

sportsman who had ever heard of *bharhal* in this locality. It offers a very favourable field for the mountaineer who is not merely actuated by the desire to break records.

I hope that it is evident from what I have written that my criticisms on the work of the G.T.S. are made in no captious spirit. The triangulation of the main features of the country is well known to be extremely accurate, and, considering all the circumstances under which the survey was made, the errors in the topographical details are surprisingly few in number.

Still, in the snowy ranges of Garhwal plenty of topographical exploration remains to be done, and the supply of peaks and passes is practically inexhaustible. The region is easy of access, practically and politically, and the cost of travelling is very moderate. To those who enjoy such pleasures as mountaineering in the Alps affords, I do not believe that there is any other region in the Himalaya which can offer so many inducements. Superb forests, wild mountain streams, cliffs and gorges on a colossal scale, glaciers of noble proportions, and virgin peaks of overwhelming grandeur and every degree of difficulty, combine with an unwonted human interest and unusual opportunities for the naturalist and sportsman to render this one of the most fascinating regions of the Himalaya to which the mountaineer can turn his thoughts.

A NOTE ON W. H. JOHNSON'S ASCENTS IN THE KUEN-LUEN.

By T. G. LONGSTAFF.

DR. WORKMAN'S paper printed in the January number of the 'Geographical Journal' (vol. xxxi. p. 26) contains a passage on the remarkable ascents of Mr. Johnson in the Kuen-Luen in 1864-65, which was, I think, inserted subsequent to the Meeting of the Society on November 25, 1907, and in consequence of my remarks (p. 41) during the discussion on that evening. Dr. Workman writes: 'If any camp which Mr. Johnson thought approached this altitude (22,000 ft.) was made, it must have been on the peak E 61, the only peak in the region exceeding 22,000 ft., which was measured in 1862 by a Survey *employé*, and its height given as 23,890 ft. This measurement was unchecked, and the details of it were so meagre that the Survey did not endorse it, expressly stating that, for reasons given, they considered it too high—as I have

been credibly informed, probably 1,000 ft. or more too high. Any camp, therefore, that Mr. Johnson may have made on this mountain, the altitude of which he would naturally estimate with reference to the assigned height of the mountain itself, would have to be lowered by the same amount, which would bring it in any case below the altitude of our recent highest camps.' This reference caused me to go again carefully into the matter, and to write a short letter on the subject in the March number of the 'Geographical Journal' (vol. xxxi. p. 345). But I venture to think that the question may be of sufficient interest to mountaineers to be treated at greater length in the 'Alpine Journal.'

Johnson's highest camp, as Mr. Freshfield pointed out in 1884,* was not made on the ascent of E 61. It was made in the previous year, 1864, on the mountains to the N. of the Shayok river which separated Johnson's party from the Yarkand road.† It was in 1865 that he ascended the disputed peak E 61, more than 100 miles to the E., in the course of his journey to Khotan (Ilchi).

The question of Johnson's high camp is of minor interest since Dr. and Mrs. Workman have themselves proved the possibility of camping at slightly lower altitudes, while in October last Messrs. Rubenson and Monrad-Aas camped for two nights at about 22,500 ft. on Kabru. But I propose to deal with the 'suppressed ascent' in greater detail.

The late Mr. W. H. Johnson was a member of the Indian Survey Staff, and between the years 1860 and 1865 was engaged under Colonel Montgomerie on the Kashmir Survey. Very weighty evidence must be required, therefore, to upset his identification of the actual points which he reached. It is one thing to say of a 'mere mountaineer' that he mistook his position or his peak, and quite another to suggest this of a professional surveyor. As a matter of fact, I believe no one has as yet questioned Johnson's identifications of the peaks he climbed in 1865 from the Kuen-Luen plains. An account of this region, with several references to Johnson, will be found in chap. xv. of Drew's 'Jummoo and Kashmir Territories.'

On reference to the 'Synopsis of Results, &c., G.T.S.' (vol. vii.), we find the opinion of Johnson's immediate superiors on his work clearly set forth. On p. 38 Colonel Robinson

* *A. J.* vol. xii. p. 58.

† *Synopsis of Results, &c., G.T.S.* vol. vii. p. 39, and *Proc. R.G.S.* 1875, vol. xix. p. 362.

dwells upon the great support that Colonel (then Captain) Montgomerie, in charge of the Kashmir Survey, received from the 'splendid staff of talented mountaineers, prominent amongst whom are Captains Godwin-Austen and Melville and Messrs. Civil Assistants W. Johnson,' &c. Again, on p. 39, Colonel Montgomerie writes: 'All things considered, I think Mr. Johnson deserves very great credit for completing the work near the Karakoram, and I hope his services will meet with favourable recognition.' In 1875 a gold watch was presented by the Council of the Royal Geographical Society to Johnson in acknowledgment of 'the services rendered to geography by his survey journey in 1865 across the Kiun Lun to Ilchi, and for the aid subsequently rendered to Sir Douglas Forsyth's expedition while resident at Ladakh.' In receiving this award on behalf of Johnson, Colonel Montgomerie bore witness to his skill and endurance as a mountaineer, and added that 'the number of trigonometrical stations which he established at over 20,000 ft. was quite extraordinary.' He also mentions the existence of a masonry platform built by Johnson's Survey party on the summit of a peak of 21,500 ft.* Graham refers † to another ascent by Johnson and Beverley of a peak of 21,072 ft., adding that owing to heavy snow and limited space they were unable to take observations from it; the inference being that they took instruments up with them as a matter of course.

The late General J. T. Walker, at that time Surveyor General at Calcutta, did not, however, share the appreciation of Johnson's services shown by his more immediate superiors, and later by the R.G.S.; on the contrary, Johnson was actually reprimanded for having exceeded his instructions in making his adventurous journey across the Kuen-Luen. Moreover, the official reference to Johnson's ascent of E 61 was deliberately suppressed. In a letter from General Walker to Mr. Freshfield, dated July 22, 1884, and from which I am permitted to quote, the following passage occurs: 'What I suppressed was not the height itself—for the sheets of the final volume had been printed off before it was brought to my notice—but Mr. Peyton's statement that Johnson had ascended to the great height of 23,890 ft.; he wished to insert this in the introductory account of the Triangulation, which was written some time after all the rest of the volume had been printed.' The *ascent* of this peak is not questioned,

* *Proc. R.G.S.* vol. xix. p. 362.

† *A. J.* vol. xii. p. 84.

but Johnson is blamed 'for not having determined the height with certainty when he had ample opportunity for doing so.' The question at issue is the *height* of E 61, and I cannot help thinking that it was only the report of the ascent of the mountain which led to the doubt in General Walker's mind about the height of this particular peak. He does not question the altitudes of the other two peaks ascended by Johnson in the course of this expedition.

Unfortunately, none but the briefest references to these ascents are extant. Thus, in the 'Journal of the R.G.S.' for 1867 (vol. xxxvii. p. 2) Johnson writes briefly: 'I ascended three peaks of the Kiun Lun range which had been previously fixed by the trigonometrical operations of the Survey, and which, having no names, are known by us as E 57, E 58, and E 61. The contrast between the view to the north and that to the south was very striking: on the one side there was little but plain; on the other, mountains and deep valleys.' Shortly after making these ascents Johnson crossed the Yangi Dawan (19,092 ft.) with a large caravan.

In the map which accompanies his paper in the 'J.R.G.S.' E 57 is marked 21,767 ft., E 58 21,971 ft., and E 61 has no altitude assigned to it. On p. 281 of the 'G.T.S. Synopsis of Results,' vol. vii., the height of E 61 (now K₅—*v. ibid.* p. 40, footnote) is given as 23,890 ft., the altitude being deduced from one ray only.

Referring again to the 'Synopsis of Results, &c., G.T.S.' (vol. vii. p. 40) we find the following note by Mr. J. B. N. Hennessey, who was then in charge of the Computing Office at Dehra Dun: 'That Mr. Johnson ascended these three peaks in 1865, or three years later, is evidenced by the following from his report (above mentioned), para. 4, where he states: "I ascended three peaks of the Kiunlun range . . . E 57, E 58, and E 61." Besides, his plane table is marked by dotted lines (indicating routes actually travelled over) leading up to Nos. 1, 2, and 5, while red circles on the summits show that he set up his table there; but no further allusion whatever is made to these ascents, which would have been arduous beyond all precedent, were the only available values of height above quoted accurate; and though all these heights were determined three years *prior* to the ascents, only the lesser heights, those of Nos. 1 and 2, are given on Mr. Johnson's plane table; while the greater, that of No. 5, is omitted. If the latter height has not been over-estimated, then, of the natives who accompanied Mr. Johnson, the man who carried his plane table must have climbed up to 24,000 ft. with about 18 lbs.

on his back, and this apparently without such exhaustion as would call for remark. The fact that the values in question were unchecked, coupled with the preceding considerations, lead to the conclusion that the above heights* have been estimated above their actual values; but in the absence of check observations no closer approximations can be definitely made.' It appears to me that this evidence is quite conclusive as to Johnson having ascended these peaks, including No. 5, and the details of them are really fuller than the Survey reports usually supply. As an instance of the very slight importance attached by the authorities in India to high ascents by their surveyors, I would recall the bare mention of Mr. I. S. Pocock's ascent to 22,040 ft. 'in the upper Mana Valley' in the Report of the G.T.S. for 1874-75 (pp. 13 and 47a) without any indication being given of the actual spot attained. But as this does not constitute a 'record' it has not been disputed.

The only question in dispute appears to be the altitude of the highest of these peaks, and the evidence seems now to favour the original determination. The latest information on the Kuen-Luen is contained in Dr. Aurel Stein's 'Sand-buried Ruins of Khotan' (1903), particularly in chapters xiii. and xiv., his description of what he saw from the Ulughat Dawan constituting one of the most fascinating episodes of scientific surveying ever recorded (p. 237 *et seq.*). He is rather severe (p. 214) on Johnson's hurried sketch-map of the northern slopes of these ranges, of which he had only had bird's-eye views, but bears out Johnson's general description of the country. In his own map, which also appeared in the 'Geographical Journal' for 1902 (vol. xx.), there appears a peak named Muztagh K₃, which is our old friend E 61, and its height is given as 23,890 ft. on the authority of the Indian Survey (p. 209). Whether this has been re-measured since the original survey is not definitely stated; but this height is now officially accepted, and will be found on the special map of Tibet published by the R.G.S. in 1906. E 57, 21,767 ft., is shown as (K₁) 21,750 ft.; E 58, 21,971 ft., as (K₂) 21,960 ft., and another peak on the same ridge, Cholpanglik Muztagh, as 23,310 ft., all taken from the latest Indian Survey tables; on the same ridge are three peaks of Stein's, Zokputaran, 22,640 ft., and two unnamed peaks of 22,590 ft.

* The positions and altitudes of E 57 and E 58 were fixed by several intersecting rays, and must be taken as substantially correct (*op. cit.* p. 281).—T. G. L.

and 23,070 ft. respectively. W. of the Yangi Dawan again are three more peaks of Stein's of over 23,000 ft. It is thus obvious that a good deal of work has been done since the first survey, and it appears that the height of Johnson's peak is officially accepted as 23,890 ft. Owing to our ignorance of the upper layers of the atmosphere, and in the absence of a series of reciprocal angles taken from very high elevations, we have at present no method of determining with absolute certainty the height of any high mountain; and as Dr. H. R. Mill has pointed out, the higher they are the greater is this uncertainty. Two equally well-qualified observers, Mr. Lightbody and Mons. Schrader, both using good instruments and the most approved methods, give the height of Aconcagua as 23,080 ft. and 22,812 ft. respectively. There are some remarks of Colonel Burrard's on this subject in the 'Geographical Journal' for January last (vol. xxxi. p. 103). But we must be content to accept present assigned values for altitude until we are able to get better ones. In this case it is obvious from Dr. Stein's account that the Kuen-Luen Muztagh, the ascent of which by Johnson does not appear to have been disputed, is the culminating point of a range containing six *measured* peaks of over 23,000 ft. Views of this peak and of the Kuen Luen range will be found in the forthcoming Extra Publication of the R.G.S. containing Dr. Stein's magnificent series of photo-theodolite panoramas.

If Johnson had not said that he had ascended this peak, in all probability its altitude would never have been questioned. If Kabru had not had an altitude of 24,015 ft. assigned to it, Graham's ascent would not have been seriously disputed. A similar train of thought threatens to assail the repose of Trisul, a most unoffending mountain which lays no claim to furnish any sort of 'record.' It was recently suggested to me that there must be something wrong with the height assigned to it, because it was quite impossible for any one to climb from 17,450 ft. to 23,406 ft. in a day. A less unreasonable argument against the authenticity of Johnson's ascent would be to suggest that E 61 was a printer's error for E 60 or E 59, or perhaps even for some totally different literal and numerical combination. But until the Kuen-Luen Muztagh is re-measured by some thoroughly competent observer, I see no way of avoiding the admission of Johnson's ascent in 1865 of a peak 23,890 ft. in height.