

highest terrace visible on the northern shore reached an altitude of 11.5 m. above the level of the water; the lowest, which was 5 m. above the lake, was at this spot of exceptional beauty and distinctness but it soon came to an end.<sup>1</sup>

From Camp CXLI (1901) I measured the only beach-line visible on the slope of the northern mountain-side, and found it to be 19.5 m. above the lake. From Camp CXLIV I made another profile towards the S. E. from the river between the two lakes, and found three very well-developed terraces or beach-lines, the first at an altitude of 13 m., the second at 21.5 m., and the third or highest at not less than 54 m. This was the most distinct of all, so that the lake at this niveau must have maintained its position for a comparatively long period.

The result at which we arrive is the following: The fluvial terraces in the Muglib-Tanksi-Drugub valley are so gigantic that they can only have been deposited and cut through by a river as great if not greater than the greatest rivers now having their sources in Tibet. Such a river must have had a length that might be compared to the present length of the Himalayan course of the Tsangpo. Therefore it is *a priori* necessary that the valley which is now occupied by the Panggong Lakes at one time contained, and was eroded by that river. But even the 155 km. of the Panggong valley make a short river which is not in proportion to the dimensions of the fluvial terraces. The river must have come from far away in the east and perhaps crossed the whole of what is now the self-contained Tibetan plateau-land.

At the epoch when the Transhimalayan and Himalayan folds were raised and assumed approximately their present structure, the country to the north was also folded into a system of mighty mountain ranges. The rivers were older than the mountains, and could therefore by their erosive power maintain their originally tectonic valleys. As long as the precipitation was copious and the rivers carried great volumes of water, their erosive power was strong enough to cut down the river beds in spite of the differential movements of the surface which, as a quite natural phenomenon, accompanied the mountain-folding activity. But the climate gradually became more and more dry, and the erosion power no longer was sufficient to cut down the river beds at the same speed as the movements of the crust raised the ground in different parts of the country. For a long time the Panggong River victoriously defended its free way to the sea against the energetic rising of the threshold in its course. A lake was formed, and the still voluminous river issuing at its N. W. end, worked down its bed through the rising threshold. The beach-line at 54 m. above the present level of the lake proves that this fight was successful as long as the effluent was still a considerable river. But finally the river had to give up, the lake became isolated and has now a slight degree of salinity. The reason for this great change

<sup>1</sup> Op. cit., p. 280. From p. 264 to p. 346 of the volume quoted, there are many photos showing the beach-lines, e. g. p. 282, 300 and 306.