

an unbroken length of forty miles along the foot of the outer hills of the Kun-lun range, and is at all times assured ample irrigation from the Yurung-kāsh and Kara-kāsh rivers which debouch into the plain immediately above it. These two rivers are the largest of those which carry the drainage of the main range of the Kun-lun northward into the Tārīm Basin. Some idea of the size of the mountain area drained by them can be formed from the fact that the source of the Yurung-kāsh, as ascertained by M. Dutruel de Rhins and Captain Deasy on the high Ak-sai-Chin plateau south-eastwards, is separated by a direct distance of over two hundred miles from the headwaters of the westernmost affluent of the Kara-kāsh, north of the Karakorum Pass.

Explora-
tions in
Kun-lun
Mts. south
of Khotan.

Much of the orography of the great ranges which extend between these extreme points still awaits detailed exploration; but the expedition which I was able to undertake from Khotan southwards into the forbidding mountain region of Karanghu-tāgh and towards the headwaters of the Yurung-kāsh revealed the fact that the crest line of the magnificent snowy range, which the latter river drains first from the south and then from the north for a distance of one hundred and fifty miles, maintains an average elevation of close on twenty thousand feet, except at the point where the Yurung-kāsh has forced its passage through in a stupendous gorge behind the great Muz-tāgh Peak (23,890 feet above the sea)⁴. The map embodying the cartographical results of that expedition, and the panoramic views obtained by me with the photo-theodolite and reproduced in a separate publication of the Royal Geographical Society, will best help to realize the extent of the glaciers and slopes covered with permanent snow which feed the Yurung-kāsh and its tributaries. The Kara-kāsh river drains a great portion of the same main Kun-lun range from the south, and in addition the vast uplands known as the Ling-zi Thang and Soda plains which divide the Kun-lun from the Karakorum section of the Himālayan system. The Kun-lun range, near the point where the Kara-kāsh, after a long sweep north-westwards, breaks through it in a hitherto unexplored defile, rises, as our survey showed, to peaks well over 23,000 feet. The course of the Kara-kāsh, from its sources down to where it enters the plain near the Khotan village of Ujāt⁵, is certainly longer than that of the Yurung-kāsh, and the belief of the people of Khotan in the greater volume of water carried by it during the summer is probably well founded⁶.

Rivers of
Khotan.

Loess soil of
Khotan.

The two rivers of Khotan bring down a vast volume of water during the months when the sun is powerful enough to melt the snow and ice of the high ranges. This explains why they alone, after their junction some eighty miles to the north-north-east of Khotan town, are able to penetrate through the whole breadth of the Taklamakān and to join the Tārīm, while all other rivers that enter the desert from the south get lost amongst its sand dunes. To these two great rivers the oasis of Khotan owes not only its ample irrigation but also, as geological evidence conclusively shows, the fertility of its soil and, in fact, its very existence. Prof. Lóczy's analysis of the soil specimens brought back by me, in conjunction with my observations on the spot, proves that the loess of the oasis is of distinctly riverine type, composed of that fine sand and mud which the rivers of Khotan carry down annually in enormous quantities from the disintegrated slopes of the mountains. Most of the loess must be ascribed to subaerial deposit, the lighter constituents of this alluvium having been carried away by the winds from the immediate vicinity of the river-beds, and subsequently retained wherever the ground possessed

⁴ For the survey results of this expedition compare my map, and for a description of the region explored chapters XIII, XIV of *Ruins of Khotan* (pp. 206-43).

⁵ See below, chap. VIII. sec. i.

⁶ Compare Hedin, *Reisen in Z.-A.*, p. 28.