

for in respect not only of the altitude of its dunes but also of the unbroken continuity of its sand, the desert of the Tarim exceeds both the Kara-kum and the Kisil-kum. Nor can we attribute this entirely to the total disappearance of the internal Central Asian sea, while of the Aralo-Caspian sea there still survive two large lacustrine basins, so that this last has not proceeded so far in its negative development as the former. In a word, if we look upon the river as the agent of the formation of the desert — always assuming of course that the climatic conditions really allow it — then we are absolutely unable to answer the question, why a certain river should have produced a larger desert than two other rivers, each of which is in itself more powerful than the first-named, while both have yet co-operated together to give origin to one and the same desert.

As regards more particularly the Tarim, those parts of its system which possess the largest volumes of water, i. e. the region of the lower Ak-su-darja and the region of the lower Jarkent-darja as far down as Maral-baschi, are practically nearly free from sand. At any rate the sandy desert is there far less developed than in other parts of the river-system. Beside the lower Jarkent-darja the high sand is everywhere one or two days' journey distant from the river. If it be objected, that this affords no proof, because the river may there have altered its bed, I would beg to point out, that those are the regions, nearest to the outside boundary of the catchment-basin, in which changes of bed are at a minimum. Wherever the sandy desert thrusts out promontories, small dunes, right up to the river, it is not the river to which these last owe their origin, but it is the dunes which, driven forward by the wind, threaten to smother the forest. The Chotan-darja, which is now dwindling rapidly, is on the contrary embedded amongst dunes, and the Kerija-darja, which was once an affluent of the Tarim, is being rapidly destroyed in its futile struggle against the drift-sand. But surely nobody will venture to maintain, that these two rivers, in former times when they carried more copious volumes, deposited all the sand which is now destroying them. Why, all the space that intervenes between the Jarkent-darja and the Chotan-darja, and that between the last-named and the Kerija-darja, are filled with dunes, much loftier than those that lie adjacent to the rivers themselves. And in the case of fluvial dunes, it appears to be characteristic, that, unless the river alters its channel, they are wont to persist at any rate somewhere near to the river to which they owe their origin.

Let us now consider the middle portion of the Tarim proper, e. g. the region around Tschimen — there we find that the river is indeed divided into several arms, of which only one as a rule carries water, the others being dry and abandoned. The country between these arms is practically quite free from dunes, and the plentiful vegetation — woods and kamisch, steppe and bushes — which springs up beside every newly formed river-bed renders the formation of dunes impossible, while any alluvial sand there may happen to be is bound fast by the vegetation, and thus the activity of the wind is rendered powerless. If there really were any appreciable formation of dunes taking place in that part of the river's course, one would expect to find at least rudimentary dunes along the banks; but it is precisely in that quarter that there are none.

Let us now proceed lower down to the reaches between Karaul and Arghan, to which Bogdanovitsch especially calls attention. I opine that a glance at Pl. 24, 32