

women were drawn by the painter. Meteorological results were as good as the short and broken records of such a journey will allow, but the skill of such a trained observer as Prof. Ficker will admit of many interesting conclusions.

The expedition was devoid of sensational incident or exciting discoveries, but produced a rich harvest of scientific data. The Russian Government and the Amir of Bokhara gave most hospitable assistance, and the leader is also indebted to the Grand Duke of Oldenburg and Prince Oldenburg for most valuable introductions.

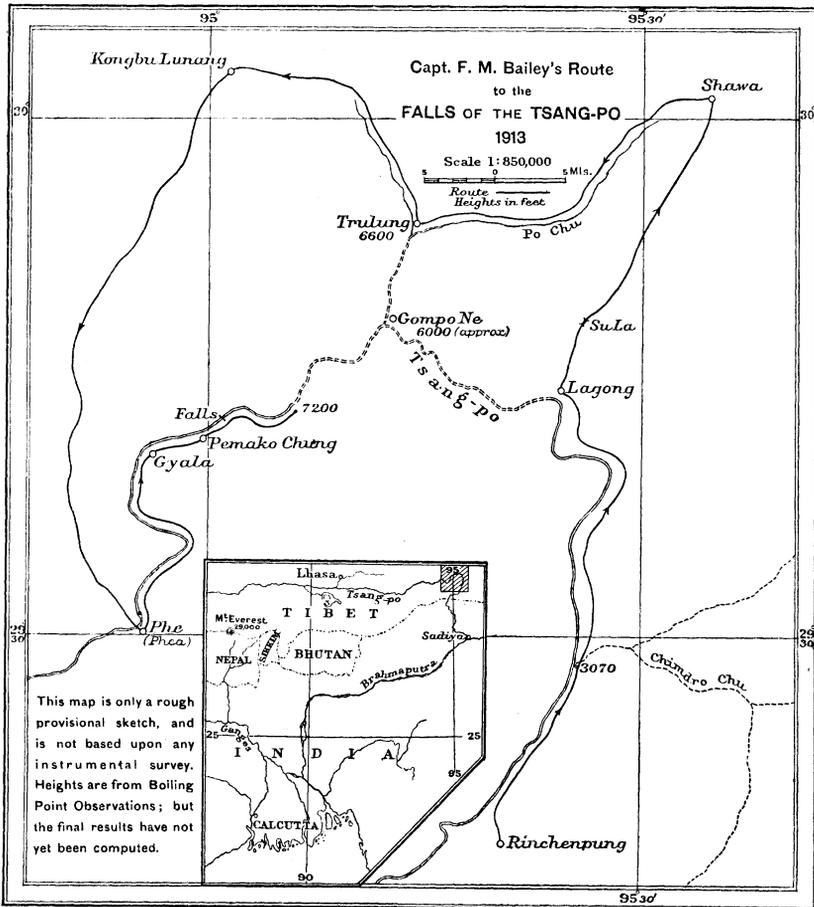
NOTE ON THE EXPLORATION OF THE TSANG-PO.

By Captain F. M. BAILEY.

[CAPTAIN BAILEY sends us the following short account of his recent journey with Captain Morshead to explore the hitherto unknown portion of the Tsang-po where it breaks through the main range of the Himalayas. He says nothing here of the route by which he reached Rinchenpung (a village with a monastery visited by Kinthup and shown on the map accompanying his report), but from his former letter quoted in the *Journal* for November last (vol. 42, p. 491), it appears that he and his companion had crossed the mountains from the upper valley of the Dibong. Rinchenpung is considerably higher up the Dihong valley than the furthest point reached during the Abor expedition (roughly 29° N.; see Mr. Bentinck's map in *Journal*, vol. 41, p. 200), but it is known that surveys have since been continued by various parties, and the monastery may have been reached by some of these. The accompanying map has been compiled from the scanty material hitherto existing, in order to help to an understanding of Captain Bailey's text, but it must be regarded as merely provisional. Some of the places named have appeared in no previous map, though several were mentioned by Kinthup, whose route it should now be possible to follow with more precision than hitherto. One result of the recent explorations is to show that the confluence of the Nagong (or Po) Chu (the source of which was touched by A-K during his journey of 1879-82) is much further north than was once supposed. It will be noticed that about 45 miles of the course of the Tsang-po remain unvisited, but the result of Captain Bailey's inquiries seems to leave little doubt as to its general character even here. Captain Bailey writes:]

We followed the Tsang-po valley from Rinchenpung up to the village of Lagong, but no altitude in the river-bed was obtained higher up-stream than the confluence of the Chimdro Chu with the Tsang-po, a point some 40 miles by road below Lagong; the altitude of the river by hypsometer at this point was 3070 feet. At Lagong we left the Tsang-po, and, crossing a pass, the Sula, entered the valley of the Nagong Chu, here called the

Po Chu. This river was followed from Showa down to Trulung (Kinthup's "Poh-toi-lung"). The altitude of the river at Trulung was 6600 by hypsometer. We wished to follow this river down to its junction with the Tsang-po at Gompo Ne, but were prevented, as the rope bridge had been carried away; the height of the Tsang-po at Gompe Ne must be about 6000 feet, or some 600 feet below Trulung. From Trulung we



followed Kinthup's road as far as Kongbu Lunang, from which place we took a more direct route to Phe (Phea) than that followed by Kinthup. We then went down to Gyala, opposite which is a waterfall on a small tributary, in which a god, Sinji Chogye, is carved on the rock behind the cascade.* The god is only visible in winter when the stream is small.

* These falls would almost seem to be responsible for the reports of falls on the Tsang-po itself—both those described to Colonel Waddell, of which a native drawing was reproduced in the *Journal*, vol. 5, p. 259, and those mentioned by Kinthup. The drawing showed the "god" carved on the rock, and Kinthup spoke of the cliff as Sinji Chogyal.—[Ed.]

From Gyala we went down to Pemako Chung, a small lamasery which was visited by Kinthup. Near this are the falls which he described. The river nearly the whole way from Gyala to this point is a foaming rapid, though in one or two places it flows quietly. At Kinthup's falls the rapid develops into a fall of about 30 feet; here rainbows were seen. We succeeded in pushing about 12 miles below Pemako Chung. Our lowest hypsometer observation, taken about 2 miles above the lowest point mapped, gave an altitude of 7200. The gap in the river which is unmapped we estimate at 45 miles, *i.e.* from the lowest point reached below Pemako Chung to Lagong. The gap between the two boiling point observations (below Pemako Chung, and at the confluence of the Chimdro Chu and the Tsang-po) is, however, about 90 miles. In the 45 miles that are unmapped we have the estimated height of 6000 feet of the Po Chu-Tsang-po confluence at Gompo Ne, which cannot be much in excess. The road down from Gompo Ne to Lagong is used a great deal in winter, as when the Su La is closed by snow, it is the only road from the Po Chu valley to the lower Tsang-po valley. We met a great many people who had seen this part of the river, all of whom agreed that there was nothing in the way of falls on it, though at the confluence of the rivers at Gompo Ne there are remarkable rapids and whirlpools. As regards the portion between Pemako Chung and Gompo Ne it was more difficult to collect information, as there is no road, but the distance can only be about 15 miles, and we met people who had hunted in the jungles in the neighbourhood who all said that there was no big waterfall on that section of the river, though the rapids must be extraordinarily steep.

The heights mentioned are liable to revision.

THE RIVERS OF FRANCE AND THE SUPPLY OF WATER POWER.*

By a decree of March 25, 1903, the French Ministry of Agriculture constituted a *Service d'Etudes des Grandes Forces Hydrauliques*, the purpose of which was to examine the resources of the country in respect of supply of water and water power from rivers, and to inquire into the best methods to be adopted for their development. Two regions were attacked at once—that of the Alps south and east of the Rhone, and that of the south-west draining by the Garonne, Adour, and other rivers from the Pyrenees. In the first the work was placed in charge of MM. R. Tavernier and R. de la Brosse, Ingénieurs en Chef des Ponts et Chaussées. The south-western district was organized at first on a smaller scale with the existing staff of the *Service Hydraulique*, but in 1909 it was brought into line with the Alpine district and put under the control of M. Tavernier.

The programme originally drawn up set forth two main divisions of work: (1) the purely physical study, from the geographical, meteorological, and

* 'Ministère de l'Agriculture. Direction de l'hydraulique, etc.' [*in later issues, Direction-générale des Eaux et Forêts*]. Service (d'études) des grands forces hydrauliques (dans la) région des Alpes. Tomes 1-6, and Annexe du Tome 6. The same. Région du Sud-Ouest. Tomes 1-2. Paris, 1905-1913. *Maps and Illustrations.*