

Rolland gives some heights of dunes: »La hauteur de ces accumulations de sable au-dessus du sol ne dépasse généralement pas 150 à 200 mètres; dans certaines régions, elle atteint des chiffres plus élevés: les plus hautes dunes de l'Erg oriental, au Sud-est de ce groupe, non loin de Ghadamès, auraient, d'après M. Largeau, jusqu' à 500 mètres et davantage». However the altitudes just mentioned do not seem to rely upon precise measurement. When speaking of the individual dunes and the accumulations of dunes, which he has seen himself, Rolland gives altitudes which much better agree with the heights I obtained by measurement: »Dans les chaînes que j'ai vues au Sahara, la hauteur des dunes élémentaires, faisant saillie au milieu d'une chaîne, ne dépasse généralement pas une vingtaine de mètres. La hauteur des mamelons de dunes groupées en ghourd est souvent de plus de 100 mètres; je citerai, à une journée au Sud d'El-Goléa, le piton de sable isolé du Gueurn el-Chouf, haut de 70 mètres, et, non loin de lui, le piton du Gueurn Abd el-Kader, isolé également et plus élevé encore».\* By way of comparison I may add, that the sandy mountain beside the Soda Lake in Fezzan is considered to be 160 m. high (Supan). »In den Gegenden, wo der Passatwind herrscht, erreichen sie bisweilen bedeutende Höhen, so an den madagasischen und tunesischen Küsten 140 m. und mehr. An den südspanischen und den gascognischen Küsten können sie 90, an den holländischen 60, an den jütländischen 30 und auf der kurischen Nehrung 70 M. Höhe erreichen.»\*\*

On the other hand the two drift-sand regions in which Obrutscheff and Loczy found their high dunes are both extremely small in area as compared with the Takla-makan. Since now in both cases alike the dunes are twice as high as those of the Takla-makan, the question arises: Why is it dunes equally high do not occur in this desert, seeing that the requisite material, sand, is already existent in inconceivable quantity? As the architecture, structure, and form of the dunes are all due to the activity of the wind, the differences in height must likewise be ascribed to the effects of the wind: that is, the winds that blow in the desert of Kum-tagh and in the district of Tung-hoan must be different from the winds that blow in the Desert of Lop and the Desert of Tschertschen. And there is nothing surprising in the fact that the wind-relations of the Kum-tagh should be different from those that obtain in the Desert of Lop, because the ranges of the Tschöl-tagh and the Kuruk-tagh, and the swelling which intervenes between them, separate the one desert from the other; besides which, the arrangement of the sand in the Akbel-kum points unmistakably to the existence of winds diverse from those of the Lop country. In the region of Tung-hoan however it might reasonably have been expected, that the winds would have been the same as, or at any rate similar to, those that prevail in the country of Lop; but in point of fact different winds seem to prevail there also.

Potanin is quite right when, in the passage quoted in the last chapter, he observes, that it would be very interesting to have a map embracing all the deserts of Central Asia; yet how greatly such a map would gain in both value and interest, if it were possible to indicate on it by means of arrows the directions from which

\* Georges Rolland, *Géologie du Sahara Algérien*, pp. 212, 214.

\*\* Arrhenius, *Lehrbuch der kosmischen Physik*, II. p. 769.