

same; Mir Izzet Ullah, for instance, called the Kumdan glacier »a mountain of ice» which, however, partly depends upon the fact that orientals have no other expression than »ice» for a glacier.

It is also worth noting that Strachey, when he first saw a glacier, understood that it was the original feeder of a river.<sup>1</sup> And such he found to be the case with every glacier he knew. The case is the same with the genetic source of the Brahmaputra. The great rivers have, as a rule, their sources in glaciers.<sup>2</sup> Tributaries generally come from valleys, such as the valley of Maryum-la. They may be swollen to a much greater volume than the source-river, as in the case of the great tributaries of the upper Satlej. Rains and melting snow may be responsible. Such a river will dwindle when there are no rains, whereas the river from a glacier will constantly run, except in winter. It is completely independent of the rains. Sunshine does even better service in melting the ice. The main river may be cut off periodically, if its water, as in the case of the Satlej, must supply one or two lakes.

The glacier is the result of the condensed humidity, which for a long time has been gathering on the mountains feeding the glacier. The mountains accumulate a store of solid water which it would take many years to melt and therefore a glacier would continue to feed its river even if every precipitation ceased for some time. The volume of water would only diminish. In fact the store of *nevé* is renewed every year. Therefore a glacier remains under all conditions a constant feeder of a river. It will only dwindle considerably in winter. From this point of view a spring may be regarded as more perennial. The source of the Indus is a spring. It is not likely that its uppermost tributaries come from glaciers. Thus the Indus is an exception among the three great Indian rivers which have their sources in Tibet.

From the point of view of comparative geography it may be of interest to remember the results to which Lord CURZON came on his journey on the Pamirs in 1894, one of his chief objects being to determine which of the several confluent streams of the upper course of the Oxus was to be regarded as the true parent stream.<sup>3</sup>

Curzon crossed the Wakhjir Pass and proceeded to the very spot where, in his opinion, the Oxus has its source. He found the river issuing from two ice-caverns in a rushing stream. The snout of the glacier was 60—80 feet high. The source of the river was one great glacier, to which smaller glaciers contributed. In

<sup>1</sup> R. Strachey has also examined the motion of the glacier of the Pindar in Kumaon. He found the height of the snout to be 11,929 feet, whereas his two stations were at 12,140 and 12,946 feet. In the lower part, the glacier moved in 24 hours (in inches): 4.8 on the lateral moraines and 9.4 in the middle of the glacier; in the upper part resp. 5.3 and 10.0 inches. *Journal Asiatic Society Bengal*. Vol. XVII, part II. 1848, p. 203.

<sup>2</sup> In an article: »Physikalisch-geographische Schilderung von Hoch-Asien», Robert von Schlagintweit writes: »Von den Flüssen Hoch-Asiens ist vor allem zu bemerken, dass die Mehrzahl derselben ihren Ursprung nicht aus Quellen im strengsten Sinne des Wortes ableiten, sondern aus Gletschern.» *Petermann's Mitteilungen* 1865, p. 361 et seq.

<sup>3</sup> »The Pamirs and the Source of the Oxus», Revised and reprinted from the *Geographical Journal* for July, August and Sept. 1896.