

is too short to make it possible for us to use its records for proving climatic changes. The most that can be shown is periodical changes between moist and less moist epochs, as in the case of the Caspian. If now 2,200 years is too short a space of time for Baluchistan and Southern Persia, much cannot be expected from the meagre records embracing 200 years which exist for the Manasarovar and Rakas-tal. But even within this short space of time the two lakes afford us not only a possibility, but also an excellent opportunity to prove the existence of changes in the amount of precipitation with a rather short periodicity. And for readings of that sort the lakes are, as I said before, a most delicate and sensitive instrument. Even here there are two different periods. The one, the maxima of which are indicated by the outflow from the Rakas-tal, is of a higher order than the one where the maxima are indicated by the effluence through the channel from the Manasarovar. For this channel may be in function without any water escaping from the Rakas-tal. Thus several Manasarovar maxima may occur between two Rakas-tal maxima.

Above and beyond the Rakas-tal period it would be impossible to tell how many still higher orders exist. But above all there stands the great curve of desiccation going on during the whole post-glacial, or post-pluvial period. It proceeds from a maximum towards a minimum. All observed phenomena seem to prove that it still, in our time, proceeds in the same direction. When it has once reached its minimum it will probably again return towards a new maximum.

The oldest records we possess and which may be used for researches in the hydrographical situation, are those which have been saved by Father TIEFFENTHALER and Father GAUBIL.<sup>1</sup> Of them BONIN says: »En résumé, ce qui ressort de l'ensemble des croquis qui viennent d'être décrits, c'est la constatation sur les premiers,<sup>2</sup> qui remonteraient à la fin du XVI<sup>e</sup> siècle, de l'existence d'un émissaire du Manasarovar se dirigeant au Nord-Ouest, et sur le dernier,<sup>3</sup> qui peut être postérieur, d'une jonction très apparente entre ce lac et le Rakas-tal.»<sup>4</sup> Bonin does not mention the most important conclusion that can be drawn from both maps, namely, that the Satlej also went out from the Rakas-tal. It is less interesting that a communication existed between both lakes, for such was also the case in 1911.

Bonin believes that Tieffenthaler's map of the lakes is from the end of the 16th century, as the Persian legends indicate that the maps date from some of the Great Moguls, probably Emperor Akbar. Thus the map should be from about 1590 and the years of Tieffenthaler's own journeys should not have anything to do with it. It seems, however, that Tieffenthaler has now two sources, the map with the Persian text, and the information he got from a Hindu, who had wandered round the Manasarovar himself. Thus the verbal information should date from the year of the

<sup>1</sup> Vol. I, Pl. LII and LIII.

<sup>2</sup> Those of Tieffenthaler, Pl. LII.

<sup>3</sup> Gaubil, Pl. LIII.

<sup>4</sup> Les Royaumes des Neiges, Paris 1911, p. 278.