

After triangulating a number of high peaks to the north of the river, Rām Singh surveyed its deep-cut gorge for some 40 miles. He took considerable risks in moving along very precipitous slopes and in repeated crossings of the river. Further progress was barred by the swollen state of the river, notwithstanding the early season, and the surveyor was obliged to turn northward. In accordance with my instructions he ascended the important tributary of Pas-robāt to its head and after crossing the Merki pass, nearly 15,000 feet high, endeavoured to follow down the Merki and Kara-tāsh rivers which drain the eastern slopes of the Muz-tāgh-atā massif.² Again he was thwarted by the flood from the melting snows which renders the Kara-tāsh valley quite impassable during the summer months. He was now forced north-eastwards across the Ghijak pass and gained the caravan route from Sarikol to Kāshgar above Ighiz-yār. The Kara-tāsh valley thus remained unexplored until I descended it in September, 1913. Nevertheless Rām Singh was able to survey its debouchure into the plains west of Yangi-hissār before he rejoined me at the latter place towards the close of June.

In order to gain time for urgent preparations at Kāshgar, I had taken the main caravan route from Tāsh-kurghān across the Chichiklik plateau and *via* Chihil-gumbaz and Ighiz-yār. This having already been surveyed on the Forsyth Mission of 1873, I felt little regret that the six forced marches of nearly 180 miles left no time for plane-table work.³ At Kāshgar the organization of my caravan which was to serve for over two years' explorations, was completed within a fortnight with the ever effective assistance of Mr. (now Sir George) Macartney, the British Consul General.

Then I was free to set out for the initial portion of those explorations in the south of the Tārīm basin. At Kizil on the road to Yārkanḍ I detached Rām Singh to survey the route which crosses the easternmost offshoots of the Muz-tāgh-atā range and which joins the caravan route from Chihil-gumbaz to Yārkanḍ below Ārpalik and the Kizil-dawān.⁴ Re-united at Yārkanḍ, we proceeded at the beginning of July across the fertile tract between the Yārkanḍ and Tiznaf rivers north-westwards to the edge of the great drift-sand desert where an old site called for examination, and then reached Karghalik by a new route along a previously unsurveyed portion of the Tiznaf river in the plain.⁵

From Karghalik we marched to Kōk-yār, a small oasis in the foothills to the south, where during a halt of over two weeks I was kept busy with a variety of scientific tasks. From there I sent Rām Singh into the mountains to the south-east to map portions of the outer K'un-lun towards Khotan which were then unexplored or imperfectly surveyed. The success with which in the course of a month he effected the tasks I had indicated deserves all the more notice in view of the considerable hardships and risks encountered. He first approached the snowy range which forms the water-parting towards the uppermost Tiznaf and Yārkanḍ river courses by ascending the streams that carry fertility lower down to the flourishing little oases of Yül-arik and Ushak-bāshi.⁶ The attempt to cross the Karlik-dawān by which I had wished the surveyor to reach the unexplored ground at the head of the Toghra-su, a tributary of the Kara-kāsh river,⁷ had to be abandoned owing to the depth of snow still covering the pass. This failure, however, was compensated by the advantages which the subsequent crossing of a succession

² See Sheet No. 2. D. 4.

³ See *Desert Cathay*, i. pp. 97 sqq. A plane-table survey of the route from Tāsh-kurghān to Kāshgar was carried out in 1913 on my third journey, under my personal supervision as far as Toile-bulun and beyond by Miān Afrāz-gul.

⁴ See Sheet No. 5. A. 4.

⁵ See Sheet No. 5. C. 4, D. 3; *Desert Cathay*, i. pp. 134 sqq.

⁶ See Sheet No. 6. C. 2, 3. It deserves to be noted that Rām Singh reported the presence of conifer forest at two points in these valleys, above the

little cultivated patch of Tatligh and to the south-east of the Tōpa-dawān that divides them, in both places at elevations of about 10,000 feet. His observation is of distinct interest as I know nowhere else of real forest growth in the western K'un-lun. Nor did I meet any eastwards until the Central Nan-shan was reached to the south of Su-chou and Kan-chou. Do these conifers in the above valleys represent the last remnant of forest growth once more favoured by climatic conditions in this region?

⁷ See Sheet No. 6. D. 3.