

present to us in a compact manner all the high mountain ranges of the world. Nothing is more forcibly conveyed to the reader who turns over these pages than the fact that climbing outside the Alps has only just begun. Of the five hundred pages nearly half are devoted to the Alps, and all our explorers have not been able to proportionately balance the remainder—a remainder large enough to swallow the European systems very many times indeed. The two parts likewise differ as to the sentiment which they awaken in us; the feeling caused by the first is retrospective, whereas the second is decidedly suggestive in its effect. The one reminds, the other hints and promises; here we know, there we hope to know.

I think one may fitly call this compendium 'A Manual for the Study of Orology.' As such its subject can be said to be the teaching of the undergraduate in the art, and the provision of a 'repetitorium' for the professor. The absence of all bibliography goes far to justify the simile. Neither the beginner nor the expert could be well served in this respect within the scope of the book. I recommend it to the climber as a companion for his reflections on the past and his dreams of the future.

W. R. RICKMERS.

Beiträge zur Kenntnis der Spanischen Sierra Nevada. By J. J. Rein.
(In 'Abhandlungen der k. k. Geogr. Ges. Wien,' 1, 2, and 3.)

This is an excellent and interesting monograph on the highest chain of the Iberian Peninsula. Professor Rein draws a very scientific picture, topographical, meteorological, geological, botanical, &c. Even mountain-sickness is alluded to. The bibliographical appendix is quite a revelation.

W. R. RICKMERS.

Bibliotheca Geographica. By Otto Baschin. Vol. v. 1899.

All students of geographical literature ought to know this excellent list, which is published by the Gesellschaft für Erdkunde in Berlin.

W. R. RICKMERS.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held in the Hall of the Club on Tuesday evening, February 6, at 8.30, the Right Hon. James Bryce, *President*, in the chair.

Messrs. W. G. Adams, T. C. Fitzpatrick, G. L. Stewart, and G. W. Young were balloted for and elected members of the Club.

The HONORARY SECRETARY read a statement from the Committee with regard to the editorship of the second volume of Ball's 'Alpine Guide.' Mr. SCHUSTER afterwards made a few remarks.

Mr. W. RICKMER-RICKMERS read a paper on 'Lasistan and Bokhara,' which was illustrated by lantern slides.

Mr. WOOLLEY wished to express his pleasure in having listened to a paper which, with the excellent slides, had given him a very clear impression of the country passed through. He could not understand, from the barren appearance of most of it, how there was any subsistence for man or beast. He had not himself been among the Karchkhal Mountains, but had much admired them as seen from a distance. The views of them had reminded him of many parts of the Southern Caucasus, where the formation seemed to be much the same.

Mr. BAKER had been much interested in the paper, as, though he had been in the neighbourhood of the Karchkhal Mountains, he had not any idea that they were such fine mountains. The conglomerate of Bokhara reminded him of a somewhat similar formation in parts of Daghestan, which was also subject to very heavy rainfall.

The PRESIDENT asked Mr. Rickmers if he had heard anything of the remains of the once famous Roman fortress of Petra, which at one time had stood very long sieges. He would like to know its situation. Since Roman times no one had properly explored the country. Since the time of Justinian the inhabitants had relapsed from civilisation, and the district had been almost forgotten till the Congress of Berlin. He could bear witness to what had been said of the fine qualities of the Lazes, as he had seen many of them at Constantinople.

He had listened with much interest to what had been said about Bokhara. With regard to the burying of a saint on a mountain-top it was curious to note that at Montserrat, to which the Spaniards made pilgrimages in a similar manner to visit the mountain grave of a saint, they had built a railway to save themselves from the physical exertion which the indolent Oriental still submitted to. As the mountains visited by Mr. Rickmers lay not far from the Pamirs he hoped that some members of the Club would follow in his footsteps and from there explore the Pamirs. There did not seem to be any difficulty in regard to obtaining permission from the Russian authorities. He thought the Club was much indebted to Mr. Rickmers for his paper. He had told them that at one time he spent three days and nights in getting impressions, and he thought that the time had been well spent, as Mr. Rickmers had been able to convey to his hearers a very vivid impression of the country and its mountains.

Mr. RICKMERS, in reply, said that though the country looked barren there were in the valleys many patches of grass on which the shepherds feed their goats and sheep, and an occasional cow. They also grew a little wheat and Indian corn, but famine was very common. As to the fortress of Petra, he had not heard what its position was supposed to be. There were many caves, some in places which are now quite inaccessible to the ordinary traveller, but which had evidently been used by cliff-dwellers. In Bokhara

he had seen enough mountains to allay the fears of anyone who thought that the supply of mountains was likely to run short. He had made a rough calculation of the mountains of the world still available, and had stopped when he came to about 500,000. With regard to the Hazrat Sultan Mountains he did not think that it would be difficult to obtain permission to visit them. They lay two days' ride from Samarcand, and were really within easier reach than the mountains of the Caucasus. The conglomerate region of Bokhara lay on the borders of the Pamirs. From their highest summit as one looked W. one saw no snow mountains, but to the right there was only snow and ice. To the N. lay the Hissar Alps and others; to the N.E. the mountains near Garm, which are about 17,000 ft.; almost due E. lay the undulating Pamir snow-fields; to the S.E. the mountains of Roshan, and to the S. the mountains of Afghanistan. He hoped soon to see some English or Russian climbers groping about in that neighbourhood.

A hearty vote of thanks was accorded to Mr. Rickmers and the proceedings terminated.

A GENERAL MEETING was held in the Hall of the Club at 8.30 on Tuesday evening, March 6, 1900, the Right Hon. James Bryce, *President*, in the chair.

Mr. T. G. Longstaff was balloted for and elected a member of the Club.

The PRESIDENT announced the death of Dr. W. Marcet, one of the early members of the Club, whose name was remembered as one who took a great interest in experiments in regard to respiration carried on at great altitudes, as also in all other scientific questions connected with Alpine climbing.

Mr. H. J. MACKINDER read a paper entitled 'Mount Kenya, British East Africa,' which was illustrated with lantern slides.

Sir MARTIN CONWAY had been much interested in the description of the glaciers, the peculiar appearance of which was noticeable in the slides shown. They seemed to resemble the glaciers of the Bolivian Andes, which were extraordinarily dry tropical glaciers about 170 miles south of the equator. Though some were larger than the Gorner Glacier the stream issuing from them was never larger than one could step over; often there was no stream and no sign of any considerable flood at any time of the year. The surface of the ice looked like granite, and was perfectly dry; there was rarely a pool of water on it; it was also greyer in colour than any others he had seen. He had never seen any piece of ice fall, except once, over the edge of a cliff: the ice seemed singularly rigid. He had made no attempt to measure the rate of motion, but imagined it must have been very small. He concluded, therefore, that the characteristics observed by Mr. Mackinder belonged to tropical glaciers generally. He was not inclined to think the character of the ice dependent on a slight snowfall, for in Bolivia there was a very considerable snowfall. It was due rather to the great evaporation in equatorial latitudes, for round

Aconcagua the glaciers, though not so big as those in Bolivia, had large streams, caused by rapid melting, and the surface of the ice resembled that in Europe and the Himalayas. He would like to know if Mr. Mackinder had come across a formation known as *nieves penitentes*, formed out of beds of avalanche snow, melted by the sun into a series of spires of hard snow, and found only within certain latitudes. In South America they were never further S. than Maipu, nor much further N. than Mercedario. They were found on Orizaba and Popocatepetl, in Mexico, but he had never seen them in the Himalayas, nor heard of their being found there.

Mr. FRESHFIELD congratulated Mr. Mackinder on having discovered a region not within the President's experience. Volcanoes were usually an uninteresting type of mountain, but Kenya appeared to be a very old volcano, which had had time to assume a less monotonous shape than the usual dome. The investigation of the mountain had been very satisfactorily carried out by Mr. Mackinder.

Mr. SOLLY suggested that it might be most convenient to retain the native name of Kenya for the highest peak.

The PRESIDENT was sure that he was speaking on behalf of all in saying that they had listened with great interest to the account given by Mr. Mackinder. He regretted that Mr. E. N. Buxton, who knew the district, was unable to be present. He would like to know to what language the name belonged. He had been struck by the fact that traces of glaciation had been noticed at a point much below that to which the glaciers now reached, which was very important in connection with theories of the glacial epoch. The existence in the northern hemisphere of glaciers at a lower level than they now occurred was supposed to be due to the angle at which the earth was then inclined to the sun, but if the same had occurred at the equator this could not be the whole explanation. He had not heard of any such traces being found in other parts of Africa. The question of the angle of Mount Kenya was of interest. The angle of a volcano depended on the fluidity of the lava. He would like to know if all the rock was volcanic, and, if so, whether it was basalt. The vegetation was interesting, as the forms characteristic of dry countries were impressed on families very dissimilar to one another. The composites took a tree form—a character very remote from the same family in temperate climates. When Kilimanjaro was, at the special request of the German Emperor, included within German East Africa, it was a matter of regret to many; but now we found that in Kenya we had a mountain nearly as high, more striking in its physical features, more difficult of ascent, and possessing a flora quite as interesting as its German rival. He thought the Club had not for long listened to an account of more general interest, and he was sure that members would accord Mr. Mackinder a very hearty vote of thanks.

This was unanimously agreed to.

Mr. MACKINDER in replying said he had come across no *nieves penitentes*. Sir Martin Conway had found them chiefly in connection with fallen avalanches, but on Kenya he had seen no traces of avalanche. He would like to take this opportunity of expressing something of what he owed to his guides and to his other colleagues. Not for one moment during the whole of his journey had he regretted having taken César and Joseph. He would recommend César as an admirable guide in any similar expedition. Both César and Joseph were expert foresters, and were therefore of the greatest service even below the snow line. He could not speak too highly of the tempers and capacities of these two men. But he must not forget also to mention the quite indispensable aid which he had received from his other colleagues—above all from his friend Mr. C. B. Hausburg. They had contributed as greatly to the conquest of Kenya as had those who had climbed to the summit.

With regard to the naming of the mountain, Kenya and Kilimanjaro were the names of two great *massifs*, not of peaks. Kilimanjaro had two peaks, Kibo and Mawenzi. In the case of Kenya the central rock pyramid was only a small portion of the whole mountain, which was 50 miles across, and the name Kenya was that of the whole. Krapf got the name from the Swahilis, who got it from the Wakamba, and these again may have had it from the Masai, for there is a Masai word 'Arrokenya,' which means 'mist,' and this appears to be the only East African word like it. The natives in its neighbourhood do not know the name Kenya. The Masai call it Donyo Geri, and the Wakikuyu speak of it as Kilinyaga.

He had not found any evidence of glaciation below 9,000 ft. On the east side at 14,000 ft. there was magnificent glaciation. The whole Gorges valley was floored with a platform a mile broad, perfectly smooth, with numerous tarns scattered over it. In the dry beds of some of these tarns lay quantities of pumice, and he had little doubt that the small volcanoes along the eastern skirt of the mountain were in eruption after the glaciers had retreated from their maximum extension.

The general angle of the slope of Kenya was low. The dip of the lava beds was from 5° to 15° , the actual slope of parts of the mountain lower than that. The central pyramid, on the other hand, was precipitous.

The proceedings then terminated.

A GENERAL MEETING was held in the Hall of the Club on Tuesday evening, April 8, at 8.30, the Right Hon. James Bryce, *President*, in the chair.

Mr. W. L. Clarke was balloted for and elected a member of the Club.

The accounts for 1899 were presented by the HON. TREASURER, who said—

'The income for 1899 was 1,131*l.* 18*s.*, against 1,103*l.* 18*s.* 4*d.* for 1898, being an increase of 27*l.* 19*s.* 8*d.*, which was mainly made up of an increase (27*l.* 6*s.*) in subscriptions. This results from an increase of 35*l.* 14*s.* in 2-guinea subscriptions and a diminution of 8*l.* 8*s.* in 1-guinea subscriptions. There was a diminution of 4*l.* 4*s.* in entrance fees, against which must be set 5*l.* 5*s.* more obtained by letting the Hall in 1899 than in 1898. In this connection it may be mentioned that the letting of the Hall during 1900 has already brought in nearly 60*l.*, and we have undertaken to let it again for January 1901 on similar terms.

'The sale of the equipment report and index has been this year transferred from the "Income" side of the accounts to the "Alpine Journal" account, of which it really forms part; naturally during the last year of the old library catalogue its sale entirely ceased.

'Our expenditure last year amounted to 1,126*l.* 17*s.* 6*d.*, being an increase of 147*l.* 6*s.* 3*d.* over that of 1898.

'This is a large increase, and has resulted in a balance on the whole year's accounts of only 5*l.* 6*d.* It must be mainly put down to the increase of 53*l.* 6*s.* 10*d.*—from 69*l.* 19*s.* 11*d.* to 123*l.* 6*s.* 9*d.*—for exhibitions, and 96*l.* 7*s.* 11*d.*—from 59*l.* 19*s.* 1*d.* to 156*l.* 7*s.*—for the "Alpine Journal."

'When the Committee decided to hold the Equipment Exhibition, which they knew would be somewhat expensive, they were not aware of how large the increase in the cost of the "Journal" would be, or they might have postponed this exhibition until another year. I can only say I think the expenditure of 50*l.* was fully justified by the very excellent result which Mr. Baker put before you. We also gave our friends refreshments at our exhibitions on five occasions, which alone cost us 50*l.*

'Under the heading "Alpine Journal" there is a misprint. Nos. 139-142 should read Nos. 143-146.

'As to the increased cost of the "Alpine Journal" I have the following remarks to make:—

'In 1898 the "Journal" cost exceptionally little. We may take its average cost during the last ten years to be 84*l.* (omitting 1893, which, owing to special circumstances, was only 3*l.*), showing an increase over the average for 1899 of 72*l.* The cost of illustrations will be seen to have risen over 50*l.* The Committee gave the Editor permission for an increase of expenditure on illustrations up to 90*l.* last year, as it was felt very desirable for the credit of the Club that the "Journal" should be more fully illustrated. They hope that the Club as a whole will approve of their decision.

'The increase of 34*l.* 17*s.* 6*d.* in the cost of printing and publishing the "Journal" is almost entirely due to the increased number of pages—namely, 70—from 284 to 354. The cost of production in 1899 has thus been 88*l.* 2*s.* 3*d.* more, and the receipts from sales of

current and back numbers and advertisements have been 8*l.* 5*s.* 8*d.* less than in 1898. This diminution of sales has been entirely in the back numbers, as the sale of current numbers has increased.

'It will be noticed that in the accounts this year the sum of 20*l.* 15*s.* 1*d.* for sales of back numbers has been separated from the receipts for current numbers and advertisements, as it was felt that strictly their sale ought not to be set off against the cost of the "Journal" for the year, but they ought rather to be regarded as an asset of the Club. If this view be taken the cost of the "Journal" appears as 177*l.* 2*s.* 1*d.*, instead of 156*l.* 7*s.*

'The other item in which there is a large increase is furnishing. This sum of 108*l.* 10*s.* 10*d.* includes an item of 53*l.* for new book-cases, which the Hon. Librarian said he absolutely required. He has already half filled them, so that his requirement was evidently justifiable.

'Repairs and cleaning show a diminution of 55*l.* 4*s.* 1*d.* It will be remembered that last year this item amounted to 66*l.* 3*s.* 2*d.*, owing to the cost of outside painting (43*l.* 14*s.*) being included.

'The cost of refreshments at meetings, including spirits and mineral waters at meetings, has risen about 14*l.* This the members are responsible for rather than myself, and I presume I may conclude that our meetings are more popular. Firing, electric light, gas, stationery, postages, and petties all show a slight increase, due to the greater use that has been made of the Hall for our own exhibitions and for the occasion on which the Hall was let, and the increase in the correspondence of the Club.

'The Committee have decided this year that our exhibitions shall be restricted to a photographic exhibition in the spring and a picture exhibition in the winter, with the exception of an exhibition of Himalayan photographs which Mr. Freshfield intends to hold himself in June. These arrangements, we hope, will result in a decrease in the expenditure.

'It is to be hoped that the improvement in the "Alpine Journal" text and illustrations will result in an increased sale, which will somewhat recoup us for the extra expenditure we have incurred.

'As to the "Alpine Guide" Republication Fund, I referred to this matter in December. I need only add that the actual balance in hand has been increased since the date of printing these accounts by a sum of 48*l.* 18*s.* 9*d.* received from Messrs. Longmans for further sales of Vol. I. and General Introduction.'

The accounts were unanimously passed.

Dr. CLAUDE WILSON read a paper entitled 'The Dent d'Hérens from Breuil to Prarayé,' which was illustrated with lantern slides.

Mr. WICKS thought that at Breuil one could find as good climbing as at Chamonix, and away from the crowd of tourists.

Mr. CARR said that the risk of falling stones from the Grandes Murailles was very great.

Mr. KENNEDY drew attention to the great beauty of the scenery south of Breuil.

The PRESIDENT had always felt an interest in the Valpelline district since reading Forbes's brilliant description of the Col d'Hérens. Little had yet been done to provide accommodation in this district. Dr. Wilson's paper had shown the true spirit of the careful mountaineer in giving exact descriptions of climbs which at first view might not appear to yield the interest they were afterwards found to provide.

A hearty vote of thanks to Dr. Wilson brought the meeting to a close.