

Evidence of
desiccation.

scarcely be any doubt that it is this same drainage which, finding its way underground, now comes to light in the marshes east and south-east of Ch'iao-tzū. But still more obvious did it appear, in view of the conditions of the ground, that it would be wholly impossible to bring here at present adequate surface water for the irrigation of the old oasis. Hence I could not avoid the conclusion that there was clear evidence of desiccation, whether general or restricted to this region, and this gives additional interest to the archaeological facts resulting from the examination of the ruins.

Ruined
walls of
So-yang-
ch'êng.

I may commence my description of them with the ruined town of So-yang-ch'êng already referred to. As the plan reproduced in Pl. 46 shows, the massive walls of stamped clay enclosing it form a quadrilateral which measures about 670 yards outside on the north, 493 yards on the south, and some 650 yards on each of the other faces. The walls of stamped clay vary in thickness from about 20 to 30 feet at their foot and are provided with round bastions at the corners and rectangular ones at irregular intervals along the curtains. The two remaining gates on the north and west were protected by rectangular outworks such as are still found, but usually in a semicircular shape, outside the gates of modern Chinese town walls. At the south-west corner the walls form a receding angle, and a small walled enclosure constructed within this may have been intended to serve as a redout. There were remains of inner enclosures also on the north and south faces, but too decayed to permit of a determination of their character.

Double line
of east wall.

A very peculiar feature of the ruined fortification is that it has two walls facing east, the inner built at a distance approximating 200 yards from the outer, but not quite parallel to it. The inner wall, which in Fig. 185 is seen along a great portion of its length, had been breached in many places by erosion. The result of the scouring action of wind-driven sand, corresponding here exactly to that described in the case of the deserted town south of An-hsi,⁷ is strikingly illustrated by Fig. 240, which shows a section of this inner east wall of So-yang-ch'êng. But, in spite of this long-continued process of erosion, the foundations of this inner wall were still continuous, and the position of some bastions, and perhaps also of a gate near the middle, still recognizable. It was very different with the outer east wall, which had to bear the full erosive force of the winds blowing from the east. It had been practically razed to the ground in most places and was traceable elsewhere only in a line of badly decayed low segments. Taking into account the fact that the outer east wall, while undergoing erosion itself, must to some extent have afforded protection to the inner one, it is impossible definitely to assert that the better condition of the latter is necessarily evidence of later construction. Yet, remembering what I had seen at the east wall of the present 'town' of An-hsi, the thought naturally occurred to me that this inner east wall of So-yang-ch'êng had been raised for protection at a later time, when the outer had been reduced by the slow but relentless attacks of wind and sand beyond hope of repair or defence. The position of the inner wall relative to the north gate and the absence of semicircular bastions at its ends seem to support this conjecture.

Effects of
wind-
erosion of
east wall.

Preserva-
tion of town
walls north
and south.

After the observations made at An-hsi it was no surprise to find that the north and south walls of the ruined town had suffered relatively little decay and were nowhere completely breached. Their direction parallel to the destructive winds, which here, too, come mainly from the east, fully accounts for their preservation, and this affords another striking illustration of the conditions prevailing at the ancient walled station of Lou-lan. Behind the shelter of the east walls drift-sand had

Singh's plane-table work, does not agree with the observation I made, as above recorded, on moving further to the south-east along the old canal line. Owing to the Surveyor's ailing condition it was impossible to assure a revision of this part of the hill sketching before our move to T'a-shih.

That the stream once irrigating the Ch'iao-tzū site breaks through the second outer range and receives the major part

of its drainage from the third and much higher one which overlooks the Ch'ang-ma valley on the north is made probable also by the river-bed which debouches to the south-west of So-yang-ch'êng. Its valley, as observed by the Surveyor who actually crossed it at its mouth, certainly cuts through the second hill range, as Map No. 83. B. 4 shows.

⁷ Cf. above, pp. 1095 sq.