

REVIEWS.

Volcanic Studies in Many Lands. Being reproductions from photographs by Dr. Tempest Anderson, with text by Prof. T. G. Bonney, So.D., F.R.S.

THIS second series of 'Volcanic Studies,' by the late Dr. Tempest Anderson, contains eighty-one reproductions from photographs, illustrating the various volcanic districts which he had visited since the publication of his first series in 1903.¹ In addition to well-known European examples, the illustrations include views of volcanic phenomena in the West Indies, Mexico and Guatemala, in New Zealand, Samoa and Hawaii and in Java and Lozon, and also pictures of the famous volcanic island of Krakatau which startled the world by its paroxysmal eruption in 1883.

Unfortunately Dr. Anderson died before returning from his expedition to the East Indies in 1913 and left, we are told, only very brief notes relating to the photographs he had taken during the previous ten years, as 'the photographs themselves aided by his retentive memory sufficed for his lectures and scientific papers.'

The deficiency has, however, been most ably supplied by Professor Bonney, one of our leading authorities on vulcanology, whose friendship with Dr. Anderson dates back to 1881, and who fortunately had the advantage of discussing with him the publication of a second volume of volcanic studies before he left England on his last fatal journey.

Professor Bonney's eighty pages of text, which contain here and there brief extracts from Dr. Anderson's notebooks, serve greatly to enhance the interest of the photographs, and constitute in themselves a valuable account of the volcanic phenomena which are depicted in the illustrations.

The book also contains a short 'In Memoriam' of Dr. Anderson from the pen of our editor, which is reprinted with additions from the ALPINE JOURNAL for November 1913.

The volume opens with an account of eruptions which took place in Vesuvius, Stromboli, and Etna between 1904 and 1908. During these years Dr. Anderson visited the Lipari Islands in 1904, Vesuvius in 1906, and Etna in 1908. In all these expeditions he had Mr. Yeld for his travelling companion, and Dr. Bonney also joined them in the visit to Etna.

The photographs of Vesuvius give a good idea of the changes produced in the crater by the eruptions of 1906, and also of the wide distribution of lava and ash which resulted from these explosions. In Plates VI. to X. we have illustrations of the crater

¹ Reviewed in this Journal for Feb. 1903.

of Stromboli, including two graphic views of the progress of an explosive eruption, evidently taken at no small risk to the intrepid observer.

The visit to Etna in 1908 was rewarded by the sight of a small eruption which took place in that volcano in April of that year, and Dr. Anderson, though crippled by an accident to his knee, and unable to leave his couch, succeeded in photographing some interesting examples of drifting smoke clouds produced during the explosion.

In 1907 Dr. Anderson revisited the West Indies, where he had already done good work in 1902, in company with Dr. Flett as the accredited representative sent out by the Royal Society that year to study the results of the destructive eruption of the Soufrière and Mont Pelée.

This second visit was devoted to a study of the alterations which had taken place since the eruptions, due to the action of tropical rains, and also to an investigation as to the extent to which vegetation had returned in the devastated regions.

The results of this visit are published in the 'Philosophical Transactions,' and some of the photographs, then obtained, are reproduced in the present volume. They include, amongst others, two excellent views of the crater of the Soufrière showing the nearly vertical walls of tuff and lava and the little green lake which has again formed at the bottom of the crater, Plate XX, being probably the best view of the interior of a crater hitherto obtained.

The meeting of the International Geological Congress in Mexico in 1906 afforded Dr. Anderson an opportunity of visiting some of the more interesting volcanic regions of this portion of the globe. Unfortunately, he was hampered in this excursion by illness due to ptomaine poisoning, but nevertheless the photographs included in this section are of great interest and some of them are of high artistic merit, as, for instance, the view of Iztaccihuatl shown in Plate XXIV, and that of Colima in Plate XXIX. The view of clouds on Atitlan is strongly reminiscent of photographs taken of Vesuvius during an eruption, while the furrowed flanks surrounding the new crater of Santa Maria in Guatemala recall similar phenomena visible on the slopes of the modern cone of the same volcano.

The second half of the volume is devoted to an account of various volcanic regions in the Pacific and the East Indies, and include views taken during a visit to the well-known hot-spring district in New Zealand in 1909.

We also find interesting photographs of the Hawaiian volcanoes, among which the most striking perhaps are the view of the floor of the crater of Kilauea at night (Plate LV.), and the cascade of lava from Mauna Loa (Plate LVI.).

But perhaps the most interesting series of illustrations in this portion of the book are a set of nine photographs of the eruption of Matavanu in Savaii, the most westerly island of the Samoan

or Navigator group, which lie to the N.E. of the Fiji Islands in the S. Pacific. Dr. Anderson visited this district in 1909 while an eruption was in progress. Some of the views show the crater of *Matavanu* and give a good idea of the havoc produced in the district by the eruption; but the most interesting photographs are those which illustrate the phenomena which take place when a lava flow reaches the sea. In Plates XLVII. to XLIX. we see the great clouds of steam which are given off as the white-hot lava enters the sea, though, according to Dr. Anderson's observations, the water immediately in contact with the lava seemed to be practically unaffected, falling off unaltered without boiling owing, he suggests, to its being in a spheroidal condition, a phenomenon often observed when water is dropped on to a hot stove.

The effect produced by the sudden chilling of the lava, on its contact with the sea-water, is beautifully illustrated in Plate L., where we see the curious sack-like folds into which the surface of the lava stream has been kneaded. For some years past similar structures have been observed by geologists in some of the lava flows of Palæozoic age in Britain which have received the name of 'pillow' lavas. It had been surmised that this phenomenon had resulted from the sudden chilling of the outer skin of the lava, while the material inside continued to flow. Dr. Anderson's observations on the mode of information of pillow lavas at Savaii are therefore of great interest as throwing light on the origin of these structures in past geological times.

The concluding portion of the book deals with the districts visited by Dr. Anderson during his six weeks' residence in the East Indies in 1913.

In Java he secured photographs of Guntur, Popandayaug, Bromo and other Java volcanoes, including the beautiful crater lake of *Telaga Bodas*. He also visited Luzon and photographed the wonderfully symmetrical cone of *Mayon* and also secured views of the *Taal* crater. His most interesting expedition, however, must have been to the Island of *Krakatau*, which lies in the Straits of Sunda, between Java and Sumatra.

This volcano, it will be remembered, was the scene of an extraordinarily violent eruption in August 1883, as the result of which a large part of the island was hurled into the air, the finer fragments reaching a height estimated at twenty-five miles. This fine dust was carried several times round the globe in the higher regions of the atmosphere and gave rise to the wonderful sunsets observed during the autumn of that year in England.

Space does not admit of a description of many other interesting views collected in this volume, nor can we here do full justice to Professor Bonney's admirable descriptive text; but we feel sure that the book will be widely welcomed both by students of volcanoes and also by the general public who take an interest in natural phenomena.

In spite of the difficulties met with in the publication of the

book, some of which were indirectly connected with the war, the volume presents a handsome appearance. The bold text leaves nothing to be desired, and if some of the photographs have suffered somewhat in reproduction, this can readily be excused at the present time, and there is not one which we would willingly have seen omitted.

E. J. G.

On the Eaves of the World. By Reginald Farrer. With Illustrations and a Map. London: Edward Arnold. 1917.

EARLY in 1914 Mr. Farrer arrived at Peking with the intention of devoting two summers to the botanical exploration of that portion of the central plateau of Asia (the 'Roof of the World,' hence the title of the book) which slopes down out of Tibet into the Chinese province of Kansu. His first objective was a mountain called Chagola, situated in the extreme south of that province, and chosen mainly because the maps of that particular region were alluringly blank. He had the good fortune to secure the companionship of Mr. William Purdom, who had already, on a similar errand, visited other portions of the Eaves of the World not very remote from the point aimed at. Mr. Farrer acknowledges his obligation to Mr. Purdom in the handsomest manner; how great was his debt will be apparent on many pages of his book to anyone who has travelled off the beaten track. He too, however, acquired enough experience and enough Chinese to be able to go off for considerable periods 'on his own' before the summer was over, and proved himself, in spite of one or two lapses, an excellent traveller, possessed of his full share of that *phlegme britannique* which has been embodied for all time in the person of Mr. Phileas Fogg.

Leaving Peking by rail on March 5, the pair, with three native attendants, took to the great western road on the 9th, and followed it for five weeks 'across the cultivated bareness of the Honan and Shensi plains.' Rumours of the doings of the White Wolf farther south were disregarded, and at Tsin-chow they struck off southward into a region very imperfectly mapped, and almost untrodden by Europeans, where the botanical interest at once rose to a high pitch and finds of the first importance were made. We do not propose to follow Mr. Farrer in detail through the country which he now entered, though in order to appreciate his story it is necessary both to grasp its intricacies and to master his route; but this can be done without much difficulty by the aid of his itinerary and map. Chagola was reached on May 6. There Mr. Farrer did a foolish thing (he tells us about it with an innocent air of artlessness, but it must have been very exasperating to Mr. Purdom), and there occurred their first serious adventure. How far the two things were connected can only be guessed at. Probably in any case the Tibetan villagers would have resented the presence of strangers whose intrusion would bring down on their crops the vengeance

of the Powers of the mountains in the shape of devastating hail-storms. So they are taught by their monks, who see in all strangers seekers after the gold that is the monopoly of the Lamaist Church. The party was lucky to escape unscathed from a very ugly situation.

Then followed a delightful interlude at the little village of Satani, where the folk were Chinese and friendly, with scrambles amid enchanting scenery, and a rich botanical harvest. Meanwhile one of the White Wolf's armies had come N. into Kansu, through river-gorges traversed by Mr. Farrer's party only a week or two earlier, spreading fire and slaughter as it went. They congratulated themselves on being safe out of harm's way, but not for long. An inopportune hailstorm put the monks of Chagola on their track again, and for some days, if the new peril was less obvious and imminent, the suspense was far more prolonged and nerve-racking. Finally, on May 22, they made their way to the little town of Siku, an *ultima Thule* at the foot of the mountains in a valley leading to nowhere, which, thanks to its situation or perhaps to a bribe, escaped the attentions of the Wolves. Here, though at first it did not look like it, they had reached a haven of safety. As time went on excursions became practicable and much good work was done, and at last the most considerable expedition of the whole season was accomplished—the ascent of 'Thundercrown,' a fine peak of about 15,000 ft., the culminating eastern summit of the Minshan range (June 20-24).

On July 6 it was considered safe to start N. on a seven days' march to Minchow (sacked by the Wolves on May 19) and Joni, where they heard the full tale of the havoc wrought by the Wolves and of their ultimate dispersal. They were now in a better known country, and there are English mission stations at both these places.

Starting from Joni, Mr. Farrer was at last able to attain his heart's desire, and established a large permanent camp for about a fortnight in August, well up in the mountains, on the N. side of the Minshan. He was much impressed here by the clear-cut distinction between the forest-clad northward slopes and the bare Alpine meadows on those facing S., a feature which is also very marked in the Garhwal Himalaya. It was during this tour that his second lapse occurred. A bridge 'of poor class' was encountered. 'Purdom's pony disliked the look of it. He got off and led the beast across. . . . On no account,' continues Mr. Farrer, 'would I be bothered to get off and tug [mine] across, and then undergo all the miseries of mounting on a soaked saddle.' What followed is described effectively and entertainingly, and he escaped with a scare and a ducking; but the punishment does not always so nicely fit the crime, and writing in this JOURNAL one cannot but think of those people who 'could not be bothered' to put on the rope on coming to a bit of covered glacier, and paid the penalty.

Mr. Farrer then returned (followed later by Mr. Purdom), for seed-collecting purposes, to Siku, where he spent the whole of

September. October saw the party back at Satani, where the very wonderful fact transpired that prayers were being sent up through all the dominions of the Buddhas for sufferers in the European War. Mr. Purdom even paid a surreptitious visit, disguised as a coolie, to the slopes of Chagola, and they were settling happily into another camp when, on October 17, a heavy snow-storm brought the season to a close. Retracing their steps northward, they arrived at Lanchow, the provincial capital, on November 20, and there took up their quarters for the winter. The story of the campaign of 1915 still remains to be written.

Mr. Farrer's interests have a very wide range. The big facts of geography interest him, and he handles them with ease and skill. Buddhism interests him intensely—indeed we are not sure that he does not claim to be a Buddhist himself—and he holds very decided views, expressed with remarkable vigour and trenchancy, on the subject of Chinese missions. Above all, he is interested in the Chinaman, whom he likes, and his civilisation, which he greatly admires. The very evasions and deviousnesses of the Mandarins, even when palpably employed to his own hindrance, only afford him an amused enjoyment, and when his journey ends we find that we have insensibly gained an unexpectedly comprehensive view of Chinese life and manners and of Chinese mentality. The present writer is in no way competent to pronounce on its accordance with nature and fact, but at least it is not only a very vivacious but a very human and intelligible one. Much of all this would have been lost if the journey had pursued a tamer course; and if Mr. Farrer still feels the regret which he hints at, that he did not change his route at the first warnings of the disturbed state of the country towards which he was heading, he may console himself with the reflection that few of his readers will share it. We should have been sorry to miss the humours of the defence of Siku, and the full-length portraits of the Great Lord Jang and the Great Man Pung. Moreover, we owe to the general upheaval the most effective strokes in a very remarkable sketch of the strange mixture of forces whose interaction makes up the living politics of the Tibetan march of Kansu.

It would be easy to write a critical essay of considerable length on Mr. Farrer's style. He wears it, like R. L. Stevenson, as one might wear some picturesque head-gear, in no shame-faced fashion but with an air and a flourish. There is no ground for quarrel in that; nevertheless he is at his best—and his best is exceedingly good—when the conscious employment of literary artifice is least apparent. It is in the chapters of his book devoted to the botanising and botanical mountaineering which constitute its principal *raison d'être*, that this feature becomes most pronounced, and it is only fair to say, with reference to his highly elaborated descriptions of flowers, that he gives warning at the outset to those of his readers who are not garden-lovers, and invites them to skip freely. For

the rest, it is satisfactory to know that, all set-backs notwithstanding, the botanical results of the tour were of a richness that surpassed his utmost hopes; indeed the botanical Appendix, with its thirty-odd *species novæ*, speaks for itself, even to the unlearned. But the botanical mountaineering merits something more in these pages than a passing cavil on the point of style. Readers of 'The Dolomite Mountains' will remember that Mr. Churchill's 'willingness to ascend ceased with the disappearance of the last phanerogamous specimen.' Not so Mr. Farrer's, as his ascents of Thundercrown and of several lofty ridges testify. His climbing, though always combined with botanical work, went considerably beyond it, and was inspired by an enthusiasm for the mountains only less ardent than his enthusiasm for their Flora. He has worked out the complicated orography of his district with commendable thoroughness, and laboured almost too conscientiously to bring vividly before our eyes the topographical details of his surroundings at Satani, Siku, and elsewhere. If his sentences sometimes become overloaded and cumbersome under the strain, none are so well qualified as members of this Club to appreciate the difficulties of that task. Finally, may we not say that in his particular blend of mountaineering with botany, Mr. Farrer has succeeded in discovering, or at any rate 'introducing to cultivation,' something very like a *species nova* in Alpine literature?

The Canadian Alpine Journal, vol. viii. 1917.

THIS volume opens with two unusual items: the message from the American Alpine Club which has already appeared in our own JOURNAL, and a 'Greeting' to the Club from its new Honorary President, Sir Edmund Walker, C.V.O. The Greeting is a paper of singular charm and suggestiveness, but one which quite defies any attempt at formal analysis, and must be read to be appreciated. Those who read it will need no further evidence that the Club has chosen a worthy successor to Sir Sandford Fleming.

In spite of discouraging conditions, the eleventh annual camp of the Club was held, from July 13 to 31, in the Healey Creek Valley, near Simpson Pass. Eighty-two persons took part in it, but the effects of the war were manifest in the still further diminished number of those who qualified for membership, which this year sank to fifteen. It may be of interest here to mention that at the first six camps (1906-1911) 186 men and 133 ladies qualified, 319 in all, at the next three (1912-1914) 220, of whom exactly one half were ladies, the record total of 92 (35 men and 57 ladies) being reached in 1914. Twenty-three qualified in 1915.

One would not have ventured to look for much in the way of climbing records from the season of 1916, and the variety and range of the papers in the mountaineering section comes as an agreeable surprise. The fortunate ones who were able to spend an active holiday in the mountains were few, and, for the most part, the same

as those who kept the ball rolling in the previous year; but, as was the case in 1915, they turned their opportunities to most excellent account. Dr. Coleman paid a second and highly successful visit to his recent discovery, the Torngats. Three peaks of over 5000 ft. were climbed, the highest reaching 5520 ft.; some hundreds of square miles of unknown mountain country were roughly mapped, and a few small glaciers added to those found in 1915. Two of the ascents are graphically described. The conditions—camping at sea-level, and starting for a climb by boat—recall in some respects those of the Lofotens.

Mr. Holway returned to the regions immediately to the W. of Mt. Robson and the Grand Forks Valley, ascending this year by way of the Swift Current River. Accompanied by Dr. Gilmour, his companion of the previous year, and Mr. Howard Palmer, the historian of their many joint campaigns in the Selkirks, he renewed his attack on Mt. Longstaff, this time with complete success, and in spite of much rain made several other ascents in the same region. He supplies only a brief note of the operations of this part of the season. Subsequently he and Dr. Gilmour proceeded to the mysterious Cariboo mountains which for some eight or nine years past have beckoned across the Fraser Valley alluringly, but in vain, to climbers in the neighbourhood of Mt. Robson. A camp was established in Sand Creek at the foot of a great glacier, about eight miles from the Fraser, at a height of 4200 ft. Without a map—and none at present exists—only a very rough impression can be formed of what was accomplished, though it is clear that the explorers worked very hard in the short time at their disposal. 'It is a far more difficult country to get about in than the Selkirks,' says Mr. Holway, and he adds significantly later, 'It (the exploration of the range) is not a short trip affair. It is useless to attempt it unless one has the entire season.' He fully confirms the high estimate of the range formed at a distance by Dr. Collie and other observers, and the fine panoramic view which accompanies his paper displays snowfields and glaciers on a very grand scale. Mr. Holway already holds a foremost place among the pioneers of the Canadian ice-world, and we shall look forward with interest to the results of the second visit which he had in contemplation.

Mr. Crosby's paper on his ascent of Pinnacle Mountain (between Paradise Valley and the Valley of the Ten Peaks) is of an entirely different character from either of those already mentioned. It reminds one of the narratives of some of the hazardous climbs in Lakeland or the Coolins, and the photograph of the chimney which formed the principal feature of the expedition entirely bears out this impression. The accompanying sketch of the 'human ladder' in the chimney cleverly records a situation which is startling and probably unique; Mr. Crosby makes no attempt to conceal the fact that it was dangerous.

The leading figures in the remaining papers are that untiring and

insatiable trio, Mr. and Mrs. McCarthy and Conrad Kain. After a visit to the Club Camp on Healey Creek, Mr. McCarthy and Conrad, starting from the Banff Club House, achieved on July 19 the first ascent of Mt. Louis,¹ a rock tower of formidable appearance near Dr. Collie's Mt. Edith, 8650 ft. in height. This was a pure rock climb, belonging to the same category as Pinnacle Mountain, difficult and hazardous. Here too there was a chimney, 'with two perfectly straight walls and the inner face so deep inside the cliff that it would not be seen,' so that it did not lend itself to photography, but 'a real chimney, the kind one speculates about, but the like of which I never before had seen,' clearly well worthy to pair off with Mr. Crosby's. The whole climb is described with refreshing gusto; it would probably have turned back a less enthusiastic and resolute pair. A passing reference is made to a third peak in this neighbourhood, Mt. Norquay. In the Alpine Notes at the end of the volume there is a brief account of an ascent of it by another party, and it would seem also to provide excellent climbing.

After the conquest of Mt. Louis, the McCarthys returned with Conrad to their ranche at Wilmer, and started thence on July 23, with a large party, up Toby Creek, on a tour which lasted nearly a month. The fine mass of mountains between Horsethief and Toby Creeks has so far attracted much more attention than any other portion of the Purcell range,² and seems to be fully equal in interest to any other mountain area of like extent in the whole of Canada. Its mountaineering history begins with the ascent of Mt. Nelson (formerly Mt. Hammond) in 1910, and its merits were first brought prominently into notice by the exploration and ascents of Mr. E. W. Harnden in 1911 and 1913. The McCarthys, who are in the enviable position of having this splendid playground almost at their front door, first visited it from the N. (Horsethief Creek) in 1913, and from the same quarter, with memorable results, in the two succeeding years. During the present tour they made a series of attacks on it from the S., again with remarkable success, climbing twelve new peaks of from 9000 to 11,000 ft., six of which were over 10,000 ft., besides conducting a company of nine, five of whom were ladies, to the summit of Mt. Nelson. As in 1915, the party included Mr. and Mrs. W. E. Stone, and Mr. Stone was again the historian and cartographer of the tour. The Purcell range as a whole is still very far from being exhausted, and the limits to which its Alpine character extends to the W. and to

¹ The second ascent was made by Mr. Fynn, *vide* the paper and photograph in this number of the *A.J.*

² Dr. Longstaff's outline sketch map, *Canadian A.J.*, vol. iii. p. 26, still provides the most convenient means of obtaining a rough general idea of the relations between different parts of this range.

the S. appear to be still very imperfectly ascertained, but the exploration of this particular section of it seems now to be fairly complete.

After a single day at home Mr. and Mrs. McCarthy set forth once more, and before the end of August had carried out a rapid raid into the Bugaboo-Howser region, another section of the Purcell range, situated farther North, which was crossed by Mr. Wheeler and Dr. Longstaff in 1909. There they accomplished two more new ascents among the aiguilles or nunataks noticed and photographed by Longstaff and his companions. Both were evidently very fine climbs, and Mr. McCarthy records their leading features with affectionate minuteness. Mr. H. O. Frind, who like Mr. McCarthy is a member of our Club, joined in one of them, as well as in some of the expeditions in the earlier tour.

The scientific section contains papers on Vegetation-Distribution in the Rocky Mountains Park, the Faunas of Canada, and the Geology of the Canadian Rockies, all severely scientific and couched in technical language which tries the ordinary reader somewhat highly. We are glad to see that Mr. Wheeler has been able to resume his valuable series of observations on the motion of the Yoho Glacier.

Under the heading 'Miscellaneous' is a very interesting account, with a map, of the Garibaldi Range, an isolated Alpine region in the immediate neighbourhood of Vancouver City, possessing extensive snowfields and glaciers. A narrative of the first ascent of Mt. Garibaldi, in 1907, appeared in the second issue of this journal, but the range does not seem to have been referred to since, though it has received a considerable amount of attention from the British Columbia Mountaineering Club.

Of the five 'In Memoriam' notices contained in this volume three relate to members who were killed in action or died of wounds. Captain A. F. Wedgwood, Dr. Longstaff's brother-in-law, was well known in this country, but probably few were aware that, in addition to other activities in many fields, he was an ardent mountaineer, with a climbing record ranging over three continents. The names of the other two are unfamiliar, but one of them deserves mention here. The *élite* of the 'packers' of the Canadian Rockies, like the *élite* of Alpine guides, possess certain characteristic virtues which constitute them a class apart, and win for them a very special quality of friendship. Of such was Sergeant Sidney Unwin, of the Canadian Artillery, known to all persons interested in the Rockies as the 'K' of Mrs. Schäffer's 'Old Indian Trails' and the actual discoverer of Maligne Lake. The peak from which he gained his first view of the lake was named after him, Mt. Unwin. Not only his many Canadian friends, but all those who have travelled with his like, will read with interest and emotion Mrs. Warren's touching tribute to his memory.

A. L. M.

Den Norske Turist Forening's Aarbok for 1917.

THOUGH for many years the 'Aarbok' has relied principally upon mountaineers for the special interest which their exploration of wild glacier regions, ascents of mountains, and the crossing of snow passes afforded, it has, as its name indicates, always been open to papers written by sportsmen in general, tourists of all kinds, artists and lovers of the mild and gentle scenes of which Nature is so prodigal, as well as of the stern and grand type of scenery which is so common in Norway. The result has been and still is most satisfactory, as is well shown by the ever-increasing membership of the N.T.F., which has now reached the number of 5136.

This year's 'Aarbok' fully sustains the reputation of its predecessors. It begins well with a short paper by Fru Hanna Resvoll-Holmsen which is well called 'Jotunheim and its Outposts.' The interest centres on Lake Gjende, and a fairer subject could hardly be found, nor a more appreciative writer than the author. She has also been most happy in the choice of subjects for her camera.

A contribution by Vilhelm Haffner is well worth close reading. It deals with forest life in southern Norway, as well as with short walking tours in Telemarken and elsewhere. When Haffner was a boy of fourteen he and a friend set off for their first tour. Together they had not above 30 kroner in their pockets. They took, however, in their school-satchels bread and butter to last several days, and a pound of coffee. Of course they made friends on their way and had many little adventures, which are well told. The description of their first experiences in a dirty *sæter* is amusing. This tour of a few days naturally led to many others, some of which are described.

The paper which the present writer welcomes above all others is one by Kristian Nissen, for some years inspector of herds of reindeer in Norway. As the owners of these are nomad Lapps who hardly recognise international boundaries, or that Norway, Sweden and Russia are all concerned, great tact was necessary, and M. Nissen succeeded admirably and writes in glowing terms about his neighbours across the border. The illustrations with which he has enriched the paper are very good, especially one of a Lapp mother washing her baby in a copper kettle, and several lovely views of S. Folden. The information supplied about routes and life in that wide, wild country could hardly be obtained elsewhere. All true lovers of northern Norway will welcome this paper.

The following, which I quote from the excellent guide book on 'Norway' by Chr. Tönsberg, published in 1875, is almost as true to-day as when it was written: 'Nordland is unquestionably one of the finest parts of Norway. Owing to its distant situation, immense extent, and, up to the present time, imperfect means of communication, there are vast tracts of country in this province which no tourist has hitherto visited.'

We, who in the Lofoten Islands, which form part of the province of Nordland, have done our full share of exploratory mountaineering, have looked upon the massive forms of Sulitelma, Kebnekaisse, and other giants on or over the Swedish frontier, but, with the exception in the case of Mr. Hastings and M. Schjelderup, our plans for visiting them have not materialised. On the other hand, we have done a good deal on the fringe of the mainland, as a reference to the ALPINE JOURNAL will show.

To M. Charles Rabot, the distinguished French scientist, and now to Kristian Nissen, we owe principally the knowledge which we possess of this fascinating and extremely glaciated terrain, bounded by Sweden on the E. and the great Vest Fjord on the W.

Our fellow A.C. member, F. Schjelderup, contributes a very readable paper, which he has profusely illustrated, of a ski-running expedition made by a friend and himself during Easter week in 1917. The scene of their adventures was the huge glacier-encased mountains of Svartisen, a part of Nordland which can be so well seen by deck-chair passengers on the coasting steamers soon after entering the Arctic circle. Up to a few years ago this grand terrain was, to all intents and purposes, practically unexplored and unmapped.

Though this year's 'Aarbok' does not contain many thrilling descriptions of mountain adventure, there are yet some which will satisfy the most fastidious readers of mountain literature. Foremost amongst these is the paper by our fellow A.C. member, Alf B. Bryn, on ascents made by him in 1915 and 1916. An adept in snowcraft, as well as in rock-climbing, he tackled successfully several knotty problems in the Horungtinder, accompanied by friends or professional guides. One expedition, which consisted of the ascents of five noble mountains, and the traverse of their jagged connecting ridges, was a very grand one, and one in which Geoffrey Young would have been delighted to have taken part.

As a fellow member with Bryn of three mountaineering Clubs, and with whom also I claim personal friendship, I do not hesitate to make a protest. Why? oh why do you speak of a mountain of such renown as Skagastölstind as simply 'Storen,' i.e. *the great*, and omit its true name—Skagastölstind? Surely there is a good enough ring, and a true northern one too, in the latter. The name Skagastölstind needs neither a prefix nor yet an affix.

Bryn also describes graphically, but yet with his usual modesty, an ascent of one of the Troldtinder in Romsdal. If there is not much width of the summit rock, this want is relieved by the breadth of touch shown by the artist of the party in his illustration.

'Naar damer farer vild,' a paper by Elisa Ulvig, which first saw the light of day in 'The Norwegian Club Year Book,' in English, is a sprightly-written paper describing a walking tour on the great rolling uplands S. of the Hardanger, which are now easily reached from stations on the mountain railway between Bergen and Christiania.

Amongst others there is one most beautiful view 'Fra Vidda.' A few short years ago this huge tract of country was known to few but hardy reindeer-hunters, Norse and British.

The Secretary of the N.T.F. describes the wild and little-known country around the large lake Djupvand, between the Fille Fjeld and the Hardanger Jökul, which is also easily reached from the Bergen railway. A small accompanying map in the text is very welcome.

A paper on the highlands of Haukelisæter and Sætesdal gives valuable information for any stout pedestrians who leave their steamer at Odde and, having seen the Skjæggedalfos and the Buarbræ, wish to fill their lungs with pure mountain air and to take a tramp such as their fathers did half a century ago 'over the hills and far away' to the Gausta Fjeld and the Rjukanfos. As a matter of fact, the paper takes the reader into Sætesdal, where we will leave him.

A contribution by Arkitekt Carl Berner is very welcome, as the author describes and gives beautiful views and detailed sketches of quaint and richly carved old wooden farmhouses, and of a church in one of the upper valleys of the great Gudbrandsdal. Architecture in this rich and historically interesting district, as also in other valleys, often shows Byzantine influence. Nor is this to be wondered at when we know that the early kings of Norway, and the hardy Vikings, often served in the Varanger Guard of the Greek emperors at Constantinople. I have seen several ancient swords, and fortunately also possess one, which certainly have done service in the Eastern Mediterranean.

M. Berner has done well to advise his readers to direct their steps towards Vaage and Hedal, and I for one hope to see and to read other papers from his pen and pencil dealing with interesting old churches and houses, which are much more common in Norway than the ordinary traveller is aware of.

I knew the old Fortuns Kirke before it was removed to Fantoft, and was once rowed many miles to see Urnæs Kirke in Lyster.

Though a keen fisherman, apparently M. Berner does not combine the sport of mountaineering with that of the gentle art. He begins his paper as follows, but naturally in Norse :

'If one is a professional mountain-climber and intends to spend his summer holiday in imminent fear of death; if furthermore he is in such a hurry that his holiday must be spent in travelling without looking about him, let him not read these lines about buildings and farms, for they are written for folk who travel slowly and have eyes. . . .' There is more about 'record-making,' 'blasé hotel comfort,' 'mountain-climbing which is dull and unromantic because all these difficult finger-grips over precipices are mere gymnastics.'

If we assume that the 'professional tindebestiger' is an acknowledged mountain guide who receives payment from his employers for services rendered, Norway has hitherto not been either much

blessed or banned by these most useful members of society, as their number is so very small. Amongst those whom the present writer has had the pleasure of accompanying, he cannot point to one who is not a keen lover of Nature, and, as a natural corollary, has a true artistic perception, not only of Nature's architecture but also of the quaint old buildings of which Arkitekt Carl Berner writes so ably.

The number of true mountaineers in Norway is increasing. They dislike 'making records' and loathe the notion of extending motor roads to Gjende or other almost sacred beauty spots, nor do they welcome the substitution of huge hotels for the cosy inns, romantic farmhouses or clean *sæters*. Some mountaineers claim also to be keen fishermen, as is M. Berner. Indeed, during recent years three Presidents of the Alpine Club were of this number. Yes, we amateur mountaineers as well as fishermen enjoy the society of the Norse *bonder* who so closely resemble the statesmen, or yeomen, of our north country dales, nor do we fail to join them in a dance now and then, but not for 'six days in succession.'

The district of Østerdal—the eastern valley—on the borders of Sweden, with its huge lakes and wide rivers, where the fish are so many and heavy, its immense forests where the elk still roam at large, and its rolling mountains, form the subject of a capital paper by H. L. Vinje. The present writer, who has never visited this region, would gladly take a long day's tramp under a blazing sun, and even with musical mosquitoes buzzing around, if by doing so he could see that most lovely outline of distant hills shown in the illustration of Galten gaard. There is a grace and a subtlety about the lines which is rarely seen and which is very fascinating.

'From Jotunheim to the Western Fjords' is the title of a paper which deals with wild uplands in N.W. Jotunheim, the lovely valley of Justedal which is so neglected nowadays, and two well-known passes over the largest snow-field in continental Europe. A very interesting tour and well described. The accompanying map, however, is not wholly reliable. M. Kristian Bing of Bergen will, I doubt not, corroborate this statement.

The 'Aarbok' for 1917 is a welcome addition to our bookshelves.

WM. CECIL SLINGSBY.

Two Summers in the Ice-Wilds of Eastern Karakoram. By Fanny Bullock Workman and William Hunter Workman. With 3 Maps and 141 Illustrations. London: Fisher Unwin, Ltd. 1917.

THIS book is a narrative of the seventh and eighth expeditions of these indefatigable explorers of the mountains of Kashmir. Twenty years ago, 'to escape from the heat of the Indian plains,' they cycled up to Srinagar. Since that time they have crossed and recrossed the country in every direction. The present is the fifth of a splendidly illustrated series of volumes in which they have recounted their experiences.

It falls into two parts, the expedition of 1911, devoted to the exploration of the Sher-pi-gang, Masherbrum and some other glaciers on the N. side of the Shyok Valley situated in the little known region S. of the Baltoro, between the Siachen watershed on the E. and the tributaries of the Hushe on the W., and to a visit to the Siachen Glacier, said to be the longest outside the Polar region. This first part falls to Dr. Workman to describe.

The second part—the expedition of 1912—deals with the systematic exploration of the Siachen Glacier, and is by Mrs. Bullock Workman.

The travellers reached Srinagar early in April 1911 and everything was ready to start by the end of the month. Their European companions were Dr. Calciati, to act as topographer; his Italian assistant, Dante Ferrari; Cyprien Savoie, the well-known Courmayeur guide, and three Courmayeur porters.

Unfortunately a full month was lost by the illness of one of the explorers, and, bad weather supervening, Dr. Calciati was unable to do justice to the regions which came under his inspection, as the higher summits were hidden in cloud at the critical moments.

They crossed the Zoji La to Skardo and then proceeded up the Shyok River to Kapalu, meeting there with much civility and assistance from Raja Shere Ali Khan. One of his officers, Wazir Abdul Karim, accompanied the travellers on both expeditions in charge of the transport-coolies and showed himself of great use. The party crossed the Shyok and its tributary the Saltoro and then followed the N. bank of the Kondus, a tributary of the Saltoro, to Karmading, situated at the entrance to the Kaberi and Korkondus nasals, thus serving as a convenient base at an altitude of nearly 10,000 feet (the timber line is about 11,000 feet, and glacier tongues are about 12,000 feet),¹ surrounded, as a picture shows, with enormous rock walls running off into aiguilles. The Sher-pi-gang Glacier was first visited, but its crevasses and séracs proved impracticable. It is over the E. boundary of this glacier that Vigne's Ali Bransa Pass to Yarkand was supposed to lead, but from the observations of the authors both this glacier and its subsidiary, the Dong Dong Glacier, form a great cul-de-sac.

During this time Dr. Calciati had been on the Kaberi Glacier, but his report only reached the explorers after they had made, in the following season, the previously unknown passage from the Siachen to the Kaberi Glacier and had followed the whole length of the latter.

The party then returned down the Kondus River to Hulde on the Saltoro, from which point they proceeded up the Hushe Valley.

¹ In *Five Months in the Himalaya*, by A. L. Mumm, one of the most charming and instructive books of mountain travel that I know, the author mentions finding 'a grassy slope' at 16,800 feet in the Kamet Glacier (p. 163).

The great glaciers at its head, already visited by Col. Godwin-Austen in the early sixties and Mr. Sillém in 1903, were further explored. Quartzite Peak (16,839 feet), the point gained, was on a spur of the watershed-ridge between the Baltoro and these glaciers, but the explorers' conclusion is that the reputed pass over it, which Mr. Sillém was prevented from trying by the refusal of his native companions, would be impossible, especially for a loaded coolie-caravan.

The next glacier to the E.—the Khondokoro—was then explored. The Baltoro watershed was gained, and Zurbriggen's opinion that the pass would not go was seen to be correct ('Climbing in the Himalayas,' by Sir Martin Conway, p. 542), so that the so-called Masherbrum Pass, if it does exist, must be looked for elsewhere. The Doctor gives us few personal anecdotes, but he nearly ended his career about this time by partaking of soup made of Belladonna ointment!

It was now August 7. The whole line of the great ridge E. and W. of Bride Peak (E. 25) to several miles W. of Masherbrum had failed to yield any prospect of a pass across it to the Baltoro.

The rest of the season was spent in having a look at the Siachen Glacier prior to its systematic exploration in the following year.

Leaving Goma, in the Saltoro Valley, they crossed the Bilaphond La (18,370 feet) to the Siachen Glacier, of which they explored a portion and two of its affluents, ascending a peak of nearly 21,000 feet.

This ended the 1911 journey—the tale of which is told by the Doctor in a very clear and interesting manner.

The Siachen Glacier was of course already known, and had indeed been roughly surveyed in 1861, while the high peaks had been triangulated even several years earlier by Montgomerie's assistants. It was twice visited by Dr. Longstaff in 1909, who described his journey in the 'Geographical Journal,' published in June 1910, in an admirable paper, accompanied by a detailed map of the glacier based on Montgomerie's figures. These were of course available to our present explorers.

The 1912 party was a strong one. It consisted of the two explorers; Mr. Grant Peterkin, topographer; Sarjan Singh, native plane-tableer; two reservist Sepoy orderlies; and the three Courmayeur guides—C. Savoie, Adolphe Rey and S. Quaizier—besides three porters from the same place.

The party, with sixty coolies and twenty sheep, left Goma on 2nd July to cross the Bilaphond La to the Siachen Glacier. Soon after leaving the Ali Bransa camp one of the Courmayeur porters, who was carrying the second of the only two ropes apparently owned by the expedition, fell into a deep crevasse. Unfortunately the other rope was with two of the guides ahead, and it was some time before they could be recalled. The unfortunate Chenoz was got out alive, but, notwithstanding every care, he died the same night. This is stated to be the only fatal accident in the explorers' seven

previous expeditions. Tawiz Peak (21,000 feet) was ascended soon after crossing the pass.

Six weeks were spent on the Siachen Glacier, of which five weeks (except three days) were at above 16,400 and mostly over 17,000 feet. This glacier is stated to be the longest in Asia—46 to 48 miles long—while its width for 25 miles varies from $2\frac{1}{2}$ to $2\frac{3}{4}$ miles. Constant difficulties of transport beset the explorers, while once for ten days fog held them captive on the Upper Siachen.

The glacier was explored in all directions, and a great event was the reaching of Indira Col (20,860 feet) on the ridge between the Siachen and the Gusherbrum Glaciers, the true watershed between the Indus and Turkestan. The Col was held to be impracticable on its N. side. The tongue of the Gusherbrum Glacier was visited by Younghusband on his memorable journey in 1889.

Even more interesting was a visit to the Col—the Turkestan La (19,209 feet)—at the head of the most northerly of the Eastern affluents. This pass is identified by Mrs. Bullock Workman—it is understood with the concurrence of Sir Francis Younghusband—as the Col at which he was aiming when in 1889 he ascended the Oprang Valley to the Urdok Glacier at its head in search of the reported Saltoro Pass. The Col is held to be practicable to a trained party.

The bold decision was made to force a passage over the W. boundary of the Siachen to the Kondus Glacier instead of returning over the ill-fated Bilaphond La—Karmading, in the Kondus Valley, being reached in due course. The Indus Valley was regained at Karmang by crossing the Ganse La from Kapalu in the Shyok Valley.

The book ends with a treatise by Dr. Workman on the physiological features of the glacier basins visited.

The book is well got up, superbly illustrated with photographs that are of great and permanent topographical interest. I have been intensely interested in reading it. It has revived all my old interest in the Himalaya, and has given me a month's delightful reading of books I had forgotten or had never read, until I seem to have *wasted* a good deal of energy and many years over hills like the Alps.

The map of the Siachen is a valuable contribution, although it of course leaves many gaps yet to fill in. We should have been glad to have their ideas on food and outfit resulting from their extended experiences.

The Workmans have written their names large in the annals of Himalayan exploration. They have criss-crossed the map of Kashmir from Srinagar to the Karakoram Pass, from Leh to Hunza. For their tenacity and enterprise one can have nothing but feelings of respect.

The Doctor appears to suffer at times under misquotation. He never fails to bring the culprit to the bar and to inflict a heavy sentence!

As to Mrs. Bullock Workman, her energy is boundless. Neither fatigue nor hardship, burning heat nor arctic cold, can daunt her, and she brings the same fighting spirit into the onslaughts which, almost to the point of monotony, she constantly makes on a well-known traveller whose own writings can never be said to be wanting in appreciation of his companions and of his predecessors. I am amused at her feeling that she suffers under 'sex-antagonism.' I have no recollection that we felt in the old days anything but good comradeship and admiration towards Miss Walker, Mrs. Burnaby, Mrs. Jackson, Miss Richardson and others.

And I do beg you, my dear lady, to consider well before you exhort your sex to 'begin to compete with men in this field' of exploration. They may take you too literally! It may be that they will eschew the company of any mere male in their journeys and will send to Mr. Sherring^{*} for some of those Amazons he tells us of. I am not sure that their cares will be lessened thereby, and do consider our loss!

J. P. FARRAR.

CORRESPONDENCE.

MONTE ROSA.

TO THE EDITOR OF THE ALPINE JOURNAL.

DEAR SIR,—The record of the early ascents in the October number is so exhaustive that it may as well be made perfectly accurate.

My companion (p. 318) was Charles Faiseau Lavanne, a Notary of Paris and plucky climber, for he was ill during the whole ascent. My second ascent was twenty-eight (not twenty-six) years later, of course with axes and ropes, neither of which were found in the party of 1856. I fancy I detect an atmosphere of polite incredulity when I assure present-day climbers of this, and that the first time I saw such appliances was in July 1863, in the first ascents of the Palü and the Sella (Engadine).¹ I have seen pictures, of an earlier date, of guides with short-handled hatchets in their belts, but never saw one used, and the combination of axe with Alpenstock was unknown, to me at any rate, in 1856.²

^{*} *Western Tibet and the British Borderland*, by C. A. Sherring. Arnold. 1906.

¹ Cf. *A.J.* i. 339 seq. 'The Glaciers of the Bernina,' by E. N. Buxton.

² [The use of the rope is mentioned by Simler in 1574, *vide Les Origines de L'Alpinisme*, p. cxlv (Mr. Coolidge's edition), and Mr.