

demonstrated with certainty. When, then, Huntington includes Alexander and Istakri, 300 years before and 900 years after the birth of Christ, within the last period of abundant water-supply, I can follow him no longer. Of Alexander we have already spoken, and have shown that he marched through a desert country quite as miserable and sterile as we now know on the coast of the Ichthyophagi. As regards Istakri, for his time and the next following we can rely on the high-water level of the Caspian Sea, which introduced no improvement in the Persian deserts, as far as we can gather from the Arab geographers. In the twelfth century an ebb occurred which reduced the surface of the sea to a level 13 feet lower than at present. A maximum occurred in 1306, with a waterstand 36 feet higher than now. Thirty years before Marco Polo passed through the desert, and he describes its state as worse rather than better than at present. The fluctuations of the Caspian Sea, which we have found to be a function of the precipitation within its hydrographic area, seem, then, to have exercised no perceptible effect on the Persian deserts, at any rate not so marked that we can find any information about it from historical records.

The fact to which Huntington refers, and which also attracted my attention, that numerous ruins are situated at Zirre and Shela, does not necessarily prove a constantly progressive decrease of water in Mohammedan times. Here, as in Seistan generally and in many other parts of Persia, the numerous ruins may indicate nothing but a change in the position of rivers and lakes. I have fully described a similar occurrence at old and new Lop-nor, where the population was forced to abandon its villages and farms when the river and lake moved southwards.¹ But this movement had nothing to do with a change of climate, and did not entail a diminution of the population.

It is certainly true that Eastern Persia in particular abounds in ruins. Most of them are Mohammedan, and therefore of comparatively recent origin. Were not Veramin and the whole of Northern Persia devastated by Mongolians, and have not innumerable ruins existed since

¹ *Scientific Results of a Journey in Central Asia*, vol. ii.