

not all, of the great supply of water that is available. In support of this I may point out that the distance from the debouchure of the Tang Ho, where the canals on the left bank take off (Map No. 78. c. 4), to the Su-lo Ho is close on thirty-six miles in a straight line.

Conditions are very different as regards irrigation from the Su-lo Ho itself. Though this river, owing to the great length and height of the snowy Nan-shan ranges which it drains (Maps Nos. 86, 87, 89), carries a considerably greater volume of water,¹³ the series of small oases from Yü-mên-hsien to An-hsi, which receive their irrigation from it (Maps Nos. 81, 83, 85), cannot compare in extent and economic resources with Tun-huang.¹⁴ Their relative insignificance can be traced throughout the periods for which historical records bearing on this border region are available. It is directly accounted for by the difficulties which beset the use of the Su-lo Ho water, abundant as it is, for irrigation purposes, and with which local engineering has neither in the past nor in the present time been able to cope successfully. The Su-lo Ho, from the point where it breaks in a narrow gorge through the outermost Nan-shan range north of the oasis of Ch'ang-ma (Maps Nos. 83. D. 4; 84. D. 1), divides into several branches, which often shift their courses on the steeply sloped stony glacis of that range, and cannot be utilized for irrigating cultivable soil anywhere nearer than about thirty miles from the debouchure.¹⁵

Irrigation
from Su-lo
Ho.

On reaching the alluvial basin they cut their beds very deeply into the soft soil. This is particularly characteristic of the main Su-lo Ho course after its great westward bend below the Yü-mên-hsien oasis. Thence, until it passes the foot of the low Wan-shan-tzū spur about a day's march above An-hsi (Map No. 83. B. 2), the river flows everywhere in a deep cañon-like bed, and the use of its water for irrigation purposes becomes practically impossible. This was shown very clearly by the closer survey which my journey along the right river-bank in April, 1914, enabled me to make. From the western end of the Wan-shan-tzū spur down to An-hsi, the taking-off of canals becomes practicable again on the left bank. But here the area capable of being irrigated is greatly reduced by the close approach of a range of foot-hills on the south (Maps Nos. 81. D. 3; 83. A. 3). A short distance below An-hsi the inundations and marshes caused by the floods of the T'a-shih river and other small streams from the south stop cultivation. Further west, the Su-lo Ho forsakes its so far deep and well-marked bed and spreads out in a network of flood courses and marginal lagoons, which extend past the marshy Tang Ho delta to the Khara-nör and beyond. These, along with the increasing salinity of the water, altogether prevent irrigation.

Difficulties
of Su-lo Ho
irrigation.

From this rapid survey it is clear that the value of the lower Su-lo Ho for the maintenance of permanent agricultural settlements is and always was very limited, as compared with that of the river of Tun-huang. But in another direction there were advantages offered by this lower Su-lo Ho course which are even more obvious. A reference to the map shows that, with its direction almost due east to west, it provided a truly ideal line for the protection of that great military and trade route upon the security of which China's earliest expansion into Central Asia depended. With that unflinching sense of topography which the Chinese seem to have possessed at all times, and which shows itself with particular clearness wherever measures for defence or communication are concerned, those charged with the opening and organization of that highway were bound to realize from the first the natural strength and importance of the Su-lo Ho line. My explorations of 1907, and those by which I supplemented them eastward in 1914, have proved in fact that, from

Defensive
line pro-
vided by
Su-lo Ho.

¹³ I can give no comparative measurements, but the fact is quite plainly established by the east-west course of the lower Su-lo Ho, which also determines the direction of the united river after the Tang Ho has joined it at right angles.

¹⁴ This fact is graphically illustrated by Captain Robovsky's map, which shows these smaller oases on the same

sheet with Tun-huang and permits ready comparison of their relative sizes.

¹⁵ The fall in the levels of the river-bed from Ch'ang-ma to Yü-mên-hsien, a distance of only about thirty-six miles, amounts to fully 2,000 feet.