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Source: *Proceedings of the Royal Geographical Society and Monthly Record of Geography*,
New Monthly Series, Vol. 8, No. 4 (Apr., 1886), pp. 257-263

Published by: [Wiley](#) on behalf of [The Royal Geographical Society \(with the Institute of British Geographers\)](#)

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A Last Note on Mont Everest.

By General J. T. WALKER, C.B., late Surveyor-General of India.

IN his interesting and discursive *Further Notes on Mont Everest*, in the March number of our 'Proceedings,' Mr. Freshfield combats the conclusion in my Notes in the February number that Hermann Schlagintweit's Gaurisankar is not Mont Everest. He does so on the ground that my argument was founded on erroneous premises, which I had credited with greater accuracy than they deserved. I took them from the well-known volumes of the Schlagintweits' 'India and High Asia' (1861-62). Mr. Freshfield's belief that they are untrustworthy is, I rather think, mainly founded on certain extracts and tracings from Hermann's original field books and drawings which he has recently received from Dr. Emil Schlagintweit, Hermann himself being no longer alive.

I have examined these extracts and tracings, and I readily admit that if they represent the bulk of Hermann's original data, my premises must have been derived to a much greater extent from eye observation and conjectural estimates of bearing and distance than from measures with instruments of precision, and cannot be trustworthy. But, though I am fully aware that the Schlagintweits' work in India is, as Mr. Freshfield remarks, "far from infallible," I cannot bring myself to believe that all the display of panoramic profile and detail of geographical position, which has been published as the results of their work in the Nepalese Himalayas, rests on so small and disproportionate a basis. What I questioned was the accuracy of Hermann's identifications of far-distant snow peaks. I am of opinion that no man—not even a member of the Alpine Club—can claim infallibility in his identifications; but geometrical profiles and determinations of position are other matters, and they may be made with all desirable accuracy by men of very modest scientific attainments, working honestly and taking pains. Thus I accept Hermann's geometry as sufficient for my purposes, but I impugn some of his identifications. Mr. Freshfield, on the other hand, accepts the identifications and impugns the geometry.

He suggests that the original panoramic profiles were eye sketches "corrected by more or less accurate measurements obtained with the theodolite." It may be so; but then they would scarcely have been published as true geometrical profiles, with the horizontal and vertical angles drawn to the scale which is given immediately below each profile; they may have been drawn on the spot, every peak of the sierra being projected on the paper immediately after measurement with the theodolite; this would be less troublesome and more exact than recording all the observations and drawing the profiles afterwards; it would explain the paucity of entries in the field books; and it is in accordance with the following description of the general procedure (vol. ii. p. 263):—

"In drawing these panoramas, a unity of linear measure was made to corre-

spond to a constant value of angular measure . . . Our drawing paper was always prepared beforehand and mounted on cloth. It was then carried as a roll, and the size required cut off upon the spot. . . Not hours only but days were consumed in drawing and painting a panorama of large size."

The observations of the Nepalese snow peaks were principally taken from Kaulia and Falut, two stations fixed by H. Schlagintweit by observations to surrounding snow peaks previously fixed by the Great Trigonometrical Survey. As regards Kaulia Mr. Freshfield remarks:—

"No observations fixing the exact geographical position of Khatmandu (or consequently of Kaulia) have as yet been published. These calculations, therefore, in so far as they are based on distances, rest on an uncertain foundation. Captain Montgomerie . . . comments on H. Schlagintweit's failure to fix with precision the longitude of Khatmandu."

Here Mr. Freshfield has fallen into the very natural mistake of supposing there must be a connection between the position-determinations of Khatmandu and Kaulia; there ought to be, but there is not. An unsuccessful attempt was made to fix the position of Khatmandu by astronomical observations; * but, by some strange oversight, the much simpler and more accurate method of deducing the longitude from the triangulation connecting Kaulia and Khatmandu was neglected. This throws a doubt on the completeness of the work at Kaulia, of which I can find nothing in the published volumes. But, in the data supplied in manuscript to Mr. Freshfield, a magnetic bearing of Gaurisankar is given which, if correct, proves either that the position of Kaulia is erroneous, or that the peak pointed out to H. Schlagintweit as Gaurisankar was not Everest. †

Of the station Falut Mr. Freshfield says, very truly, that "in the first place we must know exactly where Falut is," and he gives in a foot-note H. Schlagintweit's and three other position-determinations, all differing from each other; but they differ necessarily, because they refer to different points. One of these is the well-known hill of Sandakphu, on the Darjiling-Nepal frontier, whence the summits of the Everest and Makalu mountains are seen well apart; Makalu, however, being very much the most conspicuous object. The Falut station is fully nine miles from Sandakphu, and is situated on a ridge (Falut) on which

* The observations and results are given in some detail. See Schlagintweit's vol. i. p. 197.

† The given magnetic bearing of Gaurisankar is	78° 16'
The magnetic declination, as contemporaneously determined at	
Khatmandu by himself is	2 36 E.

Thus the azimuth of Gaurisankar is 80° 52'

But if his position is correct, the azimuth of Everest is 82° 8' as stated in my first notes. The difference between these values is 1° 16', which is a larger error than is fairly attributable to the observations of bearing and declination.

The vertical angle measuring the apparent elevation of Gaurisankar at Kaulia would show conclusively whether Everest was observed, but unfortunately it is not given.

various points have been fixed by different persons. H. Schlagintweit says he lived in a tent near his station

“during three weeks, while occupied with physical observations and trigonometrical measurements of the snowy range. . . . As one of our principal panoramas is made from this peak, we think it advisable to give, exceptionally, some details of our trigonometrical measurements. . . . These values perfectly corroborate the distances introduced in the calculation, and, in consequence, the geographical co-ordinates we had obtained for Falut.”—Vol. ii. p. 291.

Assuming them to be fairly correct—and his latitude and longitude can scarcely be erroneous by half a mile at most—the summit of Makalu must have stood almost exactly in the line between him and the summit of Everest, and at an elevation of about 1700 feet above that line, thus altogether eclipsing Everest. There can be no doubt that the prominent mountain which is represented in his chromolithograph under the name of Everest or Gaurisankar, has been wrongly identified, and is in reality Makalu, not Everest.*

The explanation is simple and readily intelligible to any one who is not biased by previous misconceptions, such as would be caused by the chromolithograph,† or by the idea that because Everest is the highest known mountain in the world, therefore its appearance must be of surpassing grandeur. Everest stands in a circle of giant peaks which greatly dwarf its appearance from all sides. Makalu, the highest of these peaks, has Everest on one side and nothing at all on the other; it towers majestically over the valley of the Arun at the stupendous elevation of 27,800 feet, and is by far the most prominent of the Nepalese mountains which are seen from the frontiers of Sikkim and Darjiling. Colonel Tanner says that :—

“With the exception of the Kinchinjinga peak, Makalu is the finest yet fixed in

* He resided at Falut during May and June 1855 (vol. ii. p. 57). The data of the G. T. Survey, of which he was then in possession (ii. p. 291), must have been restricted to the snow-peaks and other points in the Sikkim and Darjiling districts; for the data for the Nepal peaks were not published until the end of the year, when they seem to have been communicated to him for the first time (ii. p. 297). Thus, when at Falut, he must have been ignorant of the two rival peaks, and naturally he made the mistake of supposing Makalu to be Everest, as every one else has done until quite recently.

† The chromo was hung up for many years on a wall of the Surveyor-General's offices in Calcutta, where I constantly saw it, fully believing it to be a representation of the great mountain. It was not until I was correcting the proofs of my first notes on Mont Everest, and came to the passage specifying four of the principal surrounding peaks, that it suddenly dawned upon me that the mountain represented might really be Makalu, and a few calculations satisfied me that it must be. Thus the introduction of this important fact into my notes was an afterthought, and was done somewhat hurriedly that the publication of the monthly ‘Proceedings’ might not be delayed. There is an accidental omission of some importance which I take the present opportunity to rectify. The passage that “Makalu, though 1200 feet lower, has the greater apparent elevation,” should be followed by “because of its closer proximity and the earth's curvature.” Of the 1700 feet by which its summit eclipses that of Everest from Falut, about 1100 are due to curvature (less refraction), and the remainder to proximity.

the Eastern Himalayas; it stands apart from the Everest group and exposes a great mass of snow towards the Sandakphu ridge. From the south, in the plains of Bhagalpur and Parneah, it is the most striking object in the panorama of snow."

On the other hand he says of Everest that its outline "is rather tame than otherwise." He has travelled far and wide through both the Eastern and the Western Himalayas; he has recently taken observations to Everest with a powerful theodolite from some of the best points of view accessible to Europeans; and he is probably more familiar with the varied aspects of Himalayan scenery than any other man living.

Many persons have visited Darjiling and the eastern frontier of Nepal, in order to get a sight of the highest point yet discovered on the face of the earth, and they have, almost without exception, believed that they saw it in the most prominent object in their field of view. Only those who were aware of the existence of the gigantic Makalu have succeeded in differentiating the two mountains, and rightly appreciating each. From Darjiling and some other points to the east they are both visible, in close juxtaposition, but everywhere Makalu appears to be higher than the more distant Everest, as is shown in three out of the four profile-sketches appended to Mr. Freshfield's Notes, the exception being taken from H. Schlagintweit.*

Their positions were first fixed by observations taken by officers of the G.T. Survey during the months of November and December 1849, and January 1850, which were not reduced rigorously until the following summer recess. The results were not published until 1854. Thus in 1848, when Sir Joseph Hooker was making his memorable excursions into Sikkim and Nepal, Everest had not been discovered. But Sir Joseph mentions "a white mountain of stupendous elevation, called by his native people Tsungau," which he says is "the only mountain of the first class between Gosaintan, north-east of Katmandu, and Kinchinjunga." From some of his points of view he must have seen both Everest and Makalu; but there can be no doubt that the mass of stupendous elevation which everywhere formed the most prominent object in his field of view was Makalu, not Everest.

* Mr. Freshfield specially comments on the great peak (29,002) standing clear of its rival (27,799) in the profile sketch from the Tiger Hill station; but he also notices that "in official maps there is hardly half a degree difference between the bearings of Makalu and the great peak from Tiger Hill." The explanation is that the peaks are represented in the profile much magnified, as they appear through a telescope, and not as they appear to the unaided eye. Any one may convince himself of this who remembers that half a degree is somewhat less than the sun's apparent diameter, and notices that there is room for a row of many suns between the two peaks in the profile.

I once ascended Tiger Hill with Captain Harman when on a short visit to Darjiling; he pointed out the higher peak to me as Everest; a year afterwards he discovered that there had been a general delusion about Everest, and that the most prominent peak in our field of view was the summit of another mountain; he subsequently published the profile sketch which Mr. Freshfield has reproduced. Very little but the peak of either mountain is visible from Tiger Hill, because of great intervening ranges.

General Tennant, who was a member of Sir Andrew Waugh's committee on Hodgson's Deodangha, has not seen Everest, but is fully cognisant of the facts relating to its discovery. He writes—

“I have seen in the R.G.S. ‘Proceedings’ the sketch of the Himalayan peaks in Nepal by Schlagintweit, from Falut. It needs no more to prove that the peak shown there (I don't say who marked it at 29,002) is not Mont Everest. I remember Waugh's dwelling strongly on the fact that Mont Everest was a rounded top, nowhere conspicuous, and by no one suspected of being exceptionally high. It was found to be so on comparing the results of observation. Rays from a large number of stations were found to pass through one point and, on computing the triangles, to belong to one summit, and afterwards the observations of elevation were found to agree in giving the same height.”

Thus it is clear that the discovery of the great pinnacle was not a revelation at first sight, but the result of slow and carefully elaborated processes of induction.

I now come to the main point at issue between Mr. Freshfield and myself:—Was Waugh justified in concluding that the pinnacle which he called Mont Everest had no known native name? We have seen that he convened a committee on the subject, and that they reported against the name Deodangha. But Mr. Freshfield objects to the committee, and challenges their conclusions. He remarks that Waugh

“Called—not on independent travellers such as Sir J. Hooker or Hermann Schlagintweit—. . . but on five of the most eminent surveyors on his staff, to reply to Mr. Hodgson. . . . None of these officers appears to have been at Khatmandu, and the weight of their remarks seems to me to be further diminished by the fact that they were summoned not as impartial jurymen, but as subordinates to support their chief.”

But we know that had Sir J. Hooker been interrogated, he would have replied that his native people called the mountain Tsungau; and had Hermann Schlagintweit been interrogated he would have replied that Rajah Jang Bahadur and several of his well-informed pandits had told him most positively that it was called Gaurisankar. This is surely not inconsistent with the verdict of the committee that it could not “be called Deodangha without risk of error,” and that there was no satisfactory proof what was the native name of the mountain, if it had one.

The talented authoress of ‘The Indian Alps, and how we crossed them’ (Longmans, 1876), gives an admirable sketch, in colours, of a great mountain, which she calls “Deodunga or Mount Everest,” as seen from a point on the Singhalila ridge a little to the north of Falut. She first saw it in the dawn of a morning when she had risen early to watch the daybreak. She says:—

“Beneath, at my very feet, lies a valley of desolation, hemmed in by a wall of micaceous and tempest-shattered peaks, and beetling crags, and above these an undulating sweep of crystal—the snowy range of Nepal—looking marvellously near, and with that terrible beauty of death-like repose which precedes sunrise, as it follows sunset. Whilst I stand alone, amidst this infinitude of Nature, the sun,

beginning to ascend on his triumphal car of crimson cloud, tips the highest pinnacle with an aerial glory. In an instant it dawned upon me that I was at last gazing on Mount Everest, the highest mountain in the world. I could not be mistaken. There it stood, like a stupendous barrier, shutting out the west."

A day or two afterwards, while journeying northwards and ascending still higher, the mountain was for a while hid from view "behind a jutting rock." She thus describes the effect produced on her attendants when it again burst into view—

"Suddenly there is a loud and simultaneous exclamation of 'Deodunga! Deodunga! Gaurisankar!' from my attendants, all apostrophising it in their different dialects, as the magnificent spires of Mount Everest again burst unexpectedly upon the view."

Mr. Freshfield, quoting the latter passage, asks "Is this fact, or feminine fiction?" somewhat ungallantly, and leaves his question unanswered. I reply, Fact, unhesitatingly. The lady had indeed mistaken Makalu for Everest, as almost every traveller before and after her has done; but that is no reason why she should have misunderstood the exclamations of her attendants, or put words into their mouths which they did not utter. That they shouted "Deodunga! Gaurisankar!" is an indication that they were probably invoking the gods of their respective mythologies, and not merely proclaiming the names of the glorious mountain for the information of the English lady. The mountain is doubtless associated in some way with their gods; but the association is certainly not restricted to it, but embraces a congeries of mountains, and may possibly extend over the entire Nepalese Himalaya between the Bhotia-Kosi and the Arun rivers. Dévadhúnga* and Gaurisankar would seem to be generic and not specific names, applying to a group, not to an individual. It is not at all improbable that the seven other names contributed by Hodgson and H. Schlagintweit to the literature of this subject, viz. Bhairab-than, Bhairab-langur, Nyanam, Chingopámari, Gualham, Tangla, Gualham-tangla, and Sir Joseph Hooker's Tsungau, and also Colonel Tanner's Makalu—which I have employed throughout, merely because more rhythmic than "No. XIII.," the Survey designation—may each and all be generic and not specific.

One word more. Mr. Freshfield "joins issue directly" on the designation Mont Everest, which he rightly calls "a curious hybrid." I defend the hybrid. The French word 'mont' means a single elevated mass, great or little, as distinguished from 'montagne,' which means a congeries of such masses, if we may accept the authority of Littré's *Dictionnaire de la Langue Française*, in which *montagne* = *suite de monts qui tiennent l'un à l'autre*; the English 'mount' is not equally distinctive, being not unfrequently employed as an abbreviation of 'mountain,' and a mountain may be many-headed. Waugh's object was to show that he was naming the great pinnacle itself, and not the masses of which it is the culminating point. He employed the prefix

* This is the strict spelling, not Deodangha or Deodunga.

which he thought most suitable for this purpose; and, with all due deference to literary purists, I submit that a hybrid which conveys a distinct and definite meaning is preferable to a purism which does not. A more valid objection is that 'mont' is so similar to 'mount' that an Englishman might not readily appreciate the distinction, and would be liable to adopt the English instead of the French prefix. I must confess that I myself have done so, and that I had long forgotten Waugh's prefix until it was recently brought to my recollection by General Tennant.

But the matter of present importance is the name itself, not the prefix. The great pinnacle may possibly be found hereafter to have a native appellation, applying to itself only, and to nothing else. I think that until then geographers cannot do better than follow the advice of the late eminent President of the Royal Geographical Society, Sir Roderick Murchison, and allow it to continue to bear the name of Everest.

*The Keeling Islands.**

Mr. E. W. BIRCH was deputed in August last year by the officer administering the Government of the Straits Settlements, to visit and report on the Cocos or Keeling Islands, which are now attached to the government of that colony. Mr. Birch's report forms a valuable addition to the information concerning this interesting group contained in Mr. H. O. Forbes's 'Naturalist's Wanderings in the Eastern Archipelago.' He embarked on board H.M.S. *Espoir*, Lieutenant and Commander Horace R. Adams, R.N., on August 10, 1885, and reached the islands on the 20th. The ship entered between Horsburgh Island and Direction Island, and anchored in the lagoon, in between five and six fathoms. Ships drawing not more than 20 feet of water can easily enter and occupy this anchorage. The islands present a much larger appearance, Mr. Birch states, than a cursory glance at the chart in Mr. Forbes's book would lead one to expect. The general appearance he describes in the words of the Rev. E. C. Spicer, a naturalist who obtained a passage in the *Espoir* from Batavia to the Islands.

"The group of coral islands, called the Cocos, form a roughly broken circle nearly approaching the horse-shoe shape common to coral atolls. The islands are of varying size, some being from one to seven miles in length, and others a few hundred yards, while the smallest are simply mounds of coral sand, crowned by a few coco-nut palms. They are connected under very shallow water by the hard cement rock on which they rest, and which is formed by the disintegration, through the blows of the heavy surf, of an enormous quantity of corals and marine shells. Outside the islands, and nearly all round the group, a natural barrier protects the lagoon, and seawards of this bar there is a sudden slope into very deep water. The appearance of the exterior and of the interior of the islands is strikingly different. Towards the ocean the heavy surf breaks over the jagged rocks and washes large pieces ashore. The interior shores are quietly washed by a clear green shallow sea, and the smooth sandy beach forms a pleasant contrast to the green vegetation above it. The circle of the islands bounds a lagoon for the most part of very shallow water, with pits of varying depth. The land is evidently rising, and at some distant time will form a circular island surrounded by a crater-like edge. The resemblance of the whole to a giant crater is very striking."

* For map *vide* 'Proceedings' 1879, p. 816.