

get out of the basin of the Tarim; the limit of its migrations is the ring of mountains which girdle that basin all round. To their feet it may indeed be carried, it may be over a vast distance, but once it arrives there, there it must remain. The basin of the Tarim is a receptacle which collects and stores up solid material, but never parts with it again. During the millenia of years its surface must be raised and levelled, and in fact it is excessively flat, indeed practically horizontal. While the wind blows the dust westwards, the river, in so far as it gets the dust into its power, carries it back towards the east. When a river, such as the Kerija-darja, is no longer able to reach the main stream, it becomes appreciably shortened by the sedimentary matter which it brings down itself, by depositing it in the desert on a *lajdang* or »silt bed«, which sometimes grows to a considerable size.

All this will help to emphasize the importance which attaches to a desert storm, a *kara-buran*. When the effects which these produce in thousands of years are all added together, it is obvious they must leave perceptible traces behind them. Winds from other quarters than the east, seldom waxing as they do to the power of actual storms, do but arrest and retard a little the final issue of these easterly tempests.

The factors therefore which in this part of Central Asia cooperate in the reformation of the earth's surface, are thus, apart from disintegration, which has its own special field in the encircling ring of mountains, — are thus the wind, the water, sand and dust, the last two being the products of disintegration. The wind carries away the products of disintegration and piles up the drift-sand into what are almost mountain-chains. The water levels down, and has already so far done its work, that the Desert of Lop is almost everywhere horizontal. The sand is disseminated all over the face of the country, smothering the vegetation. The dust, a comminuted and volatile material, hovering between sky and earth, is quite as much a meteorological as a geological element; for while it is the transporting power of the wind which carries it away from the rock out of whose ribs it has been loosened by disintegration, it is none the less a meteorological factor, not so much because it constitutes a peculiar variety of precipitation, as because it produces upon the temperature relations at the surface of the earth the same effects as are produced by a heavily clouded sky. Not only does it check insolation, but it also raises the night temperature, by acting in the same way as a compact veil of clouds which checks radiation. Thus the dust plays a double rôle: in part it contributes directly to the formation of strata, and in part it helps to minimise differences of temperature, and thus to some extent acts as a check upon disintegration.

I need not add, that human agency is likewise a factor which cannot be neglected in an enumeration of the operative causes to which the physical conformation of this part of the world is due. The cultivated area is confined to soil which is composed of æolian matter that provides the agriculturist with a grateful medium to work with, the dust in these oases being bound by vegetation. Through the agency of man the river is deprived of an important part of its volume. But there is one force of nature over against which man is powerless, and that is the drift-sand. He does, it is true, do his utmost locally to check its advance; but he is soon discomfited, and abandoning his fields has to betake himself to safer regions. Nothing proves this more plainly than the ruins which I discovered in the Kerija Desert in 1896.