

a storm like that, to be out exposed to its unmitigated fury, and to witness its effects with one's own eyes is worth a little risk. Anybody who visits that region would, without ever having seen one of these storms, say at once, without hesitation, that the dunes he sees could only have been piled up in the way they are by the wind, blowing repeatedly and with unparalleled violence from the east; but it is only after witnessing a *kara-buran*, and personally experiencing what it is like, that one obtains a clear conception of the relief of the surface, and of the processes which lead to it. Incredible masses of finely comminuted dust are carried on the wings of the wind far across the plains of Turkestan, nor are they dropped until the atmosphere becomes perfectly still again, and even then it is generally a couple of days before the air thoroughly clears. The sand however does not accompany the dust; you both see and feel that it remains behind. You see the compact masses of yellow sand which the storm has whirled aloft speedily dissolving again on the leeward side of the dunes; they fade away and disappear in the dark-grey haze, which the tempest trails behind it. You feel also that the atmosphere cannot be charged with sand, for if it were so, you would feel, as you do feel when you walk over the dunes in a storm, the incessant stinging of its myriads of particles as they strike you forcibly in the face. From the fine dust you do not on the other hand experience so much as the faintest tickling of the skin; in fact, you are unable to *feel* it at all. The only inconvenience it is to you is that your throat soon turns dry, and the inner corners of your eyes get filled.

The impression which such a tempest forces home upon you is, what an enormous deflation or power of transportation the wind must possess in a region such as this! All the fine dust which is produced through weathering and other agencies in the mountains of Central Asia, greatly disintegrated as they already are, all the dust which is produced by the friction of the particles of sand, grinding one against the other, and all that which originates from the mud deposited in the lakes which subsequently dry up — it is all borne westwards by these storms. Assuming that, during the stormy season, there is one black tempest a week, then each such storm carries away all the products of disintegration which have been accumulating throughout the preceding week and transports it a long way towards the west. After the cessation of one of these tempests it is quite noticeable how »clean swept» the surface appears; but it does not wear that appearance long, for the dust which is hovering in the air soon begins to settle again. At the end of a few days' calm, after a storm of this character, a layer of dust is deposited upon the sand, causing one's footsteps to stand out in lighter colouring. I did not attempt to measure the quantity of dust which one of these tempests is capable of carrying away with it, and indeed any such attempt would be attended with considerable difficulties. But on the assumption that every cubic meter of the dust-laden atmosphere deposits a layer  $\frac{1}{100}$  mm. thick, or in other words  $\frac{1}{100000}$  of its own volume, the total amount is soon seen to run up to altogether fabulous and unmanageable figures. If we assume an ordinary storm to travel at the mean velocity of 30 m. in the second — and I *have* measured 27 m. at the surface of the earth — also that the dust-bearing strata of the atmosphere have a depth of 200 meters, and further that these strata stretch right across the entire Lop region, a distance of 200 kilometers, then in the space