

was being exerted by the river when we observed it, but at the same time the deposition of sand and silt is also proportionally greater. The mud flats which we saw exposed over such a wide area do not retain the same positions two years in succession, but keep shifting and changing, except in those reaches in which the river traverses an old and tolerably fixed channel. Yet even there, as elsewhere, the material of which the several individual deposits are composed has travelled down the river. They are washed down by the high flood, but then the high flood deposits fresh material in their places. That the river is never deficient in material to deposit, we have already seen. Not only is its water always very turbid, but it flows, especially in this part of its course, close to the high dunes, frequently sweeping along the face of its outliers and sucking in enormous quantities of sand. The coarse sand of course soon settles to the bottom, not very far from the spot where it has been caught up by the stream; but the finer material is transported some distance down, and the finer it is the farther it travels. It is the very finest dust which keeps the river always so muddy; yet even it too must settle sooner or later, for the Tarim has no outlet to the sea. This circumstance supplies us indeed with one of the chief factors for the solution of the Lop-nor problem, that is to say it is one of the causes of the migration of the Lop-nor, as well as of the river's instability and tendency to shift its bed. Even if we disregard the coarser sand, it is perfectly evident, that the finely comminuted material which for countless centuries the stream has carried down in suspension must have resulted in the deposition of immense quantities of solid matter in the lower-lying parts of the system; while on the other hand, the force of erosion in the higher-lying parts has tended to produce the contrary effect, by constantly loosening and removing the soil, and so lowering the river-bed. Not only does the Tarim in the lowest parts of its course wage successful warfare against the sand, but it also levels down the country it flows through. Indeed, the shifting and washing away of the sand-banks is a direct consequence of the energy of erosion. Nor has this ephemeral erosion escaped the observation of the half-civilised natives: they call it *kum* or *laj kaulaghan-su*, that is »the water digs down into the sand or clay». But they push the explanation too far, when they assert that the drop of some centimeters which sometimes takes place during a single night is caused by an equivalent volume of the current having scooped out a place for itself in the bottom of the river, or in other words by a corresponding quantity of sand and silt having been removed from the bottom.

The deposition of alluvial material being thus in excess of the effects of erosion, it follows that the river-bed becomes increasingly filled with sediment. Consequently the channel is raised year after year in relation to the flat country adjacent to it, until finally the stream runs over and seeks a fresh path for itself. When the stage is reached in which the accumulation of sediment is so great that the river has no longer any choice, but *must* run over, then a *jangi-darja* is formed like those which we have more than once considered above, and such as we shall find yet other excellent instances of lower down.

But it is more difficult to discover a perfectly satisfactory explanation of the deep, narrow bed of the Ugen-darja. The reason why it does not get filled with sand and silt is no doubt the sluggish character of its current, depriving it of the