

must contain an abundance of grains which offer sufficient resistance to produce an eddy. Groups of these give the mottled appearance which precedes the formation of regular ridges. These patches extend themselves transversely by a mechanism similar to that which increases the height of the ridges (the eddy opposing the direct current, and thus arresting the motion of the larger grains). The original patches thus quickly unite at their ends in transverse chains. The lateral dimension of the ridges increases much more quickly than the wave-length. I have known ridges increase from 2 inches to 20 feet laterally, whilst the simultaneous growth of wave-length was from 1 inch to 3 inches.»

If now we assume — what is of course an impossibility in nature — an absolutely horizontal drift-sand area of the extent, say, of the Desert of Lop, the causes which in the above quoted passage are stated to prevent the ripple-marks from gradually growing into dunes would no longer exist, and consequently, under the circumstances supposed, the embryonic dune-waves would develop into real dunes. But these dunes would from the very first possess no individuality, because from the very fact of their being ripple-marks they would inevitably have already shaped themselves into connected lengths and rows, and these would continue to grow until they reached the size of the extraordinarily beautiful and regular accumulations that we find in the Desert of Tschertschen. How high their limit of altitude would ascend it is indeed difficult to say; but I have already mentioned, that there does exist a limit of altitude of this character, and that it bears some sort of direct relation to the increase in the force of the wind. This limit of altitude is also certainly dependent upon the volume of drift-sand which the wind brings with it.

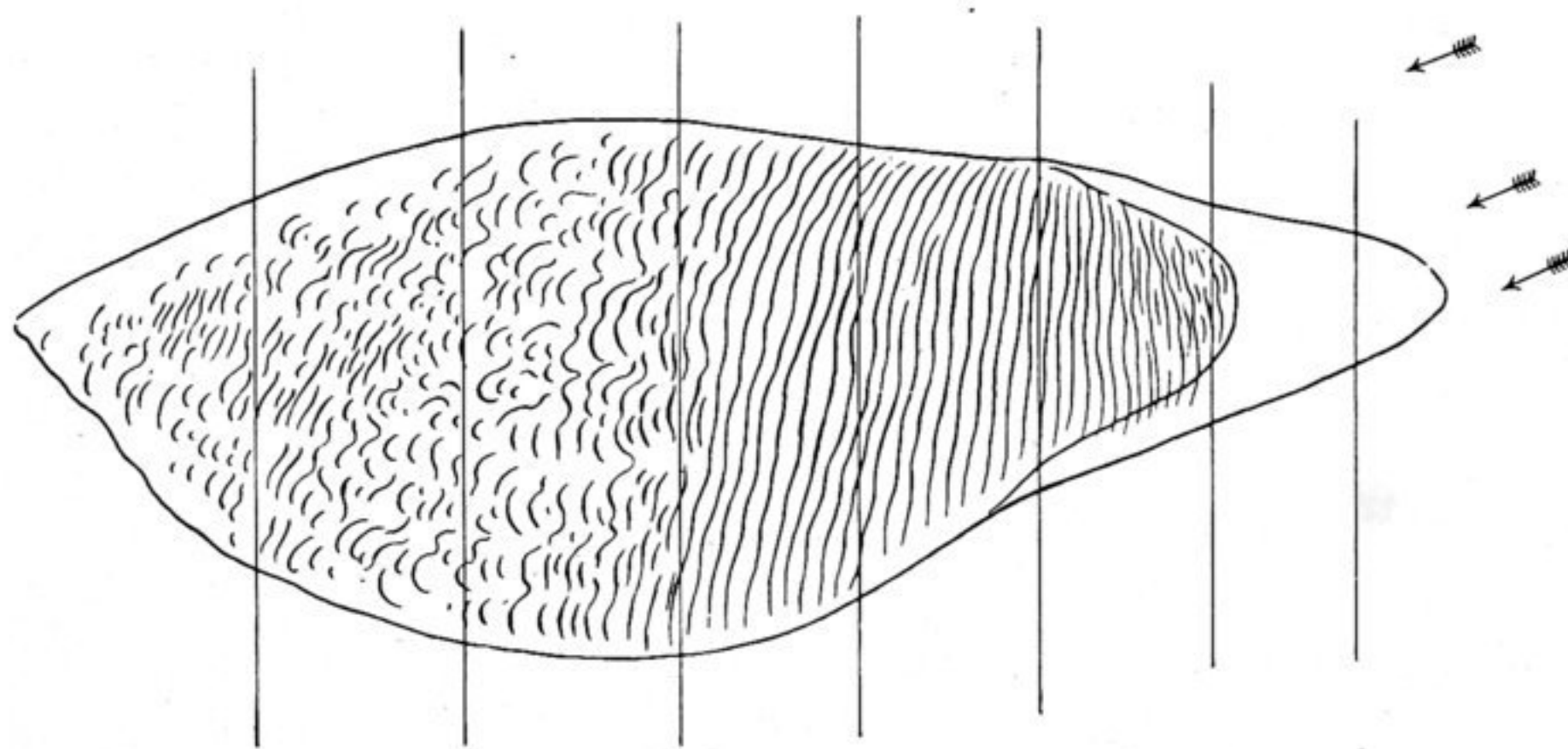


Fig. 193.

Fig. 193 represents an inland sea or large lake. Its extreme eastern part has been dried up; hence wave-formation is there out of the question. The wind comes, as the arrows indicate, from the east-north-east. In the extreme east of the actual lake, which lies under the shelter of its own shore, the wind in question elicits but the faintest rippling of the surface; but westwards the effect produced gradually assumes the form of waves, which finally reach a gigantic height, the greatest in fact which under the existing condition is admissible. Let us now take a farther step towards the west, that is to about the middle of the lake; there the wind blows