

on the east shore of the lakes we are discussing, then the nature of the advance is somewhat altered. If a dune descends precipitously into a river, as indeed often happens in the easternmost arms of the Tarim system, e. g. the Ilek, then the particle is gradually drawn out of the progressive revolution, the dune becomes stationary, and it is only on the windward slope that the usual conditions prevail. The dune acts as a sort of barrier, which the drift-sand has to pass on its way into the river. The core of such a dune as this may thus remain for a long period unchanged, the reiterated renewals and movements being confined entirely to its surface. In the case

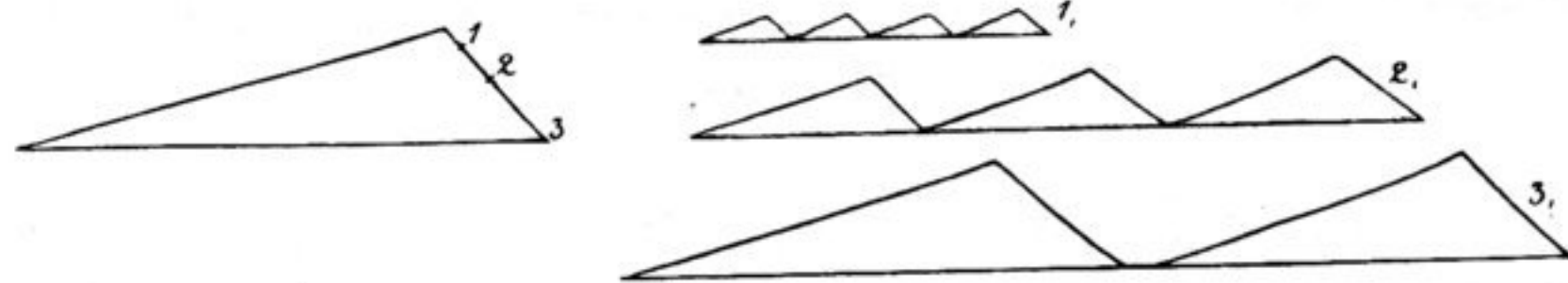


Fig. 245.

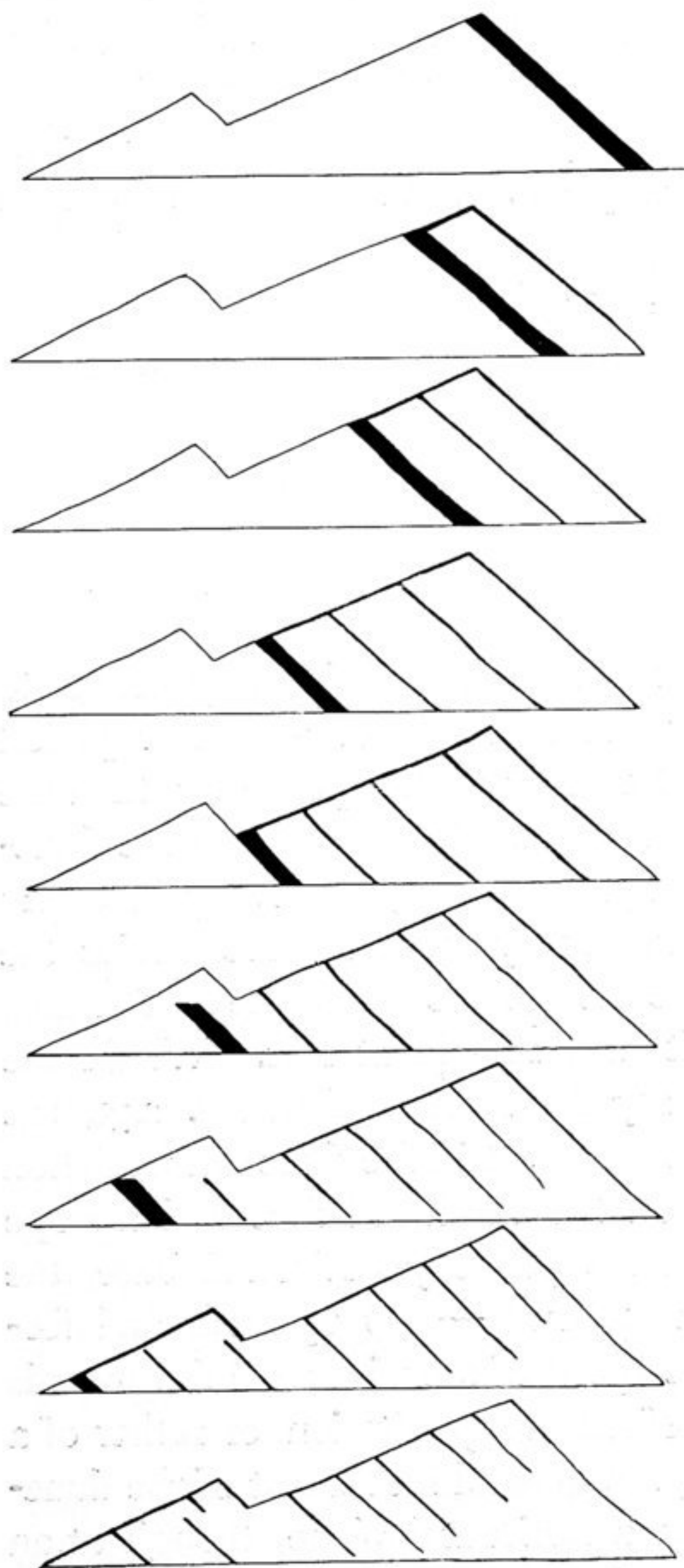


Fig. 246.

of a simple individual dune the paths of movement of three separate particles of sand, situated at 1, 2, and 3, in fig. 245, will coincide with the paths of the points 1₁, 2₁, 3₁. The fig. 246 illustrates an experiment which it is impossible to carry out, because it requires as an indispensable condition a period of 50 to 100 years for its accomplishment, and a power of vision capable of penetrating to the heart of a sand-dune, so that it is here only carried through in imagination. If now we suppose that, on the leeward flank of a dune-accumulation, there is a layer of black sand about two meters thick, superimposed upon the ordinary yellow sand, then in process of time the black sand would, in consequence of the dune's advance, become distributed through its interior in the manner shown in the illustration. The different stages are supposed to take place at intermittent intervals, though in point of actual fact the intermingling of the sand goes on uninterruptedly in frequent thin layers, all lying parallel, as shown in the series in the fig. The farther the dune advances the greater is the quantity of yellow sand that becomes intermingled with the black, which thus becomes distributed and thinned out through the interior of the dune in the manner indicated in fig. 247. By the time the entire dune-accumulation has advanced a distance equal to its own breadth, the original black layer has