

which is derived from this fluvial material is distinguished by the presence of mica, and by its uniform size, its fineness, and its yellow colour, from the coarser, darker and considering the size of the sand-grains, more irregular sand which is derived from other sources . . . The gigantic sand-dunes beside the Jarkent-darja, between Lop-nor (Kara-koschun) and Korla, are built up of products derived from the disintegration of the light, fine-grained clays of the Jarkent-darja.»

»In Kaschgaria four distinct varieties of barkhan formation may be distinguished: (1) detached, isolated bakhans; (2) barkhan-ridges, or bakhans with their two slopes dissimilar; (3) ridges with their two slopes similar in character; and (4) barkhan accumulations.»

»The first-named, the solitary bakhans, cannot subsist for long. In the process of development their extremities come intimately into contact with each other, so that they coalesce and form long ridges or chains of bakhans. In Kaschgaria the process of cohesion has advanced so far that the sand-dunes there generally present themselves in the form of dune-accumulations . . .»

»Only once did I convince myself by direct personal observation in Kaschgaria that the bakhans, under the influence of the winds blowing persistently in one and the same direction, more slowly but uninterruptedly forwards.»

Bogdanovitsch then goes on to speak of the transformations as to both shape and relief which these same dunes undergo, under the influence of winds from different quarters. Although they remain constantly in identically the same position, their appearance and relief are subject to unceasing change. At Nija and other places he convinced himself, that the crests are turned now in the one direction, now in the other, though at the same time they always preserve a mutual parallelism and adhere to the same base, without experiencing any change of elevation. The connected barkhan-accumulations reach an altitude of 150—200 feet; and are separated from one another by broad trough-like valleys. Bogdanovitsch observed too, that in the north-east of the region, that is next the Tarim, the sand-formation takes place exclusively under the influence of the north-east and east-north-east winds. »Here no winds blow from other directions, and none of the dunes possess similar slopes.» He also made the same observation as I have done, namely that the great altitude (up to 300 feet) of the »barkhan mountains» (i. e. the dune-accumulations) beside the Tarim, and the presence of the broad »valleys» between them, prove that, as soon as the dunes melt together and form dune-accumulations, the forward movement of the masses of sand becomes retarded, while the accumulations begin at the same time to increase in altitude. Bogdanovitsch adds, that Konschin, as the result of his investigations into the dunes of Transcaspia, has arrived at the same conclusions. The extent to which the sand is distributed in East Turkestan, as well as the form and development of the dunes, are to be set down, as Bogdanovitsch rightly observes, solely and alone to the effects of the winds.

The same inquirer then goes on to observe, that the shape and position of the beds of the rivers of East Turkestan exclude the possibility of the contemporaneous origination of the dunes. »The atmospheric disintegration of the older fluvial deposits gives occasion to the formation of continental masses of sand or bakhans; but the river-dunes, which may have existed in former ages, have been re-