perhaps from the number of expeditions—sixteen—and the peaks actually climbed—fifteen—it is worthy of mention in the 'Journal.' Dr. Claude Wilson's instructive paper in the thirteenth volume of the 'Alpine Journal' should be read by all who intend to climb in the country. It is really hardly necessary now to point out the differences between climbs in the Alps and in Norway. Glaciers are on a much smaller scale, generally speaking, and are very easy: on the other hand, those glaciers which come down from the Justedalsbræ are immense, and in August utterly impracticable. Take, for instance, the three arms of the Austerdalsbræ, where you have a sheer icefall of at least 2,000 ft., often swept by ice avalanches and broken up into the wildest and most extravagant shapes. One gallant Norwegian, Herr Bing, fought his way up the terrific icefall of the Brixdalsbræ on July 5, 1895, and had many adventures on the ice in 1894, which are described in vol. xvii. of the 'Alpine Journal,' and he deserves every credit for such feats of daring and skill. Early starts are hardly necessary in Norway. If one's party can get off by 5 A.M. it is quite sufficient for most expeditions, and the lantern need hardly ever be used. It follows that the days will not be exceedingly long ones: 12 to 14 hours *ought* to be enough for anything, and thus one is often able to climb on successive days without over-fatigue or inconvenience. To any one who is fond of rock-climbing pure and simple, and who has never been to Norway, my advice would be to go and try a season there, especially if he is lucky enough to find the weather such as it was during last summer. The food is not quite all that one can desire, and rye bread becomes a weariness to the flesh after long experience of it; but the country is a beautiful one, and the inhabitants are still, in the remote districts, as kind, as hospitable, and as unspoilt as ever.

## ASCENTS IN MEXICO.

By A. R. HAMILTON.

The heights given below for the four Mexican volcanoes have been supplied by Mr. D. Freshfield as the most recent and accurate determinations known to him, and superseding those given by Stieler and Chisholm. They are extracted from a paper by Professor A. Heilprin in the 'Proceedings of the Academy of Natural Sciences of Philadelphia, 1890.' They were apparently unknown to the writer of these notes, whose opinion of the height of Ixtaccihuatl they confirm.—Editor.

### Popocatepetl (17,523 ft.).

On August 29, 1895, Dr. Scheller from Washington and I left Amecameca, with our guides and baggage, at 2 P.M. and rode up

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to the sulphur ranch, where it is usual to spend the night before ascending the mountain. This ranch is at an altitude of about 13,000 ft. A heavy rainstorm fell during the night and early morning, and it was not till 6 A.M., on the 30th, that we were able to start, feeling far from confident of success. We reached the snowline at 7.30, and sent back our ponies, which for the last half-hour we had been leading, the path being very bad and the animals very short of breath. After resting for half an hour, and substituting leather sandals and flannel bandages for our boots—a customary but absolutely unnecessary proceeding—we started on the final climb over soft snow and softer lava shale. It took us three hours' hard work to reach the lowest point of the crater, but the ascent was more laborious than usual, owing to fresh snow that had fallen during the night. Here we halted half an hour for breakfast, after which I left for the highest point with one of the guides, Dr. Scheller, who was feeling the effects of the rarified air, coming only a small portion of the way. There was a gale of wind blowing, and the new snow which drifted into our faces made progress rather difficult. My guide (?), who followed me at a distance of about 20 yards, evidently thought the whole proceeding to be a good example of an Englishman's idiocy. We reached the top about 12.15 in a more than usually objectionable 'tourmente' of snow, which hastened our return. The others were soon rejoined, and our descent through the snow and lava was so rapid that it was only half-past 2 when we re-entered the ranch. Amecameca was reached soon after 7.

## IXTACCIHUATL (16,960 ft.).

### *Unsuccessful Attempt.*

On September 1 Dr. Scheller and I, accompanied by a Mr. Paterson from Mexico City, left the latter place by the morning train for Amecameca, in the hope of reaching the summit of this rarely ascended peak. Unfortunately I placed reliance on some statements of one of the men who had accompanied us in the ascent of Popocatepetl, to the effect that he had been several times to the summit of Ixtaccihuatl, that the ascent was perfectly easy, and that there was no need whatever for rope or ice-axe. Leaving Amecameca about 1 P.M., we reached the cave at which we were to sleep, after a delightful ride and walk through forest land, just before dusk. Our three aneroids with singular unanimity gave the altitude of this cave as close on 13,500 ft.; a result which, judging from the time spent in the ascent, I should imagine to be very near the truth. The night was very cold and breezy, and, in spite of a copious use of firewood, we were not too comfortable, and were only too glad to start next morning at 5 A.M. An hour and a half's climb brought us to the snout of the glacier (15,000 ft. by two aneroids); and at this point my hero of Popocatepetl urged an immediate return, confessing that he had never gone further himself, and that he believed the mountain to be inaccessible. We

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however, advanced up the left lateral moraine of the glacier, which soon merged into a snow-slope. This latter became gradually steeper and more icy, till at about 9 o'clock we found it impossible to proceed without danger, and were reluctantly compelled to return, as a steep ice-slope about 50 yards wide effectually barred further progress to anyone unaided by an ice-axe. This was the more annoying, as the further slopes were unmistakably of snow and not of ice, as when Mr. Remsen Whitehouse made his successful ascent.* On my return to Mexico City I had two ice-axes made for me, and twice left the city to have another try at 'the White Lady'—once on the Amecameca and once on the Puebla side—but on both occasions ceaseless bad weather obliged me to abandon the expedition.

### Nevado de Toluca (14,954 ft.).

With Dr. Scheller again as my companion, I left the city of Mexico on September 5 for Toluca, which, after a run through some of the finest scenery in the world, we reached in time for supper. At this meal we were assured by one of our messmates that the ascent of the Nevado would probably be impossible, owing to the amount of snow upon it at that season of the year. We were somewhat astonished, therefore, when we started next morning, at 4.30, to find that the object of our quest presented the appearance of a bare rocky summit without, so far as we could see, a vestige of ice or snow upon it. The first part of our journey to Calimaya, a little village at the foot of the mountain, was accomplished in a four-horse springless wagon over the worst driving road I have ever seen. At Calimaya, after some delay, we procured horses, on which we rode to the tree limit, and then walked along a well-marked track to the crater, in which lie two sombre lakes. There is, according to the guide-books, a whirlpool in one of these lakes, but we saw no trace of it. Their height is about 13,500 ft. above sea-level; their depth, according to local tradition, unfathomable. We followed the edge of the crater towards the summit until we were forced to leave it by a high rock tower, which might, I think, have afforded some good rock climbing, but which we had not sufficient time to attend to, and skirted the obstacle on the inside of the crater. Here Dr. Scheller, who was much bothered by a rather large camera which he was carrying, decided to return to the lake. For the next quarter of an hour, until we again reached the crater's edge, the climbing was far from pleasant, the slope being very steep and the rocks large and most abominably loose. One which I just touched with my hand fell on my right leg and imprisoned my foot, and it was only by the aid of the Indian who accompanied us that I was able to free myself. It was most fortunate for me that I escaped without a broken leg, and as it was, the loss of all the skin off my shin and a nasty bruise to my ankle kept the memory of the Nevado de Toluca fresh in my

* *Alpine Journal*, vol. xv. pp. 268-271.

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thoughts for many subsequent days. It was after 2 P.M. when we reached the summit, over which we crossed, and descended by a well-marked couloir of soft shale which led almost to the shore of the lake. We reached the latter in 20 min., the ascent from that point having taken just over an hour and a half. After a hurried meal we left as fast as we could for Calimaya; but night overtook us before we got quite clear of the forest, and the ride in pitch darkness for the last hour was more exciting than pleasant. Calimaya was reached a little after 8, and as soon as the moon rose we started again on our 2½ hours' drive in the springless cart. Three consecutive thunderstorms enlivened our journey to Toluca, where we arrived at 11.15, too late to get anything better for dinner than bread and cheese. At 4.30 next morning we had to rise to catch the 5.15 train to Mexico, and on our arrival at the station we found a telegram announcing a breakdown on the line, on account of which our train would not leave till 8.30. It really went at 8.15, and we nearly missed it. Eventually about noon we reached Mexico City.

### Citlatepetl, or Orizaba (18,205 ft.).

On September 26 I found myself in Puebla, balked by continual bad weather from any chance of ascending Ixtaccihuatl. The regular autumnal rains had evidently set in in that district, and anything in the shape of mountain climbing was quite hopeless. As the time which I could spend in Mexico was rapidly drawing to a close I determined to run down to San Andres, on the off-chance of finding the weather more favourable there. On the next day, therefore, accompanied by a Mr. Crewe Read from the Bank at Puebla, and armed with a letter to Signor Couttolenc, on whose property Mount Orizaba stands, I reached San Andres early in the afternoon by the Mexican Railway. Thence we proceeded by a little tramway to Chalchicomula, the village nestling under the shadow of the mountain, where Signor Couttolenc resides. The latter gentleman received us with every kindness, and insisted on taking all the bother of procuring guides, provisions, &c., upon himself, while we went for a short stroll to stretch our legs and try to get a glimpse of the object of our visit. In this we were most fortunate, for just as we reached the summit of a small cross-crowned eminence above the village the clouds, which had been hanging round the mountain all day, suddenly parted and disclosed the snow-capped peak glowing in the evening sun. This good omen, coupled with the evident fact that the weather was much better here than in the west, sent us to our beds with far more hopeful spirits. Next morning about 10 o'clock we started—a goodly cavalcade. Two guides, a man to look after the horses, a boy for odd jobs, a well-laden mule with blankets and food for us, two donkeys—with food for the horses, guides, and themselves—Crewe Read and myself on spirited chargers, made up altogether a most imposing procession. We made for the gap between Orizaba and the Sierra Negra, which, after a long but most delightful ride,

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we reached about 8.30, and in another ½ hr. we found ourselves at the cave, where it is usual to pass the night, at a height of about 14,000 ft. Owing to a goodly supply of blankets we spent a most comfortable night, and, starting at daybreak, reached the snowline, after a monotonous climb over grass and débris at 6.45. We were now on the western ridge of the mountain, just east of the fantastic rocky pinnacles, which are such a marked feature in the view of it from the line above Cordoba. Hence to the summit we followed the west ridge and west face of the mountain, into which the former soon merged. The climb was steep in some places, but never difficult; a fact for which we were sufficiently grateful as we neared the crater. The sun was scorching and the air quite still, the view so perfectly magnificent that it was manifestly the height of folly not to admire it at frequent intervals. At 10.15 we reached the crater, where, to my joy, I found I was able to make a good breakfast, which Crewe Read was unfortunately unable to do. We left this resting place at 11.15, a slight breeze having sprung up, and my companion feeling a little better in consequence. The summit was reached at 11.30. It is surmounted by a heavy wooden cross, which on our arrival we found broken, the top lying on the sloping inside edge of the crater, some 20 ft. below the summit. We rescued it and bound it with ropes to the part which was still standing; and having duly deposited our names in a bottle at its foot, we commenced the descent at 12. Poor Crewe Read was now seized with a terribly severe attack of sickness, but as the weather was looking very threatening, and some flakes of snow were already beginning to fall, we could not halt, though for some time our progress was very slow. The last part of the descent was accomplished by a sitting glissade, the Indian guides having brought mats for the purpose, and we covered about 2,000 ft. in a very short space of time; but even this did not help my companion to recover. He was still so bad when we met the horses that, having wrapped him up well in blankets (it was now sleeting hard), and made one of the guides lead his horse, I ran on to the cave to make things comfortable against his arrival, getting wet through *en route*. Twenty minutes after me he arrived whistling, and saying he never felt better. We spent another comfortable night in the cave and returned to Chalchicomula next morning, where we were again entertained with the greatest kindness by Signor Couttolenc. He assured us that we were the first Englishmen to make the ascent, but I can hardly imagine that this is possible.

### Note on the Height of Ixtaccihuatl.

I feel sure that the generally accepted height for this mountain is too low. In all the guide-books it is put down as 16,060 ft. On the other hand, Mr. R. Whitehouse, one of the few men who have succeeded in ascending it, estimates it as 'about 18,500 ft., or 250 ft. lower than Popocatepetl.'* Now, if Mr. Whitehouse had

* *Alpine Journal*, vol. xv. p. 268. See Editor's Note, p. 456.

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known the height which is now ascribed to Popocatepetl, his estimate for Ixtaccihuatl—*i.e.* 250 ft. lower—would make the latter 17,550 ft. This I believe to be rather too high. Judging from the vegetation, the time spent in ascending, and the combined readings of three aneroids, I am sure that the cave in which we spent the night was at any rate not less than 13,500 ft. above the level of the sea. Thence next morning we ascended over fairly steep slopes for 1½ hr. before reaching the snout of the glacier, where the two aneroids we had with us gave our altitude as 15,000 ft. (I may mention in parenthesis that on my three other climbs my aneroid gave excellent results up to this height, if the guide-book altitudes for these other mountains are to be trusted.) From that point we mounted slowly for 1½ hr. more, and must have reached a height of quite 16,000 ft. before turning back. At that point we were certainly another 1,000 ft. below the summit. Seen from a point on Orizaba about 1,000 ft. below the top, whence the two mountains are practically equidistant, Popocatepetl appeared to overtop its neighbour by about one-third of its snowcap, say 800 ft. This would make the latter about 17,000 ft. Finally, when climbing Popocatepetl, our one and only glimpse of the White Lady was from a point just half an hour before we reached the lowest point of the crater, say 800 or 900 ft. below the summit. At that point we seemed about on a level with the summit of the sister mountain; we were certainly not above it. From these varied observations I feel convinced that Ixtaccihuatl is, if not 17,000 ft. high, close upon it.

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## THE NARRATIVE OF AN ASCENT OF MONT BLANC IN 1830.

By the Hon. E. BOOTLE WILBRAHAM.

*With an Introductory Note by Douglas W. Freshfield.*

The following account of an ascent of Mont Blanc in 1830 was found by my friend Mr. Comyns Tucker among the papers of a relative, and placed in my hands. It seemed to me that, although devoid of any particularly striking or stirring incidents, the manuscript deserved publication. In fact, the very favourable conditions under which the expedition was carried out gave it in my eyes a special interest for purposes of comparison with our contemporary experiences. After the manuscript had been put in type with the permission of the writer's son, General Wilbraham, the Honorary Librarian picked up a number of the 'Keepsake' for 1832 in which it is printed in full. The Editor does not think, however, that this previous publication need be any obstacle to its reproduction here. 'Keepsakes' of that date are not probably common in the libraries of our readers.

I will note briefly some of the points that strike me in Mr. Wilbraham's story. In the first place, what he says of the behaviour of the Chamoniards fully confirms all that was written (and, according to family tradition, De Saussure did not write nearly all he might have) as to the reluctance of the people of the valley to have anything to do with the mountain in early times. This reluctance on their part was, in truth, the chief obstacle De Saussure had to encounter both before and during his ascent. If, after one guide had made eight ascents, the

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