

beyond the ends of their valleys. And even greater appear to me to be the difficulties of establishing any sort of a connection between the immense, sharply bounded zone of sand that lies south of the Basch-kum-köl and fluvial activity of any description, for there is no river at all there, only a brook, fed by springs and flowing solely through marshes. I am utterly unable to persuade myself, that this broad belt of sand can have anything whatever to do with the adjacent lake; any more than I can conceive it to have been originated in the same way as the area of sand which Loczy describes as existing beside the lake of Po-jang. Here it is solely and alone the regular winds that have heaped up the sand in a given locality, where the atmospheric current either has greater friction to overcome, or forms an eddy, or encounters some other current of the atmosphere — where, in a word, it is somehow arrested.

Potanin and Obrutscheff appear to me to be perfectly right when they look to the permanent solid rocks in the neighbourhood as the direct source of the drift-sand. The fact that such sandy deserts as the Takla-makan, the two Kum-taghs, the Ak-bel-kum, and several others are situated in oval-shaped basins explains how, e. g. the first-named and the last-named come to have a river for their neighbour. All the same the propinquity is accidental: it is just as natural for the sand to remain in a depression as it is for water to flow towards the lowest part of its basin. It is just as easy to mention instances of basins with a river but no sand as it is to mention a basin with sand but no river. When we find both present in one and the same basin, it means that the conditions have been equally favourable to them both. Masses of sand are however more independent of the shape of the basin than water is, and in so far as the direction of their progress is concerned, they are, for reasons that will be readily understood, more independent of the laws of gravity, because they are able to climb up a slope just as easily as they glide down it. In the eastern Takla-makan and the southern Kum-tagh, for instance, the dunes proceed from lower to higher ground. In some of the Central Asian deserts, for instance the Kisil-kum and the Kara-kum, it is scarcely appropriate to speak of a basin; at any rate they fill each such a small portion of a basin that within their own precincts the special characteristics of a basin are lost. As a rule it may however be said, that sandy deserts are more or less distinctly confined to basins and depressions; indeed this is implicate as an axiom in the laws of gravity, because both aqueous and atmospheric currents alike, when they level down the surface of the earth, wear down all the elevations and fill up all the depressions.

Let me now attempt to answer the question with which I began this present discussion — where do the masses of sand come from that fill the basin of the Tarim? I hasten to observe however, that this problem is so complicated, and several factors which have to be taken into account are so uncertain, that it is impossible to arrive at anything like a sure and certain result. For the most part we have to rest contented with nothing better than guesses and suppositions. One source of great uncertainty is the circumstance, that the climate, during the vast periods which have elapsed since the Central Asian »Mediterranean» disappeared, must itself have undergone great changes. When that vast inland sea existed, the atmosphere must obviously have possessed higher hygroscopic properties than it