

river taking a diagonal course, towards the south-east, that is from the neighbourhood of Tikenlik along the Ilek, across the Avullu-köl, to the eastern part of the Kara-koschun. Instead of that the changes which then took place have resulted in a north-south course, from the Tschivilik-köl and Avullu-köl to Tschigelik-uj. Hence the section from Arghan to Tschigelik-uj or from Avullu-köl to Tschigelik-uj formed a right angle with the Kuruk-darja. The angle formed by the two arms of the Hwang-ho, that is to say the old arm which the stream followed between 1290 and 1852 and the existing arm which it has followed since 1852, only amounts to  $60^\circ$ , and yet those two arms embrace between them the mountainous region of Schantung. In the case too of other deltas whose ramifying arms are spread out wide by the accumulated sediment deposited between them, the angle made by the extreme outside arms seldom amounts to a rectangle, as it does for instance in the Nile. The corresponding angle of the Amu-darja is at first greater than a right angle, but if the whole of the delta be taken into account it is less than half a right angle. The angle between the Meghna and the Hugli in the Ganges delta is  $55^\circ$ , and, to quote only one other example, the deltaic angle of the Tschertschen-darja lies between  $50^\circ$  and  $60^\circ$ .

And just as the meridional course of the Tarim forms a right angle with the Kuruk-darja, so also the chain of lakes Avullu-köl to Arka-köl forms a right angle in relation to the Kara-buran and Kara-koschun. The cause of the river's changing its bed was that to which similar alterations in the Tarim have always been due, and also the same as that which was operative at the mouth of the Hwang-ho, namely the river having come to lie at too high a level relatively to the circumjacent country. Later on we shall again have to consider the forces which have contributed to the origination of an entirely new lake either subsequent to or contemporaneously with this change in the river-bed. What I particularly desire to emphasise just now is the existence of two systems of depressions, intersecting one another, in both the Desert of Tschertschen and the Desert of Lop. One system, running from west-south-west to east-north-east, is that of the Kara-buran, the Abdal lakes, and the Kara-koschun, the lower Tschertschen-darja, and innumerable bends of the existing Tarim, especially the section between Basch-arghan and Ajagh-arghan (Ajrilghan). The other system runs for the most part north and south. The Kuruk-darja was in its time independent of both these systems, following a natural line of fall towards the old Lop-nor.

I have already called attention to the fact that practically all the ramifications and extensions of the Kara-koschun point like fingers towards the east-north-east, flowing in gullies excavated by the wind during the arid period. The west-south-west to east-north-east system of depressions may therefore be regarded as an effect of the wind. At first sight it may seem like a paradox, when I go on to say, that the other system of depressions, which intersects the former at right angles, is likewise a result of the same east-north-east wind. But the contradiction is only apparent; for the same wind that by corrasion hollows out the gullies between the jardangs of the desert likewise heaps up the drift-sand into dunes. The several individual dunes have therefore a steep descent towards the west-south-west; but the great accumulations of countless separate dunes, rising to 100 m. in altitude,