

Irrigation
resources of
Hāmi
limited.

The existence of the Hāmi oasis is due solely to the irrigation facilities derived from its vicinity to that easternmost portion of the T'ien-shan which, as its name *Karlik-tāgh* shows, rises high enough to catch adequate moisture and bear permanent snow-beds. But, as seen in Maps Nos. 72, 76, the length of this snowy end of the T'ien-shan is not great—only about 25 miles or so on the crest line—and the total volume of drainage from the range is not sufficient to pass on the surface over the piedmont gravel slopes at its south foot except on occasion of rare rain-floods. Much of the water is lost there by evaporation. Hence only the subsoil drainage coming to light in the form of marshy springs at the lower edge of the gravel glacis, after the fashion of the *kara-su* of the Khotan-Keriya region,⁴ is permanently available for the irrigation of the fertile loess belt further down. The result is that, leaving aside the small patches of arable ground to be found in the confined valleys of the Karlik-tāgh, cultivation in the Hāmi tract is restricted to the narrow strips of fertile soil which canals taken from the low-lying spring basins just referred to can command. Even in the case of the main oasis the greatest width is only about five miles, and a good deal of the area thus included is not capable of cultivation owing to marshy soil or for other reasons. There are no rivers sufficiently large to fertilize alluvial fans of corresponding size from the point of their debouchure, as is the case at Khotan, Yārkand, Kuchā, etc. On this account Hāmi cultivation, in spite of the fertility of the soil which all Chinese accounts rightly emphasize and of favourable climatic conditions, could never have supported more than a limited population.⁵ In this respect, too, the analogy to Lou-lan holds good.

Hāmi as
compared
with Lou-
lan.

But if both Lou-lan and Hāmi were thus destined to serve as bridge-heads for the Chinese during successive periods of advance beyond the deserts bounding Central Asia on the east, the difference of geographical position between the two territories necessarily made itself felt otherwise. When discussing Lou-lan and the ancient route leading to it from the Kan-su marches, I had occasion to point out how well protected this route was against hostile interference from the north.⁶ The broad desert belt of the Kuruk-tāgh with its utterly barren plateaus provided an effective natural defence against raiding attacks from the north of the T'ien-shan, where Huns as well as their nomad successors found their grazing grounds. On the other hand, we have also noted how precarious the use of that bridge-head must have been from the first owing to special physical difficulties besetting irrigation. These are always inseparable from the maintenance of a distant terminal oasis in the desert; aided probably by progress of desiccation, they led in the end, as we have seen, to Lou-lan being abandoned altogether in the fourth century A. D.^{6a}

In the case of Hāmi we find these conditions exactly reversed. There the water-supply needed for cultivation, limited as it is by nature, could never have been seriously threatened during

which in former days was a kingdom. It contains numerous towns and villages, but the chief city bears the name of Camul. The province lies between the two deserts; for on the one side is the Great Desert of Lop, and on the other side is a small desert of three days' journey in extent. The people are all Idolaters, and have a peculiar language. They live by the fruits of the earth, which they have in plenty, and dispose of to travellers.' Cf. Yule, *Marco Polo*, i. pp. 209 sq.

The 'small desert of three days' journey' refers to the barren ground to be crossed to Bar-kul, the nearest oasis, which can be reached in three rather long marches northward. 'The shameful custom' of the people that he proceeds to relate looks like a 'travellers' tale' travestying the very hospitable and easy-going ways which are still very noticeable among the village folk of Hāmi.

⁴ Cf. *Ancient Khotan*, i. 94, 126; above, p. 204.

Thus one main source of the water-supply of the central oasis lies in the springs of the marshy depression known as *Sai-bāshi*, about two miles to the north of Hāmi town. There is a similar area further to the north-east near the flood bed of the stream which descends from Edira and Karapchin (Map No. 73. c. 1).

⁵ See Imbault-Huart, *Le pays de 'Hami ou Khamil*, Paris, 1892, pp. 18 sqq. This useful publication reproduces lengthy abstracts of modern Chinese accounts of Hāmi mainly from works compiled under the Emperor Ch'ien-lung. The total population of the territory was then estimated at some 12,000 souls, a figure which is not likely to be exceeded by the present number if the considerable floating settlement of traders, caravan-men, etc., from outside is excluded.

⁶ See above, pp. 584 sq.

^{6a} Cf. above, pp. 426 sq.