

patches of reeds. The dry channels crossed here as well as at Liu-kou all drained to the north-east. Then we passed over a dreary plateau of detritus broken by numerous low and much-decayed ridges in which I could recognize granite and seams of quartz. Their strike was difficult to determine with any certainty. Liu-kou proved to be a small area of reeds and scrub situated by a wide flood-bed at an elevation of 5,890 feet, about the same as that of Tsagan-gulu. The well, found practically dry, gave excellent water when deepened. To the west a line of hills could be seen at an approximate distance of some twenty miles. Comparison with MM. Grum-Grizhmailo's map made it appear probable that their and M. Potanin's valley of Yeh-ma-ch'üan, the last stage before Ming-shui, lay to the east of these hills, near the head of the flood-bed by which we were encamped. But what the connexion was between these distant hills and a range rising clearly before us to the north-west, I was unable to make out.

Start for
Ming-shui.

The fairly warm day was brought to a close by an icy gale from the north-north-east, which raged all night and blew down one of the surveyors' tents. When rising by 4 a.m. for the march which, I hoped, might carry us to Ming-shui, we all felt as if we had been carried back to the wintry Lop Desert. The track led towards a gap in the range that stretched before us from WSW. to ENE. After crossing a belt of low hillocks almost buried in detritus, we ascended the glacis of the range to its foot at about seven miles from camp. An easy ascent of four miles more in a wide defile brought us to a small plateau intersected by a shallow drainage channel running to the north-east. The northern rim of this plateau marks the watershed at an elevation of a little under 7,000 feet. There can be no doubt that this range, of which the highest point in the vicinity rises to about 400 feet above the watershed, is identical with the one crossed by MM. Grum-Grizhmailo and Obrucheff north of Yeh-ma-ch'üan and with Professor Futterer's second Pei-shan range farther west.⁶

Arrival at
Ming-shui.

The descent was much shorter, and then the track led us due west along a wide open valley of gravel with very scanty scrub. On the south it was flanked by the range just crossed and on the north by another stretching parallel to it from WSW. to ENE. The latter was clearly recognizable as the range in a valley of which I knew that Ming-shui lay, and as the eastern continuation of Futterer's first Pei-shan range. The apparent nearness of our immediate goal, on the route from Su-chou to Hāmi, induced me to pass the small patch of vegetation that the Mongols had mentioned to us under the name of *Yen-ch'ih* (Map No. 40. A. 1), and to push on. The fact that all grass there seemed to have been grazed, and the Mongols' statement that Ming-shui was only 'thirty *li*' farther on, influenced this decision. We soon found reason to regret it. Twenty-five miles had been covered, with the same icy gale pursuing us all the way, by the time that we had gained the flat saddle of a broad spur connecting the two ranges at the head of the valley. We had still to cross a wide basin westwards before we could reach the low but rugged looking hills between which the wells of Ming-shui were to be looked for. The descent over the wide and bare detritus slope seemed never-ending, and it was quite dark before we arrived at the foot of the hills and stumbled on a dry stream-bed with a big cairn showing above on the sky-line. Some coarse grass was found near the bed, and there we halted for the night, after having covered a distance of 32 miles. The camels did not arrive till next morning, some of the animals having broken loose and strayed, and the men sent to search in the neighbourhood found only a square walled enclosure in ruins, but neither well nor fuel. The gale had somewhat abated in the evening; yet the bitter cold kept most of us awake that night.

At daybreak our hapless 'guides' discovered the well of *Ming-shui* about a mile away, and

⁶ The height recorded by the Russian travellers for the watershed is 7,074 feet. MM. Grum-Grizhmailo's map also

shows a small plateau on the top of the range with a drainage bed north-eastwards.