

On the other hand Captain VAUGHAN makes the following statement: »I made a collection of various marine shells, including oyster-shells, between Chashma-Gauhir and Baba-Khalet at an elevation of 100 or 200 feet above, and within 2 or 3 miles of the Kavir bed.»¹ If these shells were found *in situ*, they offer us a starting point for at least some preliminary acquaintance with the ancient lake at one of its levels. The average height of the southern border of the Great Kavir I found to be 735 m. The lowest point in the interior of the desert was at 685 m. The difference between the border and the centre was thus 50m., and Vaughan's shells should date from an epoch when the lake had depths of 100m.

Along a meridional line across the Kavir from the edge near Jandak and northwards, I found, the absolute heights: 779, 758, 722, 685, 709 and 718m., the line being 110km. long. On a more easterly line, between Turut and Arusun, the difference in altitude in 120km. amounted to 56m. maximum. The depression is clearly shown in both cases, and only a lake can account for the levelness of the desert. All round from the edge of the Kavir, the ground, whether sand, gravel or steppe, begins to rise slowly. The silt and clay, and the perfectly horizontal sheets of solid salt, sodium chloride, can only have been deposited in a lake. Only at Turut did I find a typical *loess* terrace, from the foot of which, at 799m., the detritus fan slopes slowly down to the edge of the Kavir. This *loess* may have been deposited at some period of the later Tertiary when the climate was dry. Then followed the pluvial period corresponding to our ice age.

It would be difficult to explain the absence of lakes in the Kavir and Lut depressions during diluvial times, since it has been proved that the Caspian had such enormous dimensions and the depression of Seistan was filled with water. At the end of the pluvial epoch the Kavir lake began to dwindle. At present the desiccation has proceeded so far, that only after rains in winter a few temporary pools and salt marshes can fight against evaporation for some time.

As to the speed with which the desiccation has proceeded during post-pluvial times it seems impossible to express an opinion with any degree of certainty. Even within historical times it seems difficult to give real proofs of climatic changes. Brückner says: »eine Änderung des Klimas, wie sie seit Schluss der Eiszeit eingetreten sein muss, ist in historischer Zeit noch nicht mit Sicherheit erwiesen und noch wird über die Frage hin und her discutiert; gerade die hydrographischen Phänomene, welche unsere kurz dauernden Schwankungen so trefflich wiederspiegeln, scheinen nichts von einer solchen Änderung anzuzeigen, ein Beweis dafür, dass dieselbe sich unendlich langsam vollzieht.»²

Those who use Alexander's chronicles to prove a great change of climate during the last 2,200 years, asserting that in our time it would be practically impossible to take an army along the coast of the Ichthyophags, as Alexander did,

¹ Geographical Journal, Vol. VII, 1896, p. 166.

² Klimaschwankungen p. 323.