Turkestan, and as we shall see they also do in that part of the Desert of Gobi which lies immediately west of Sa-tscheo.

Before leaving this question of the altitude of the dunes, I will once more emphasise the fact of the remarkable uniformity which in this respect characterises the summits of the chains of dunes in the Desert of Tschertschen; if any of them do overtop their neighbours, it is by a trifle only, seldom more than 10 to 15 m. Viewed from the top of the 89.5 m. high dune, the other dunes in the vicinity may thus present a few summits that ascend as high as about 100 m., but on the whole the value of the maximum elevation of the different ranges varies but slightly. Notwithstanding the immense quantities of sand which have accumulated in the desert, the dune-ranges seem unable to rise above a certain definite altitude, and whenever from any cause the sand does anywhere ascend above that limit the wind soon succeeds in levelling it down again to the usual average maximum height. It is a phenomenon cognate with what Penck calls »the absolute upper limit of denudation». According to him, no mountain-peak is able to rise above this theoretical level, for the simple reason that, before it can attain it, it is reduced by denudation to the level indicated. But whereas this phenomenon is causally associated with the entire body of climatic factors and agencies of disintegration, the maximum altitude of the dunes (assuming of course that the same conditions obtain which we find in the Desert of Tschertschen) is practically dependent upon the wind alone, i. e. its direction and its force. Sokolow recalls the fact that Jordan, after a violent storm in the Libyan Desert, observed how the summit of a dune was lowered 0.22 m., and after the simoom had been blowing a day and a half it was lowered 1 m.; and he then adds: »Es steht ausser Zweifel, dass es auch bei Wüstendünen eine Grenzhöhe giebt, über welche hinaus sie nicht zu wachsen vermögen, wie unerschöpflich der Sandvorrat, der zu ihrem Unterhalt dient, auch sein möge.»* Precisely the same view is expressed by Cornish, who says: »A permanent dune is so large that the wind never holds sufficiently long to obliterate the effects of former winds. — Thus size alone may make a dune a permanent hill, even if it be composed of loose sand throughout. Given a constant climate, a large desert dune might conceivably outlast the highest mountains, for the denuding agent renews the surface. On the other hand, there is a necessary limitation of the process by which dunes grow, which prevents their attaining heights equal to those of mountains formed by erosion. The winds have greater power at considerable elevation than near the surface of the ground, so that, even if a group of sand-hills of excessive height were piled up artificially, more sand would be removed from the summits than the wind would bring, and this lowering of the summits would not be compensated by the deepening of the troughs, the work of the wind at the summits being assisted, and that in the troughs being hindered, by gravity.»**

It is difficult to determine how far the altitudes of the dunes in the Desert of Tschertschen are affected by special circumstances due to hydrographical changes that have taken place since the Tarim ceased to empty into the Lop-nor. The

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* *Op. cit.*, p. 180.
** *On the Formation of Sand-dunes*, by Vaughan Cornish, in *Geog. Journal*, March 1897, p. 285.