

of the bed testified to the great volume of water which, according to the description of the Turfānliks who accompanied us, sweeps down here at the time of the melting of the snows and on the rare occasions when summer rain falls in the mountains. Grazing grounds were said to be found only at the very heads of the valleys draining south from the snows of the watershed; Turfān flocks visit them in the summer months.

March to  
Yoghan-  
terek.

At the entrance of a defile formed by low projecting spurs, we passed the few scattered huts of San-shan-k'ou, near the junction of two narrow side valleys (Map No. 28. B. 2) coming respectively from the north-east and east. Such scanty cultivation as once existed here had been abandoned for several years past, owing to the drying up of the springs in the former of these two valleys. The other valley, called Karlik or Karanghu-jilga, descends, as the map shows, from a great snowy massif in the range, probably its culminating portion east of the Bogdo-ula, and contains a considerable stream. But its water cannot be used here for cultivation as all level ground where it debouches and for some miles lower down is covered with boulders and rubble. Only willows and Toghraks will grow there. After groping our way over this tract in the dusk for close on four miles from San-shan-k'ou, we reached the point where the valley again widens. From here onwards a continuous thicket of willows covers the valley bottom, and the route, in order to avoid it, keeps close under the conglomerate cliffs flanking it on the east. It was quite dark long before we arrived at Yoghan-terek, a group of roadside inns, amidst some fields and arbours at an elevation of about 6,400 feet; we had covered a total of thirty miles during the day.

Abundant  
drainage of  
valley.

The clear sunlight of the next morning revealed a picture of striking colours. Willow jungle and poplar plantations, clothed in brilliant autumn tints, filled the bottom of a cañon between steep conglomerate cliffs, which rose to close on 300 feet above the lively stream. This by 8 a.m. carried a volume of over 300 cubic feet per second, notwithstanding the advanced season, and two hours later the water had considerably risen. It was easy to believe, as was stated at Yoghan-terek, that during the melting of the snow in early summer and on occasion of rainfall in the mountains, the stream fills its whole rubble bed, over 200 yards wide at this point. Yet, scarcely more than twelve miles farther down, all this water is completely lost where the valley opens on the thirsty gravel Sai which in a mighty hemicycle of barrenness stretches round the whole northern edge of the Turfān basin. Judging from the information I received as to the mouth of the valley, it appears that much of the water brought down to this point, known as Darche, and subsequently lost on the Sai, reappears by subterranean drainage in the springs that feed the 'Yārs' to the west of Yār-khoto, or in the Kārēzes to the south-west of the present Turfān town.

Succession  
of riverine  
terraces.

Our march on October 24th first took us for six miles down the left bank of the stream. Where we left it and ascended towards an easy flat watershed known as Ishak-dawān, I could clearly make out on the opposite side of the valley four successive river terraces on markedly different levels. They suggested a succession of periods when the volume of the river and its power of erosive action had shrunk more and more, until it carved out for its course the present comparatively narrow cañon. That these periods of gradual shrinkage were related to climatic variations producing fluvial and interfluvial periods can scarcely be doubted. The observation is only made here with a view to suggesting that competent geographical students should on some future occasion examine the numerous other valleys that descend into the Turfān basin from the north.

Descent to  
Shaftulluk.

From the saddle of the Ishak-dawān, about 5,200 feet above sea-level, the descent lay down a shallow Wadi-like valley, almost entirely bare of vegetation and flanked by cliffs in which horizontally stratified red clay is overlain by deposits of detritus. We had covered some seven miles from the saddle before a patch of tamarisks and reeds gave the first indication of the presence of subsoil water. About a mile farther on, we passed a small clay terrace covered with Muhammadan tombs, and then