

4. From Mr. W. H. Johnson to Colonel J. T. Walker, dated 16.1.1867
5. From Mr. W. H. Johnson to Home Department of Government of India, dated 23.1.1867
6. Proceedings of Government of India, Home Department, 24.1.1867.
7. From Colonel J. T. Walker to Home Secretary, Government of India, dated 24.1.1867
8. From Colonel J. T. Walker to Home Secretary, Government of India, No. 12/63, dated 11.2.1867
9. Government of India (Home Secretary) to Colonel Walker, No. 2142, dated 1.3.1867

JOHNSON'S MAP AND THE TOPOGRAPHY OF THE K'UN-LUN,
SOUTH OF KHOTAN

A SUPPLEMENTARY NOTE BY SIR AUREL STEIN.

MAJOR KENNETH MASON'S lucid and interesting paper on 'Johnson's "Suppressed Ascent" of E 61' throws important light on questions which had puzzled me greatly since I first approached that highest and very prominent peak in the K'un-lun range S. of Khotan. I feel hence very grateful for his courtesy in having allowed me to see it in manuscript. The following remarks are intended to explain the view expressed by me in the conversation to which he refers, and to state briefly the reasons upon which it was based.

The surveys which in the autumn of 1900 I was able to effect in that difficult mountain region with the help of Rai Sahib Ram Singh, of the Survey of India, and which have been fully described in the Personal Narrative of my first Central-Asian expedition,¹ had revealed very striking discrepancies between its actual topography and that represented in the 'Map illustrating the routes taken by Mr. Johnson, Civil Assistant, G.T. Survey, in travelling from Leh to Khotan and back in 1865.' A comparison of this map with the record of our surveys, as shown by the map in my Personal Narrative of that journey, or on a more adequate scale by the map published with my Detailed Report on it,² will suffice to illustrate these divergencies at a glance.³

¹ See *Sand-buried Ruins of Khotan* (second edition, 1904), pp. 191-225.

² See *Ancient Khotan* (Clarendon Press, Oxford, 1908), vol. ii., scale 8 miles to 1 inch.

³ It will be enough to call attention, e.g., to the representation

The puzzle presented by them was not solved by the surveys resumed in 1906, on my second expedition, when with the same old travel companion I succeeded in exploring some of the main tributaries of the Yurung-kāsh (or Khotan) River W of Peak E 61, or 'Muz-tāgh,' 'the Ice Mountain,' as it is locally known, to their high glacier sources.⁴ Nor was a clue to those manifest errors of the old map furnished by the trying surveys which two years later enabled me, with the devoted help of Rai Bahādūr Lāl Singh, of the Survey of India, to explore the high ice-clad ranges around the main headwaters of the river far away to the E., and ultimately to re-trace Johnson's route from the utterly barren high plateaus in the extreme N W of Tibet to the close vicinity of his 'Yangi-dawān.'⁵ Evidence, topographical and quasi-archæological at the same time, allowed me with certainty to fix the position of this high glacier pass by which Johnson had effected his adventurous crossing of the main K'un-lun range, even though the unfortunate mountain accident, which cost me the toes of my right foot through frost-bite, prevented my actual ascent to it.

The ease with which Johnson's route S. of the range, as shown in his map, could be recognised here, on the ground surveyed by us, seemed to make it particularly difficult to account for the great divergencies which, as noted above, his map showed from the real topography of the mountain area to the N. And the fact of Johnson having been a trained surveyor of great experience⁶ added still further to the enigma

of the Yurung-kāsh River course, which in Johnson's route map is made to originate close to the triangulated Peak E 57. In reality its line, marked by a deep-cut valley which passes to the S. of Peak E 61, or 'Muz-tāgh,' and which is easily sighted from any high point (as my photo-theodolite panoramas brought back from the surveys of 1901, and published in my *Mountain Panoramas from the Pamirs and Kwen Lun*, Royal Geographical Society, 1908, clearly show), extends some 120 miles to the E.S.E. of that point. Still more puzzling it was at the time to find that the Yurung-kāsh River, which passes in a deep gorge due N of Karanghu-tāgh, the southernmost inhabited place, appears in that map as flowing past the latter to the S.W., i.e., up the valley of the Kāsh River, a tributary joining the Yurung-kāsh just below Karanghu-tāgh.

⁴ Cf. Stein, *Ruins of Desert Cathay*, vol. i. pp. 179-211.

⁵ See *Ruins of Desert Cathay*, vol. ii. pp. 443-480.

⁶ Johnson's experience was almost entirely as a triangulator. He does not appear to have done much plane-tableing prior to 1864.

presented. What, however, in view of the knowledge gained through our repeated surveys, I could feel quite sure of, was that Johnson's assumed climb of E 61 had no foundation in fact. I did not hesitate to express this conviction to Major Mason, as I had expressed it long before to more than one member of the Alpine Club. But without documentary evidence regarding the character of Johnson's map, the matter did not seem to me ripe for critical discussion in print.

The evidence brought to light by Major Mason's search among the original records of the Great Trigonometrical Survey has fully confirmed that conviction, and I feel all the more gratified by the result of his investigation, because it furnishes also a satisfactory clue in general to the puzzles, already referred to, which the map intended to illustrate Johnson's routes has presented. Not until his original plane-table record is traced will it be possible to see clearly to what extent the strange defects of the map may be attributed to 'adjustment' consequent upon the wrongly plotted position of E 61. But the reasons which had led me to the conviction of this peak not having been climbed are wholly independent of this question, and as I am, I believe, the only European traveller who has visited that mountain region since Johnson, I may be allowed to record them here briefly.

As related in my 'Desert Cathay' we struck, on September 17, 1908, unmistakable traces of Johnson's route from the side of Ladāk a short distance below the pass, which his map shows under the name of *Katāi-diwān* (i.e. *Khītai-dawān*, 'the pass of the Chinese'?). On the next day we followed the old track, marked with abundant cairns, by which Hājī Habibullah, the rebel ruler of Khotan during 1863-66 and Johnson's host, had endeavoured to open up a direct route across the K'un-lun to Leh and India, down into the valley of a small tributary of the Kara-kāsh River.⁸ The streams which feed it come down straight from the snowy main range of the K'un-lun northward, and in two conspicuous peaks rising above its crest line it was easy to recognise the two triangulated points E 57 and E 58,

⁷ See *Ruins of Desert Cathay*, vol. ii. p. 468 *sqq.*

⁸ For all topographical details referred to, see Sheet No. 22 of the maps recording our surveys of 1906-08, on the scale of 4 miles to 1 inch, as now published in vol. v of *Serindia*, the detailed report of my second expedition (Clarendon Press, 1921), or Sheet No. 10 of the new atlas of 'Chinese Turkistan and Kansu from surveys made during the explorations of Sir Aurel Stein, 1900-01, 1906-08, 1913-15,' *Survey of India*, scale 1 500,000.

situated within about seven miles of each other, to which Johnson's report refers.

In par. 2 of it he declares to have struck 'one of the principal affluents of the Kārā-kāsh river' at a point 6 miles W. of E 57 and it is from here that he despatched the Khotan messenger whom he had brought away from Leh, with a letter to Habibullah.⁹ He had to wait here twenty days for the ruler's reply and the necessary help from Karanghu-tāgh, on the other side of the range to reach him. A reference to Johnson's map and the few details recorded in his 'Itinerary from Leh to Khotan,' as attached to his report, leaves no possible doubt about the place of his prolonged halt being identical with the spot, marked by some stone-huts and still known to the Kirghiz on the Kara-kāsh River by the name of Hājī-langar, 'the rest-house of the Hājī, i.e. Habibullah,' where my own camp was pitched on September 17, 1908. It is the first spot where a modest amount of grazing can be found after crossing those inhospitable high Tibetan plateaus, and the experiences recorded in my Personal Narrative make it easy to realise how glad Johnson, too, must have been to reach it.

'While waiting at the Kārākāsh,' so his report tells us, 'for a reply to my letter, I employed myself in visiting several peaks, in order to fix sufficient points on the plane-table, for extending the work across the K'un Lun range, and in taking observations for determining the rate of my watch.'¹⁰ A perusal of the report makes it perfectly certain that the ascents mentioned in the earlier passage quoted by Major Mason, of 'three peaks of the K'un 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,' could only have been made from the camp at Hājī-langar. Now, ascents to the first two triangulated peaks were, judging from the nature of the ground as seen by us and the comparatively short distances, well practicable from this point. The elevations in question, 21,750 and 21,960 ft. respectively,¹¹ presented no exceptional difficulties to a hardy and experienced mountaineer, as Johnson had proved himself by plenty of

⁹ Cf. par. 8 of Johnson's report, in his letter No. 162, dated April 22, 1866, to Colonel J. T. Walker, Superintendent, G.T. Survey.

¹⁰ See par. 9 of letter above quoted.

¹¹ According to the revised values furnished by the latest Synoptical Tables of the Trigonometrical Survey

plucky climbs before, but an ascent from there to E 61 or 'Muz-tāgh' was an absolute physical impossibility.

A look at the maps derived from our surveys suffices to show this. In order to reach even the vicinity of that great peak, conspicuous above all of the Khotan K'un-lun by its mass and grand isolation, Johnson would have been obliged to cross the southern main range of the K'un-lun, to descend the extremely confined, and in their lower portions, according to my information, wholly impassable, gorges of the Chomsha Valley, to cross the Yurung-kāsh River, which during the summer months is utterly unfordable, and then to make a climb of some 14,000 ft. up the great peak on the side where its slopes are the most precipitous. And all this before the local help from the Khotan side, without which even the crossing of the Yangi-dawān would have been impossible for however small a party, could have reached him.

In view of what Major Mason's investigation has shown about the acknowledged mistake in Johnson's plotting of his third peak, obviously E 61, it is now unnecessary to carry this demonstration further. But it may be well to point out that when the advent of emissaries from Hāji Habībullah, no doubt with plenty of hillmen to help, had enabled Johnson to set out across the mountains for Khotan on September 6, 1865, it took him fully five days' hard travel across two difficult glacier passes, and through perhaps even more trying gorges, to reach Karanghu-tāgh, the first permanent settlement in these forbidding mountains.

Where the third peak which Johnson climbed, in the belief caused by erroneous plotting that it was E 61, actually lay is a question which I do not think capable of being argued at present with any chance of critical profit. If the incorrect plotting affected both latitude and longitude of this third triangulated point, we have, of course, nothing whatever to give a clue. If the error was only in latitude, as the remark in Johnson's letter of January 16, 1867, *seems* to imply (it does not exclude one in longitude too), and the longitude was right, I find myself faced by a serious topographical difficulty.

Though the stretch of the main range due S. of Muz-tāgh (E 61) was sighted by us only in 1908, and from a considerable distance to the E., there can be no doubt about its rising here too to ice-clad peaks of considerable height, as suggested by the triangulated heights of Zokputaran Peak (22,639 ft.) to the W., and E 62 (21,250 ft.) to the E. of the meridian of 'Muz-tāgh.' But my knowledge of the ground on the S. of

this part of the range makes it appear to me highly improbable that Johnson could have made an ascent so far away from his camp at Hāji-langar. The succession of elevated plateaus south-westwards over which alone his approach to the range due S. of Muz-tāgh could have lain, proved on my journey in the opposite direction to be absolutely sterile wastes of bare gravel or salt. At least six marches would have been needed to bring Johnson's already hard-trying party to a point from which a peak in that meridian could be climbed. Judging from the serious losses my own transport suffered on this ground, where even drinkable water was very difficult to obtain, I do not think Johnson could have undertaken this trip, involving about a fortnight's trying work. But it is perhaps needless to say more on this point, since neither his itinerary nor his map show any trace of such an eastward excursion.

Considering the place in which these notes are likely to find a record, I may be allowed to add a few brief remarks of a more general character. In the first place, I wish to offer a tribute of respect to the feat of pluck and perseverance which Johnson performed in making his way to Khotan across ground of such exceptional difficulty as the K'un-lun S. of Khotan. Whatever may be thought of his mapping there or on the ground to the N., there can be no question of the journey having been a pioneer enterprise of true merit, deserving of a better sequel. That the results failed to realise the promise which such an achievement would have justified, seems tragic in more than one sense.

My other desire is to call attention, however briefly, to the special interest which the orography of the K'un-lun presents, just in the portion where Johnson succeeded in crossing it. Though my two attempts at tracing his route have in the inverse direction failed, largely owing to tenacious local obstruction, our surveys have furnished adequate evidence of the fact that close to the 'Yangi-dawān' there lies the point where two main ranges of the K'un-lun diverge. As Map II. reproduced in my 'Desert Cathay' clearly illustrates, we have there, apparently in the peak for which our triangulation of 1900 showed a height of 23,071 ft., the meeting point of the high snowy range overlooking the Yurung-kāsh headwaters from the S. with the almost equally imposing mountain rampart which extends to the N. of the latter and forms part of the mighty rim enclosing the Tārīm Basin. Muz-tāgh, or E 61, is the culminating point of this northernmost K'un-lun chain.

It is an orographically very notable fact, that immediately on the W flank of that dominating mountain *massif* the Yurung-kāsh has cut its way through the range in a succession of formidable gorges, which I was able only to approach in 1900 and which still await their explorer.

Muz-tāgh, I trust, will be climbed some day, and the grand panorama which its top is bound to offer will prove hard to beat anywhere N of the Himalaya. But the ascent will lie from the broad plateaus on the N.—and remembering my experiences with the wily hillmen of Karanghu-tāgh, mostly exiled criminals and their stock, I much doubt whether it will be accomplished without the help of sturdy mountaineers from the far-away valleys of the Indus or Oxus.

RECOLLECTIONS OF THE ENGADINE IN 1872.

ASCENTS OF PIZ BERNINA, PIZ MORTERATSCH, PIZ ROSEG. TOUR OF MONTE DELLA DISGRAZIA, AND ASCENT OF PIZZO DI VERONA BY A NEW ROUTE AND ALONE.

BY SIR J. H. RAMSAY, BT., OF BAMFF, LL.D., LITT.D.

PLEASANT were the times at Pontresina in 1872; and pleasant was the company to be found at the Krone Hotel. Almost all the folk were English, but there was a German contingent in the house. We had not been at war with Germany in those days; but we differed from the Germans, among other things, in the important question of the ventilation of the *salle-à-manger*. But our majority was overwhelming, and we could carry matters our own way. In fact, one evening I felt rather ashamed at finding the only real public room in the house usurped as a committee room, for the discussion of a matter concerning the English, and the English alone. These lordly ways render our countrymen unpopular on the Continent.

The chaplain—I am sorry that I have not recorded his name—was a sociable man, with musical tastes, and contributed to the genial atmosphere; he was very successful in arranging vocal entertainments by the ladies in the evenings, especially on Sundays.

My first expedition was a rush up Piz Corvatsch, along with that charming man, Sidney Harrison, brother of Frederic Harrison, the well-known writer. I had also with me my old friend, A. C. Vesey, of Christchurch, Oxford, and the