The Geographical Journal

Vol. LXVII No. 2 February 1926

EXPLORATIONS IN SOUTH-EASTERN TIBET

F. Kingdon Ward

Read at the Meeting of the Society, 25 *May* 1925. *Map follows p.* 192.

I. OVER THE TSANGPO–SALWEEN DIVIDE

IN 1923, through the kindness of the Indian and Tibetan governments, I obtained permission for myself and one other white man to botanize in Eastern Tibet. The Government Grant Committee of the Royal Society and the Committee of the Percy Sladen Memorial Fund gave me grants which permitted me to carry out my plans; Earl Cawdor, who had already had experience of travel in the Arctic and elsewhere, volunteered to accompany me, and we sailed from England on 2 February 1924. Darjeeling was reached on March 10, and here General Bruce, who was organizing the Mount Everest Expedition, assisted us in making arrangements for mules and ponies, which were to take us to Phari, just over the Tibetan frontier, and in the selection of a permanent staff of three servants, who spoke both Hindustani and Tibetan. We left Darjeeling on March 14, and proceeding *viâ* Kalimpong, arrived at Gangtok on the 18th, where we were the guests of Major and Mrs. Bailey for two days.

It will be recalled that in 1913 Majors Bailey and Morshead had made their great pioneer journey from Assam *viâ* the Mishmi Hills to the head of the Tsangpo gorge, which they had then penetrated for nearly three-quarters of its length; after which they had returned up the Tsangpo as far as Tsetang, exploring the unknown regions to the south. Practically nothing was known of the flora of this region, but Major Bailey had brought back a few fragmentary dried plants, a number of seeds, and some valuable hints, sufficient to whet the appetite of a botanist. He was now able to give us further information, useful advice, and our Lhasa passport; armed with which, we started for Tibet. We reached Gyantse on April 2 without incident, Mr. MacDonald, the British Trade Agent, having sent a man down to Chumbi to meet us, and make arrangements about transport.

We spent a lively week at Gyantse waiting for our stores, which were being forwarded from Calcutta, and very pleasant it was. Besides the Trade Agent, there were stationed in Gyantse at this time the Com-

mandant of the guard (Captain J. E. Cobbett), the medical officer (Major J. H. Hislop), and the schoolmaster in charge of the new Tibetan School (Mr. F. Ludlow). Our stores having arrived, we took to the road again on April 11, in very cold weather, travelling towards Lhasa; but after crossing the Karo La and descending to the south-west corner of the Yamdrok Tso, we left the Lhasa road and travelled due west along the southern shores of the lake.

In the previous year Major Bailey and Captain Meade had travelled through this region, but the excellent map which the latter had made was not then available. Bailey's story of this journey, with Meade's map, was published in the *Geographical Journal* of October 1924. Not till we reached the south-east corner of the lake were we on unknown ground.

We slept the night of April 17 at a small village called Chogpotung, where a stream enters the lake from the east. From this point to Tsetang we were on unexplored ground. There were hundreds of hares on the stony hills here, as well as duck on the lake. On the 18th we marched due east up a broad grassy valley, and presently reached a small village, where we halted to change transport. Continuing more or less eastwards over wide pastures, we passed a fine fort called Ache Dzong, and entered on a bleak plateau country, where we saw cranes, duck, and geese by the river, and innumerable pica hares, and later a fox. At dusk we reached the stone village of Tragtse, after eight hours' marching.

We had to cross a high pass next day, so we started early. Unfortunately, the view was spoilt by a heavy snowstorm. Actually we crossed two passes, the Dzara La and the Shamda La, after which we descended rapidly, and getting out of the snow, saw below us a valley with trees and houses and green grass—a regular Garden of Eden after three weeks on the plateau. A vast crowd of curious sightseers welcomed us at the monastery of Chonggyechenyag. There were some fine old poplar trees here, one of which was 30 feet in girth at a height of 3 feet from the ground.

On the 20th we marched down the valley, through a certain amount of cultivation and past a number of small villages and scattered houses. There were clumps of trees, mostly willow and poplar, protected by walls, and peach trees in bloom; and along the stream thickets of Hippophæ. Many of the larger trees were pollarded. We saw no sign of crops, but people were ploughing in the fields.

As we got lower down, the valley grew more and more stony, trees and cultivation almost disappeared, and presently the stream did likewise. Ahead of us we saw a great rocky ridge, crowned by an ancient fort, with a newer fort lower down, the two connected by a double wall, leaving a passage between. (It appeared that the upper fort had been abandoned on account of the difficulty of getting water.) At the foot of the ridge was a monastery.

The monastery was called Riudechen, and the fort Chongche; the latter was a fine building in a commanding position, and peculiar for a semicircular bastion at one end and a wooden gallery above, like the poop of a Spanish galleon. There was a stone pillar in the valley below, with an inscription in Chinese, which looked fairly modern.

Continuing down the dry stony valley next day we reached the small monastery of Chongmoche, where there were many large and small chörten, like a cluster of Burmese pagodas. Below this the valley became fertile and thickly populated once more, and the trees were in leaf. Late in the afternoon we reached Netong Dzong, and called on the magistrate; and then rounding the shoulder of the hill, we saw Tsetang, below us, with the Tsangpo beyond.

We spent April 22 in Tsetang and made friends with Ata Ulla Khan, the Ladaki trader who had assisted Bailey and Morshead in 1913. It snowed the next night, but the snow was melting fast when we left Tsetang, following the right bank of the river to Rongchakar, where there is another fine fort. We ought really to have left the river here and turned south-west into the mountains to Lhagyari Dzong, which appears to be the normal route for any one travelling down the valley—if there can be said to be any normal route. This was Bailey's and Morshead's route. But we wanted, if possible, to follow the river through the gorge below Trap, so we continued along the river-bank next day as far as Trap, only to find that there was no way of getting through the gorge. However our journey was not fruitless, for we discovered that it was possible to make a *détour* to the north instead of to the south, and cover some new ground that way. We therefore crossed the Tsangpo in coracles and camped in a valley on the other side, reaching Öga Dzong on the following day. There is a road northwards from Öga Dzong which joins the Lhasa road on the other side of the range; of this more anon. We ourselves turned eastwards again up a broad grassy valley, and soon reached the last village, Pechen, where we halted.

On April 27 we arose at 4.30 to face a long march. The morning was brilliantly fine, but after midday the sky clouded over and snow fell heavily. The pass was not reached till 4 o'clock, and deep soft snow made the going rather bad for the transport. At the head of the valley is the last remnant of a rapidly disappearing glacier.

The Lung La, as the pass is called, is over 16,000 feet, and rather steep on both sides. An hour after dark we reached the monastery of Chögorche, where we put up for the night.

On April 28 we continued down the valley to the wretched village of Tsegyu, where we had difficulty in getting our transport changed. Consequently we did not get away with all hands till 4 o'clock in the afternoon, and another night march ensued, Gyatsa Dzong not being reached till 10 p.m. At Gyatsa we found ourselves by the Tsangpo

once more, having "turned" the gorge below Trap. The maps show Chögorche and Tsegyu on different streams, but this is incorrect.

An interesting geographical point now arises. If one travels from the plains of India to the Tsangpo anywhere west of the 93rd meridian, say, two distinct ranges of mountains are crossed, with a stretch of the plateau supported between them. The first is the Great Himalayan range; the second is the so-called Ladak, or Trans-Himalayan range. We crossed the latter by the Karo La on the outward journey, and by the Yarto Tra La on our return. But crossing the mountains by the Doshong La, or the Nam La, or by any pass east of the 94th meridian, only *one* main range is crossed between the Tsangpo and the plains—the Great Himalayan range. What then has become of the other? We can hardly suppose that it has disappeared, nor is it likely that it has been absorbed into the Himalayan range. The only other possible explanation however is that it is now *north* of the Tsangpo—in other words, that that river has cut across its axis.

There is some little evidence in support of this last view. In the first place the river below Trap flows for 30 or 40 miles in an impassable gorge, descending several hundred feet. To avoid this gorge, Bailey and Morshead crossed a pass over 16,000 feet high to the south, while we crossed one of about the same height to the north. Finally, and more directly, from Öga Dzong, in the winter, we saw a group of snow-clad peaks on the left bank of the river, trending in an east-north-east direction and continuous with a snowy range on the right bank, east of Tsetang. What becomes of this range we do not know, but it may form the watershed between the Lhasa and Gyamda rivers.

For the next three days we followed the left bank of the river, crossing to the right bank at Nang Dzong on May 1. The Tsangpo here twists and turns round craggy spurs in bewildering fashion, flowing however smoothly. Barren stony terraces and large sand-dunes thinly clad with thorn scrub (*Sophora viciifolia*) prove how arid and wind-swept the valley still is. The weather continued cold and inclement, with brief bursts of sunshine followed by showers of sleet, and fresh snow on the hills.

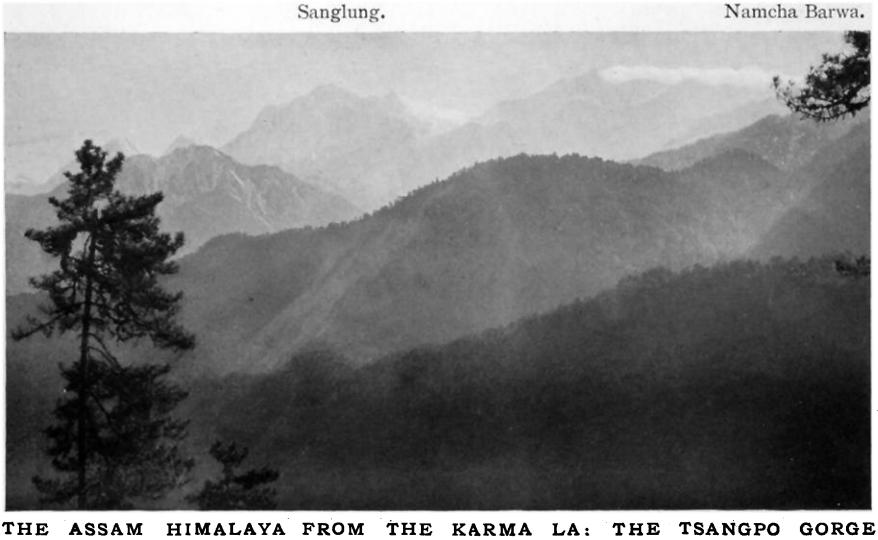
In the villages, however, which were becoming more numerous, there was a change, and we noticed apple, peach, pomegranate, walnut, poplar, and willow trees, besides fields of broad beans. We also saw a variety of birds, including babblers, rose finches, jackdaws, hopoes, choughs, larks, and sparrows; on the rocks were big ugly grey lizards.

In the gorge below Nang Dzong—round which we had to make a second *détour*—we saw scattered juniper trees, which henceforward became common, till replaced by pine trees a few days later.

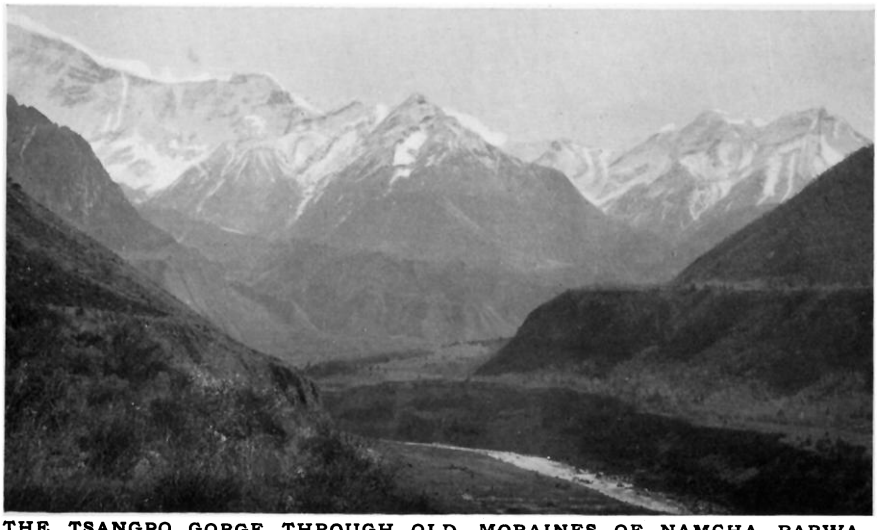
After crossing a wooded limestone ridge by an easy pass we again descended to the river, and marched over high sand-dunes in a boisterous wind, which raised a rasping sand-blast. In the afternoon we reached a village called Lishö, on a small tributary about a mile from the Tsangpo.

THE TRASUM TSO AND TSOSONG MONASTERY

Sanglung. Namcha Barwa.



THE ASSAM HIMALAYA FROM THE KARMA LA: THE TSANGPO GORGE BEYOND SECOND RIDGE



THE TSANGPO GORGE THROUGH OLD MORAINES OF NAMCHA BARWA, BETWEEN PE AND GYALA

RETREATING GLACIERS OF THE TSANGPO-SALWEEN DIVIDE, NORTH OF THE TRASUM KYE LA

There is a road up this valley which crosses the mountains to Tsari, but there was said to be too much snow on it for any one to be able to cross until June.

We continued along the right bank of the river for several days, while the vegetation grew gradually more varied, and the forest crept down lower and lower, denoting approach to a wetter climate. The type of house also changed from the flat-roofed house of the plateau to the pent-house roof of Kongbo; while dug-out canoes showed that there were big trees not very far away. This fact was strikingly brought home to us in one village, where we saw a flag pole 200 feet high!

We came across several Abor slaves hereabouts. We were told that about twenty years ago there had been trouble amongst them on the other side of the Himalayan range, and some of them fled into Tibet to escape unpleasantness, and took service with the Tibetans.

On May 1 we reached Lilung, where a big stream comes in from the south. There is a path up this valley which leads to New Tsari, but it is said to be used only by pilgrims, since New Tsari boasts no population. There was formerly a fine bridge over the tributary stream here, but it had been destroyed by a flood, and we had to march a mile up the valley to another bridge. Villages were now becoming more numerous, and we had to change transport frequently, often three or four times a day, which caused considerable delay.

On May 11 we crossed the river in dugouts and reached Tsela Dzong, at the junction of the Gyamda river. We were given a small house in which to live, as we proposed to settle down here for some days and explore the neighbourhood for plants; but we eventually decided that movement in the angle between two big rivers was too restricted for our purpose, and after spending three weeks at Tsela, we shifted our headquarters 30 miles eastwards, to the village of Tumbatse, by the Rong Chu. During our stay at Tsela we made a botanical reconnaissance of the neighbourhood on both banks of the Tsangpo, and on both banks of the Nyang Chu or Gyamda river, which here flows in four big streams in a valley a mile wide. At this time there were more fields and sandbanks than waterways at the junction, but in the rainy season most of the land is submerged. Fierce winds blew every day, and a perpetual cloud of fine sand hung over the Tsangpo. Nevertheless, on the few really clear days we enjoyed here, we found that the magnificent snow spire of Namcha Barwa, nearly 50 miles distant, was clearly visible from our window.

There are two peaks rather over 14,000 feet in altitude, one on either side of the junction. The peak above Tsela Dzong is called Pab Ri, and is of no particular consequence; but that on the left bank of the Gyamda river, called Kongbo Peri, attracts pilgrims from far away, who march round it. We could see no particular merit in it as the central sun of a solar system; but on climbing to the summit we were

rewarded with one of the most extensive and magnificent mountain views imaginable. To west, north-west, and north, and growing dim in the north-east, stretched a huge range of snow mountains. Namcha Barwa and Gyala Peri in the east were easily recognized; beyond that we felt convinced we were looking at the Tsangpo–Salween divide. Unfortunately, the nearest peaks were at least 50 miles distant. The Himalayan range and this range to the north converge towards the north-east, though whether they eventually become one we could not ascertain.

This Salween divide, which is considerably nearer the Tsangpo than the maps indicate, proved a stumblingblock. We had hoped to visit the Salween, but we spent so long in August looking for a way over this barrier while we marched westwards along its base, that we had no time left to make the journey. Between the 93rd and 95th meridians, one river—the Yigrong—cuts through the range, and two passes—the Trasum Kye La and the Tro La—cross it.

On June 4 we left Tsela Dzong, and crossing the Gyamda river reached Temo Gompa in the afternoon. From here we proceeded over the Temo La, where we camped for a week in order to botanize. Descending to the Rong Chu we took up our residence in Tumbatse. Our first important excursion was over the Nyima La and down to the Tsangpo, which we crossed by canoe below Pe; then up the Doshong Chu (which joins the Tsangpo below Pe) to a camp below the pass. Even as late as June 29 there was very deep soft snow on the Doshong La, which however we crossed, descending 2000 feet on the Pemako side; we could not move our camp over, though this we managed to do towards the end of October under conditions almost as bad. Both sides of the pass show clear evidence of glaciation, and it seems probable that on the north side the glacier must have reached the Tsangpo, which at that date would of course have flowed at a higher level. There is a snow peak immediately south of the pass on the Pe side, though it is not very high.

A tremendous quantity of snow falls on the Doshong La, and much of it rarely, if ever, melts. For eight months in the year it is impossible to cross over, though the height is only 13,500 feet, according to Majors Gunter and Pemberton, who crossed the pass in 1913 from river to river, when surveying with the Abor Exploration party. We ourselves camped at the foot of one big avalanche, and we saw the results of a second one on the other side, which had not all melted when snow was beginning to fall again in October.

The pass is therefore very low compared with the height of Namcha Barwa (25,445 feet), which is only 10 miles distant; but I have frequently observed that the lowest passes are commonly found in the neighbourhood of the highest peaks, at least in Western China and the Himalaya. The explanation of this apparent paradox is quite simple; for these low passes are at the heads of old glaciated valleys, whereas

higher passes in the neighbourhood of lower peaks are either water-worn or owe their origin to much smaller glaciers.

There was an extremely rich and varied flora at the Doshong La, and it was surprising to find that the Alpine flora at this extreme end of the Himalaya was more closely related to that of Western China than to that of the Sikkim Himalaya.

Our second journey from Tumbatse was over the Tang La, a low pass immediately to the north of the Nyima La, and down to the Tsangpo again by an excruciating path. The river was now in flood, and booming into the gorge at high pressure, so we were unable to cross here, but had to march down the left bank and cross by the rope bridge at Gyala, a species of slow torture which we did not appreciate. From Gyala we marched up the right bank a long day's march to a village called Tripe, and on the following day started up the steep path which leads to the Nam La, the most easterly pass across the main Himalayan range proper. After reaching a cultivated terrace about 1200 feet above the river, the path virtually ceased, as few people ever travel this way except to the pastures on this side, and a recent epidemic amongst the yak had so reduced the herds that the pastures were temporarily out of commission. We had to make our own way up the steep flank towards the peak of Namcha Barwa, and finally we camped in a meadow.

Next day we continued the ascent over very rough ground—a series of tree-clad moraines, and climbing steeply through dense Rhododendron scrub, we finally emerged into the Alpine region and camped just above a fine lake—the Nam La Tso—at the head of the valley. Opposite us on the other side of the lake was a snow peak called Temu Tse, and there were other peaks with small glaciers attached near the pass, which was hidden behind a tremendous cliff. A notch in the ridge which ran down from Temu Tse gave entrance for the nimble yak to the Doshong La valley.

The most interesting features here were (i) the enormous amount of deglaciation which had taken place and was still continuing; and (ii) the surprising difference between the flora of this valley and that of the Doshong La valley, a bare 6 miles away. The reason for this seems to be entirely climatic.

On July 24, the day after our arrival at the upper camp, we essayed the ascent of the Nam La, which had not previously been visited by Europeans. There is no way up the valley head, which, above the lake, is choked with moraines and glaciers; and the pass lying some distance back, it is necessary to ascend the cliffs and traverse by a difficult path. We had not brought any animals with us, and in any case they could not have reached the pass, though yak come up as far as the lake.

After much climbing up and down the cliffs, and some bad going over the moraines, we reached a glacier, crossed this, and presently found ourselves at the foot of a very steep snow slope leading to the pass, from

which proceeded a glacier. By this time the day was getting on. One of our guides had already fallen in the rear, and we were chary of taking the other to the top, as he had never been before, and we knew nothing about the glacier conditions or the danger of avalanches. So we pushed on alone, Cawdor leading, and, keeping close under the cliff so as to avoid as far as possible the snow-clad glacier, soon found ourselves floundering knee-deep in the soft snow. It took us nearly an hour to reach the summit, though on our return we skated down through the soft snow in fifteen minutes. In November we camped at the same spot for several days, and on the 6th Cawdor succeeded in reaching the summit again, where he obtained a boiling-point observation which gave the altitude as 7587 feet above the river-level at Pe, or 17,129 feet absolute according to our records (rather more according to Morshead's value for Pe).

We had hoped to cross this pass into Pemako and reach a monastery called Mandalting, below which is a Lopa (Abor) village called Puparang, probably on or near the Tsangpo ; but in view of Cawdor's report and the unsettled weather, we decided that it would have been too risky an undertaking. It was as well we abandoned the project, as it turned out, since we should certainly never have been able to recross the pass.

The Nam La is used only by a few Lopas, and then not regularly. A party of three had crossed in the summer, but the pass is open barely three months in the year, so that nearly all communication with Pemako is carried on over the much lower, though not much easier, Doshong La. But the latter is at any rate safe, whereas natives are known to have been lost and frozen to death trying to find their way over the Nam La.

Returning to the Tsangpo, we made our way back to Gyala, and while the kit was being slung across—an occupation which took practically the whole day—we tried to make our way down the river by a path we had discovered on our previous visit. On that occasion we had pushed on about 2 miles, sometimes waist-deep in the river, but darkness had compelled us to give it up.

In the course of ten days the river had fallen no less than 12 feet by a measured mark, and we were now able to get along without wading till we reached a big torrent with an enormous rapid in the river. Our Tibetan companions discreetly refused to cross this, so Cawdor and I struggled across holding hands, to their unbounded delight. However, immediately afterwards we came up against a huge cliff, which there was no possibility of getting round ; so we returned to Gyala, after taking our first boiling-point observation in the gorge. On the following day we started straight up the mountain for the Tra La, following the torrent which falls over the cliff called Shingche Chögye, opposite Gyala, as described by Bailey. We suspected this of being a glacier stream, and so it proved. It was not till the third day that we reached the pass, which is considerably higher than the Nyima La, having crossed the stream and observed that it came from a group of glaciers, one of them of

fair size, south of Sengdam Pu. The pass is a difficult one on both sides, the approaches being very steep, and only yak perhaps could cross, and not even they if heavily laden.

Returning once more to Tumbatse, we started again on August 9, and followed the Rong Chu northwards to its junction with the Tongkyuk river, and crossing the latter reached Tongkyuk Dzong. We made an excursion to the actual junction of these streams, and ascertained that the Tongkyuk stream is considerably the bigger of the two, as was to be expected of a stream having its origin amongst the snow peaks of the Salween divide. A boiling-point observation gave the altitude at the junction as 8297 feet. Bailey and Morshead had reached Tongkyuk from Showa, but the country to the west of Tongkyuk was entirely unknown.

On August 12 we started up the valley of the Tongkyuk river, and presently came to the village of Temo, outside which stand two large wooden figures, 9 feet high, forming a sort of gateway. We saw the same thing at the next village, Paka, but nowhere else. I have never seen such a thing before in Tibet; but it must be remembered that we were now in Pome, where they do things rather differently; for instance, in one village we saw signs of phallic worship.

After crossing the stream twice by good cantilever bridges, we camped in a meadow. On the following day we marched about 16 miles to Nambu Gompa, a small three-storied stone building in the upper ice-worn valley. The snow peaks of the Salween divide were quite close to us, a little to the north, but we could see nothing on account of the clouds, though we had a glimpse of them in the winter.

On the 15th we crossed the Nambu La, a comparatively easy pass with a lake on each side and a group of snow peaks to the south; we camped in a meadow on the far side, and then descended to a big valley with a small glacier lake at its head (above which, and almost reaching the water's edge, was a glacier). Down this valley we marched to the village of Lopa. Continuing down the same valley for a few miles we reached the beautiful Pasum (or Trasum) * lake next day, and halted at the village of Je. This lake, which is about 8 miles long and 2 miles wide, in a closed valley 12,003 feet above sea-level (by boiling-point), is sacred, and it is considered a meritorious act to walk round it. Near the head of the lake are a number of fine snow peaks—the Salween divide again—the most conspicuous being the pyramid of Nam La Karpo, visible from Je.

A big stream flows in at the head of the lake, but the road shown on the maps as crossing the range above the lake (which in any case is about

* In the Lhasa dialect Tra, but in country speech it is nearly always pronounced Pa. Thus it is generally called Pasum Tso, though actually spelt Trasum. Similarly with the Tra La usually called Pa La; it is not Tara La, as on Sheet 82 K, Survey of India.

30 miles out of position) is fictitious, as we found to our cost; we had to travel yet farther west before we could get over this formidable barrier.

We now proceeded to circumambulate the lake, and reached a village called Tsogo (" lake head "), where we were held up for want of transport. Proceeding along the west shore, we saw a small island with a monastery close in to the opposite shore, and eventually reached a village at the foot of the lake. A large terminal moraine blocks the valley here, and holds up the lake, which occupies the site of a large glacier; but the stream has cut through the moraine, and flows into a broad, fairly thickly populated valley to Shoga Dzong, where another considerable stream comes in from the west; the united streams flow into the Gyamda river about 6 miles below Shoga Dzong, which was reached on August 20.

The Shoga Dzongpen had a small son at the Gyantse school, and was greatly pleased at our being able to give news of him. We now turned northwards, or rather north-westwards, for the first time since leaving Tongkyuk, and felt that we were getting on a little; for our ambition was to reach the Salween. Following up the other branch of the stream a few hours' march brought us to another confluence, where stood the important monastery of Drukla. The Commissioner from Gyamda was here inquiring into certain irregularities of living, the upshot of which was that sixty monks were ignominiously expelled into a cold hard world, and told to go and join the army in Lhasa.

The valley above Drukla was again fairly well populated, and we passed through a number of small villages, the last of which was called Pungkar. We were now well into the great snowy range, and continually saw snow peaks on either side of the valley.

We camped once above Pungkar, and a path which led to the Yigrong river was pointed out to us. We continued towards the source of our stream, however, and at last on August 25 we crossed the Salween divide by a high pass called the Pasum (Trasum) Kye La, 17,230 feet.

From the summit we counted six snub-nosed glaciers at the head of the valley into which we were about to descend, though not one actually reached the valley now. There were snow peaks and glaciers all round us, in fact, but they were withdrawing in force. High as this pass was, however, we were able to take ponies over it, and there was no snow; it gave much less trouble than the Doshong La, for example. The forest, which had been rapidly dwindling, now disappeared entirely, and we descended into a very bleak and desolate valley, where there was not a stick of firewood. We were back on the plateau, and had to put up with plateau conditions.

After camping with some yak-herds we descended gradually, and presently joined the Lhasa road at the small Atsa Tso. In the afternoon we reached Atsa Gompa, the most depressing place we had yet seen. However we managed to spend three more or less profitable days here, with no ill effects. Here of course we were on well-known ground

several explorers, including the late Brigadier-General Pereira, having passed through Atsa. We spent one day on a trip to the Banda La, which had been crossed nearly two years previously by General Pereira on his journey to Lhasa. We made the altitude 18,110 feet by hypsometer, and it certainly seemed it. From here we had a splendid view to the north, where we saw several very lofty snow peaks, beyond which, we were told, lay the Salween; so we gave up all idea of going there. South of us, just across the valley from Atsa, was another snowy range—part of the Tsangpo divide. To the east was a fine snow peak called Chakyajö, in Pome.

The stream from the Atsa Tso flows eastwards and is joined by the stream from Lharugo; the combined stream, which actually starts north of the Tsangpo divide, then cuts through that range and flows south as the Yigrong; the Atsa Tso—or rather the stream from the Tro La which feeds it—is thus really the source of the Yigrong. (Maps show the water from the Atsa Tso flowing to the Trasum Tso, which is incorrect.)

It may be remarked here that the Yigrong is the only river west of the Po Tsangpo which does cut through the range. Neither the Gyamda river nor any of its tributaries do this, all rising from its southern face, which is perhaps the reason why there are so few passes over it.

Retracing our steps to the Atsa Tso we turned up another valley, now following the Lhasa road, and camped at a post below the Tro La, which we crossed on August 31, at 17,650 feet.

No sooner had we crossed the divide again than we came into more fertile country, bushes and shrubs appearing lower down. That night we reached a single house called Tramdo, and on the following day the small village Laru, passing a monastery called Ko, conspicuously perched on a rock at the junction of two valleys. On September 2 we covered the remaining 12 miles to Gyamda, a considerable village in the angle between two rivers. The fine cantilever bridge which formerly spanned the northern stream had been destroyed by a flood, and we crossed in skin boats. By January the river was frozen nearly solid, and a foot bridge was thrown across, but work had not yet been started on the big bridge. Gyamda is dirty and not very interesting; but it boasts a post office, and a shop kept by a Nepali, where one can buy candles, cigarettes, fur caps, and a few other things. Formerly there had been a regular colony of Chinese shops, but these were all destroyed when the Chinese were expelled from Tibet. The road to Lhasa turns north here, but we left the known country behind us, and continued our exploration.

We now turned eastwards down the wide and well-populated Gyamda valley, reaching Napö Dzong the first day, where we were royally entertained to a wonderful Chinese meal. The road follows the left bank of the river for two days' march, then crosses to the right bank by an ex-

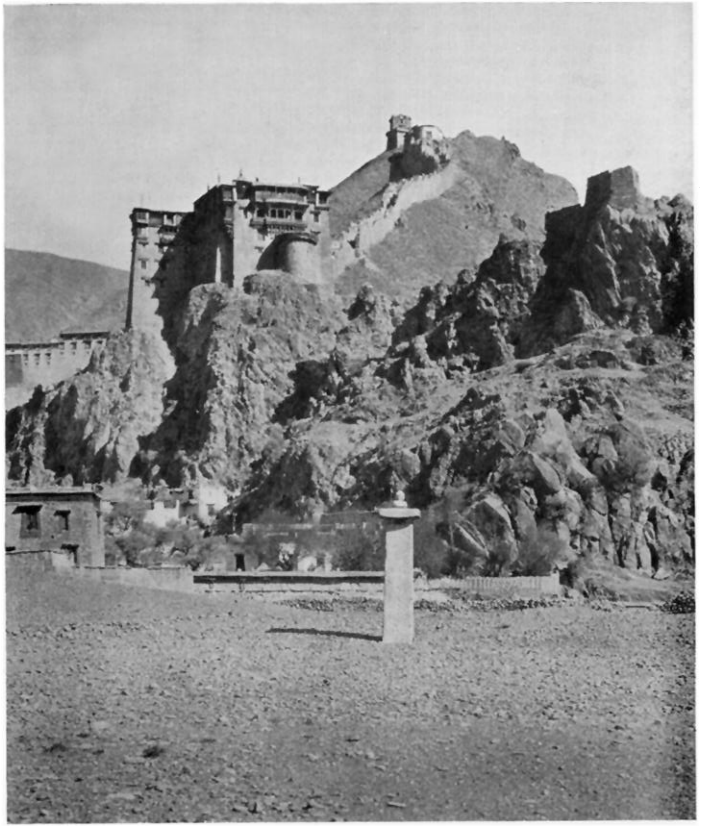
cellent bridge, and keeps to that side till Tsela Dzong is reached. On September 5 we slept at Kangra, having crossed the river. Opposite us on the left bank was the little monastery of Namse, where the Shoga Dzong river joins in; from Namse to Shoga Dzong is a short day's march. There are frequent groups of mud watch-towers scattered over all these valleys; they look rather like factory chimneys, and are said to date back several hundred years.

On September 7 we reached Nyalu, where for the first time since leaving Tumbatse a fine night enabled us to take an observation for latitude; we took another on the following night at Chomo Dzong. Below Chomo Dzong the valley widens out and is quite thickly populated. We reached Puchu that night, and Tsela Dzong on the 10th, having taken eight days to do the 90 odd miles from Gyamda. The river was beginning to fall now, and after stopping a day to collect certain seeds, we set out for Tumbatse *viâ* the Temo La, arriving there on September 15.

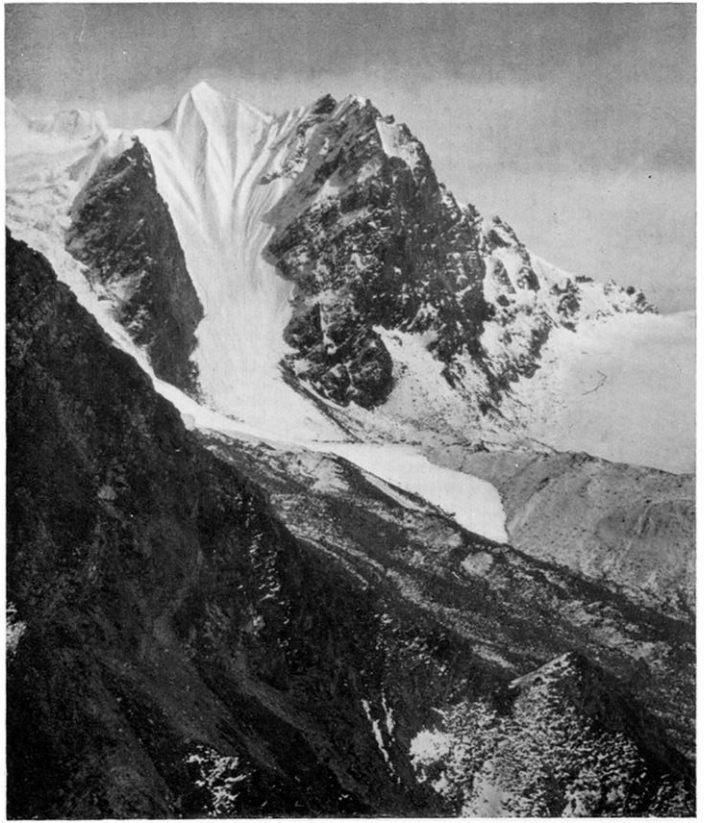
II. THROUGH THE GORGE OF THE TSANGPO

The rest of September and the first week of October were spent seed-collecting north of the Tsangpo. The weather was still very unsettled; rain fell most days, and the snow peaks were seldom clear. From October 1 till the 7th we were on the Temo La again, but only on one occasion did we get a clear view of Namcha Barwa from a camp half a mile north of the pass. At the same time we saw the tip of a sabre-tooth snow peak in the gap between Gyala Peri and Namcha Barwa far down the gorge. This could not have been Sanglung, which is hidden behind Namcha Barwa; the natives called it Trilatsengen, but that name might have been made up on the spot!

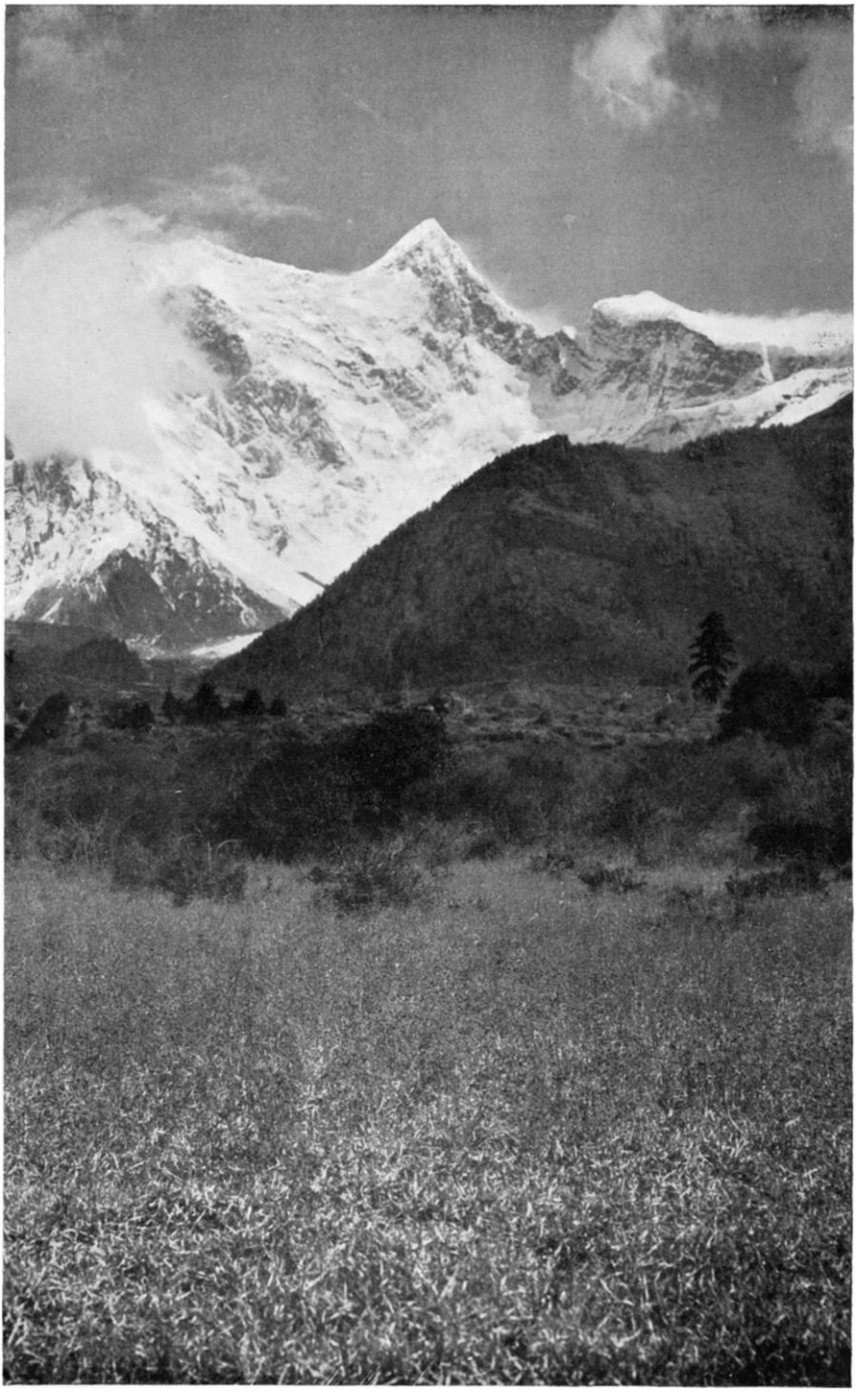
There is a high rocky peak on the divide a few miles north of the Temo La and almost opposite Tumbatse, called (so it is said) Tagkyejopo, though we called it simply the Hump. The least worthy and most obscure places always seem to have the longest native names, which makes one suspect that they are produced at short notice to satisfy the curiosity of the stranger. On October 5 I climbed this peak (16,182 feet), and having got one round of angles before dark, sat up there the night hoping to get another round at dawn. However clouds and snow ruined the view, and I saw nothing; but it may be remarked that a good view of the Salween divide to the north is obtained from here, as well as of Gyala Peri, Namcha Barwa, and the Himalaya to the south. On the other hand, it will be as well to warn future travellers that it is extremely difficult to get a good resection from anywhere near the Temo La, using only the obvious and outstanding fixed peaks to the east, as these are on the arc of a circle whose centre is near the pass. The " Hump " to the west of Tumbatse, and the " Plug " opposite it immediately to the east of Tumbatse (and visible from it), are obvious points to fix, being the



CHONGCHE DZONG ABOVE, TSETANG



THE NAM LA IN NOVEMBER



NAMCHA BARWA, FROM A TERRACE ABOVE THE TSANGPO AT KYIKAR

loftiest in the neighbourhood. On October 11 we left Tumbatse, crossed the Nyima La, and descended to the Tsangpo, proceeding thence to Pe.

The Mönbas were now crossing the Doshong La in hundreds, a few Kampas, Pobas, and Kongbas with them; we also saw three Lopas—presumably the people we call Abors—who had come 25 marches. They had all come to get salt, bringing rice, curry, vegetable dyes, canes (used for whip stocks in Tibet), maize, tobacco, and a few manufactured articles such as coloured bamboo baskets, garters, and so forth.

There were two officials at Pe to deal with the traffic: a representative of the Tsela Dzongpen, who took half the produce, and a representative of the Pome Raja, who took the other half, and also collected taxes. Each house pays 14 seer of rice, or some equivalent.

The travellers were ill clad for such a journey, especially the dwarfish Lopas, who had hardly any clothing; and though it does not take long to cross the Doshong La, which is the only pass, they carried loads of 80 lbs. through deep snow. By the end of October traffic ceased, the pass being then practically snowed up; but at this time not a day passed without fifty or a hundred people coming over—men, women, and children—and Pe, with its camps, and supplies, and people coming and going, presented a lively scene. Between one and two thousand must have crossed the Doshong La in October, which made Pemako appear quite thickly populated. But it is not. The area of Pemako cannot be less than 20,000 square miles, and probably a third of the population come to Pe for salt each year. Most of the remainder go to Showa.

Some of the travellers carried bows and arrows; both bow and bowstring were made of bamboo, and the bamboo arrows were iron-tipped and poisoned with aconite. Also one end of the bow was iron-shod, so that it could be used as a walking-stick. Cawdor also noticed that bowmen wore on the left wrist a bamboo bracelet, about 2 inches wide.

We spent a fortnight in camp at the Doshong La, experiencing heavy snowstorms on the pass, and particularly on the Pemako side, almost every day. We crossed the pass on the 21st, camping about 2500 feet down on the Pemako side. From here we made a trip down the valley for about 4 miles, though we were still some distance from the Dihang. At this point the Himalayan range reaches its narrowest, and it is only 25 miles from the Tsangpo flowing north-east at Pe, at an altitude of 9700 feet, to the Dihang flowing south-west at Yortong, at an altitude of 2500 feet. But the watershed is much nearer the Tsangpo than it is to the Dihang, the Doshong La being scarcely 8 miles from Pe.

There is a quaint prophecy said to be recorded in a sacred book by some fabulous person whose image is kept in the monastery at Payi, that Namcha Barwa will one day fall into the gorge and block the Tsangpo, which will then flow over the Doshong La! After seeing the large ice-worn valley on the other side, one wonders whether this is not rather a legend of the past than a prophecy of the future.

On the Pemako side the valley descends in a series of gigantic cliff steps separated by glacial flats. Just below our camp a big glacier torrent comes down from the north, evidently rising from the snow peak of Temu Tse; there appears to be another snow peak forming part of the southern wall of the valley, not far from the pass, on the Pemako side. Below the Alpine region the valley is filled with forest—Rhododendrons of all kinds, and conifers—in which we saw monkeys. The rock is everywhere a white-and-black-banded gneiss; but the banding is always highly contorted, and it is difficult to say whether the gneiss was first formed and then crumpled, or whether the banding is itself due to the crumpling.

On October 28 we reached Pe, and having packed our seeds, marched down the river to Kyikar. On November 1 we started for the Nam La, reaching our old camp at 14,000 feet next day. Things were very different here from what they were at the Doshong La. The stream had ceased to flow, and there was only just sufficient snow near at hand to keep us supplied with water. The weather too was fine and clear; consequently it was much colder, the sheltered thermometer recording 11° of frost on November 4, 28° on the 5th, and 25° on the 6th.

We managed to intersect the Nam La from two points fixed from Namcha Barwa (it is shown about 5 miles too far north on maps), and Cawdor reached the summit as described. Then having collected our seeds we returned to Kyikar, another storm having meanwhile swept over the eastern Himalaya.

On November 12 we started for Gyala, reached on the 13th in brilliant weather; and after some delay we started for Pemakochung on the 16th. Our party consisted, besides ourselves, of twenty-three porters (ten men and thirteen women), a lama from Pemakochung, who some years previously had been through the gorge, and Tom (*sirdar*). Dick (cook) was in support as far as Pemakochung, whence he would return to Gyala and rejoin Sunny Jim (servant). They were then to take all our kit back to Tumbatse, and on to Tongkyuk, where the whole party would reassemble about December 10.

Most of the coolies carried rations. Our personal property comprised only bedding (two coolies), collecting box (one coolie), botanical presses (one coolie), and survey instruments (one coolie). We had also two boxes of stores, consisting chiefly of slabs of chocolate and a liberal ration of first-rate soup from home; our only regret was that we were unable to carry more. There had been a hitch at Gyala, because the Depa, who had been so anxious to help us in the summer, had slept on it for two months, and then come to the conclusion that perhaps we ought not to go! He therefore sent a letter to his superior, asking if it was in order. As luck would have it, our friend the Commissioner of Gyamda was at Temo, fumigating more monasteries, and the letter reached him. He not only replied by telling the Depa that he must supply us with

transport, but also sent us the lama from Pemakochung (and known as the Walrus) to be our guide.

The opposition of the Depa was probably connected with some fear that the way through the gorge might be opened again; the policy of the Kongbo officials being to close it, partly no doubt in order to exclude Poba robbers, who in the past have given a lot of trouble, raiding as far as Temo, and partly owing to the difficulty of controlling taxation and trade by this route. As long as the Pemako merchants keep to the Doshong La, this is a comparatively simple matter.

We had no sooner started than another storm swept up the gorge, and we spent two damp nights in the forest before finding shelter under a huge boulder at the Nyukdsang camping ground of Kinthup and Bailey. Here we got a boiling-point in the river-bed. Immediately below Nyukdsang a glacier reaches the river-bed on the left bank. A semicircle of snow peaks, including Gyala Peri and Sengdam Pu, pour five converging glaciers into a common funnel-shaped valley, which contracts below to a steep and narrow glen through which the ice stream reaches the river. No other glacier does this, though many did so in the past.

On November 20 we reached Pemakochung, placed on a knoll in the midst of swamps in a mountain bay between Namcha Barwa and Sanglung. Here we rested on the 21st, Cawdor to visit Kinthup's fall, I to botanize. Next day we continued the march, crossing the Talung and Sanglung glacier streams, and camping in the river-bed just beyond the latter. There were some cold sulphur springs here under a rock, far below high-water mark, but now exposed. We took another boiling-point. A ridge of gneiss, drilled with large pot holes, runs out into the river at this point, squeezing it up against the opposite cliff, and there is an almost vertical fall of about 10 feet.

For the next few days the going over the cliffs was difficult and progress slow. At one place we were held up for two hours by a 40-foot chimney, while trees were felled and notched to make ladders; at another we had to descend a steeply sloping cliff into the river-bed, and then immediately climb a high earth bank in order to get out again. But after crossing another torrent, the Churung Chu, we found ourselves on a takin trail; and though we had to do a good deal of cutting in order to make a way for the coolies, not so much time was wasted seeking a route. We were travelling between 4 and 5 miles a day now. On the 25th we had to descend an awkward cliff, probably the one which had finally baulked Bailey; and on the 26th we camped by another glacier stream, the Shegar Chu. This day also we met with disaster, the metal triangular support of the plane-table being lost. However, we contrived a wooden substitute to fit into the socket of the theodolite stand and support the plane-table.

After the 25th we were on unexplored ground again. All this time

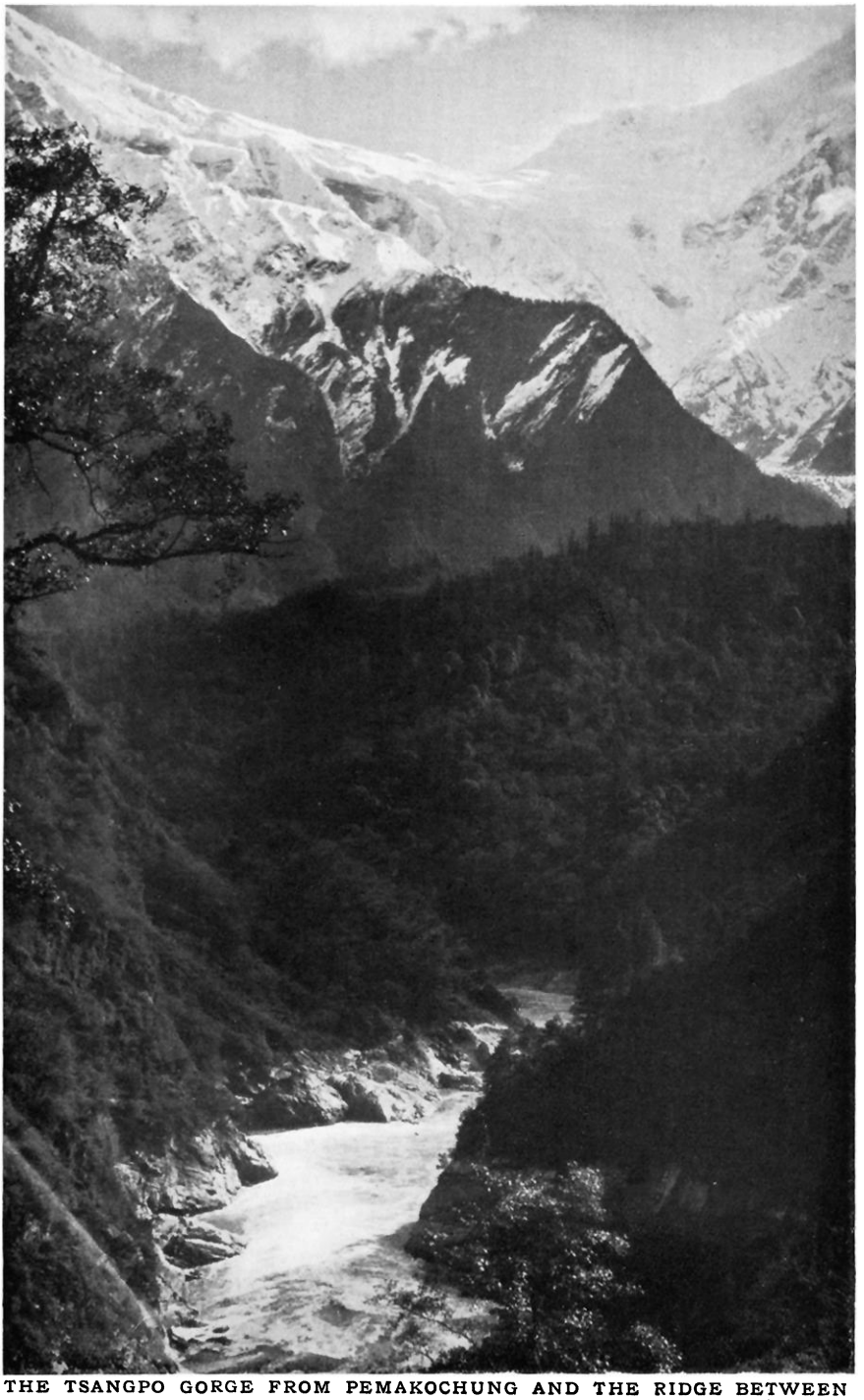
the river was flowing in a general north-easterly direction, in a series of falls and boisterous rapids, skidding violently from time to time, but in the main keeping direction. Dense forest filled the gorge from water-line to snow-line, and every two or three days we found ourselves down to a new stratum of vegetation.

On the 27th we advanced only about 2 miles, the Shegar Chu proving a more formidable obstacle than it looked. I tried to reach the glacier foot by following up the stream, which had cut the abandoned moraines into terraces, but was unable to do so. On the 28th we were again delayed by a high cliff, which the porters descended with difficulty. That night we camped in the river-bed again, between two small streams close to where the great Sanglung spur juts out northwards. The river has thrown up a barrage here, with a deep lake against the cliff on the other side. Unless we could cross the barrage between the violent river and the deep lake, we would have to leave the river-bed altogether and climb the cliff. This is the summer route; and had the water-line been 2 feet deeper it would have been ours too, for even at the end of November water is still pouring over the barrage into the lake. However, by felling trees and laying a bridge we just managed to get across, and so were able to continue in the river-bed for another march. A huge landslide had spoilt the scenery here for the next 2 miles, and we had some difficulty in clambering over the cyclopean angular blocks of gneiss strewn along the shore. The river was having a wild time, keeping a passage open. That night we camped in the river-bed for the last time at the foot of a smooth sheer cliff, where two streams slithered and leaped hundreds of feet into the river.

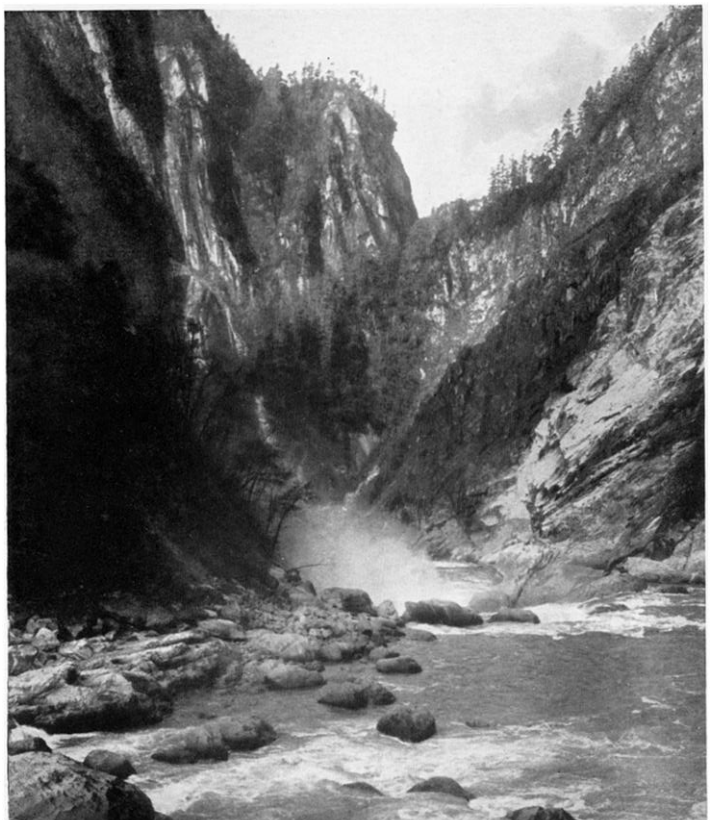
The loaded Tsangpo came up against the Sanglung cliff with terrific force, and skidded away to the west, making straight for Gyala Peri, a long shark-toothed spur of which dovetails into the Sanglung spur. It looked as though we were trapped. The roaring river filled the narrow gorge from wall to wall, and it did not look possible to scale the cliff. Just round the corner it fell about 40 feet over a ledge, sending up clouds of spray in which we saw rainbows; it was the first vertical fall we had seen. At high water it must be an amazing sight—but then of course one cannot reach it!

On the 30th we did the apparently impossible—scaled the cliff, crossed the face of one cascade, and reached the basin of the second, high up. We followed joints and cracks in the coarse-grained gneiss, slanting up the cliff and hauling ourselves vertically upwards by means of small bushes which grew in every crevice. It seemed wonderful enough that the coolies should be able to climb such a face; but our astonishment at this paled beside our speechless surprise when we realized that we were still on the trail of the takin!

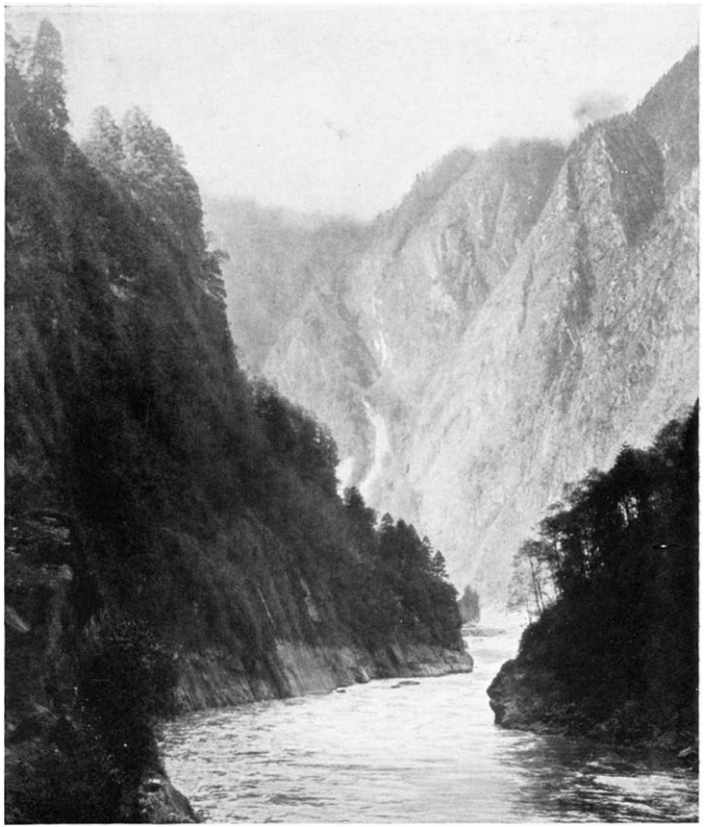
At the top of the cliff we reached a steep stony glen not far below the snow. Here we saw a dead takin which had been caught in a noose of



THE TSANGPO GORGE FROM PEMAKOCHUNG AND THE RIDGE BETWEEN NAMCHA BARWA AND SANGLUNG



THE FIRST FALL ON THE TSANGPO



A QUIET REACH OF THE TSANGPO NEAR CAMP IX.

bamboo rope, and in its struggles to escape had fallen into the glen and broken its neck. There was forest higher up, but the slope was precipitous, and as it was now late we let the coolies seek shelter farther afield while we made the best bivouac we could on the earth slope below. It rained all night, and a cold wind blowing down the glen off the snow made the conditions generally uncomfortable; we could hardly keep the fire alight, and there was not room for us all to sit round it. Meanwhile the coolies had found a hunters' snuggery in the forest, where they kept warm and dry; consequently they were in no hurry to start next day. We got away at last, and climbed very steeply by a good path through thick forest, till we reached fresh snow. From one point we could almost see Pemakochung, which was absurdly close, and had it been clear we should have had a good view of the Namcha Barwa–Sanglung massif, and the saddle connecting those peaks.

At last, still in forest, we reached the crest of the Sanglung spur, and turned north-west; we could see the river, or rather the gorge, on both sides of us. We descended gradually, till from a clearing we were able to see cultivation far away on the left bank of the Tsangpo after it had passed the apex of its northern bend; the village is called Longyul. Shortly after that we crossed the ridge (Sechen La, 3714 feet above our last camp by the Tsangpo), and, descending a few hundred feet, camped by a pool in the forest.

On December 2 we continued the descent, bearing more and more to our right (*i.e.* northwards) along branching spurs of the main ridge, which itself ends in a cliff overlooking the river opposite Gompo Ne. There was a good path, but it became extraordinarily precipitous towards the end. In the afternoon we suddenly emerged from the forest on to a cultivated platform, and reached the so-called Monba village of Payi or Payul. Here we saw subtropical crops, bananas, limes, tobacco, chilis, and so forth.

The Monbas, though taken somewhat in flank by surprise, rallied well, and entertained us hospitably. They sold us rations, promised coolies for the morrow, and prepared quarters for us in the temple. Next day the main body of porters started back for Gyala; but the Walrus and three of the porters who had always been in the van, felling trees, fixing ropes, and generally helping the lame ducks, volunteered to accompany us to Tongkyuk. We took them on at a special rate of pay, and gave them the lightest loads; we also created a favourable impression by giving the returning party a solid reward for their services, in addition to the money which had to be paid over to the Baron of Gyala, who had contracted for the work.

Payi consists of several groups of wooden houses scattered over terraces which must be 1000 feet above the river. The people call themselves Monba, but are evidently a mixture, with Poba and Lopa predominating. Below the village, out of sight, is a rope bridge leading

to the main road on the left bank; there is no road below Payi on the right bank, which consists of a high cliff. The district down river is called Lome, that up river, Lode.

We were unable to follow the river from Payi to Lagung, where Bailey and Morshead left it on their upward journey, as time pressed; consequently that stretch of 8 or 10 miles remains unexplored. Below Payi the valley begins to open out, the spurs to flatten. Traffic is constantly passing up and down the left bank, *en route* to Showa.

Next morning an "arrow letter" was sent off to the villages of Lode, warning them of our approach and requesting assistance. We only required about ten coolies now, of which we had three; but the other seven were a lamentable time in making their appearance. Eventually we started up the path, climbing to a spur whence we had a good view of the surrounding mountains. The great snow cliff of Sanglung, which faces east, was very prominent; beyond that, separated by a gap, is a much lower snow peak, and beyond that again a group of three rocky peaks. After that the spurs flare away to the lower rounded jungle-clad Abor Hills. To the east is a broad gap, and to the north a small snow peak in Pome.

Next day, December 4, we crossed a spur called Pangkyen La, and descended almost to the river, halting at a poor little village, Sengetong. From here we had a fine view of Gyala Peri, just across the gorge, and of a range of glittering snow peaks stretching northwards from it, on the other side of the Po Tsangpo; the most conspicuous of these is Makandro. While crossing the Tsangpo by rope bridge below Sengetong we took a boiling-point in the river-bed, and found that we were 2239 feet below where we had last camped in the gorge, above the rainbow fall. Either the river loop was longer than we supposed, or there was a fall somewhere. We thought the unseen gap might be 10 or 12 miles, but that would require a steady fall of about 200 feet a mile, which was hardly credible. Having crossed the river we climbed a high narrow spur, at the summit of which we reached a village called Tsachugang. On our right, almost directly below, and plainly visible, the Po Tsangpo came galloping down from the north, and on the left the Kongbo Tsangpo went reeling away northwards, slewed sharply round a high cliff, and wriggled eastwards again. Gompo Ne and the confluence lay about 3 miles away to the south, at the end of the narrow rocky tongue on which we stood, with the rivers roaring past in opposite directions 1000 feet below us. We stayed a day at Tsachugang, and ascending the ridge had a wonderful view of the whole Assam Himalaya, with the Tsangpo bursting out from the middle. Afterwards we went down to Gompo Ne, which is at the end of the ridge, half a mile below the confluence of the Po Tsangpo with the Kongbo Tsangpo.

Gompo Ne is only a name; there is nothing there except an open shed for pilgrims and a rock which resembles a chorten. There was

said to have been a monastery here at one time, but it fell into the river. The confluence was hardly as tumultuous as we had expected to find it; but both rivers were of course low, and we were so accustomed to the wild fury of the Tsangpo that a little more or less did not make much difference. The Po Tsangpo comes in at a rather acute angle, and its blue water is instantly engulfed in the grey flood of the Kongbo Tsangpo. A boiling-point reading here gave an altitude of 5247 feet, which agrees pretty closely with Bailey's estimate of 5700 feet. We had now to account for the 1851 feet between the confluence and the "rainbow" fall (7098 feet).

Retracing our steps up the steep ridge, we crossed the Po Tsangpo some 3 miles above the confluence to a Monba village called Sengchen, where we found a colony of hunters; but to our inquiries about getting farther up the river, they said there was no route. Certainly it looked impossible. Below the village was a deep steep-sided glen filled with dense forest; the upper part of the glen was separated from the lower part by a high cliff over which the stream leaped. Across the glen a huge wall-sided spur came down from Gyala Peri to the river, and broke off short, the river itself tearing through a chasm 10,000 feet deep and at the bottom only 50 feet wide.

Our best, indeed our only, hope seemed to be to reach the crest of that spur, when we *might* see the river beyond. But how? We reckoned it would take us at least four days to cut our way there, even supposing we could do it at all. In the mean time we would have to find our own way and cut our own path, since the Monbas obstinately refused to help us, though otherwise they were quite friendly.

We began by descending 2000 feet to the river-bed in order to convince ourselves that there was no possible route in this direction. But after clambering over the boulders and along the face of a cliff till even the vegetation came to an end, we found that farther progress was only possible for creatures provided with more than the human allowance of hands and feet; not even a monkey or a cat could have clung to those walls.

We were now about $\frac{3}{4}$ mile above the confluence, and the altitude was 5302 feet. There were many steam jets issuing from beneath boulders in the river-bed, and we noticed that the coarse grey-banded gneiss of the upper gorge had changed to a finer sugary-looking schist, though it still showed the same black-and-white banding; here however the bands were straight, not crumpled. Returning to Sengchen, I climbed to the top of a grassy alp behind the village to seek a theodolite station, and noticed a good path going up the ridge. Just as I was about to descend at dusk, I saw the glow of a camp fire across the deep glen and high up on the face of the cliff where the hunters had told us it was impossible to go.

Next day (December 11) Cawdor explored the path up the ridge, and

on his return reported a good place for a bivouac high up ; the path, he said, continued. The hunters, in the face of accumulating evidence, unblushingly admitted that they had lied ; it was possible to reach the crest of the spur, and from there we should see the Tsangpo. Also they offered to take us. Their reluctance was due to the fact that this was the pet preserve of a rival tribe of Lopas, with whom they wished to keep on good terms, and who would be sore at such barefaced trespass.

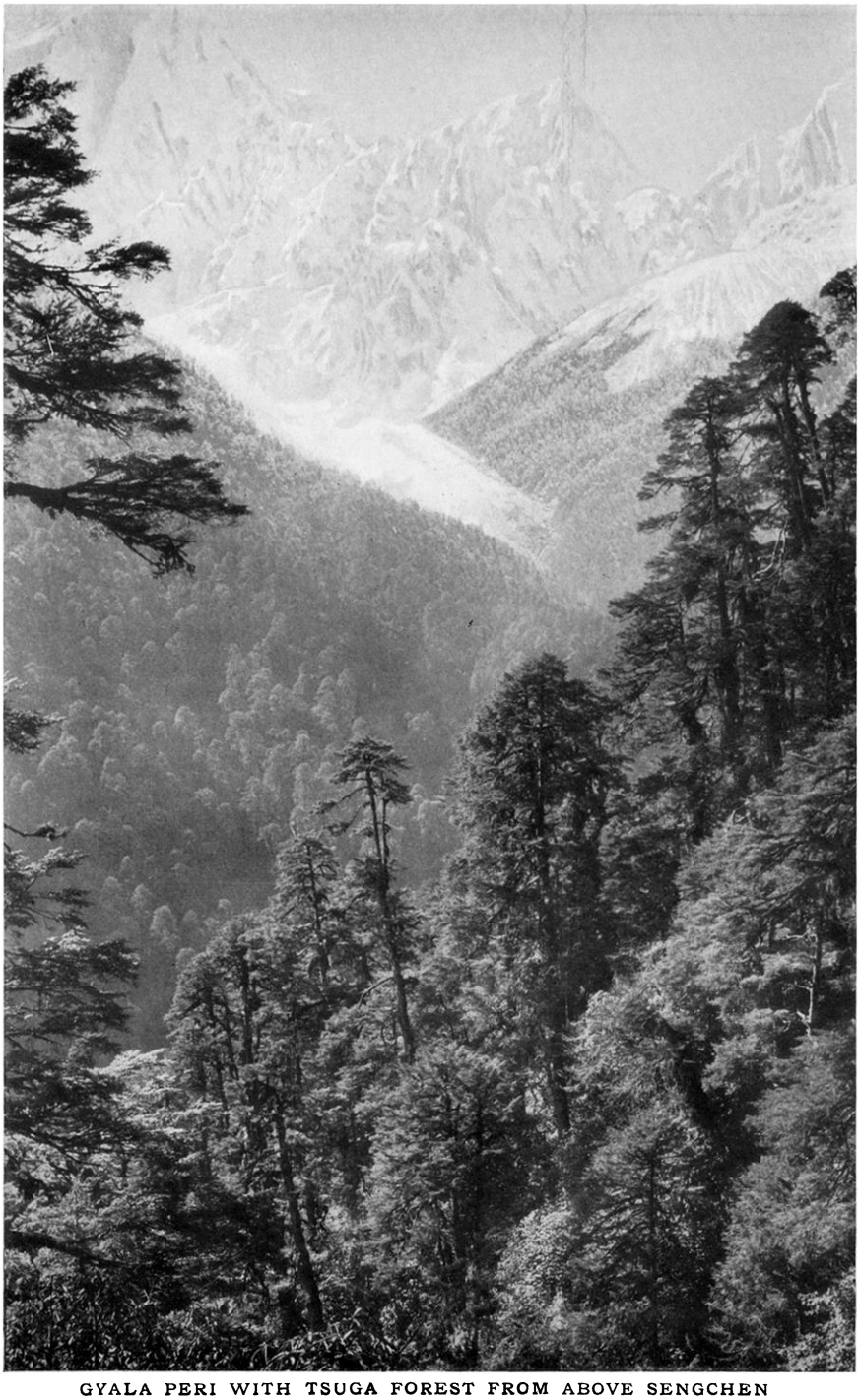
On December 12 we started, with food for five days, all the porters bringing their gas-pipe guns. For, they argued, they might as well be hanged for a sheep as a lamb. If the Lopas were going to make themselves unpleasant because they had trespassed, they might as well poach too, and have done with it. Eventually they slew two of their neighbours' takin, several pheasants, and a gooral ; and then persuaded us to write a letter to the incensed Lopas saying that we took all responsibility ! To such low intrigue is the explorer reduced !

On December 12 the weather broke again, a storm coming up from the south. We bivouacked under a rock, high up on the ridge, and awoke next morning to find it snowing hard. We began to fear that even if we reached the next ridge we should not be able to see anything.

Crossing the burn above the cascade we climbed the ridge, and early in the afternoon reached a col from where we could see the Tsangpo, 4000 feet below. There had been a terrific washout on this side, and half the face of the mountain had peeled off, allowing a superb view southwards to the Assam Himalaya, if only it had been clear. A bad descent of 2000 feet brought us to vegetation again, and we bivouacked on the precipitous hillside in twos and threes. We were told there was a big waterfall below, and next day I descended the remaining 2000 feet to the river.

Here a vertical plate of rock reached diagonally across the river, and the loaded water had blown a hole 15 feet wide clean through the middle of it. At present all the water rushed through the breach, but in flood the river pours right over the ledge, falling about 30 feet. A little below is another vertical fall of 40 feet (as near as I could judge), and altogether the river falls about 100 feet in a quarter of a mile. A boiling-point observation gave the altitude as 5751 feet. As we could not have been more than 5 miles above the confluence at the outside, this gives a fall of 101 feet a mile. That 5 miles we had all but seen with our own eyes. We still had to account for a difference of 1347 feet between this fall and the " rainbow " fall. We had seen another 4 miles up the river from the ridge above, and the gradient was extraordinarily steep ; and from above the " rainbow " fall we had seen about 2 miles down the river. If the fall here was 100 feet a mile, half the difference was accounted for ; and there might be another 4 or 5 miles of the river which was hidden from us. The Monbas said there were no larger falls than those we had seen, and that there were about seventy such falls altogether, which would easily account

THE SECOND FALL OF THE TSANGPO, GOMPO NE.



GYALA PERI WITH TSUGA FOREST FROM ABOVE SENGCHEN

for the difference of height. At any rate, we could endorse Bailey's and Morshead's conclusion, that there was no necessity to postulate the existence of a big fall in order to account for the enormous descent of the Tsangpo from the Plateau of Tibet to the Plain of Assam. We were satisfied that no greater waterfalls than those we saw existed, and that we had in fact seen the river in the deepest, steepest, and narrowest part of the gorge.

One final argument. At the lowest point reached by Bailey the altitude of the river was 7480 feet. He calculated the altitude at Gompo Ne to be 5700 feet, and the distance at 20 miles, giving a fall of 89 feet a mile (*Geogr. Journ.*, October 1914).

According to our reckoning, from Bailey's lowest point to Gompo Ne is 26 miles and the fall 2233 feet, giving an *average* of 86 feet a mile, or almost exactly the same. But this average fall is misleading, and is really made up as follows: From Bailey's lowest point to the "rainbow" fall, 11 miles, fall 382 feet, average 35 feet a mile; this includes several quiet reaches. From the "rainbow" fall to the lower fall, 10 miles, fall 1347 feet, average 134 feet a mile. From the lower fall to Gompo Ne, 5 miles, fall 504 feet, 101 feet a mile. That is to say, the river-bed is steepest where the river is doubling back on itself between Sanglung and Gyala Peri, and the rock is changing its character. The accuracy of this depends not only upon our boiling-point readings and estimation of distances, but also on our recognition of Bailey's cliff; it is therefore only approximately correct.

Next day we started back for Sengchen, reached on the 16th. The weather turned fine again, and we had magnificent views of Gyala Peri at the head of the glen, and quite close. Recrossing the Po Tsangpo, we started northwards up the left bank on the 18th. The weather broke, and after crossing the Karma La, which is the last point from which we could see the Assam Himalaya, we sat down in Lubong for two days while it rained and snowed. On the third day it cleared up, and we returned to the Karma La for a last fixing, and to photograph the snow-peaks.

Resuming the march, we reached the rope bridge above the Rong Chu confluence on the 23rd, and Tongkyuk on Boxing Day. Here we rejoined the main body, who, having waited a fortnight, were beginning to think something untoward must have befallen us. Halting a day here to pack, we started for the plateau on the 28th, following the same route as in August.

I must here draw attention to a point which struck us as curious. When we reached Gompo Ne we had undoubtedly passed through a great range of snow mountains. The Namcha Barwa–Gyala Peri line was behind, *i.e.* to the west of us. On the other hand, Namcha Barwa and Sanglung still lay to the south of us; we were not actually on the southern slope of the Himalaya any more than we had been at Gyala or Pe.

The question was, had we or had we not crossed the Himalayan axis? If so, then that axis here trends north and south, or at least north-east and south-west, and obviously we should have to recross it somewhere in order to reach the Tibetan plateau; possibly we had already done so at the Karma La, the Po Tsangpo also cutting a passage through the range. If not, then the Himalayan axis must continue eastwards from Sanglung, in the lower peaks we had seen, to be cut through by the Tsangpo further east, where that river bends to the south. In that case, what about Gyala Peri, Makandro, and the other snow peaks on both sides of the Po Tsangpo? To what range do they belong? It is a nice problem for geologists as well as geographers, which we can state but cannot solve; the information is still too meagre.

Arrived at Nambu Gompa, which had been long since deserted, we waited two days in the hope of fixing the high peaks on the Salween divide; but a continuous fall of snow prevented this, and we decided we had better cross the pass before it was blocked. From the Nambu La therefore we descended to the Trasum Lake and Shoga Dzong, the snow-storm continuing for five days.

Then, retracing our steps up the Drukla valley as far as Pungkar, and finding that we could not get over the Trasum Kye La, we returned to Shoga and continued down the river to Namse Gompa, on the Gyamda river. Turning westwards we reached Gyamda three days later, and made an excursion up the valley to Ko Gompa beyond Laru, whence we returned to Gyamda. We could probably have crossed the Tro La and reached Atsa, but time was getting on now, and we were due back in India shortly.

On January 24 we finally left Gyamda, following the Lhasa road for three days, over the Kongbo Pa La, 18,022 feet, to Tsumara. Here we turned due south, crossing a low pass, the Kumba La, from where we had a view of the snow peaks east of Oga Dzong, which was reached on the following day. Following the main road up the left bank of the Tsangpo, we reached Tsetang three days later (January 31), crossing by the ferry just below the town.

Between Tongkyuk and Tsetang we kept a route traverse, checked by ten observations for latitudes, and boiling-point observations on the passes.

No time was wasted at Tsetang. On February 1 we started due south for India, following Bailey's and Morshead's route up the Yarlung valley and so over the Yartö Tra La, 16,700 feet. Keeping just east of the Trigu Tso, between which and us were some fine snow peaks, we crossed the Kale La and came down to the headwaters of the Subansiri. We were on new ground all the way from the Yartö Tra La to Tsöna, though we crossed Bailey's and Morshead's east-west routes at more than one point. The weather was bright and bitterly cold, fierce winds springing up after eleven o'clock each morning. The valleys of the upper Suban-

siri, though well populated, looked very barren, and choking dust-storms made travelling uncomfortable. But there was very little snow till we crossed the Debshi La, over 16,000 feet, and approached the main Himalayan range. After skirting the Nera Yü Tso in a thick snow-storm, we crossed the Torgon La and reached Tsöna Dzong on February 7.

We had to halt here a day, and were told that the Tawang route was blocked. On the 9th we started again, following Bailey's and Morshead's route, crossed the last pass called Pö La, 14,900 feet, and descended once more into forested country, in the valley of the Nyamjang Chu. Two days later we finally left the snow behind us.

We now followed the river southwards into Eastern Bhutan, where we were well received, especially at Trashigang Dzong. Thence we reached the plains in six days, and Rangyia railway station the same night, February 23, having done the last 25 miles across the plain by Ford car.

The geographical results of the expedition may be briefly tabulated.

(i) Discovery of a new route from Trap, on the Tsangpo, *viâ* Öga Dzong, the Lung La, and Chögorche, to Gyatsa Dzong; and from Trap, northwards *viâ* Öga Dzong to the Lhasa road at Tsumara.

(ii) Exploration of the Gyamda valley from Tsela Dzong to the Lhasa road at Gyamda; and of its chief tributary, the Shoga Dzong stream.

(iii) Discovery of Drukla Gompa, the Drukla river, and the Trasum Kye La, with the route from Shoga Dzong to Atsa.

(iv) Exploration of the Trasum lake, and of the route *viâ* the Nambu La from Shoga Dzong to Tongkyuk.

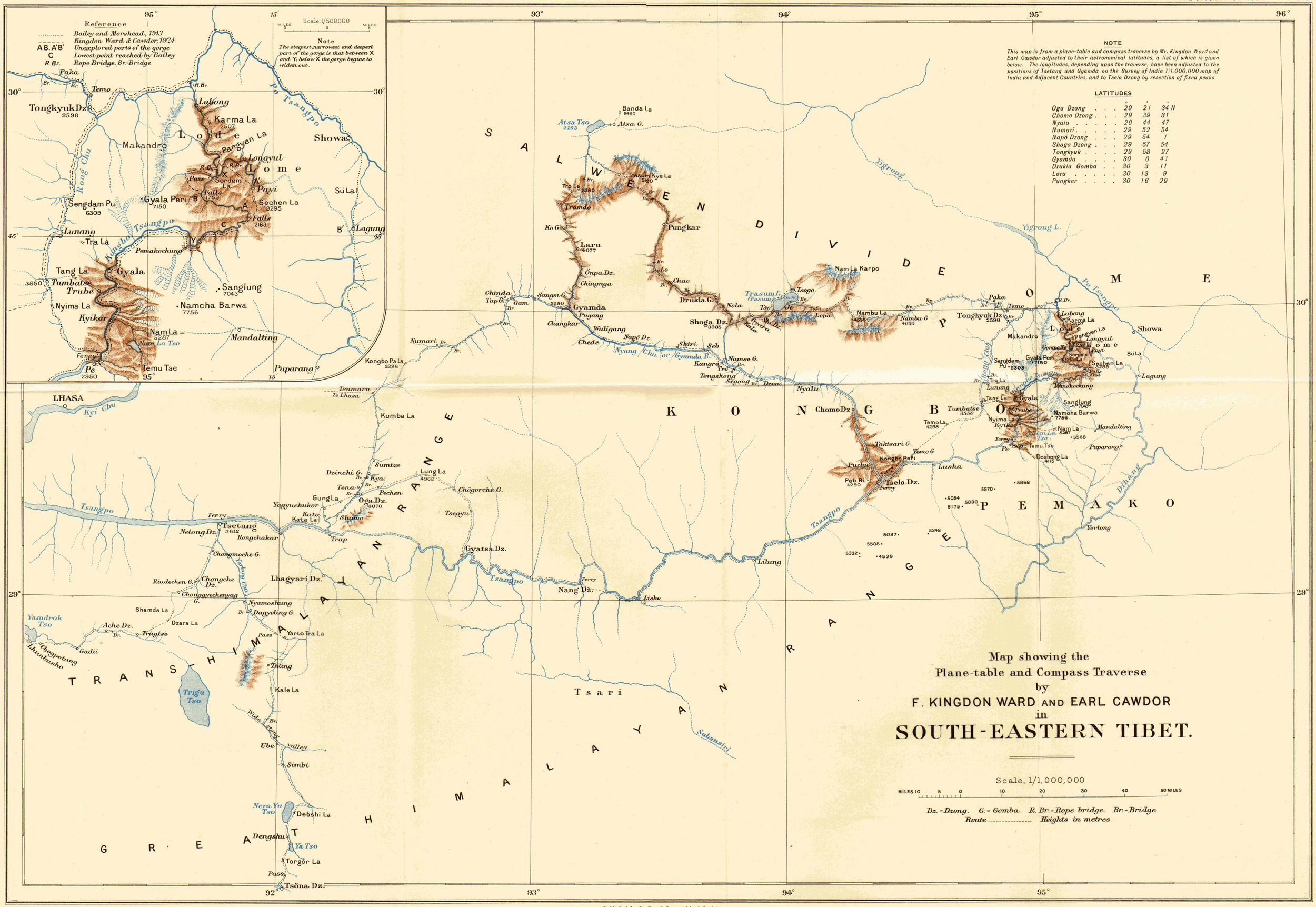
(v) Exploration of the Nam La.

(vi) Exploration of the Tsangpo gorge from the lowest point reached by Bailey to Payi, and the discovery of two small falls; and of the Po-Tsangpo from Gompo Ne to Trulung.

(vii) Exploration of the route due south from Tsetang to Tsöna Dzong.

Our botanical discoveries are dealt with elsewhere.

Before the paper the PRESIDENT said: We welcome back this evening, after a journey extending over a year, our lecturer Mr. Kingdon Ward, no stranger to the platform of our hall. In the course of his last journey Mr. Kingdon Ward and his companion, Lord Cawdor, completed the exploration of the great bend of the Tsangpo River which was begun between forty and fifty years ago by one Kinthup, a native employed by the Survey of India. Let me remind you in a few sentences of the story of the exploration of this river. In 1879 it was determined that an attempt should be made to decide once for all whether the Tsangpo of Tibet and the Brahmaputra of Assam were parts of one and the same great river. A Chinese Lama, trained as an explorer, was therefore despatched to Tibet with instructions to follow the course of the Tsangpo River as far as he could, and then to throw into its waters specially



Published by the Royal Geographical Society.


Reference
Bailey and Morshead., 1913
Kingdon Ward & Cawdor, 1924
AB. A'B' Unexplored parts of the gorge
C Lowest point reached by Bailey
R Br. Rope Bridge. Br.-Bridge
Scale: 1/500000
MILES 5 0 5 MILES
Note
The steepest, narrowest and deepest part of the gorge is that between X and Y; below X the gorge begins to widen out.
95° 15'
30°
45'
Paka
Br.
Br.
Temo
R.Br.
Po Tsangpo
Tongkyuk Dz.
2598
Lubong
Karma La
2507
L o d e
Showa
Makandro
Pangyen La
Rong Chu
Longyul
L o m e
R.Br.
R.Br.
X
Pass
Sordem La
A'
Falls
1753
Payi
Su La
Sengdam Pu
6309
Gyala Peri
7150
B
Sechen La
3295
A
Falls
2163
C
Kongbo Tsangpo
Lunang
Tra La
Y
B'
Lagung
Pemakochung
Tang La
Gyala
3550
Tumbatse
Trube
Sanglung
7043
Nyima La
Namcha Barwa
7756
Kyikar
Nam La
5287
Nam La Tso
Mandalting
Ferry
Pe
2950
Temu Tse
Puparang
Kongbo Pa La
5396
LHASA
Kyi Chu
Tsumara
To Lhasa
Kumba La
Sumtze
Dzinchi G.
Br.
Kya
Tena
Br.
Br.
Pechen
Gung La
Oga Dz.
4070
Yagyuchukor
Kata
Kata La
Shumo
Tsangpo
Ferry
Tsetang
3612
Netong Dz.
Rongchakar
Trap
Chongmoche G.
Yarlung Chu
Riudechen G.
Chongche Dz.
Lhagyari Dz.
29°
Chonggyechenyag G.
Nyamoshung
Br.
Dagyeling G.
Shamda La
Yamdrok Tso
Ache Dz.
Dzara La
HIMALAYAN RANGE


93°
Scale: 1/500000
MILES 5 0 5
Note
The steepest, narrowest and deepest part of the gorge is that between X and Y; below X the gorge begins to widen out.
30°
Tsangpo
Showa
Su La
Lagung
B'
Puparang
Kongbo Pa La
5396
Numari
Tsumara
To Lhasa
Kumba La
Sumtze
Dzinchi G.
Kya
Lung La
4968
Tena
Pechen
Chögorche G.
Gung La
Oga Dz.
4070
Yagyuchukor
Kata
Kata La
Shumo
Tsegyu
Trap
Gyatsa Dz.
Tsangpo
Ferry
Nang Dz.
Lisho
Banda La
5460
Atsa Tso
4493
Atsa G.
Trasum Kye La
5190
Tro La
5380
Tramdo
Ko G.
Laru
4077
Pungkar
Lo
Chao
Drukla G.
Önpa Dz.
Chingnga
Chinda
Tap G.
Gam
Sangsi G.
3550
Gyamda
Pugang
Changkar
Wuligang
Napö Dz.
Chede
Nyang Chu or Gyamda R.
Shiri
Seb
Shoga Dz.
3385
Kangra
Tongshong
Br.
SALWEEN
RANGE
K

94°
95°
This map is
Earl Cawdor
below. The
positions of
India and Ad
Banda La
5460
Atsa G.
Yigrong
Trasum Kye La
5190
Br.
5380
W
E
N
D
I
V
I
D
E
Pungkar
Laru
4077
Lo
Önpa Dz.
Chingnga
Chao
Drukla G.
Nola
Nam La Karpo
Tsogo
Trasum L.
(Pasum)
3598
Tso
Je
Lopa
Shoga Dz.
3385
Kala
Gyara
Shi Dz.
Nambu La
4535
Nambu G
4055
Paka
Temo
Tongkyuk Dz
2598
O
P
Makandro
yamda
Pugang
Wuligang
Napö Dz.
Chede
Shiri
Seb
Nyang Chu or Gyamda R.
Namse G.
Kangra
Trö
Tongshong
Segong
Dzem
Nyalu
Rong Chu
Sengdam Pu
6309
Gyala
Tra La
Lunang
Tang La
Gyala
Trube
Tumbatse
3550
Nyima La
Kyikar
K
O
N
G
B
O
Chomo Dz
Temo La
4298
Taktsari G.
Temo G
Kongbo Pe Ri
Puchu
Lusha
Pab Ri
4290
Tsela Dz.
Ferry
Pe
2950
5868
5570
5054
5890
5175
P
E
Tsangpo
5248
5087
5505
5332
4538
E
G
N
A
Lilung
Ferry
Dz.
Lisho


95°
96°
NOTE
This map is from a plane-table and compass traverse by Mr. Kingdon Ward and Earl Cawdor adjusted to their astronomical latitudes, a list of which is given below. The longitudes, depending upon the traverse, have been adjusted to the positions of Tsetang and Gyamda on the Survey of India 1/1,000,000 map of India and Adjacent Countries, and to Tsela Dzong by resection of fixed peaks.
LATITUDES
Oga Dzong . . . 29 21 34 N
Chomo Dzong . . . 29 39 31
Nyalu 29 44 47
Numari 29 52 54
Napö Dzong . . . 29 54 1
Shoga Dzong . . . 29 57 54
Tongkyuk 29 58 27
Gyamda 30 0 41
Drukla Gomba . . 30 3 11
Laru 30 13 9
Pungkar 30 16 29
Yigrong L.
D E
O
M E
Po Tsangpo
Paka
Temo
Tongkyuk Dz
2598
Nambu G
4055
P
Lubong
Karma La
2507
Lode
Pangyen La
Longyul
Lome
Showa
Makandro
Gompa Ne
Payi
Sordem
Sü La
Sengdam Pu
6309
Gyala Peri
7150
Sechen La
3295
Falls
2163
Lagung
Rong Chu
Tra La
Lunang
Tsangpo
Pemakochung
Tang La
Gyala
Sanglung
7043
B
Tumbatse
3550
O
Trube
Namcha Barwa
7756
Temo La
4298
Nyima La
Kyikar
Nam La
5287
Mandalting
5568
Nam La Tso
Ferry
Pe
2950
Temu Tse
Puparang
Temo G
Doshong La
4115
Lusha
Tsela Dz.
5868
5570
Dihang
5054
5175
5890
P E M A K O
Yortong
5248
5087
E
G
30°
29°


Kyikar
Nam La
5287
Nam La Tso
Ferry
Pe
2950
Temu Tse
95°
7756
Mandalting
15'
Puparang
Kongbo Pa La
5396
Tsumara
To Lhasa
LHASA
Kyi Chu
Kumba La
Sumtze
Dzinchi G.
Kya
Tena
Pechen
Gung La
Oga Dz.
4070
Yagyuchukor
Kata
Kata La
Shumo
Tsangpo
Ferry
Tsetang
3612
Netong Dz.
Rongchakar
Trap
Chongmoche G.
Yarlung Chu
Riudechen G.
Chongche
Dz.
Lhagyari Dz.
Chonggyechenyag
G.
Nyamoshung
Dagyeling G.
Shamda La
Yamdrok
Tso
Ache Dz.
Tragtse
Dzara La
Pass
Yarto Tra La
Chogpotung
Lhunbusho
Gadii
Taling
Kale La
Trigu
Tso
Wide
stony
valley
Ube
Simbi
Nera Yu
Tso
Debshi La
Dengshu
Ya Tso
Torgor La
Pass
Tsöna Dz.
92°
TRANS-HIMALAYAN RANGES
GREAT

Published by the Royal Geographical Society.

Map show
Plane-table and C
by
F. KINGDON WARD
in
SOUTH-EAS

Scale, 1/1,

MILES 10 5 0 10

Dz. = *Dzong.* *G.* = *Gomba.* *R.* B

Route .....

94°

9

Published by the Royal Geographical Society.

29°

Map showing the Plane-table and Compass Traverse by F. KINGDON WARD AND EARL CAWDOR in SOUTH-EASTERN TIBET.

Scale, 1/1,000,000

MILES 10 5 0 10 20 30 40 50 MILES

Dz. = Dzong. G. = Gomba. R. Br. = Rope bridge. Br. = Bridge
Route ..... Heights in metres.

95°

SOUTH-EASTERN TIBET
Kingdon Ward & Cawdor

marked logs of wood. For two years careful watch was kept on the waters of the rivers of Assam. The watch proved to be vain, and the reason became apparent four years later, when Kinthup, who had been in the service of the Lama, made his appearance once more and reported to the Survey of India. It seemed that the Lama had played his employers false, and had sold Kinthup himself into slavery. The latter, after gaining his freedom, made his way down the course of the river as far as he could, and then threw the logs into its waters. But the watch upon the rivers of Assam had by then been abandoned, and it was not until 1913 that the general accuracy of Kinthup's report was verified by Captains Bailey and Morshead. These two explorers went far to solve the problem of the great bend of the river, but they left a piece of some 30 miles of stupendous gorge untraversed, and it is that gap which our lecturer this evening will be able to fill in. In the course of his journey he covered the larger part of these immense gorges, and so has solved for all time the problem of the Tsangpo and the Brahmaputra rivers; and in the expectation that he will devote no small part of his lecture this evening to describing these hitherto unknown and most interesting tracts of country I have great pleasure in calling upon Mr. Kingdon Ward to tell us his story.

Mr. Kingdon Ward then read the paper printed above, and a discussion followed.

Sir DAVID PRAIN: The lecturer has told you that he has been to ferret out the geographical features of one of the last-explored bits of the globe; and he has done the same thing for the plants. We were just as interested to know what species might be brought from that gorge and the country behind it as you were to know what sort of country he saw. He has told you that in all Alpine lands the plants look very much the same, that the plants that he saw on those high alps were very much like the plants you have seen in Switzerland. Although that is perfectly true as far as general appearance goes, it is also true that there is the very greatest difference in detail. We knew very well what could be got from Sikkim and Chumbi, and also, thanks largely to Mr. Kingdon Ward, what could be got from Szechwan and Yunnan. We knew also that in this particular area, which is, roughly, about halfway between Yunnan and Szechwan on the one hand and Sikkim and Chumbi on the other, his party would get the same kind of plants, but that they would also probably get plants differing from those either to the east or west. Mr. Kingdon Ward has told you that amongst the mountain poppies, of which there are about forty altogether—half of them being in the Himalayas and the other half in China—they have ten, most of which are new. And the same with rhododendrons. There are sixty or seventy sorts in Sikkim, and I do not know how many—Mr. Kingdon Ward might know—probably something like three hundred in the south-west corner of China; but I have not the slightest doubt that amongst the seventy or eighty he tells us he has seen a very considerable number will be different from those that he and others have already brought from south-west China and from those we know from the Himalayas. I think that although you as geographers are very much to be congratulated on having heard what Mr. Kingdon Ward had to say to-night, those of us who are interested in botany and gardens regard him as one of ourselves, and are even more interested in what he has said and what he has done than you can be.

The PRESIDENT: After the botanist I had perhaps better invite a geographer to speak. Colonel Ryder of the Survey of India is present, and no one can speak with more authority than he, if he will be kind enough to do so.

Colonel C. H. D. RYDER: Besides the many years that I have spent in the Survey of India, my particular claim to talk on this especial portion of the Himalayas is that I nearly, but never did, go there. During Sir Francis Younghusband's Expedition to Tibet we were all, naturally, very keen to explore in any direction that we could. He had organized expeditions up the Brahmaputra, which I joined, and an expedition, to the command of which I was nominated, down the Brahmaputra, which unfortunately was entirely stopped by orders from home and from the Government of India; so that that part remained really an entirely unknown country until Major Bailey and Major Morshead of the Survey of India made their exploration thirteen years ago. They were preceded only by that well-known traveller, the Indian Kinthup. All the Indian surveyors that we sent up into Tibet in olden times, with one exception, namely that villainous Lama whom Lord Ronaldshay mentioned, were successes; they all did their work in a most excellent manner. Old Kinthup was discovered a few years since living in humble circumstances in Darjeeling. He died only a year or two ago, but I think his end was made happy by the recognition that he received, pecuniary and otherwise, from the Government of India.

The controversy on the problem of the Brahmaputra was an old-standing one. If you study the proceedings of this Society forty or fifty years ago, you will see many very heated arguments used to take place as to which river the Tsangpo of Tibet became. A predecessor of mine, a very distinguished Surveyor-General of India, used hotly to maintain that it became the Irrawaddy. He was wrong. It is only by the wonderful energy, the tact and skill of explorers such as Majors Bailey and Morshead and Mr. Kingdon Ward in this particular locality, that we finally arrive at the solution of these problems. I think that geographers as well as botanists are to be congratulated on the lecture which has been delivered this evening.

Sir FRANCIS YOUNGHUSBAND: Twenty-one years ago, when we were at Lhasa and the Treaty had been concluded, we thought we would take the opportunity of solving the great question of the Tsangpo River—both where it came from and where it went to. And so, finding the Tibetan Government were in an entirely friendly mood, we approached them and obtained permission to send two expeditions: one to go up the Tsangpo and discover its source, and the other down it to see if it was the same as the Brahmaputra. Colonel Ryder was told off to the expedition which was to go down the river and decide, once for all, whether the Tsangpo which we crossed on the way to Lhasa did force its way through the Himalaya Mountains and become the Dihong (or Brahmaputra) in Assam. The Tibetans said, "You can go down the river. We have not the foggiest idea where it goes to, but if you like to take your chance of coming out somewhere at the other end, very well, we shall be prepared to help you along." It would have been a risky expedition. It could get through the Tibetan portion, but what sort of reception it would meet with amongst the tribes between Tibet and Assam was uncertain; and for that reason the Government of India thought it would be best to await a better occasion. That occasion came when Major Bailey made that adventurous journey up the Dihong to the gorges and found it practically certain that the Tsangpo and the Dihong were the same. Nevertheless, there was a gap of about 30 miles remaining, and it has been most delightful to sit in a comfortable armchair and see that gorge being disclosed to us by photographs as a result of the remarkable journey which Mr. Kingdon Ward has described. We now have in detail, right from one end to the other, the whole history of the Tsangpo.

I think we are to be congratulated upon those two very adventurous explorers, Major Bailey and Mr. Kingdon Ward, and their companions, Major Morshead and Lord Cawdor. I must also congratulate Mr. Kingdon Ward both upon his adventurous journey and upon the beautiful photographs he has shown. I am sure some of the geographers present are also flower lovers, and we shall be only too delighted to hear more of the wonderful flower world which he has disclosed.

The PRESIDENT: I would like on your behalf to thank Mr. Kingdon Ward for his most interesting lecture this evening. It has, indeed, fallen to his fortune to solve finally one of the few problems of exploration which the nineteenth century left to the twentieth century for solution. He has finally confirmed two things: first, that the Tsangpo does make this tremendous right-angled turn to force its way across the main axis of the Eastern Himalaya Mountains; and, secondly, that it does that somewhat unexpectedly, without any very outstanding fall of water taking place in the process. So far as one can judge from what Mr. Kingdon Ward has told us this evening, there is no huge waterfall at any part of the course of the river where it makes its way through the mountains, but it does so with a more or less steady descent through this stupendous 30-mile gorge which he has so well described. It is a matter of regret to Mr. Kingdon Ward, as it must be to us also, that his companion upon this adventurous journey, the Earl Cawdor, is not present to-night. Lord Cawdor, I believe, reached England safely yesterday, but after a period of a year amid the comparative solitude of the Eastern Himalayan Mountains and of Tibet it seems that the attractions—and of course to a Scotsman they would be great—of the Caledonian Ball have been too much. An engagement to take part in that function has deprived us of the pleasure of his presence this evening. None the less we do most heartily congratulate him and Mr. Kingdon Ward, the seasoned traveller of the party, upon the splendid results of their most recent expedition.

Sir Louis Dane sends us the following note as a contribution to the discussion:

The remarks of Colonel Ryder and Sir Francis Younghusband at the meeting on May 25, no doubt unintentionally, may have raised the idea that the Government of India were obstructive as regards the exploration of the Tsangpo after the Mission to Lhasa in 1904. I should have liked to correct this impression at once, but the hour was late, and I was not favourably placed for saying anything. The facts are that the Government of India were most anxious to facilitate the exploration of the territory in Tibet adjoining the Indian frontier, and especially that on the Nepal border, as the Nepalese Government were nervous about the movements of Russian emissaries in Tibet. Sir Francis Younghusband was therefore asked if he could induce the Tibetan authorities to issue safe conduct for one surveying pary to proceed from Lhasa to Gartok to open the trade mart there in Western Tibet and to return down the Sutlej to Simla, and for another party to descend the Tsangpo to Assam. There was a little trouble with the Abors at the time, and it was thought that the Tsangpo party might be accompanied by the Gurkha regiment returning to Assam. It was hoped that the attention of the Abors would be kept on the Assam front by operations there, and that the Gurkhas arriving unexpectedly in the rear from Tibetan territory would secure the opening up of the whole country. Sir Francis Younghusband duly obtained the safe conduct for the parties, but the military authorities raised objections to the Gurkhas returning by the Tsangpo, and it was not considered safe for the

survey party to proceed unescorted through Abor territory; consequently that exploration fell through, and it remained for Captains Bailey and Morshead and Mr. Kingdon Ward to clear up the Tsangpo mystery. It is interesting to find that there are considerable falls on the Tsangpo, but, as in the case of the Sutlej and other rivers cutting through the central Himalayas, they are rather continuous rapids than high perpendicular falls. It is also interesting to find that tribal territory under Tibetan influence lies to the south of the Tsangpo gorge, so that perhaps the Gurkhas could have safely accomplished their return journey and a troublesome and somewhat costly Abor expedition might have been saved. But the risks of the unknown were no doubt serious. The western exploration though arduous was in every way successful, and, as was hoped, did much to clear up the status of Mount Everest.

Very few of the authorities probably knew much about Gartok, or even where it was; otherwise we might not have secured our trade post there. My personal knowledge of Gartok dates back to 1883, when I was in charge of the Kulu subdivision of the Kangra District. It was reported that an emissary of the Garpun of Gartok was collecting dues in British territory from the Kampa and other traders on the threat that unless they paid they would not be allowed to enter Tibet. He was detained and an order from the Garpun and several hundreds of rupees found on him. His story was that the Garpun had sent down a flock of sheep with borax for sale, and the man in charge went off with the price, so the Garpun decided to recoup his loss in this way. I reported the circumstances, and added that, if the Government would permit me to leave Kulu for three months, I was willing at my own risk to take the Garpun's emissary and some Spiti Tibetan horsemen with me to ascertain if the story were true, and that in this way travelling lightly by the Parang La route we might explore the country to Gartok, and even beyond, without being stopped. The Punjab Government was not adventurous. I was told I must not leave my subdivision. If an offence had been committed the case must take its course, and so on. Law was not at a premium in Spiti, and the emissary was allowed to depart in peace. Now we have an agent in Gartok, and know all that there is to be known about the goldfields and other points of interest in that desolate but not unimportant tract. Perhaps this note of my recollection of the facts may be of sufficient interest to warrant its being added to the discussion.

THE FIFTH THULE EXPEDITION, 1921–24

The Danish Ethnographical and Geographical Expedition from Greenland to the Pacific

Knud Rasmussen, Ph.D.

Read at the Meeting of the Society, 9 November 1925. Map follows p. 192.

WHEN you are driving a dog team through the desolate region of the North-West Passage, you do not often meet another sledge. But I once had that experience myself, and I think it may interest you to hear about it. I was coming down past the Kent Peninsula on my way to Coronation Gulf when I had the good fortune to