

between our surveys of 1906 and 1914 shows that at least four of such must be counted—received water down to the period when Lou-lan was occupied. From what we know of the deltaic conditions of rivers in the Tārīm Basin, it seems improbable that all these successive branches of the Kuruk-daryā could have carried water during the same period. But undue importance ought not to be claimed for what is at present only negative evidence. It is, therefore, with some reserve that I put forward the suggestion that the absence of remains of the historical Lou-lan period over this area may be due to the fact that the river-beds traversing it have received no water since the close of neolithic times. If the area was already waterless during the centuries immediately before and after our era, no continuous occupation of it, even of a semi-nomadic type, was possible, and this would fully explain the absence of archaeological relics of historical times, such as metal objects.

In this connexion, another observation bearing on the present physical conditions of this ground suggests itself. If it was devoid of water, and its surface consequently left unprotected by vegetation, from the end of the local Stone Age, wind-erosion would obviously have been at work here for centuries longer than in the riverine belts which contained the ruined sites of 'Lou-lan' in the north and those of L.K. and L.M. in the south. This longer exposure to the scouring effect of wind-driven sand would necessarily have resulted—assuming the other factors of soil, wind, &c., to have been the same—in a more pronounced abrasion and lowering of the general surface level. Is it possible that the distinct depression indicated by Dr. Hedin's line of levels, which he measured in 1901 due south from the Lou-lan Site to the Kara-koshun marshes, between a point about ten miles and another about nineteen and a half miles south of the L.A. group of ruins, is directly due to the eroding force of the wind having longer exerted itself over this area?

Area exposed to longer wind-erosion.

The depression just referred to, which is discussed at great length and graphically illustrated in Dr. Hedin's scientific report,¹⁰ corresponds approximately to the belt between 40° 15' and 40° 23' lat. in Map No. 60. D. 3. It thus falls within the area south and north of my Camp 122, over which I traced remains of the Stone Age, but none of the historical period of Lou-lan occupation. On such remarkably flat ground as Dr. Hedin's very valuable measurement of levels has undoubtedly proved the Lop desert north of the Kara-koshun to be, this depression must necessarily claim very great hydrographic importance. Yet its deepest point falls only 3.981 metres below the starting-point of Dr. Hedin's level series, on eroded ground near the main Stūpa of the 'Lou-lan Site' (L.A.), while the mean value of the levels measured between his stations No. 81 and No. 149 works out at 1.365 metres, or less than four and a half feet, below the starting-point.¹¹ Considering that the progress of erosion near certain ruins of the Lou-lan Site, as ascertained by the measured difference between the original surface level and that of wind-eroded depressions close by,¹² can be proved to amount in places to an average of over one foot per century, the above conjectural explanation may well deserve to be kept in view. In any case it will show that it is possible to account for the above depression without seeking, in this narrow and comparatively insignificant belt, the Lop lake-bed of the historical Lou-lan period, as assumed in a theory which Dr. Hedin has endeavoured to maintain by a series of elaborate and ingenious arguments. For a variety of reasons, both antiquarian and geographical, I cannot accept certain essential points of this theory; but, as already shown above, I must postpone a general exposition of the views I have been led to form regarding this 'Lop-nōr question' until the results of the extensive observations and surveys, made during the years 1914 and 1915, have been fully co-ordinated and worked up.

Depression noted by Dr. Hedin.

In the meantime, two more points which have an interest for the interpretation of this depression may be noted here. On both my routes across this area I came upon ground where

Dead reed-beds on Yārdangs.

¹⁰ See Hedin, *Central Asia*, ii. pp. 234 sqq., 314 sqq., and *passim*, with Pl. 36, 37, 59.

¹¹ Cf. Hedin, *Central Asia*, ii. pp. 317 sqq., 326, and Pl. 37.

¹² See below, pp. 371, 375, 388, 390, 392.