

wholly composed of ice, crumbling rocks, and dusty detritus, will be seen on comparing them with the extensive photo-theodolite panoramas which I brought back from that trying region. Fig. 21 shows the ice-covered main range above the valleys of Nissa and Karanghu-tāgh as seen from a ridge above the Brinjak Pass (elevation about 16,000 feet)<sup>18</sup>. The view reproduced in Fig. 20 may help to convey some idea of the extraordinary maze of disintegrated ridges and deep-cut ravines which extends between the gorges of the Yurung-kāsh and Kara-kāsh rivers where they approach the plains<sup>19</sup>.

The whole region drained by the rivers of Khotan presents an aspect of rugged desolation which is not easily surpassed by any mountainous territory in Asia. The same extremes of heat and cold which produce the rapid disintegration of all exposed rocks, coupled with the remarkable dryness of the climate, probably account for the exceptionally restricted plant growth observed in these barren mountains. Compared with their denuded slopes, which support only scanty tufts of hardy scrub, even where their detritus has long ago decayed into loose earth, the vegetation of the inhospitable Pāmīrs would appear luxuriant. What little cultivation is possible in the few narrow valleys where oats will still ripen would not suffice for the maintenance even of the extremely sparse population of hardy 'Tāghliks' who permanently inhabit them. Nothing illustrates, perhaps, better the poverty of this region than the fact that the settled population, including the malefactors exiled to Karanghu-tāgh from Khotan, according to my information scarcely exceeds four hundred souls within the area of some 9,000 square miles extending to the north of the main range<sup>20</sup>. As this number includes the hillmen who look after most of the flocks of sheep and yaks grazing in these mountains, it is evident that the amount of available pasture must in proportion to the area be very limited at all seasons<sup>21</sup>.

Barren  
desolation  
of moun-  
tains.

There does not appear to be anything to justify a belief that the physical conditions in the Khotan mountains have undergone a material change during historical times. The Chinese descriptions never mention them specifically, even though the jade which the rivers bring down from them would naturally have induced a reference if the region itself had possessed any economic value. That no important route could ever have passed through it may, in view of my surveys, be considered certain. Routes from the Upper Kara-kāsh to Karanghu-tāgh and Khotan, such as the one which Hayward had heard of and the other which Johnson is supposed to have followed, may exist, though I did not succeed in tracing any knowledge of them among the hillmen examined<sup>22</sup>. But it was clear from the configuration of the

<sup>18</sup> Compare *Ruins of Khotan*, p. 229.

<sup>19</sup> Compare *Ruins of Khotan*, pp. 233 sq.

<sup>20</sup> For a group of Tāghliks and exiled criminals at Karanghu-tāgh, see Fig. 23.

<sup>21</sup> Some of the valleys about Nissa are said to be visited during the summer by shepherds from the Khotan oasis. But it appears that the flocks driven up to these alpine grazing grounds are far less important than those owned by Khotan 'Bais' (small capitalists) in the riverine jungle tracts along the Khotan Daryā.

<sup>22</sup> The sketch-map by which Johnson illustrated his journey (1865) from the Upper Kara-kāsh to Khotan (see *J. R. Geogr. Soc.*, 1867, p. 1) cannot be reconciled with the true topography of the region from Karanghu-tāgh southwards. In it the hamlet of Karanghu-tāgh appears shifted some twenty miles further north than its real position, and

the Yurung-kāsh river is given a wholly impossible course. By the insertion of a great bend, which in reality does not exist, the valley of the Yurung-kāsh is shown in this map again some twenty miles south of Karanghu-tāgh, i.e. approximately in its true position, but with the river flowing to the south-east, a direction exactly opposite to the true one. In this second portion of the valley a locality called *Khushlash-langar* is marked at a map-distance of some twenty-three miles to the south of Karanghu-tāgh. In reality the few huts known by that name are situated only one and a half miles to the south-east of Karanghu-tāgh, half way between the village and the left bank of the Yurung-kāsh. A strange kind of duplication seems to have occurred in Johnson's map, for which I am unable to offer a satisfactory explanation. Of the other local names recorded on Johnson's route from the Kara-kāsh to Karanghu-tāgh, some are unknown to the