

SECTION VII.—THE PEI-SHAN AND THE EASTERNMOST T'IENT-SHAN

There still remain within the limits of our maps two distinct regions to be noticed. Both are of very great extent, and in both the ground actually surveyed along a couple of route lines is necessarily limited. Nevertheless such is the uniformity of physical features prevailing within each that the topography of even a restricted area may prove very instructive.

The first of these regions is the great desert area entirely occupied by the barren ranges and plateaus of the Pei-shan (the 'Northern Mountains'). It may be described as extending westwards from the Etsin-gol course to about longitude 93° where it probably joins with, or merges in, the Kuruk-tāgh. In the north it is bounded by the slopes of the easternmost T'ien-shan and its offshoots and in the south by the Hua-hai-tzu and Su-lo-ho basins.

Our surveys through it lay along two lines, one the well-known caravan track connecting An-hsi with Hāmi, and the other a route, previously unexplored, which took us from Mao-mei to east of the Karlik-tāgh. The record of these surveys in Sheets Nos. 37, 38, 40, 42 and that of other tracks followed by Russian and German travellers between Hāmi and Su-chou show ¹ that this huge area is traversed by a series of much-decayed hill ranges, the axis of all trending roughly in the direction from E.N.E. to W.S.W. Between them spread broad detritus-covered plateaus where ill-defined depressions, alternating with the outcrops of almost completely smothered rocky ridges, mark the former existence of side spurs with their corresponding valleys.

The scanty drainage observed along our eastern route in dry beds and shallow troughs, up to about latitude 42° , seemed to tend towards the Etsin-gol, while along the An-hsi-Hāmi track the direction appeared to lie to the west or south-west. North of latitude 42° both routes descend into a deep and well-marked trough which seems to separate the Pei-shan formation from the gravel glacia of the easternmost T'ien-shan. Whatever drainage this big depression carries on the rare occasions of floods must find its way into some, as yet unexplored, basin in the desert further west. ²

The general bearing and character of the Pei-shan ranges, nowhere apparently much exceeding 8,000 feet in height, seems to point to a close morphological connection with the Kuruk-tāgh system. But this can only be decided by expert geological examination. Scanty wells or springs found at intervals in the depressions render the crossing of this stony 'Gobi' practicable for small parties at one time, and near them a very limited amount of grazing on scrub or reeds is ordinarily to be found. But neither nomadic occupation nor large migrations were ever possible here during the historical period.

To the north of the Pei-shan extends the easternmost T'ien-shan, the second of the regions referred to at the head of this section. As far as our surveys are concerned, it may be said to extend from above the Turfān basin to about longitude $95^{\circ} 30'$, if not further. It maintains throughout the general direction from west to east and ultimately dies away in the 'Gobi' of the southern Altai. Our survey of it was confined practically to the main range and to some portions of the neighbouring ground in the south. Along the whole length, considerably more than 300 miles, three sections of the main range rise to heights about 13,000 feet and carry perpetual snow.

¹ See for these the map attached to Professor Futterer's careful paper, *Geographische Skizze der Wüste Gobi*, Petermann's Mittheilungen, Ergänzungsheft No. 139.

² The An-hsi-Hāmi route crosses the trough near the well of Yen-tun, Sheet No. 37. A. 4, at an elevation of about 1,730 feet; our eastern route near the

spring of Chin-êrh-ch'üan, Sheet No. 37. D. 4, at about 4,020 feet above sea-level.

The assumed basin may account for the lake 'Toli' which is shown by Russian maps on a supposed route from Hāmi to Tun-huang, apparently obtained from native information; this lake has never been located.