

ground, that one of these towers, T. v, proved to be fully nine miles, and the other, T. vi. a, not less than fifteen miles, away in a straight line when their positions came to be fixed accurately. Yet Surveyor Rām Singh's keen eyes sighted them unaided by glasses. Eastwards, at a distance of a little over three miles, and exactly in line with the visible straight stretch of wall, the tower T. vii showed quite clearly. Another beyond it, T. ix, seemed to indicate a turn of the line to the north-east.<sup>7a</sup>

Line of wall followed eastward.

That day it was too late to attempt a survey of the wall westwards. Instead, I decided to follow the line of wall and towers to the east, in the hope that it would be found to run within reach of the track by which my caravan had been directed to move ahead. The decision was justified. As I followed the line of the ancient wall down steep gravel slopes, and over lower terrace-like ground fringing the scrub-covered Nullah previously mentioned, its remnants cropped out higher and higher. For more than a mile here the wall was continuous and actually exposed five to seven feet above the ground. For several feet more its base seemed buried under drift-sand and gravel, to which decomposed clay, fallen from the destroyed layers of the wall, is likely to have added its share. The average width of the wall was about eight feet. It was quite easy, even without any digging and clearing, to examine here the peculiar method of construction employed, and at the same time to study the process by which wind-erosion was slowly but relentlessly working its destruction.<sup>8</sup>

Reed fascines resist erosion.

The revetment of horizontally fixed fascines had been removed by erosion in most places and was being loosened in the rest. But the alternate layers of stamped clay and bundles of reeds, which had thus become exposed, were still remarkable in their state of preservation. The clay, from six to seven inches in thickness, showed much cohesion, in spite of the coarse material, full of gravel and small pebbles. This was obviously due to the binding quality of the saline elements in the soil.<sup>9</sup> All the same, the exposed surfaces of these layers, by their scooped appearance in places, proved that corrasion was at work on them. On the other hand, the intervening layers of neatly tied reed fascines, here compressed to an average thickness of three to four inches, showed practically no sign as yet of being affected by this destructive force. Previously gained experience made it easy for me to realize that the pliable reeds with their tough fibres could suffer but little from the winds and their corrasive agent the drift-sand, though once loosened from the embedding clay they would quickly be blown away altogether.

<sup>7a</sup> It may be conveniently explained here that in order to obviate risks of confusion in our survey, and to facilitate subsequent identification on the spot, it became necessary to give numbers at once to all ruined towers on the plane-table, as they were sighted from successive stations or 'fixings', even when there was no chance at first of obtaining more than one 'ray' to a particular tower or otherwise determining its exact position. This practical necessity, combined with the fact that numerous ruined watch-stations, owing to their position on masked ground or the decay of their structural remains, could not be recognized from a distance, will help to explain why it was impossible in marking the towers, etc., along the line of this Limes, to follow a strictly consecutive numbering.

<sup>8</sup> The photographs in Figs. 157, 158 will help to illustrate the following observations, though they are of a section of the wall to the north-east of Tun-huang, where the proportion of thickness between the layers of clay and fascines is approxi-

mately reversed and another constructive detail also is modified by the introduction of tamarisk twigs into the fascines besides reeds; see below, chap. xv. sec. v.

<sup>9</sup> In regard to this salinity I was able to make an instructive observation near this very portion of the ancient Limes wall when I passed here again on March 17, 1914. I then noticed, between towers T. vii and T. ix, that horizontal streaks of *shōr* or salt efflorescence, running parallel at about seven inches interval, marked the lines where the edges of the layers of reeds, themselves not visible without scraping, approached the surface of the low gravel embankment that hid the remains of the badly-eroded wall. There had been a very slight snowfall some days earlier, and this had sufficed to draw to the surface the saline particles with which the reeds had become permeated, either while still growing in the marshes or since they had been embedded between the layers of clay and gravel.