

canal, taking off from the upper reservoir through a deep cutting in the steep loess banks, carries about eleven cubic feet of water per second for the irrigation of the cultivated area east of the ravine. Another canal, which is fed by the lake further down, carries about nineteen cubic feet per second and is utilized for irrigating the fields on the west. The amount of constructive labour which it must have cost thus to assure irrigation is proved by the size of the dam which holds up the lake. I found it to measure fully 147 yards on the top, with a width there of over twenty-five yards, while its height above the bottom of the ravine was about thirty-five feet. The dam was said to have been constructed about thirty years before my visit, and the fact that I found large elms half-submerged in the lake but still alive seems to support the statement to some extent. Possibly an older barrage, which had fallen into neglect after the devastation of the oasis by the Tungans, was then raised to a higher level.

However this may be, the above-recorded discharge of the existing canals does not exhaust the full supply of water available; for I found an unused outflow leaving the end of the lake, and this, joined by some small springs at the bottom of the ravine, forms there a small, lively stream, carrying over eleven cubic feet of water per second. By raising the dam so as to bring the level of the lake nearer to that of its banks, which at the present outflow are some twenty-five feet higher, it is certain that this additional water-supply could also be utilized and a considerable extent of fertile ground, now lying waste, be 'commanded' for irrigation. But whether this water, at present unused, might be carried to the *débris*-covered 'Tati' areas near the ruined town, and how much of them might be reclaimed in this way, it would be impossible to determine without carefully taking levels and making a series of prolonged observations as to the local conditions of irrigation, etc. Still less safe would it be to assume that irrigation in this area would in earlier times have depended, as it certainly does at present, upon the artificial storing of the spring-water by means of a barrage. There was nothing either in remains or local tradition to suggest a particularly high age for the artificial lake, and the very fact that the present name of the oasis, *Nan-hu*, or 'the southern lake', is directly taken from it seems to indicate a somewhat modern date for it.

Questions
of earlier
irrigation.

The outflow from the lake is swelled by other springs rising in the marshy bottom of the *Yār* further down, and the little stream thus formed passes through a rocky gorge between two low sandstone ridges, which confine the main oasis on the north. The very fact that this gorge has been cut through is sufficient evidence of the vastly greater volume of water which once carried on here its work of erosion. About two miles from the north end of this gorge I found the stream of the *Nan-hu Yār* still used for irrigating the fields of the tiny, half-abandoned hamlet of *Shui-i*, which I shall have to describe below. That this stream where I measured it on April 12, about one and a half miles below *Shui-i*, still carried over twenty cubic feet of water per second is conclusive proof that some of the now abandoned village lands further north in the continuation of the *Nan-hu* basin could be brought under cultivation again, even with the water-supply still available.

Additional
irrigation
resources.

Before turning to the remains that mark the much greater extent of ancient cultivation at *Nan-hu*, I may complete my account of its present resources by the mention of two small outlying areas. One is a tiny and still occupied hamlet, half a mile to the south of the lake reservoir; it receives its water from some springs issuing at the foot of a low reed-covered terrace about a quarter of a mile to the east. I found drift-sand encroaching on the fields of the three or four farms which seemed the last remnant of a once more populous settlement and were themselves half in ruin. A considerable 'Tati' area was subsequently noted by Surveyor *Rām Singh* when he passed *Nan-hu* in October, 1907, to the west of this hamlet. It may have once received water from some springs the presence of which he noted at a distance away to the south-east, but which are no longer utilized for cultivation.

Outlying
areas of
cultivation.