

possible I managed, however, to make up for the loss of time implied by the detour and to cover the 195 miles to Pichan, the easternmost of the Turfān oases, in seven days. The first of these brought me to the small oasis of Toghucha, the San-p'u ('third walled village') of the Chinese, some 33 miles from Hāmi (Map No. 69. D. 4, 5). On the way were passed the village oases of Sumkāgho and Astīne (Map No. 73. A. 1), or T'ou-p'u and Êrh-p'u according to their Chinese designations. Both have walled enclosures now in ruins which were held by the Chinese as advanced posts, while defending Hāmi against Yāqūb Bēg's troops and the Tungans during the last Muhammadan rebellion. At Sumkāgho I noticed the first of those *kārēz*, or irrigation channels, carried underground by means of a line of wells which serve to catch the subsoil drainage below the gravel glacis of the mountains, and which at the present day play so large a part in the cultivation of the Turfān region. The extension of this remarkable system of irrigation, said to have been introduced from Īrān, to the main oasis of Hāmi is likely to be a mere question of time and may yet lead to a great increase of its agricultural resources.⁸

First Kārēz.

A two days' halt enabled me to visit from Toghucha two ruined sites of which information had been received by me at Hāmi. One of these, close to the east of the hamlet of Ilikul and about three miles to the south-west of Toghucha (Map No. 69. D. 5), proved to comprise a series of Buddhist temples and caves which had been examined and partially excavated by Professor Grünwedel in the course of two stays made here in September, 1906. In view of the careful description he has given of the ruins and of the finds which rewarded his clearings,⁹ it would serve no useful purpose to record here my own hurried observations. It may suffice to mention that the remains of fresco decoration left exposed in some of the shrines showed very close resemblance in style to those noted at Ara-tam. The conclusion I came to at the time that the Ilikul temples also dated from the Uigur period has since been fully confirmed by what Professor Grünwedel's published report states about his finds of Uigur and Tibetan manuscript remains in the north-eastern group of the ruined shrines.¹⁰ It may be added that the Ilikul temples occupy loess terraces overlooking the debouchure of a limpid stream which rises in springs about a mile to the north-east and provides the main source of irrigation for the large village of Lapchuk to be presently mentioned. The site is made singularly attractive by this lively rivulet and the verdure with which some springs issuing immediately below clothe a shallow depression between the ruins. There seems to me little doubt that local worship had selected this spot just because it marks the *su-bāshi*, or irrigation-head, for the fertile village lands of Lapchuk.

Ruined temples of Ilikul.

November 3 was devoted to a long excursion which showed me a good deal of interesting ground in the broad trough-like valley descending to the south of Toghucha. Flanked on either side by flat gravel plateaus, this valley carries down the streams coming from Toghucha and the vicinity of Ilikul, and its lower portion contains the long-stretched village tract of Lapchuk and Kara-döbe, the largest fertile area in Hāmi territory after the main oasis. Within a mile or so from the high road at Toghucha there rises on a low stony ridge a tolerably preserved domed structure, measuring about 30 feet square outside, which on closer inspection proved to have served once as a Buddhist shrine. It consists of a square cella having its entrance from the east and of an enclosing passage with its doorway on the west. The interior was found completely bare, but the plastered

Buddhist cellas below Toghucha.

instructions. Of a fourth route, marked in the Russian Trans-frontier map from native reports as leading from Shona-nōr to Dēghar in the south-west corner of the Turfān basin, R. B. Lāl Singh discovered traces on his surveys of 1915 in the wastes of the Eastern Kuruk-tagh. Once used by hunters after wild camels, it has become quite impracticable, since the few salt springs on it have dried up.

⁸ For a good account of the Kārēz irrigation of Turfān and its relation to questions of desiccation, cf. Huntington, *Pulse of Asia*, pp. 307 sqq.

⁹ Cf. Grünwedel, *Altibuddh. Kultstätten*, pp. 217-23.

¹⁰ Cf. Grünwedel, *loc. cit.*, p. 223. I may add here that I noted in the Ilikul ruins a size of bricks identical with that used in the Ara-tam temples I and II; see above, p. 1152.