

the underwoods also help to retain the æolian precipitation, and fix it to the spot. Hence the belt of vegetation lies only a trifling degree higher than the desert; this explains why the Tarim and the Kongsche-darja do not unite before reaching Tikenlik and Arghan. They flow on the opposite sides of a ridge, which is being raised in consequence of the retentive power of the vegetation (fig. 254). As a consequence of this we shall find that those arms of the lower Tarim system which lie on the extreme east have a tendency to flit to the east, and those on the extreme west a tendency to flit to the west. And the same circumstance explains to some extent also the tendency of the Tarim to spread itself out like a delta as it approaches its termination; though the principal cause of this is to be sought elsewhere, and is discussed in another part of this work.



Fig. 254.

The situation of these marginal lakes is easily understood when we bear in mind that the surface material is accumulated on the left bank, but is swept away on the right bank, and when this correlative process goes on century after century, it must inevitably leave an effect behind it upon the course of the river, by deflecting it to the right. The following reasoning, whilst professing to be theoretical only, without advancing any claims to be a new, or even too bold a theory, seems to me nevertheless applicable to this case. De Geer has put forward the idea, that the secular elevation which is going on in northern Scandinavia is caused by the elastic recoil of the earth's surface, returning to its original position after getting rid of the dead-weight of its glacial covering in the Ice age. If now this ice-cap, which is, I admit, inconceivably more compact and inconceivably heavier, than the sands of the Takla-makan, was able to exercise so stupendous a pressure upon the underlying primitive rocks, then it is a fair question, whether the pressure of the superincumbent sand in the desert just mentioned does not, though on a very much smaller scale, exercise a certain amount of pressure upon the substratum on which it rests. Confining our attention to that part of the desert which is bounded on the west by the line of continuation of the Nija-darja and the lower course of the Kerija-darja, on the north by the Tarim, on the east by the Tarim and the Ettek-tarim, and on the south by the Tschertschen-darja and the forest-belt of the astin-jol, or great southern road, we have a region measuring 110,000 square kilometers. If now two-thirds only of this area is covered with sand, we get a base equal to 73,300,000,000 square meters, and if we put the mean altitude of the sand-accumulations at 70 m., we obtain a mass of 2,565,500,000,000 cub. m. of sand. A cubic meter of ordinary sand weighs say about 1,700 kg., so that the total weight of this mass of sand is equal to 436,000,000,000,000 kg. Possibly this immense weight exerts, as I have said above, a local pressure, which to some extent compresses the underlying substratum, and, if the sand were removed, the substratum would by its elasticity recover its normal position. But this does not happen: on the contrary, the pressure tends to increase, for the products of disintegration which originate on the mountains that encircle the basin of the Tarim