

masses of sand ever having moved, or ever having overwhelmed any part of their cultivated fields. Nor during the past ten years do they remember that the crest of the Kum-tau has undergone any perceptible change. And although this last statement is doubtful, it is indisputably true, that these masses of sand have not actually moved. Nevertheless there did exist a time when the Kum-tau did not advance so far into the valley of the Luktschin. The river of Pitschan, which now disappears under the sandy mountains, once flowed in open daylight between Jan-bulak and Dga, and emptied itself into what appears to have been a larger river, namely the Assa, which however dried up a very long time ago. The Kum-tau rises to a very considerable relative height, by estimate probably 450—500 feet. These immense masses of sand are brought thither from a great distance, across the Tus-tau, and arrive from the north-east, while on the south-west they lean upon the mountains of Tschol-tau, the southern boundary of the Turfan depression. How far that belt of sand extends to the east nobody could tell me; but if we regard it as composed of the old dunes of the lake, or rather sea, of Turfan, we shall be warranted in concluding, that their breadth, generally speaking, is not particularly great.»

As compared with Obrutscheff's thorough description, and Grum-Grschimajlo's interesting account, of the Desert of Kum-tagh, Roborovskij's statement is remarkably curtailed. He says, »To the east stretches a zone of sand, embracing the 'cauldron' valley of Luktschin. According to the natives, its barks are almost motionless, and as it were 'congealed'. They reach an altitude of 400 feet, and are called Kum-tau.» Then follows a legend in which an ungodly city was condemned by the wrath of heaven to be buried under the sand, and the story of a hunter, who sixty years ago is reported to have discovered in the sand a chest full of gold, with which he lived afterwards in great style. His descendants are still living in Luktschin, and have no reason to complain of being in want!*

I will now quote a few extracts from Bogdanovitsch's conception of the origin of the great accumulations of sand in Central Asia. He says that the climatic agencies of Central Asia are everywhere engaged in creating materials for the formation of sand, and that it is the encircling mountains which contribute the bulk of the material for the regional development of the continental masses of sand. »Thick deposits of fluvial and lacustrine alluvia from the Jarkent-darja and certain of its tributaries, as well as from the existing (Tschertschen-darja) and former (Kerija-darja and Chotan-darja[?]) rivers, cover immense areas in Central Kaschgaria. There exist proofs beyond all dispute (namely the existence of ancient river-beds) that the lower Jarkent-darja (Tarim) has repeatedly shifted its course. It is evident that these mark the oscillations of the river, and that these oscillations were caused by the accumulation of fluvial sediment in certain of the beds, and by its constantly increasing removal by the current from others, into which it was originally brought by the same agency. These changes of bed cannot however be connected in any way with more general tectonic processes . . . The fine arenaceous clay deposits from the rivers and lakes, which have been left behind by the rivers when they have shifted their beds, have furnished an abundance of material for æolian formations. The sand

* *Trudij Ekspeditsij Imp. Russ. Geogr. Obschtsch. po Tsentralnoj Asij 1893—95, I(1) p. 112.*