

welcome that the hazy atmosphere in which we had travelled ever since the blizzard caught us at Ta-shih-t'ò had completely obliterated all distant views.⁷ Ibrāhīm Ākhūn informed me that rich pastures are to be found among the wooded spurs and valleys that descend from the T'ien-shan towards Mu-li-ho and the other oases farther west. This was fully in keeping with what might be expected, having regard to the great height that the range here reaches. But I was surprised to learn at the same time how human activity, aided by the favourable climate, was modifying the use of those pastures.

The notable change of climatic conditions that occurs along this portion of the range is best illustrated by the fact that on the slopes lying below the forest zone cultivation can be carried on without irrigation. Farther down, in the oases which the high road to Guchen crosses, watering from canals is necessary to supplement the moisture derived from rain and snow. Ibrāhīm Ākhūn placed the northern limit of unirrigated lands at a distance of about 'thirty *li*' or roughly six miles from the road, and this statement was subsequently confirmed by what I myself observed on my way from Jimasa to Ch'üan-tzū-chieh (Map No. 28. c. 1). All this cultivation is carried on by Chinese colonists, whose numbers are being steadily increased by new settlers drawn from China proper. Some idea of the extent and value of the lands thus brought under new cultivation could be gathered from the statement that thousands of Turfān labourers come every summer from across the mountains to be employed in harvest and other operations at wages greatly in excess of the rates prevailing in the oases of the Tārīm basin. Thus the close intercourse which, since ancient times, must have existed between 'Anterior and Posterior Chü-shih', i. e. Turfān and the present Guchen region, notwithstanding the mountain barrier, was rendered manifest by a modern illustration immediately on my approach to this string of northern oases. The rapidly proceeding development of the agricultural resources offered by the mountain slopes was evidently leading already to a restriction of the available pastures; for the fifteen hundred odd 'tents' of Kazaks that had moved from the north to the Guchen tract were reported to be finding the allotted grazing lands inadequate to the needs of their herds and flocks, and to be eager to return to the Altai.

Cultivation
without
irrigation.

At Mu-li-ho I felt that we had entered the fourth section of our journey from Barkul, and the impressions there received were fully confirmed on the two marches that brought us to Guchen on October 16th. The route was now leading downwards and farther away from the mountains. Yet the country that we traversed west of Mu-li-ho throughout showed the character of a grassy steppe, where not actually under cultivation. From the eastern edge of the large tract that once formed the separate sub-prefecture of Chi-t'ai-hsien (Map No. 28. d. 1), cultivation became continuous and in the main seemed to be dependent on rainfall only, canals being shallow and few. The agricultural population here, too, was entirely Chinese; but the neglected condition of most of the fields suggested that it was either still not large enough to cultivate all the available land, or else was being drawn away to ground farther to the south where more certain rainfall assured better crops. Beyond the Chi-t'ai-hsien tract the route descended a wide alluvial fan covered with plentiful vegetation but uncultivated. Far away to the north high dunes of sand could be seen, outposts of Dzungarian desert belt that separates the foot of the T'ien-shan from the southernmost outliers of the Altai.

Cultivation
about *Chi-*
t'ai-hsien.

In the midst of an area clothed with abundant grass and scrub but only sparsely cultivated, stands the large town of *Ku-ch'êng-tzū* (or *Guchen* as it is known in Turkī). Its population, large Bazars and massive circumvallation give it all the appearance of a true Chinese city. Its

Ku-ch'êng-
tsū or
Guchen.

⁷ The mountains to the south were quite invisible on our marches from Ta-shih-t'ò to Guchen. They were subsequently surveyed by Lāl Singh, whom I sent from Guchen

for the purpose via Jam-bulak and the Ku-ch'üan pass (Map No. 31. B. 1, 2).