

by inland lakes. This general view is clear and perspicuous, and is made more so by the excellent map which accompanies Mr. Saunders' memoir.

I have already discussed the excellent map of TR. SAUNDERS, 1877.¹ He shows the Kara-koram Mts as *one* mighty range running S. E. parallel to the Upper Indus, passing Aling Gangri and Thok Jalung to a point east of Kailas and N. E. of Manasarovar where it suddenly comes to an end. Though it comes quite near to the Gangri Mountains, the latter cannot be said to be a continuation of the Kara-korum. Still the map seems to show that Saunders had a presentiment of some relationship between the two ranges. His Kuen Lun Mountains he has quite correctly drawn out along the whole northern front of Tibet and far away toward China. Far in the west he has adopted JOHNSON'S meridional range joining the Kuen Lun and the Karakorum Mts. The hydrography of the Yurung-kash is, of course, as it was on the map of the last-mentioned explorer.

In a review² RICHTHOFEN expresses his views regarding SAUNDERS, MARKHAM and SHAW and their controversies quoted above. In this article he says that in the history of the knowledge of every mountain system, three different epochs may be discerned. As a rule the distribution of the rivers is known earlier than the morphology of the ground; therefore the water-partings are first believed to coincide with the ranges, the principal ranges as situated between the main rivers, and second and third class ranges between smaller rivers and tributaries.

The second epoch enters with the exploration of the plastic form of the ground. It becomes evident that the arrangement of the mountains only partly coincides with the water-partings, the ranges prove to be pierced by the rivers and the general laws of geological structure appear. The third epoch is characterised by the fact that the features of the morphological or physico-geographical building are explained and understood by the geological research of the region.

RITTER and HUMBOLDT could not know anything of the interior arrangement of the Himalaya. CUNNINGHAM was the first to prepare the ground for a more correct understanding, for he dismembered the north-western Himalaya in a number of parallel ranges, altogether disregarding the interruptions made by rivers. Richt-hofen shows that Cunningham's Pir-Panjaj Range is in perfect accordance with modern (1878) views.

Saunders and Markham, he says, clearly discern three principal ranges. They separated the water-parting range as a member of smaller importance. The difference between the view of the two geographers was that Markham reckoned the »Northern Range» to the Himalaya, whereas Saunders regarded both the Kara-korum and the Gangri-Mountains as not belonging to the Himalaya.

¹ Vol. III, p. 177 *et seq.*, and Pl. XXI.

² *Verhandlungen der Gesellschaft für Erdkunde zu Berlin.* Band V. 1878, p. 72.