymonod was referring to the top of the mountain. Papers on the Coca-Redorta group (between Val Camonica and the Valtelline), on the ancient glaciers of the Apuan Alps (the Carrara Mountains), and on the Maiella group in the Abruzzi (highest point Monte Amaro, 2,795 m. = 9,165 ft.) take the reader into districts hardly known even by name to the English climber; and in their treatment of those districts give an example (which it is to be feared that the English climber does not follow as much as he should) of 'scientific observation' no less than a record of 'mountain adventure.' Signor Manelli, of Turin, writes on the use of photography in mapping mountain countries. Signor Martinori describes his travels in Palestine, the title of the paper to inclusion in the 'Bollettino' being apparently an ascent of Lebanon.

As in the last volume, the longest and most important paper is contributed by Signor Vittoria Sella.

Like most mountaineers who go to the Caucasus, he did not rest satisfied with one visit; but, following up his successes of the previous year, made in 1890 another expedition, a most interesting account of which fills sixty pages of the 'Bollettino.'

Although during this journey mountaineering was invariably subordinated to photography, the author, without other skilled aid than that afforded by two Piedmontese peasants and the Courmayeur porter (Fabiano Croux), made the first ascent of the eastern peak of Tsforga, the second of Burjula or Boordooil (Messrs. Cockin and Holder having vanquished this peak a few days before), and climbed Latraldash, Shoda, and other summits.

After securing the splendid panorama of the Dychsu mountains from below the summit of Chirivsek, near Karaul, S. Sella relinquished the almost completed conquest of that virgin peak (about 13,000 ft.), allowing, as he confesses, 'the satisfaction of the photographer to stifle the just vanity of the mountaineer.'

From Karaul to Gebi laden horses were taken, for the first time, over the Sharitau (Mashkapar), a glacier pass often traversed by sheep; but a repetition of this risky undertaking is not advised.

Unfortunately, the weather was less favourable to photography than in 1889, and disappointments were many and provoking. Fairly driven out of the Skatikom glen by rain, the party fared but little better in the Uruch valley; at Karaul, again, the weather enforced several days of idleness; but the crowning disappointment came when, after the weighty apparatus had been carried to the summit of Burjula in fine weather, the first plate had hardly been exposed before a veil of mist suddenly rose and blotted out the magnificent panorama during the rest of the day. Even in fine weather, we are assured, the photographer's task is harder in the Caucasus than in the Alps, as

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the greater amount of vapour in the atmosphere lessens the distinctness of distant views, which, in the clear air of Switzerland, would present no difficulty.

The narrative of the various expeditions is agreeably interspersed with vivid and interesting descriptions of the mountain scenery, vegetation, game, and especially of the natives and their mode of life, of all of which S. Sella is a close and careful observer. We learn of the primitive health resorts in the Ossete country, where lowlanders are wont to camp out near the glaciers in order to enjoy the invigorating effects of mountain air and a diet of iced-buttermilk. The men of Zenaga easily bear off the palm for imperturbable indolence; labour troubles are obviously far distant in a valley where there is very little capital, and the males abstain almost entirely from work. At Karaul excellent material for the making of guides and porters appears to exist amongst the native chamois-hunters, one of whom (Topai) is mentioned in high terms.

Considerable attention is also given to the ancient castled villages on the south side of the main chain, to the conjectured Jewish origin of the inhabitants round the sources of the Zenes-skali, and to the strikingly beautiful forests and the remarkable people of Suanetia.

The description, by-the-by, of a funeral ceremony at Ushkul is strongly suggestive of an Irish wake.

The panoramic views of the Adai peaks throw valuable light on the topography of that intricate group; but, with one or two exceptions, the illustrations barely do justice to Signor Sella's admirable photographs. A. J. B.—H. W.

With Axe and Rope in the New Zealand Alps. By George Edward Mannering. With Illustrations. (Longmans, Green & Co. London: 1891.)

Few things are more refreshing to the wanderer from the Mother Country in Australasia than to see how our race there maintains and develops the manly characteristics of the old home life. The heart warms with a fresh sense of pride in one's nationality, and goes out in sympathy towards the children who so honour their parentage.

It was my good fortune last May to make the personal acquaintance, at Christchurch, New Zealand, of the author of this handsome volume, as well as of his friend Mr. Arthur Harper, and it did me good to witness their healthy enthusiasm as we chatted over the constitution and prospects of the just-fledged Alpine Club, which already bids fair to stimulate vigorously the mountaineering zeal of young New Zealand. I trust that this record of a most plucky series of campaigns will receive from English mountaineers the welcome which it so richly deserves, not only on account of its own merits, high as they are, but as evidence of our sympathy in the endeavour to excite wider interest in the glorious mountain scenery of our magnificent colony both among residents and throughout a yet wider sphere.

Mr. Mannering's account of his successive expeditions, repeated with untiring energy and unfailing pluck, is of the highest interest, and one heartily rejoices that he and his gallant companion, Mr. Dixon, to whose qualifications he bears high testimony, and whom he seems to

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have been most fortunate in securing as an ally, at length saw their efforts crowned by the attainment of the final ice-cap of Aorangi, or Mount Cook, only once before reached by Mr. Green and his Swiss companions in 1882. When it is borne in mind that these gentlemen had practically to teach themselves the whole art of mountaineering, that Mr. Mannering spent five consecutive seasons in training himself for his ultimate triumph, and that in the course of them an amount of hard work and roughing it was gone through which offers a striking contrast to ordinary Alpine experiences in Europe, no one, I think, can fail to admire the dogged yet light-hearted tenacity with which, like Whymper on the Matterhorn, or Dent on the Dru, they stuck manfully to their task until they won the success they so richly deserved.

Narrow escapes from drowning in crossing some of the big glacier streams, flooded camps, and confinement to soaking tents for two nights and a day, whilst 9 inches (!) of rain fell, fires made by the help of a chimney improvised out of a pair of white flannel trousers, swagging loads of 50 lb. over portentous moraines and through 'Spaniards,' 'Wild Irishmen,' and other prickly and matted abominations of the 'scrub' for many a weary hour—these are, as our author elsewhere remarks in another connection, 'pleasures in pursuit of adventure which only those who are interested can thoroughly enjoy.'

The final chapter is a most spirited narrative of a canoe voyage of 132 miles down the great River Waitaki, which carries off the drainage of most of the principal eastern slopes of the Southern Alps over an area of nearly 5,000 square miles, and presents difficulties of a truly formidable character, which recall some of the sensational experiences of Major Powell and his gallant party in their desperate exploration of the Grand Cañon of the Colorado.

Seventeen full-page illustrations—not altogether so successfully reproduced as might be desired—from photographs by Messrs. Wheeler, the well-known photographers of Christchurch, a sketch of the highest peak of Aorangi, and an excellent and detailed map, on a scale of about three miles to an inch, of the glaciers surrounding it, compiled from a Government survey in 1890 by Mr. T. N. Brodrick, district surveyor, and from that of Dr. Von Lendenfeld, embellish the volume and make it easy to follow in detail the author's narrative, which includes an exploration of the previously unvisited basin of the Murchison Glacier, the second largest in the Southern Alps.

In conclusion, let me congratulate Mr. Mannering on his work both with axe and pen, and express a hearty wish that the former may furnish fresh matter for the equally skilful exercise of the latter at no distant date. I well remember how my heart was stirred by that bright volume 'Where there's a Will there's a Way,' and Mr. Mannering has rung out such another clear note, which will long echo, I doubt not, amongst the glorious peaks of his chosen home, and in the responsive hearts of his gallant colonial contemporaries, or, it may be, even of some of those amongst our own ranks. F. F. T.

Geschichte der Schwankungen der Alpengletscher. Von E. Richter. (Wien, 1891.) (Reprinted from vol. xxii. of the *Zeitschrift des D.Oe.A.V.*)

Herr Richter is to be congratulated upon the method he has adopted of taking the data of three past centuries, and, instead of

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giving an account of the variation of individual glaciers, and telling us of those the motion of which was notable enough to figure so to say in history, dividing the subject into that of advance (*Vorstoss*) and retreat (*Rückzug*) periods. The value of attacking the problem at both ends is, of course, great. We get at the nature of glacier-motion through the study of particular ice-streams, and at that of climatic influence by the record of oscillations taking us back to long before they formed the objects of scientific study. True, the effect of temperature, wind, &c., is only recognisable after the lapse of some time; but the attention of Brückner, amongst others, to periodicity, already promises results beyond mere hypothesis, even if not enough as yet to support a theory.*

We have not space for a summary of Herr Richter's mass of information. It is most interesting reading, and his references are full and varied. His ground covers from 1540 to the present time. He of course mentions the chief glacier catastrophes, such as those of Randa and of the Val de Bagnes—both illustrated by sections—and goes far afield into Tyrol and Italy. He gives an elaborate account, ingeniously and industriously compiled from documentary evidence, of the history of formerly frequented passes, such as that from Grindelwald to Valais. The retreat of the Val de Bagnes glaciers is illustrated by a map, and there is a delicious photograph, by Signor Sella, of the Grindelwald and Viescherhörner peaks.

The writer suggests that this article would make a valuable companion during the peregrinations of next summer. An Alpine man is sure to find himself in more than one locality mentioned by Herr Richter.

M. H.

The Story of the Hills. By the Rev. H. N. Hutchinson, B.A., F.G.S. (London: Seeley. 1892. Pp. 350.)

This work is devoted mainly to a popular exposition of the origin of mountains and of the various parts which they play in the system of nature. Written admittedly for those without special knowledge of the subject, the author's geological dissertation is not of a severe order, and in Part I. (pp. 1–138), 'The Mountains as they are,' we find also allusion, pleasantly appreciative, to various phases of mountain life and scenery. Portions of the subject-matter, indeed, are treated of by Bonney, Reclus, Morell, and others; still the book is consistent in its general aim, and that is a useful one. The rest (being the main portion) of the work is given to the 'Story of the Hills,' as, running back to dim ages of the past, it is found written on their own rocky tablets; and here Mr. Hutchinson, writing doubtless with a considerable knowledge of the subject, has, we think, well selected and presented those facts and problems of which he writes. Engravings of a few of Mr. Donkin's photographs and of some other mountain scenes and effects form, with an index, suitable additions to what may be described as a readable and useful handbook to the subject dealt with.

H. C.

* See letter of A. B. M. in *Nature* of December 17, 1891, p. 149.

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