

irrigation invariably turn to the arbours or orchards of the abandoned area for dead trees to supply handy timber and fuel. I have noticed the identical process wherever deserted lands and homesteads remained within easy reach of settlers still continuing the struggle, at sites as far apart as 'Old Domoko' and the outlying parts of Nan-hu near Tun-huang.<sup>16</sup> Yet though all through the Niya Site the trunks of ancient poplars and fruit-trees, whether erect or fallen, abounded, I found no evidence to show that they had suffered by the hand of man.

The fact that only at the southernmost group were there signs of ruins having subsequently served for sheep-pens, might at first sight appear a distinction resulting from prolonged occupation. But in reality it merely proves that by the time when the abandoned oasis came to serve as a grazing-ground, those indispensable provisions for a shepherd station, proximity and sufficiency of water, were obtainable at its southern end alone. The immediate vicinity of the ancient river-bed fully explains this. As far as this point it is likely to have received the water of summer floods even centuries after cultivation was abandoned. Even now, as we have seen, a good deal of tamarisk and wild poplar growth survives near the southernmost ruins, and it is quite possible that the period when the deserted houses served as shelters for flocks was separated by a long interval from the time of their abandonment as actual homesteads.

Occupation of southernmost ruins as sheep-pens.

Finally, attention may be called to another physical change, apart from desiccation, which might have brought about the desertion of the ancient oasis. I mean the possibility, always to be faced at such terminal oases, that irrigation was interfered with or stopped by a great lateral shifting of the river's course. In my previous discussion I pointed out the frequency of such deltaic changes at the end of rivers which lose themselves in the desert.<sup>17</sup> Now from this point of view some antiquarian value attaches to the unmistakable traces left by the ancient river-bed where it skirts the southern end of the site. Lying exactly in the continuation of the present terminal bed, as it passes out below Tülküch-köl, they make it difficult to believe that the river could have suffered here so serious a diversion as to render irrigation for a time impossible. Also the hill-like ridges of high sands which give to this terminal part of the riverine belt quite the character of a well-defined valley, seem to preclude this assumption. They have been built up by the action of the river itself, by deposits of fine silt it has brought down through long ages, and are, no doubt, of ancient formation.<sup>18</sup>

Possibility of lateral shifting of river's terminal course.

If then the desertion of the oasis had been the result, directly or indirectly, of such a lateral shift of the river-bed we should have to look for the place of its occurrence at some point higher up. To the south-east of Imām Ja'far Sādiq I found, indeed, a succession of wide salt-encrusted depressions, parallel to the river's terminal course and in part still marshy, which represent the beds left behind by such changes. But, of course, nothing is known of their chronological sequence. The nearest of them, known as Chawal-köl (see Map No. 37), lies in direct continuation of the channel which at the time of my visit carried water to the tiny cultivated patch of Kapak-askan. That the Niya River's terminal course must have been always liable to the temporary changes of bed, which are a feature observed at the end of all rivers in this region,<sup>19</sup> may be considered certain. But in the absence of direct historical records, we can never hope to know whether it was such a digression which threatened the water-supply of the ancient oasis towards the close of the third century, or why human activity was unequal to warding off the resulting calamity.

Evidence for river shifting absent.

This brings me in conclusion to mention again the fact already emphasized in my former dis-

<sup>16</sup> Cf. *Ancient Khotan*, i. p. 458; *Deser Cathay*, ii. p. 86.

<sup>17</sup> Cf. *Ancient Khotan*, i. pp. 383 sqq.

<sup>18</sup> The possibility that these high ridges of sand rest towards the west on permanent elevations of the ground, similar to the low hill range cropping out at Imām Ja'far

Sādiq (see *Ancient Khotan*, i. p. 313), should not be lost sight of.

<sup>19</sup> Cf. for actual instances *Ancient Khotan*, i. pp. 383 sq.; also for my experience at the Keriya River end in 1908, *Deserl Cathay*, ii. pp. 391 sqq.