

well as sparser, than the belt on the opposite shore, and also that the former generally lies at some distance from the edge of the water, whereas the latter actually touches it. This in itself is a clear proof of the westward migration of the dune-waves.

That vegetation does exist on these sandy desert-like shores is not at all to be wondered at. All three varieties — poplars, tamarisks, and kamisch — thrive excellently well in sandy soil, provided only their roots go sufficiently deep to tap the groundwater. All three species are found a long way into the Desert of Takla-makan. In 1896 I noticed clumps of living poplars all the way from the point where the Kerija-darja dies away in the sand, to the Tarim. The seed is carried to the shores of these lakes by the water flowing in through the open canals, and once there it finds all it needs, water indeed in far too great abundance. Probably the reasons why poplars are not more plentiful there, and do not form dense forests, are that the dunes do move westwards, and that the lakes are sometimes cut off from the river, and at such times their water tends to grow salter.

I never saw, beside any of the lakes I visited, ancient poplars similar to those which exist in the forests of the upper and middle Tarim; here they are seldom more than fifty years old, generally far younger. And what is the reason of this? Simply and solely this, that the river, to which both lakes and vegetation alike owe their existence, is a new-comer in that particular locality. When the river flitted over into its existing bed it is impossible to say; but lower down I shall be able to prove by inexpugnable and unmistakable data that it cannot have occupied its existing channel for any very great length of time. Of course I do not mean to assert any such thing as that the river's tenure of its present quarters, along this particular section of its course, is to be measured by a space so short as fifty years or so, though that is not at all unlikely; indeed in the case of some of its loops one might without rashness assign a much younger age than even that. I will merely say, that if the river had flowed along its present channel for several centuries, the poplars which are now standing, for instance, on the west shore of the Gölme-käti, would be far more developed, and would bear plain indications of a more mature age. Then there is also this pretty obvious fact to be borne in mind, that the poplars of the east shore would be almost certain to be overwhelmed by the sand, before they had an opportunity to attain any very ripe age. Thus, once more, the thinness of the vegetation, as well as its youthful age, are both governed (1) by the fact that the river itself, which has filled these lacustrine basins, is such a comparatively recent creation, and (2) by the fact that the dunes do migrate westwards.

If, then, the river is a recent arrival in this locality, what did the country look like previous to its advent? So far as its morphology is concerned, precisely as it looks now (Pl. 47). The only differences are, that the previously existing depressions have been filled with water, and that vegetation has sprouted in what hitherto was a perfectly barren region. Nor are these mere guesses; they are deductions from the observations I made, and the experiences I underwent, in the interior of the Tschertschen Desert. Equally certain it is, that the flooding of these depressions does not exercise the slightest effect upon the movement of the dunes in the direction of the prevailing wind. In fact, these elongated lakes occupy precisely those portions of the sandy desert into which the power of the wind does not reach, that is to say,