

months earlier Ryder had written:<sup>1</sup> »Following down the bed of the old outlet, Sven Hedin found several springs, which probably are underground channels from the lake. There was no sign of these when Rawling and I were there in December; but as the Rakas Tal was then frozen over, doubtless the springs were also frozen. This, however, proves that the lakes are still connected, though underground, with the Sutlej system.» Henry Strachey observed some filtration of water in 1846, SHERRING, in 1905, heard from the natives that an underground escape was believed to exist. But from his definition of a source Rawling is forced to draw the conclusion that the connection does not exist. The fact that the Rakas-tal is fresh means nothing, he says, as it is »40 or 50 years ago» since the lake did regularly overflow and it would take centuries for the Rakas-tal to become salt.<sup>2</sup> My own opinion is that the lakes must be reckoned to the Satlej system so long as they remain fresh. Rawling believes the Rakas-tal is steadily diminishing in volume and that it will never again overflow into the channel of the Satlej. I have expressed the same probability for the future development, which seems necessary on account of the constant desiccation going on during post-glacial time. But I have also pointed out the periodical fluctuations of Tibetan rivers and lakes.<sup>3</sup>

Before I had had occasion to publish anything on the results of my visit to the lakes, Colonel S. G. BURRARD explained the whole problem in a perfectly correct way. None of all the travellers who have seen the region with their own eyes has ever come nearer to the solution, and to the very soul and heart of its hydrography than Burrard, who gives the single right key to the problem in the following words:<sup>4</sup>

»If the water of the Manasarowar lakes overflows *occasionally* into the Sutlej, they must be regarded as belonging to the basin of the latter. We define a basin as the whole tract of country drained by a river and its tributaries: by the word 'drained' we do not imply any perpetual flow, but refer only to times of rain and flood. All the small tributaries of the Himalayan rivers are dry at certain times of the year, but a dry tributary remains a branch of the drainage. If the water from Rakas Tal flows into the Sutlej once a century, and then only for such a short period as to be observed by no one, we shall still be justified in including the lakes in the catchment area of the river.»

The word »century» is not to be taken in a literary meaning, nor is it of significance that no surface water has flowed out of the Rakas-tal during the last half century. The sole scientific boundary in time for including the lakes in the catchment area of the Satlej can be given by the qualities of the lake-water itself. So

<sup>1</sup> Geographical Journal, Vol. XXXII, December 1908, p. 587.

<sup>2</sup> Compare Professor Brückner's view, »Trans-Himalaya» II, 188.

<sup>3</sup> The level in the two lakes varies from year to year. At the present time they are very low, but there is nothing to prevent them rising gradually in a more or less distant future. Tso-mavang may rise so that its water may again flow through the channel to Langak-tso, and this lake at length may discharge its surplus water, as formerly, through the dry bed of the Satlej. Ibidem p. 187.

<sup>4</sup> A Sketch of the Geography and Geology of the Himalaya Mountains and Tibet. Calcutta 1907. Part III, p. 163.