

he gave useful help by large-scale surveys of the extensive area over which its ruins are scattered, while renewed excavations rewarded by abundant results kept me busy for a fortnight.<sup>24</sup>

After this we once again separated, Rām Singh returning southwards to the mountains, while I proceeded partly over unsurveyed desert eastwards to the ruined site of Endere,<sup>25</sup> where the easternmost limit of our surveys of 1900-01 was reached. After the exploration of earlier remains discovered in the vicinity, I continued my journey north-eastwards to Charchan by the old caravan track along the line where a belt of sandy desert supporting scanty grazing meets the area of bare dunes covering the northern fringe of the great gravel glacis of the K'un-lun.<sup>26</sup> From Charchan I carried my plane-table traverse along the unsurveyed route near the right bank of the Charchan river or along the line of adjoining marshes as far as the grazing ground of Lashkar-satma; thence I followed the usual caravan track by the old site of Vāsh-shahri to Charkhlik.<sup>27</sup>

Here at the only permanently inhabited place of any size in the whole Lop region representing the terminal basin of the Tārīm, I was obliged to make a few days' halt for the manifold preparations necessary for my explorations in the waterless desert north-eastwards. Before moving again I was rejoined by Rām Singh who had fixed his triangulation stations along the K'un-lun range from Surghāk past Kara-sai and Kapa as far as Salkanji, south of Charchan. After a rapid visit to Charchan he had returned to the foot of the mountains in the south-east, but owing to the severe cold of the season and an attack of rheumatism was obliged to confine himself thereafter to plane-table work. This, however, could as far as approximately the 87th degree of longitude be controlled by intersections from high peaks he had already triangulated from the west. Increasing pains had then forced him to regain the caravan track near Vāsh-shahri.<sup>28</sup>

On December 6th I started from Charkhlik for the expedition which was to take me across the waterless Lop desert north-eastwards to the ruins of the ancient *Loulan* site first located by Dr. Hedin in 1901. The route chosen led past the small colony of Mirān, then only spasmodically cultivated, and near it I was able to trace remains of an extensive ancient settlement.<sup>29</sup> Rapid excavations soon proved its importance and determined my subsequent return to the site. Rām Singh had followed me to Mirān, but the rheumatic attacks from which he was suffering then and during most of the following winter months made effective work very difficult for him on the trying ground ahead. Nevertheless we brought him along on the only camel which could be spared as a mount, the remainder of the twenty-one animals being needed for the transport of indispensable baggage, food supplies and water, *i. e.* ice. With a party of fifty men including labourers for excavations, I crossed the Tārīm at the small fishing hamlet of Abdal. Thence after leaving behind the last salt lagoons of the dying river I pushed on northward across a forbidding waterless waste of bare wind-eroded clay and drift-sand for seven marches from the Tārīm to where the principal ruins of Lou-lan were found in the position correctly indicated by Dr. Hedin's map.<sup>30</sup>

<sup>24</sup> Cf. *Desert Cathay*, i. pp. 269-299; *Serindia*, i, Chapter vi; iii. Plans 7-18; Sheets Nos. 18. B. 4; 19. B. 1.

<sup>25</sup> See Sheet No. 19. D. 1; *Desert Cathay*, i. pp. 300 sqq.

<sup>26</sup> See Sheets Nos. 23. A-C. 1; 22. C. 4; *Desert Cathay*, i. pp. 317 sqq.

<sup>27</sup> See Sheets Nos. 22. D. 3, 4; 26. A-D. 3; *Desert Cathay*, i. pp. 321 sqq.

<sup>28</sup> For the surveyor's route from Surghāk, partly followed also in 1913 by R. B. Lāl Singh, see Sheets Nos. 19. B-D. 3; 23. A. 3, B.2, C-D. 1, 2; 26. A-C 4.

<sup>29</sup> See Sheet No. 30. B. 2; *Desert Cathay*, i. pp. 348 sqq.

<sup>30</sup> For the route followed from Abdal, see Sheets Nos. 30. B, C. 1; 29. C. 4, D. 3, 4; for observations on topographical features of interest such as the formation of wind-eroded clay ridges (*yārdangs*), ancient dry river beds, etc., see *Desert Cathay*, i. pp. 361 sqq.; *Serindia*, Chap. x, sec. ii, iii. For the topographical significance of rows of dead trees (wild poplars) marking ancient river courses, cf. in particular *Serindia*, i. pp. 355 sq.; for their indication on the maps, see below Chap. III sec. ii.