

The
GEOGRAPHICAL JOURNAL

Vol XCI No 2



February 1938

A JOURNEY IN THE SALWEEN AND TSANGPO BASINS,
SOUTH-EASTERN TIBET

RONALD KAULBACK

Evening Meeting of the Society, 5 April 1937

THIS journey, on which I had the good fortune to be accompanied by Mr. N. J. F. Hanbury-Tracy, occupied twenty months from railhead to railhead, eighteen of which we spent in south-eastern Tibet. When we left England, our main objects were five in number, and of these the first four will be made clear by a glance at the map. They were as follows:

To explore as much as we could of the Salween-Tsangpo Divide, in order to determine whether this was one range, running roughly north-west-south-east; or whether the Salween, instead of flowing parallel to such a chain of mountains, cut perpendicularly across a series of ranges. In this latter event the river would flow in a succession of gorges; although the converse—that if the gorges existed, it must therefore be flowing at right-angles to the lines of the mountains—does not necessarily follow.

To explore the watershed lying between the Ngagong Chu, the headwaters of the Rongtö Chu, and the Chindru Chu; and the continuation of this range to the south-east, in order to satisfy ourselves whether or not it were part of a possible continuation of the great Himalaya range.

To survey the course of the Salween from Shopando to the source (or as near the source as might be), together with any of the main tributaries that could be undertaken in the time at our disposal.

To trace the course of the Ngagong Chu from its headwaters as far down as Shōwa, below which this work had been done by Captains Morshead and Bailey in 1913.

To collect insects, plants, reptiles, small birds, and mammals for the British Museum of Natural History.

In south-eastern Tibet the chief obstacle to travel is scarcity of transport, and because of this we kept our party down to a minimum, both in personnel and baggage. The three men we took with us are sufficiently well known to need very little description.

As sirdar we had Lewa, a Sherpa, who had been on most of the big

Himalayan peaks, including Everest, Kangchenjunga, and Nanga Parbat, and who climbed Kamet with Smythe. He is an ideal servant, with great strength of character, honest, and very faithful, and the fact that he has lost all ten of his toes through frost-bite does not prevent him from doing the work of three ordinary men, or from climbing amazingly fast. Nyima Töndrup, who was odd-job man, is a Tibetan, and, though not very intelligent, more than makes up for this lack of brainpower by his extreme loyalty. He has been Lewa's constant companion for some years, and is a most lovable personality. Finally, as cook we had another Sherpa called Nyima Dorje, who has been on Everest, Kamet, and Nanga Parbat; but he, though he started off well, is more fitted for a short than a long journey. After nine months he became irritable and dissatisfied, and he left us of his own accord in January of 1936. It was largely owing to the reliability and devotion of Lewa and Nyima Töndrup that we were able to carry out as much of our original plan as we did; and in this connection our deepest thanks are due to the Himalayan Club (and especially to Mrs. H. P. V. Townend, the Hon. Secretary of the Eastern Branch), who engaged them for us.

We went into Tibet through Upper Burma and over the Diphuk La by a route which has been described at least twice in recent years. At Myitkyina, the railhead, we were given a superb time for a week by Mr. J. K. Stanford, the Deputy Commissioner, and Mrs. Stanford; and then, on 11 April 1935, we left for the north on foot with sixty-five loads of baggage. On our way through Burma we had no work to do, apart from collecting, but the zoology of the country north of Fort Hertz has been very little touched by any one apart from Lord Cranbrook, so that any collection from that district, however small, was bound to be of value. In our case it was the reptiles which were of the greatest interest, for although we came across only one new species, a lizard (*Japalura kaulbacki*), most of the others were rare.

On May 20, forty days after leaving Myitkyina, we reached Lungphuk, the last camp on the Burma side of the frontier, and there we were held up for a little, owing to snow on the pass. The Diphuk La is only 14,280 feet high, but the snow lies on it until about the middle of June, and our coolies (who belonged to a Khanung clan called Talang) had few clothes and no footgear. We waited until May 26 to cross the pass, and even then there were still 4 feet of soft snow on the steep north slope; and although the porters were not actually frost-bitten, they all complained of very sore feet the next morning. The Talangs took us the seven stages from Meting, the last village in Burma, to Shikathang in south-east Tibet, and then hurried back to their jungles again without delay.

With its half-dozen ramshackle pinewood huts, Shikathang strikes one as being rather inadequate quarters for an important official and his retinue; but, being at the junction of the Rongtö and Zayul¹ rivers, it is an ideal

¹ The conventional English spelling of the Tibetan ལྗོ་ཕྱི་རྒྱུ་, or Dzayü, meaning the Country of the Dzaya (ལྗོ་ཕྱི་), the figured, speckled wood from which the most valuable drinking-bowls are turned. The Dzaya is the interior of a large wen, like a goitre, which grows out from the side of a tree, and which is caused by a disease of the wood. I have the spelling on the authority of the Governor of the district, and of the Abbot of the monastery of Sangachö Dzong.

centre for tax-collecting; and, apart from this, it is at less than 5000 feet, and so pleasantly warm during the winter and spring that the Governor of Zayul is generally there from January until June. An official deputation, headed by his A.D.C. (a fat, scantily-bearded monk), met us 2 miles outside the village with ponies and ceremonial scarves and escorted us in, with a great jingling of bells, to a little courtyard at the back of the Governor's house. There we pitched our tents, because accommodation in that village is never good, and when the Governor and his staff, his servants, tailor, bootmaker, silversmith, and camp-followers are all in residence, the wonder is not that there is no room for stray travellers, but that the few miserable houses can possibly contain the mass of humanity which somehow packs into them. The following day, and after the usual exchange of presents, we called on the Governor, who turned out to be an old friend of mine whom I had met in 1933, when I was with F. Kingdon Ward. He was most kind and helpful, and, largely on his account, we stayed in Shikathang for ten days before starting on the next stage of the programme.

We had begun survey work from the Diphuk La, as up till 1935 there was nothing better than a compass traverse between there and Shikathang; and we were now heading for Sangachö Dzong, *en route* for Shugden Gumpa. The easterly road, up the Zayul river, had been mapped by Captain (now Colonel) Bailey in 1911, and that up the Rongtö Chu and over the Ata Kang La by A—K in 1882, and by Kingdon Ward in 1933; so the only new way left to us was *via* Lepa, a route which enabled us wholly to change the general shape of this piece of country as shown in previously existing maps. This was no surprise to us, for when I had reached Lepa in 1933 I had found that the river on which it stands, instead of flowing north as conjectured in the maps, ran due south into the Zayul river a short way above Shikathang.

We left this place on June 10, but, before going, we had to have a new rope bridge built across the river, as the old one was now very decrepit. The bridge is 70 yards long—a single rope made entirely of twisted strips of bamboo—and, even though the whole neighbourhood would benefit from it far more than ourselves, we expected a fairly heavy bill. However our finances were able to stand the strain, for the total was only 15 *rod*.

Our route for the first five days lay up the Rongtö valley, where the going is very comfortable, mostly through tall pine forest, with frequent clearings and many small villages, in all of which rice is grown as well as barley and peas. After three days we reached Dri, and crossed to the left bank of the river by another rope bridge, making a very short march up to Traba.

The people here, we were told later, are notoriously obstructive, and the headman refused to provide coolies at less than double the rate which had been agreed upon in Shikathang. As that in itself was high, we felt that he was being unreasonable, and sent Lewa back to collect men and ponies from lower down the valley. The other villages on the left bank gave help willingly, but transport was scarce, and in the end we had to induce the headman of Traba to provide twenty-five men at the regular rate by threatening, if he failed, to take him with us to argue the matter out with the Governor, who was now on his way to Sangachö Dzong by the Zayul river road.

Immediately below Traba is the small village of Latsa, which is most

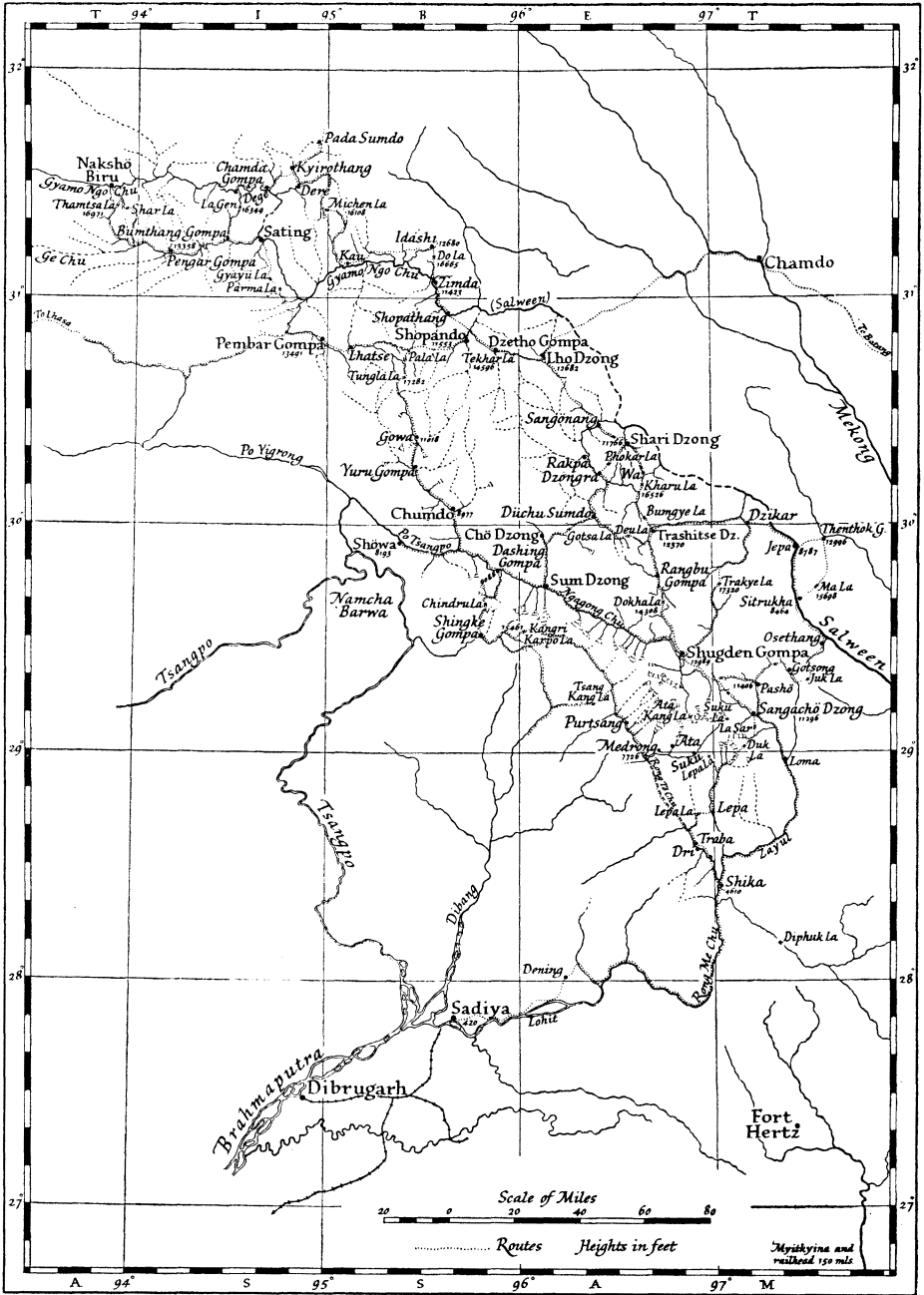
interesting in view of the fact that it is a Government grant to a private individual (a Khampa from the north of Chamdo), on account of the following state of affairs.

Except in the Sangachö Dzong district, where the people are still predominantly Khampa in type, the Zayulis, by frequent intermarriage with neighbours and slaves, have acquired a mixture of Khampa, Mishmi, Khanung, and Chinese blood, with probably some dwarf aboriginal too. Together with this deterioration in type there has been a falling off in religious matters due to continual close contact with the animism of the Mishmis and also, to some extent, with Hinduism (as seen for example by occasional cremation of the dead) from Sadiya. This problem has been in the minds of the Lhasa Government for the past sixty years at least; and so, at intervals since about 1870, well-bred and devout Khampas or Babas, who have served the authorities well in minor positions, have been given villages in the Rongtö valley *in perpetuo* and tax-free, not only in order to purify the religion, but also to import good new blood into the country. Besides the one at Latsa, there are such freeholders in Pangthang, Medrong, and Purtsang, the latter consisting entirely of free Babas who founded it in 1905 under orders from Lhasa.

On the second march above Traba we turned eastwards out of the Rongtö valley towards Lepa. The path now ran through forest in a steep, narrow valley with precipitous sides. Pouring rain made conditions difficult, and by the end of the second day, when we should have crossed the Dzogu La (13,750 feet) and camped a short way beyond it to the east, we were still some 1500 feet below it, with both coolies and ponies exhausted. It was a poor place to camp—in a rocky gully which caught the wind and which seemed to be the main drain for the melting snow from the pass—but there was no better to be had and, in any case, there were enough rhododendron bushes about to make good fires.

Owing to low clouds and the thickness of the forest, work had been difficult ever since we had left the Rongtö, but, when we crossed the Dzogu La on June 22, it became quite impossible. A heavy mist limited visibility to less than 200 yards, and there was nothing for it but to wait in Lepa, 4000 feet below the pass, until the weather cleared up enough for us to be able to go back and continue the map. We waited eleven days for this, and the one good thing about the halt was that it gave us a real opportunity to deal with some septic places Hanbury-Tracy and I still had on our feet from leech-bites in Burma.

Lepa is a village of ten houses, growing wheat and barley, and keeping many cattle and sheep. Owing to snow on the passes, it is cut off from the rest of Zayul for nearly six months in the year—from the Rongtö between the beginning of January and the middle of June, and from Sangachö Dzong between October and July. There is no path down the Lepa Chu, and few of the inhabitants ever leave their own valley, in which theirs is the only village. In the summer men come in from the Rongtö to exchange rice for butter, and from Sangachö Dzong with knives, jewellery, and salt to trade for butter and wheat, and these are almost the only contacts which are ever made with strangers, except when occasionally a girl from outside is brought in as a wife.



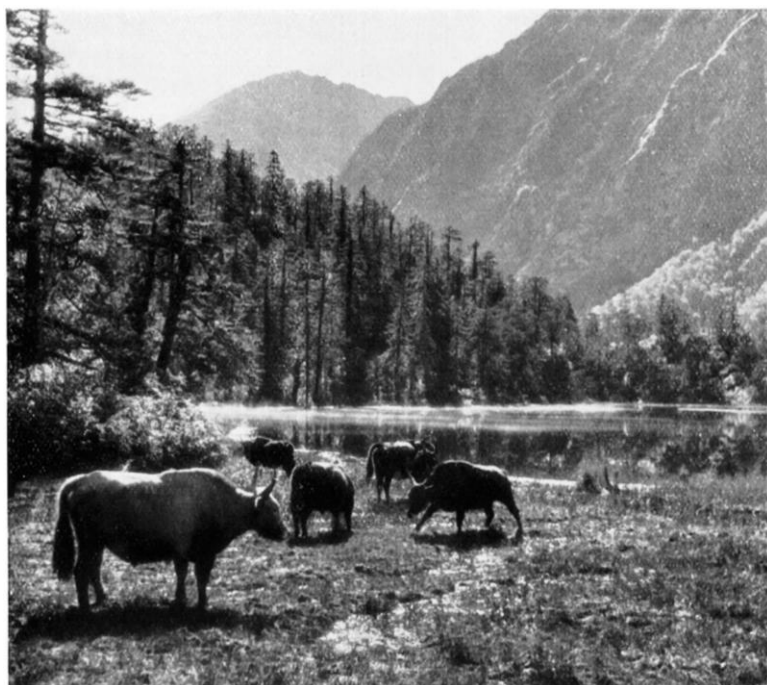
Sketch-map of the Salween and Tsangpo basins to show the routes followed by Kaulback and Hanbury-Tracy

We left Lepa on July 4 with our baggage on *dzos* (or half-bred yaks and ordinary cattle), and for the first three days were in pine forest with clumps of bamboos and, later, rhododendron scrub. We were climbing steadily however and our fourth march brought us above the tree-line (which is here in the neighbourhood of 13,000 feet) and to the foot of a large glacier, some 7½ miles long by 2000 yards in width, flowing from a line of snow-peaks to the west. This glacier was in rapid retreat, and the surface was very smooth and with few crevasses. For 1½ miles we scrambled along the lateral moraine of big limestone boulders before crossing the ice and climbing up to and over the Duk La (13,990 feet), but not even on the moraine did we have any difficulty in moving along. This was most unusual, and the coolies said that never before had the first caravan of the year been able to cross this stretch of moraine without spending at least one day in making a path. The whole of this district has been intensely glaciated and there are still several fair-sized hanging glaciers on both sides of the Duk La. Formerly the ice extended to about 5 miles below Lepa, but this having receded, there appears to have been a second and much more recent advance to some 6 miles above the village.

On July 7 we made camp in a small grazing ground almost within sight of the Zayul river, and the next morning, after a very steep climb of 3000 feet, we reached the top of the La Sar (14,930 feet). This pass is simply a cleft in a knife-edged ridge not 2 yards wide at the top, and equally abrupt on both sides. It was still blocked by a cornice of hard snow, which overhung for perhaps 20 feet, and without much hope we told the coolies to attack this with their knives. For more than an hour progress seemed to be negligible, and it looked as though we might be there for a week; but suddenly, and much to our surprise, the greater part of the snow fell away into the valley beyond, leaving just enough room for us to be able to lower the baggage and animals on to the path below. We reached Sangachö Dzong that evening.

Sangachö Dzong consists only of a monastery of a hundred and eight monks, and a small *dzong*, or fort, built on the crest of a ridge about 800 feet above the floor of the valley. There are six villages in the immediate neighbourhood, each of which takes it in turn to supply the monastery and fort with wood and water for three days at a time. We put up in the *dzong*, a fine new building of three storeys, built in 1927, with a magnificent view both up and down the valley. We were by no means the first Europeans to reach Sangachö Dzong, for Colonel Bailey had arrived there from the east in 1911, and Kingdon Ward from the west in 1933. We stopped there for ten days, chiefly in order to give the Governor time to turn up before we left; and during that time Hanbury-Tracy went up as far as the Sukhu La (or Podung La) on the difficult road to Sukhu, and we were fortunate in seeing the ceremony of Mönla Chenmo in the temple on July 16.

We had intended to leave for Shugden Gumpa three days after that, without realizing that the day would be the 18th of the fifth Tibetan month, and a most inauspicious date to start a journey. Every one else however had realized it only too well. First of all, word was sent from the monastery begging us not to leave then on any account, as it had been foreseen that, if we did, Hanbury-



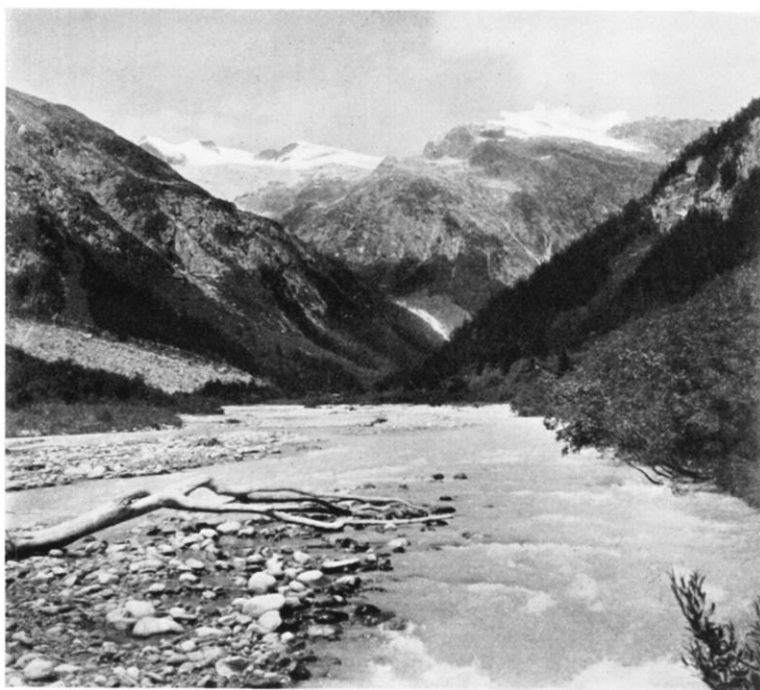
Dzos grazing in the Lepa Chu valley



Crossing a glacier south of the Duk La



Chortens at Shugden Gompa



Zayul Ngü Chu valley near the Kangri Karpo La

Tracy, I, and three others would be struck down with some disease on the way. We thanked the emissaries and had actually decided to put off our departure for a day when, to make quite certain, an invitation arrived from the Governor to say that he hoped it would be convenient for us to dine with him on the 19th, and that he had already had a *dzo* killed for the purpose; and the two headmen in charge of transport came in, with a ceremonial scarf, imploring us to forgive them because they would not be able to obtain enough baggage-animals in time, and would need one more day. Altogether we would not have stood very much chance of leaving on the original date even if we had still wanted to do so.

From Sangachö Dzong to Shugden Gompa we followed the route over the Dzo La (15,830 feet), which had been mapped by Colonel Bailey and by Kingdon Ward. It is two long marches to Shugden Gompa, 12,990 feet up, on the very deeply eroded south-west slope of the Salween-Tsangpo Divide. Shugden Gompa is in the district of Ngagong, which takes its name from the guardian spirit of a remarkable sugar-loaf limestone peak, called Ngagong. This towers above the south-west end of the lake, and is certainly visible from the Ata Kang La and the Dzo La, and, I am told, from the Dokha La as well. A group of five high peaks to the west of the lake, of which Ngagong is one, are together called Dorjetsenga, the Five-peak-thunderbolt, and are regarded with great veneration.

In order to carry out our second aim and explore the range south of the Ngagong Chu, we had to separate at Shugden Gompa. We decided that Hanbury-Tracy should take Nyima Töndrup and go down the Ngagong Chu itself as far as Dashing, doing as much work north of the river as he could manage in four or five weeks; while I was to go round *via* the Ata Kang La, Medrong, Purtsang, the Kangri Karpo La, Shingke Gompa, and the Chindru La to join him again at Dashing. By dividing forces like that we would gain a fair knowledge of both sides of the range and would cover two new routes of considerable geographical importance. We felt that there might be some difficulty in arranging for transport to cross the Kangri Karpo La, and so Hanbury-Tracy took the bulk of the baggage with him—very fortunately, as it turned out.

Hanbury-Tracy left Shugden Gompa on July 24, and three days later I started myself for the Ata Kang La with Lewa, Nyima Dorje, and a dog called Balu. The latter had adopted us of his own free will, and was a most faithful companion for the next three and a half months. He was then stolen by some dog-fancier in the Salween valley and passed out of our lives.

The Ata Kang La is a large glacier saddle at 15,110 feet, open from July till the end of October. The ice flows north from two high peaks on to the pass and there divides into three glaciers, the largest of which runs east into the Sukhu Valley, being joined on its way by several others from the north. The second (short but wide) flows for 2 $\frac{1}{4}$ miles towards Shugden Gompa; and the third (little more than a quarter of a mile in width) for 3 miles to the west. The path follows the latter. The ice north of the pass gave remarkably smooth, easy going, but near the Ata Kang La itself there was still between 1 and 2 feet of snow hiding several narrow crevasses, so that we had to walk

with care. We crossed the pass in bright sunshine, but hardly had we turned down the westernmost glacier than a thick mist swept up and blotted everything out for minutes at a time. The ice here was so much broken up that it was almost impossible to move except during those short periods when the mist lifted enough to let us see where we were, and it took us nearly an hour to cover about 400 yards. We were all heartily glad to reach solid rock again.

In 1933 we had camped for a fortnight at Chutung (a small shelf a little way below the Cheti La), but when we arrived there on July 28 we found that all available room had been taken up by a large band of pilgrims on their way to Shugden Gompa for Mönla Chenmo. (This ceremony takes place regularly once a year in each monastery, but not necessarily on the same day, or even in the same month in any two places.) The hut which Kingdon Ward had had built in 1933 was still in partial existence as a roof and four corner posts, but the rest of it had been used as firewood. Chutung being so crowded, we descended another 1500 feet to the bank of a small glacier torrent and made camp there. The next day we reached Ata, where we remained until August 1.

From Ata we went up past Sukhu (which I had visited two years before), to within sight of the Sukhu La, so as to finish the route which Hanbury-Tracy had surveyed as far as the pass from Sangachö Dzong; and we then turned west past Medrong and through the Ata Chu Gorge to the confluence of the Ata Chu with the Rongtö Chu. North of this confluence the Rongtö Chu is called the Zayul Ngü¹ Chu, and is composed very largely of glacier water. Kingdon Ward had gone up it for the first five marches above Purtsang in the autumn of 1933, but had then been forced to turn back on account of bad weather.

Purtsang, a village of twenty-one houses, is the last one in the Zayul Ngü Chu valley, and, as has been said, is a freehold settlement of Babas. The inhabitants, many of whom are comparatively wealthy traders, pay no taxes, but are responsible for the upkeep of Drowa Gompa, a small monastery 1 mile to the north, which was founded by monks from Drowa Gompa in the Zayul river valley. This monastery above Purtsang is still unfinished, and although the temple doorway and the wall paintings are most excellently done, the figures inside are still of plain clay.

From Purtsang there is a route into the Dri valley over the Tsang Kang La, a high snow-pass called Agua by the Bebejiya Mishmis. There is great hostility between the Tibetans and these Mishmis however, and for this reason the pass is not used now, except as a hunting boundary, although musk-hunters from both sides go up to it regularly every year. The large stream shown on the Survey of India sheet No. 91 as joining the Zayul Ngü Chu from the south-west in lat. 29° 11' N., long. 96° 31' E. does not exist as a single stream. In its place there are three moderate-sized streams in narrow valleys, all cascading into the river, which, from Purtsang up to 1 mile below Chilongke Camp, flows in a deep gorge-like channel, making visibility very limited unless one climbs high up the side of the valley.

¹ This particular form of Ngü means "sweat" and the implication, as it was explained to me, is that the river is sweated out of the glaciers, which perspire freely in the sun, like men.

When halting for a day or more in any place, we had been keeping records of the hourly barometric variation, which was a maximum between 8 a.m. and 4 p.m.—or, in other words, between the start and finish of an average march. The degree of variation naturally depended upon the district and the season, but by taking frequent observations we were able to obtain what were probably fair correction values for any stage of the journey.

The cumulative effect of not allowing for this hourly variation was very great. For example, assuming Purtsang in each case to be at 7385 feet, we worked out the height of the Kangri Karpo La both by corrected and by uncorrected readings of the barometer. By the former method the height came to 15,460 feet, while by the latter it appeared as nearly 17,800—a fantastic figure, in view of the facts that the barometer read 17.00 inches on the pass and that the tree-line was very little more than 2000 feet below it.

We waited eight days in Purtsang, owing to a shortage of men who were willing to make the difficult journey to Shingke Gompa; and in the end we had to send down the valley to recruit porters from Medrong and Rongyü to make up the twenty-two we needed. There is no regular path from Purtsang over the Kangri Karpo La, as this pass is seldom used by any but hunters or a few pilgrims; and as no one had crossed at all in 1934, when we left Purtsang on August 20 there was a lot of heavy work to be done in cutting a path through the undergrowth of brambles and 10-foot nettles. For the first six of the eleven marches to the Kangri Karpo La the forest was so dense that, with the limited time at our disposal, it was impossible to carry out any form of survey other than a compass traverse; but for the remainder the visibility at least was much better, although we were never able to cover more than 5 miles in a day, and on one occasion only 2½.

The Zayul Ngü Chu has its main source in a large glacier rising from several high peaks on the range south of the Ngagong Chu, one of which is over 20,000 feet. The glacier appears to be in rapid retreat and is very smooth, with its foot at a height of 11,750 feet.

The pass shown as the Kangri Karpo La at rather more than 18,000 feet on the Survey of India sheet No. 91 is in reality the Andzamkho La, very occasionally used by musk-hunters between the Jairu and Chindru valleys. The Kangri Karpo La itself is 15,460 feet high, on a small glacier saddle some miles to the north. It is not a high pass, but very exposed, and the ascent from the east is steep and difficult enough to cause it to be little used. We crossed it on 31 August 1935, and dropped into the Chindru valley, which is thickly forested throughout. At the last camp above Shingke Gompa we ran into great numbers of leeches which were fully as bad as those in Upper Burma, and which are said to be found all the way down the valley from that point on.

Shingke Gompa is an attractive little monastery of twenty-one "Red Hat" monks surrounded by a large scattered village of sixty-one wooden houses. There is a strong element of Khampas and Babas among the inhabitants, almost all of whom seem to have migrated there on account of misunderstandings in their own districts. It was particularly interesting to see that every household in Shingke used heavy steatite cooking-pots, the outside of which had been turned on lathes, while the inside had apparently been dug

out by hand. These pots are made either in the Mishmi or Abor Hills, and are brought over to be exchanged for wool and salt.

We remained in Shingke for four days and then turned north towards the Chindru La, which we crossed three days later on September 11. This pass, of 14,390 feet, has a fairly easy approach from the south, but a very difficult one from the north which becomes quite impassable after even a moderate fall of snow. On this account the Chindru La is only open from June till September, and as it is on the one mule-track between Pome (the district north of the pass) and Pemakö (to the south), this tends to isolate the latter very much.

On September 12 we reached Dashing Gomba to find that Hanbury-Tracy had been waiting there since August 24, after having done a valuable piece of work in exploring the course of the Ngagong Chu and much of the country to the north of it.

The following is Mr. Hanbury-Tracy's account of his journey down the Ngagong Chu to Dashing:

"The route down the Ngagong Chu forms one of the chief communications of the province of Pome with the outside world, but although the path on the whole is good, there are several stretches of wooden galleries built out from the cliff, with the result that the route is not practicable for animal transport over the whole distance.

For the first stage of three days to the nearest village in Pome coolies had to be obtained from the neighbourhood of Shugden Gomba. On July 24 I started from Shugden Gomba with Nyima Töndrup, and for the first two days we followed the route taken by Captain Kingdon Ward in 1933, when he explored the western branch of the Ngagong lake and penetrated a short distance down the Ngagong Chu. This western branch of the lake, protected on all sides from the bleak winds of the surrounding uplands, enjoys a markedly warmer climate than the main body of the lake, and this is evidenced by the abundant growth of pine and larch along the lakeside. A mile from the lake outfall the Ngagong Chu plunges into a great gorge, 500 feet deep and 200 yards wide at its commencement, but ever increasing in depth until some 20 miles downstream the cliffs rise sheer for 3000 feet. Up the side valleys to the south of the gorge I could see signs of glacial action and at the heads of the valleys an occasional glimpse of snow-peaks forming the high range between Pome and Zayul, which unfortunately I had no time to investigate further. It is evident that the upper levels of the Ngagong Chu valley are glacier-worn, while the gorge has more recently been carved out by water.

We met several parties of traders on their way up from Shöwa and Dashing, and returning to the Rongtö valley by way of the Ata Kang La. Trade between Zayul and Pome is, comparatively speaking, brisk, but it is evidently the Zayulis who take the initiative in the matter. On the third day's march we reached a prayer-gate and stone wall, the latter once used as a defence against the Chinese in the invasion of 1910, and soon afterwards came suddenly upon the mouth of a well-wooded side valley to the south, at the head of which could be seen a fine snow-peak called Kangkarlhamo (the White Snow-Goddess) reputed, in common with many other mountains of Tibet,

to be the haunt of evil spirits. Some 2 miles up this valley we came to Migtö (12,700 feet), the first Poba village, and from there our Ngagong coolies returned home.

I had thought there might be a pass up the glacier and over a col to the east of Kangkarlhamo, leading into Zayul, but the villagers said there was none, and though I attempted to scale the ice-cliff a mile above the glacier-snout it was impracticable for any but a well-equipped ice-climbing party. There is in fact only one pass, and that a mere hunters' trail, along the whole length of the range from the Ata Kang La to the Chindru La. There were quantities of wild gooseberries in the Migtö valley, but they were terribly sour and justly unappreciated by the inhabitants. In the woods I saw a monkey, a species of macaque, while the only birds in evidence were magpies, rock-pigeons, and larks.

The Pobas of Pome have a bad reputation in the neighbouring districts, but in the last few years the Lhasa Government has made strenuous efforts to maintain law and order in this outlying province, and as a result the country is now comparatively quiet. Certainly upon first acquaintance I found the Pobas a most agreeable if somewhat lazy and haphazard people, and subsequent experience did nothing to alter this impression. The Pobas are not noticeably different in appearance from other types in eastern Tibet, but they are if anything slightly shorter in stature, and average about 5 feet 5 inches in height. In contrast with the Khampas, who usually favour a pigtail, the Pobas wear their hair long to the shoulders, and those with wavy hair, which occurs not infrequently, present something of a cavalier appearance; sharply hooked noses, with almost semitic features, are not uncommon.

I was nearly faced with the prospect of remaining at Migtö for a month, for the swollen river had swept away the bridge over the Ngagong Chu and the village headman at first declared that nothing could be done until the summer floods had subsided. But later he formed a "committee" which after two days of earnest discussion agreed that there was a possible route along and down the face of the gorge by which the broken bridge could be circumvented: with the aid of forty men standing on ledges, who lowered the loads one to the other, the task was eventually accomplished, and we continued down the gorge.

The Pobas are more than usually prone to the exasperating custom, hallowed by tradition, of cutting up a day's march into several stages at each of which a lengthy wait for fresh coolies is entailed, and as a result our progress during the next few days was slow. One village actually held the portage rights over a length of only 500 yards of the highway.

On August 5 we reached Sum Dzong, a square-walled town with a guard-house at each corner. Within are the *dzong* and the *gompa* and dwellings for a hundred monks. The Chinese invasion had left bitter memories here, for Sum Dzong was then razed to the ground, and the aged abbot recalled with regret the once splendid *gompa* which was destroyed. Sum Dzong stands at the confluence of the Chö Dzong Chu with the main Ngagong Chu; and two days' march up the former valley, I was told, lay Chö Dzong, the headquarters of the *Dzongpön* of this part of Pome. From Chö Dzong a path was said to lead over the Gotsa La to Ngagong and Shugden Gompa.

To Chö Dzong I decided to proceed, and on August 8 we started from Sum Dzong, heading almost due north up a wide, level valley in which patches of woodland alternated with open grazing ground. Tributary glaciers from the mountains to the west once stretched far down to the valley of the Chö Dzong Chu, and in two places, at Traru and at Dorje Dzong, old lateral moraines run right across the valley. The route over the Gotsa La appears to be much favoured by traders journeying between Pemakö and the district of Pashö, or farther afield to Chamdo on the main China Road, and on our way up to Chö Dzong we passed several caravans bearing chilis and dyestuff from Pemakö, and others from Chamdo with tea. This route does in fact provide the only access to Pome from the east which is fit for animal transport.

At Chö Dzong the *Dzongpön* was carrying on a lonely and difficult task in governing the unruly Pobas. Four months previous to my visit he had been attacked in his house by a Poba rising, but had successfully defended himself single-handed. Subsequently a garrison was established at Chö Dzong.

I decided to cross the Gotsa La to Rangbu Gompa and so connect with Captain Kingdon Ward's route of 1933, when he travelled from Shugden Gompa to the Salween. The *Dzongpön* graciously provided every facility, and on August 11 we left Chö Dzong, marching east up the steep valley of the Jolo Chu. Two days later we crossed the Gotsa La at a height of 16,380 feet. I had thought we were about to cross only a rib of the main range, but it was immediately apparent that we were on the Tsangpo-Salween Divide itself, for from the farther side all streams led to the Salween. The change in the country was remarkable: to the south in Pome was a land seamed with glaciers and split by narrow wooded valleys, while to the north lay open pastureland and barren, regular hills. The divide is clearly a formidable barrier to the rains which approach from the south-west. Although the Gotsa La would seem an obvious boundary, yet for some way on the north side of the pass the people are still under the authority of Chö Dzong, for natural frontiers count for little with Tibetans.

We descended to the Dü Chu, which we crossed on the following day, and then turned south and south-east, past the mile-long Yarku Tso, which is formed by a natural dam of fallen rock at its northern end, and thence up the open valley of the Yarku Chu, an ideal grazing area for hundreds of yaks and *dzos*. On August 15 we crossed the Deu La at 16,780 feet, where outcrops of sandstone appeared in the limestone range and where *Mecanopsis Baileyi* and *Gentiana sino-ornata* flowered in profusion. Descending steeply to the valley of the Ling Chu, we arrived the next day at Rangbu Gompa, a large monastery housing a hundred monks, built on a low hill in the centre of the valley. Close by stands a small *dzong*, used as a rest-house by the magistrate from Trashitse Dzong when he goes on tour but not permanently inhabited by any official.

Returning into Pome by way of the Tsaphuk La, at the head of a side valley to the west of Rangbu Gompa, and the Yoni La, by which we recrossed the Tsangpo-Salween Divide, we reached Sum Dzong again on August 22. On the 24th we started down the main valley of the Ngagong Chu and 2 miles from Sum Dzong entered thick pine forest, the country being similar to that of the Rongtö valley in Zayul. The following day we crossed the river to

Dashing by a well-built cantilever bridge, a fine example of Poba craftsmanship, and were comfortably housed close to the monastery.

Three weeks later Kaulback arrived from Pemakö."

On 16 September 1935 I went down the Ngagong Chu three days' journey to Shöwa, in order to connect with Morshead and Bailey's work of 1913, and then returned by the same route to Dashing Gompa, to rejoin Hanbury-Tracy, who had remained there.

On my way from Purtsang to Shingke Gompa, and except in the immediate neighbourhood of the Kangri Karpo La, I had not been able to see any of the crest of the range forming the south side of the Ngagong Chu valley. Hanbury-Tracy however had been more fortunate, and could see that the range was permanent snow throughout its length from Shugden Gompa to Dashing Gompa, and apparently between 18,000 and 20,000 feet in height. Near the Chindru La and the Kangri Karpo La the rocks are of limestone and slate; round the Ata Kang La they are of granite; at Shugden Gompa limestone and slate; and the Salween-Brahmaputra watershed, which is connected with this range some miles south-east of the Trakge La, we later found to be mainly composed of limestone and slate also, with frequent outcrops of bright red sandstone. At no time did I feel justified in estimating either dip or strike, owing to the great variations in both which occurred even in comparatively small areas.

Between us Hanbury-Tracy and I had found that the Ngagong Chu runs almost in a straight line from the western end of the Ngan Tso (the lake at Shugden Gompa) to Shöwa—not cutting twice through a possible easterly extension of the Himalaya as Kingdon Ward had suggested¹—and that the range south of this river, though high, was very narrow, varying from about 25 miles in width between Shugden Gompa and Purtsang to a minimum of about 10 miles. In spite of this narrowness it is very tempting to assume that this narrow strip of mountains is a direct prolongation of the Himalaya, bent round the north-east promontory of Assam and continuing south as the Salween-Brahmaputra, or Salween-Irrawaddy, Divide. Following Burrard's argument that the Tibetan rivers cut through the Himalaya at the point of maximum elevation,² this assumption is perhaps supported by the fact that south of Shöwa and west of the Sü La the level of the range appears to rise to more than 20,000 feet, facing Namcha Barwa on the other side of the Tsangpo Gorge. If this is so—that the Himalaya trend east and south from Namcha Barwa—then it would seem that the Salween-Brahmaputra watershed west of the Trakge La might be a secondary fold pushed up at the same time as the Himalaya themselves.

We left Dashing Gompa on 1 October 1935 and reached Chumdo two days later after a delay of nearly a day a few miles south of this place, where the path had been carried away by a landslide. Up till 1931 Poyü (the province containing Pome, Potö, and Pemakö) had been more or less independent under its own ruler at Shöwa. In that year however it was finally taken under the

¹ *Geogr. J.* 84 (1934) 369-97.

² S. G. Burrard and H. H. Hayden, 'A sketch of the geography and geology of the Himalaya mountains and Tibet.'

direct administration of the Central Tibetan Government, after three months of severe fighting, and there was still a garrison of one hundred troops in Chumdo to keep order in the district. These soldiers were said to be the pick of the Tibetan Army, and they were certainly very smart in their full-dress uniforms of canary-yellow, with scarlet collars, cuffs, and shoulder-straps and black trousers with broad yellow stripes. A number of these men had pronounced beards, and they were all from the province of Ü. Chumdo had been a Poba *dzong* before 1931, and strongly fortified with a wall and guard-towers; but these were partly destroyed in the fighting and were still in ruins when we saw them. The Governor of the present district of Potö, of which Chumdo is the capital, was a young monk from Sera Gompa. He was most helpful to us and we parted from him with some regret after a stay of a week.

We continued north from Chumdo up the valley of the Potö Chu, which is very clearly glacial in origin. About 14 miles above Chumdo we passed several hundred of what appeared to be ancient burial mounds, built on the right bank of the river and on the flat bed of the glacier. They varied from 10 feet to 60 feet in height and were mostly dome-shaped, although there were one or two in the shape of crescents, perhaps 20 yards between the horns, and several long barrows about 40 yards long by 15 yards wide. On some of the circular ones there were large stones placed at the cardinal points half-way up the sides, and many of the mounds had clumps of prayer-flags. Unfortunately we had neither the time nor the implements for excavation, but if they are burial places (and I cannot imagine what else they could be) they must certainly be pre-Tibetan. There was a battle near here in 1911 between the Chinese and the Pobas, and I had thought that these mounds might be the graves where the Chinese had buried their dead, but the local villagers denied this: the mounds had always been there, and were just earth, as any one could see.

It is nominally five days' march from Chumdo to the Tungla La, but we had to stay three days in the village of Gowa on the way up, owing to the theft of Rs.2000/-. We were fortunately able to recover everything, mainly through the efficient detective work of Lewa, even before the Governor's agents arrived to inquire into the case.

For the first four days from Chumdo the valley had been lightly forested with grass and rhododendron scrub; but on the fifth march, up to the Tungla La, the path climbed steeply over barren screes of slate and limestone, past several small hanging glaciers, and up to the pass at 17,280 feet. We were now on the Salween-Brahmaputra watershed, and the contrast in the scenery on both sides was quite extraordinary. To the south there was line upon line of snowy peaks; deep, forested valleys; ravines, gorges, and torrents. To the north hardly a sign of snow, but a great expanse of gently rounded hills stretching into the distance—the whole country dry and brown, with only a few scrubby thorn bushes and an occasional stunted fir-tree to be seen. Two days after crossing this pass we reached the Gya Lam (the great road running from Lhasa to Batang, and so to Peiping) and turned eastwards along this to Shopando, where we arrived on October 21.

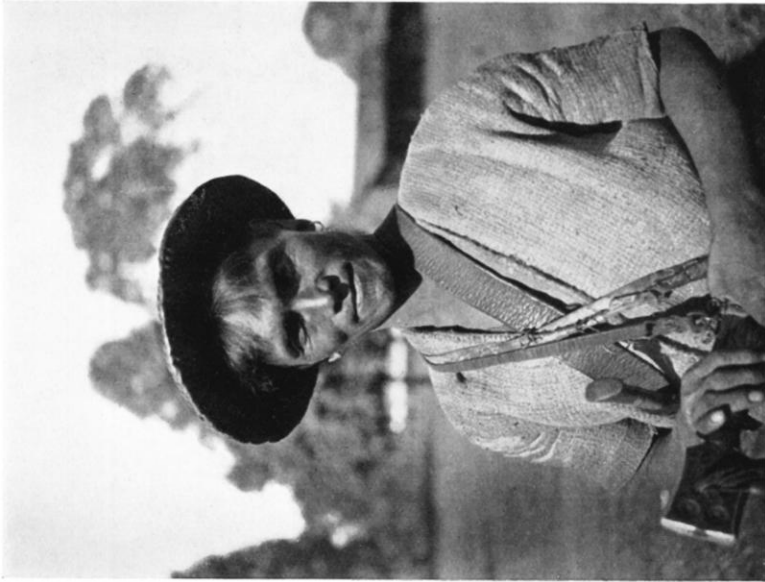
Shopando had been visited in 1882 by A—K. on his way back to Lhasa, and in 1923 by Pereira, so that it was already a well-known place by the time we



Chulikata Mishmi girl



Zayuli coolie



A Chulikata Mishmi



Yuru Gompa, in the Potö Chu valley



Towards the Salween from the Do La

reached it. A—K. had reported a hundred houses there, but there are now a hundred and twenty, not including quarters for the sixty-odd monks in the monastery. This however does not imply an increase of 20 per cent. in the population. The extra houses were built by the Chinese in 1910 as quarters for their troops, and the population of Shopando has apparently not changed noticeably one way or the other within the memory of any one now living. We put up in the caravanserai, a building of three storeys built round a large courtyard, and remained there for nine days. During this time we took a series of observations which showed that the position given to Shopando on the Survey of India sheet No. 82 was 13 miles too far to the east.

On October 31 we crossed the Chungke La, a low pass of 12,730 feet, into the Salween valley, and camped on the right bank of the river, 14 miles from Shopando. The Salween was here some 75 yards wide, flowing at 6 or 7 knots, and very deep. We crossed over to the left bank the next day by a primitive raft-ferry and followed up the valley to Zimda.

It was now our plan to continue westwards as far as the source of the Salween, keeping close to the river the whole way; and this worked fairly well on the whole, although twice we had to make lengthy detours for lack of any other path. The first of these was from Zimda itself, and as every one there assured us that there was no route at all along the Salween anywhere west of that place, we left for Idashi feeling rather depressed, even though on the face of it the story seemed fantastic. At Idashi however we were told exactly the reverse and were able to return to the river and travel up the valley as far as Kau over a good mule-track.

In this part of the Salween valley, and as far west as we were able to go, there are many monasteries of from fifty to three hundred monks or so, and as a result of this the ban on hunting is even more strictly enforced than in other parts of Tibet, so that game is plentiful and very tame. We saw numbers of *Ovis ammon humei* and musk deer, and the tracks of goral and snow-wolf; and, as regards birds, many hundreds of the big white pheasants (*Crossoptilon crossoptilon*) in coveys of from fifteen to sixty or seventy, blood pheasants (*Ithagenes geoffroyi*), partridges (*Perdix hodgsonii*, *Tetraophasis szechenyii*, and *Lerwa lerwa*); and, in early spring, many ducks, geese, and snipe, either nesting or on their way to the breeding grounds farther north. In this connection I was informed that there is a lake in the neighbourhood of Nakchu Dzong where many thousands of these ducks and geese breed every year.

It was now early November, and we were living at between 12,000 and 14,000 feet. At this height the crops do not ripen until late in October, and the villagers were all hard at work threshing, helped by many of the monks from the neighbouring monasteries. The straw was carefully stacked on racks in the fields out of reach of the yaks and ponies, for use as fodder between December and April when there is no grazing. Thus the prosperity of the community depends wholly on the corn crop. In 1934 for example the crops had largely failed owing to drought, and that winter, not only was there not enough grain for the people, but no fodder for the cattle, so that very many of the latter died before the grass came again in the spring. In 1935 however

the crops were excellent, which was fortunate not only for the natives but for us. Had they failed again we should probably have been credited with having blighted them by casting the evil eye.

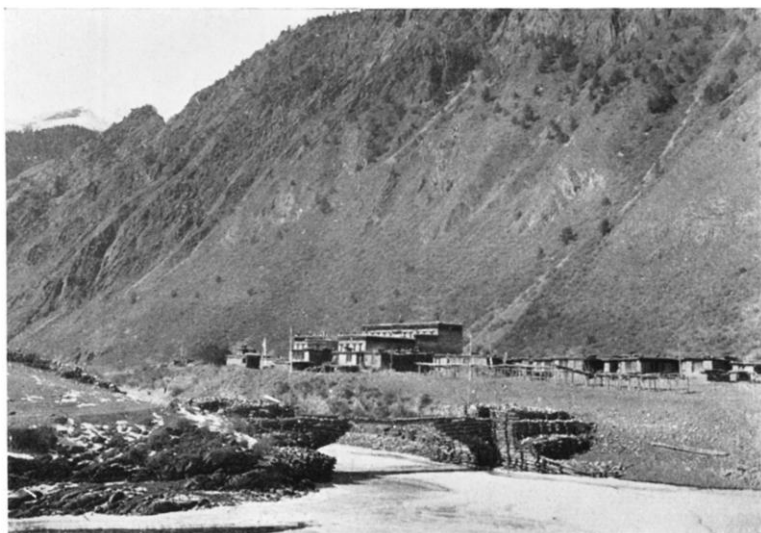
From Kau there were two possible paths, one of which ran straight up the Salween to Dege. This was said to be difficult and seldom used. The other, which leads north, away from the river, is the main route, joining the road from Chamdo to Sok Gompa at Pada Sumdo. This latter road had been explored by Bower, Rockhill, and Bonvallot, and we therefore decided to go up to Pada Sumdo to connect with their work before returning to the Salween at Dege and continuing up the river from there.

Accordingly, from November 18, we deserted the Salween for a while, and headed north up a narrow, grassy valley, used during the summer as a grazing ground for yaks. Effective daylight was now getting short, and we began to find that we were not able to do any open-air survey work before 8.30 in the morning, or after 3.30 in the afternoon; so that, until well on in the spring, unless the march was a particularly short one, we always had to spend two days over it, with consequent enormous waste of time.

Three days after leaving Kau, and after a long ride of 19 miles over a bitterly cold pass (Michen La, 16,110 feet), we came to Rukyithang, a small and entirely pastoral village at 13,500 feet. I mention Rukyithang for two reasons only. One, that we there saw the only raven of the whole journey—a great big fellow with an indescribable air of wary truculence; and the other that Hanbury-Tracy was severely poisoned by fumes from the yak-dung fire in our tiny room there. The symptoms were like acute asthma, with considerable pain in the chest. I escaped this, possibly because I had been eating garlic sandwiches for the last few days, and raw garlic is said to be a sure preventative of such poisoning.

Since we had left Shopando the rocks had all been of slate and limestone, but on the last day's march to Pada Sumdo, which we reached on November 29, there were several outcrops of strawberry-red sandstone, apparently identical with that which we found in the Salween valley between Chamda Gompa and Nakshö Biru, and in the Ling Chu valley below Trashitse Dzong.

Before the days of portable and efficient wireless sets travellers on east-west routes always had great difficulty over their longitudes. We had found that Shopando on the China Road had been placed too far to the east, and we were particularly interested in reaching Pada Sumdo to see whether its position also needed revision. We found that it had been estimated at 8 miles too far to the west, and were able to bring this Chamdo-Sok Gompa road into correct alignment with the Gya Lam. As soon as we had reached Pada Sumdo we turned south-west again to Dege, above the left bank of the Salween, where we arrived in a blinding snow-storm on December 2. The next day, although the snow had stopped falling, a high wind was whipping it off the ground in such quantities that visibility was practically nil, and we remained where we were until the 4th, for conditions to improve. The river was already frozen over in parts thickly enough to carry transport, and just above Dege we crossed over the ice and continued up the right bank for 14 miles to Chamda Gompa at 12,600 feet. This is a monastery of a hundred and twenty monks and a village of ninety houses surrounded by a wall, but it is a bleak spot and there



Bumthang Gompa



Pengar Gompa



The Ge Chu valley above Pengar Gompa



The big chorten, Nakshö Biru



Bridge over the Salween, Nakshö Biru

is little to recommend in it. From Shopando on we had constantly been informed that the Salween divided into two streams somewhere to the west. By making the Kau-Pada Sumdo-Dege detour we had missed the confluence of these two branches of the river, and so from Chamda Gompa we turned south, crossed the La Gen (16,200 feet), and went down to this big tributary (the Ge Chu) to make quite certain that it was not the main stream, and in any case to explore as much of its course as possible.

When we reached Bumthang Gompa (12,480 feet) we found that there was no doubt as to the Ge Chu being a tributary of the Salween and not the main stream, for it was not more than 12 yards wide by 6 or 7 feet deep, while at Chamda Gompa the Salween was some 50 yards across and very considerably deeper. Incidentally, we were able, before the end of the journey, to clear up a certain amount of controversy regarding the proper Tibetan name of the Salween, which has been spelt by Europeans in various ways for years. The real name is Gyamo Ngo Chu,¹ or the Blue River of China, and called so with some reason, for in the winter and before it freezes over it is a very dark, clear blue, almost black. At other times of the year, like the Blue Danube, it is a dull mud colour. There can be no doubt as to this being the correct spelling, because we obtained it independently from three District Governors, one abbot, and one nobleman from Lhasa.

From Bumthang Gompa we went 15 miles down the Ge Chu to Sating, a small *dzong* just below the Salween-Ge Chu confluence; and then, returning, headed west again up the valley for two days to Pengar Gompa, a monastery of two hundred monks on one of the main roads from Lhasa to Chamdo. A good deal of trade passes this way, and there is a large caravanserai, of which we occupied the entire upper floor. We arrived there on December 20, and were so comfortable that we decided to remain until after Christmas. We had been living wholly on the country for the past three months and were now on a steady diet of yak-meat (or mutton) and turnips, butter, *tsamba*, and tea. This, though monotonous, was most nourishing, and we and the servants all kept very fit indeed. For Christmas however we had saved our last bottle of rum, a tin of peas, and a plum pudding, and these, with roast mutton, made a meal we remembered for months afterwards.

Above Pengar Gompa the Ge Chu valley is very shallow and open, with only an occasional patch of stunted fir-trees, about 10 feet high, and a little grass and thorn scrub; and, both here and in the Salween valley, during the winter a bitter wind sweeps down from the west nearly all day long. As a result of this, at nearly every survey station (on an average there was one every 2 miles) we had to build a fire of yak-dung or brushwood to thaw our hands, and even so they became numb after a very few minutes' work. The rule was ten minutes of thaw to five of work, and this, with the shortage of daylight, made travel extremely slow. At the end of December we crossed back into the Salween valley by the Thamtsa La (16,970) and reached Nakshö Biru on 1 January 1936. This important place is the capital of an extensive district, and consists of a large monastery, said to be more than five hundred years old, and a very scattered village of about a hundred houses. We called on the

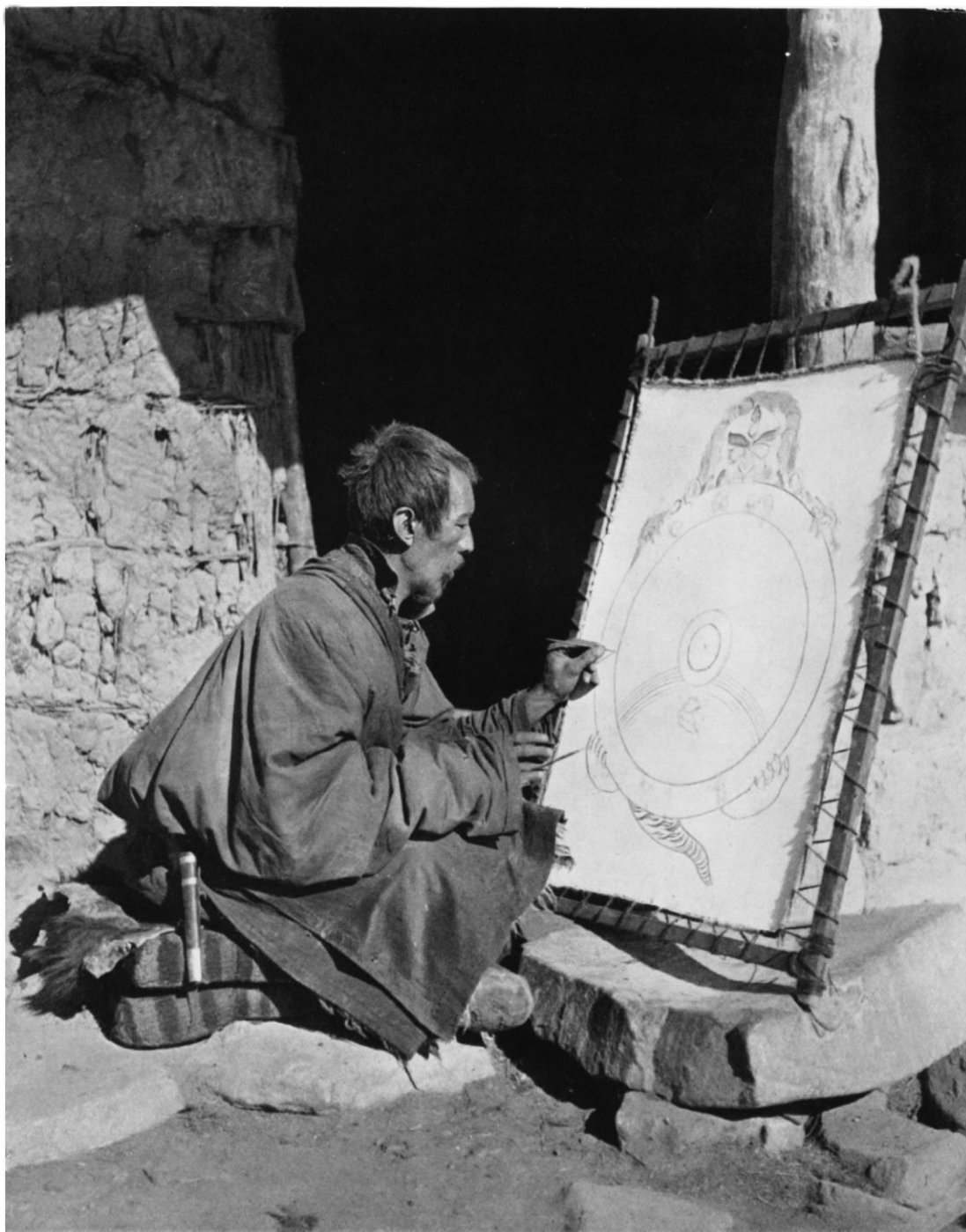
¹ གཡམོ་ངོ་ཅུ་

Governor the day after our arrival, informed him of our plans to continue up to the source of the Salween if possible, and a few days later returned down the river to Chamda Gomba, to fill in that stretch of it which we had had to leave undone while we were working in the Ge Chu valley. We arrived back in Nakshö Biru on January 22, to find that we were regarded with considerable suspicion.

Ever since leaving Burma, Hanbury-Tracy had been growing a beard, and this had apparently given rise to a rumour that we were not English but Russians, and therefore automatically spies. During our trip to Chamda Gomba and back the Governor had had time to think matters over, and he now asked us very politely if we would mind remaining in Nakshö Biru until he could receive confirmation of our respectability from Lhasa. We were not more than 300 miles from Lhasa at this time, but in this part of Tibet travel in winter is slow, and it was nearly three months before word came back that we were English and were to be given every assistance on our way. We had a house to ourselves during our long wait, and were quite comfortable, but we found it impossible to do any work. Nakshö Biru is at 13,200 feet and the air is so extremely dry that evaporation takes place very quickly. As a result of this, snow does not lie for more than a few days at a time, even in mid-winter; and, except when snow is actually on the ground, for four days out of five an intermittent dust-storm blows down the valley, driven by a high, gusty wind. We stretched a piece of cotton cloth over the window of our room to try to keep out the dust and still let in light, but so much came through that it was hopeless to bring out any maps or papers. They became quite black in a very short time. I am certain that this dust is the main (if not the only) cause of the ophthalmia which is so prevalent in this part of the Salween valley. We soon exhausted the possibilities for amusement in the immediate locality; then took up weaving, under the instruction of our landlord's wife; and were finally reduced to composing cross-word puzzles for each other to solve.

February 23 was the first day of the Fire Mouse Year, and we were invited to the monastery to watch the Devil Dance, which lasted for seven hours. Knowing hardly anything about the symbolism of the dresses or movements, we were left at the end with little more than a blurred impression of grotesquely masked figures in gorgeous robes whirling and posturing, to the constant booming of gongs and the great prayer-trumpets, the clashing of cymbals, and the squeals of clarinets. Had the performance been shorter, we might have retained a clearer memory of it after all was over.

On April 5, word came from Lhasa that we were to be allowed to leave Nakshö Biru, but by this time it had become clear that we must reserve the source of the Salween for another time. We did not make up our minds to this without some heart-burning, for it had been the main objective of the journey; but, now that spring was so far advanced, we had very little choice. We were probably a minimum of thirty marches from the source, with unknown conditions from the Amdo Tsonak on. It might easily have taken us a good deal longer. Once at the source we should have been forced either to retrace our steps for a month or more (a waste of time) or continue west and south across the plateau to Kashmir or Ladakh, as we had not sufficient



The Wheel of Life



The Gya Lam



Lho Dzong

funds left to make a detour to the north and east, and we had no permit to go in the direction of Lhasa. Unfortunately during the last few years the Changpas of the Great Plateau, who are nominally herdsmen, have taken up banditry with even more zeal than before, so that now merchants travelling north from Lhasa do so only in large, well-armed bands, of perhaps two hundred men. In the winter the Changpas are all in the north (in the lower ground) for the grazing, but in spring they start south again as the grass begins to sprout. In fact, they follow the grass as crabs do the tides. If we could only have been at the source a short time after the grass had begun to grow, we should have been across the plateau before the Changpas arrived as far down as our line of march; but as it was, with our late start, we should have met them half-way over. With only five men and no weapons we should have stood no chance, and the results of nearly two years' work would have been lost. We therefore decided to return east and concentrate on the Salween below where we had first reached it, and on the Salween-Brahmaputra watershed as far to the south as we could manage.

Accordingly, on 12 April 1936, we crossed the Salween at Nakshö Biru by a fine log bridge and returned to the Ge Chu valley. The Thamtsa La, by which we had come on our way up, was still blocked by snow, but we were able to cross the Shar La (16,380 feet), a few miles farther east, and so to go past Bumthang Gompa to Sating (12,550 feet). The Salween was now in semi-flood, and a deep milk-chocolate in colour, while the Ge Chu was running a beautiful clear green. The contrast at the confluence was very marked. From Sating we turned south, crossed three passes to the China Road, which we reached some 12 miles west of the Pembar Gompa, and continued eastwards along it to Lho Dzong. There were great numbers of professional beggars of both sexes on the road at this time. During the winter they do not travel much, but for the rest of the year they infest the main routes in Tibet. It is a religious principle with the Tibetans that beggars must be charitably treated, and though this is excellent in theory, in practice it means that there are now thousands of them who are brought up as such from birth, and who are a real burden on the community. They generally seem to be better fed, and certainly better clothed, than most of their hard-working fellows. We reached Lho Dzong (12,680) on May 8.

In the centre and west of Tibet, the word *dzong* indicates a fort built on a steep hill and overlooking a valley. In the east however *dzong* has lost this meaning and now implies only that the place is, or was, a district headquarters of some sort. Sangachö Dzong is an exception to this, although the fort there is scarcely worthy the name, and Lho Dzong is another. There the fort is a real *dzong*, strongly built on the top of a steep bluff, and only a short distance from the large walled monastery of two hundred and forty monks. We had to wait for six weeks in Lho Dzong, as the new Governor of the district was still on his way from Lhasa and his clerk, who was temporarily in charge, had no authority to provide transport for us or any one else. We took up our quarters in the village which is in the valley below the *dzong*, and spent much of our time in collecting entomological and botanical specimens from the neighbourhood.

It had been our intention to continue along the Gya Lam as far as Shabye Zampa, and then to turn south beyond the left bank, where there is an important road. As luck would have it, serious frontier skirmishing had recently broken out between the Tibetans and bodies of Chinese Communist bandits, and this fighting forced us to alter our plans. When the Governor arrived he was very pressing in asking us not to go that way, because, he said, with large numbers of troops wandering about the country we were as likely to be pillaged by them as by the Chinese, and in that case he would be severely blamed. We therefore left Lho Dzong on June 20, and turned south to Shari Dzong along the route A—K. had used in 1880 when on his way back to Lhasa. It was a delightful time to be travelling in this part of the country. Everywhere were masses of yellow kingcups and buttercups; white and dark-blue anemones; here and there patches of blue dwarf irises or big mauve primulas; white rhododendrons on 6-foot bushes, and purple ones not 15 inches high; dog-roses and sweet-smelling shrubs; butterflies; and, away to the south, the snowy mountains running down into Zayul.

Shari Dzong is only 6 miles by road from the Salween, and we had expected to have been able to go down the river from here. This too proved to be impossible, because the only path was on the opposite side of the river (here 100 yards wide and in high flood), and the rope bridge had just broken. The valley is almost bare of trees, but even if there had been enough wood to make a raft, we should not have been able to cross in that current. This was probably just as well, for it enabled us to make a fairly comprehensive survey not only of the country between Shari Dzong and the Salween—Brahmaputra watershed but also of that between Shari Dzong and Shugden Gompa, which latter we would not otherwise have done.

We left Shari Dzong therefore on July 2 and turned south-west for the Dü Chu, which we reached two days later, after crossing the difficult Phokar La, a very steep pass of 17,240 feet. The first 2000 feet down from this pass on the west side are over loose shale of slate and limestone. We left our baggage at Dzongra, on the right bank of the Dü Chu, and went down the river as far as the farthest point in its course we had been able to fix on our way to Shari Dzong. We then surveyed the upper portion of the river and the watershed to the west, and after a total of eleven days in the Dü Chu valley we crossed the Deu La (16,780 feet) and reached Trashitse Dzong (12,370) on July 15. A—K. and Kingdon Ward had both visited Trashitse Dzong on their way from Shugden Gompa, the one in 1882 and the other in 1933. We made this place our base for a time while we surveyed the route north to Shari Dzong and south to Shugden Gompa, in order to leave no avoidable blanks in our map; and finally, on August 8, we turned east down the Ling Chu valley towards the Salween again.

Kingdon Ward has called this river the Tsa Chu, but in this I think he was mistaken, and I feel that he must have inquired about it at Rangbu Gompa, for the large tributary which flows in there from the west is, in fact, called Tsa Chu. The main stream is however known as Ling Chu throughout its length. Near Rangbu Gompa there are still the remains of several lateral moraines, and the valley is clearly of glacial origin as far down as some 3 or 4



The Salween near Shari Dzong



The Ling Chu valley



The bridge at Thenthok Gompa



The Rongme Chu

miles below Trashitse Dzong. Below that it is difficult to say, but I think it is probable that glaciation extended to well below Nera Gönsar.

The Ling Chu valley is almost treeless and with little vegetation of any kind apart from thorn scrub, except immediately round the many villages. There, by intensive irrigation, the people produce good crops of wheat, barley, and peas, and there are apricot, mulberry, walnut, and pear trees. The valley seemed to be stiflingly hot, and yet the maximum shade temperature at midday nowhere exceeded 70° F. There were many lizards, a few specimens of a Chinese pit-viper, and, in the houses, great numbers of bed-bugs. From below Dzikar the Ling Chu runs in a deep narrow gorge to the Salween, and the path here runs at nearly 3000 feet above the river to Po (10,900), which is itself 2300 feet above the Salween. As far as this we had been following in Kingdon Ward's footsteps from Trashitse Dzong. When we returned from Po to Dzikar I left Hanbury-Tracy there for a few days (he had strained a muscle in his thigh) and once again took Kingdon Ward's route to the south as far as the Trakge La (17,320 feet), on the Salween-Brahmaputra watershed, which is here composed of granite. I found this journey very trying (and especially the last part of the climb to the pass) owing to a severe attack of colitis, which persisted for ten or twelve days afterwards.

On August 23 we left Dzikar by the main road to the Salween (that to Pö being little used), and reached Jepa after two days over a good path. The river was here about 120 yards wide, with a current of 10 knots, and the valley was very hot; and like that of the Ling Chu, except round the villages, it was almost completely barren, with very steep sides. Grapes and maize are grown in Jepa, besides other crops, and in the fruit-trees there were great numbers of emerald-green parakeets. We crossed the river here by a rope bridge of plaited yak-hide (fifty hides to the bridge), and went up to Thenthok Gompa, a monastery which had been visited both by King and by Sir Eric Teichmann. As the crow flies, Thenthok Gompa is only about 6 miles east of the Salween, but it is on the plateau which forms the watershed between this river and the Mekong; so that while the Salween here flows at about 8600 feet, the Tsayi Chu, on which Thenthok Gompa stands, though quite a large river, is at no less than 12,900 feet.

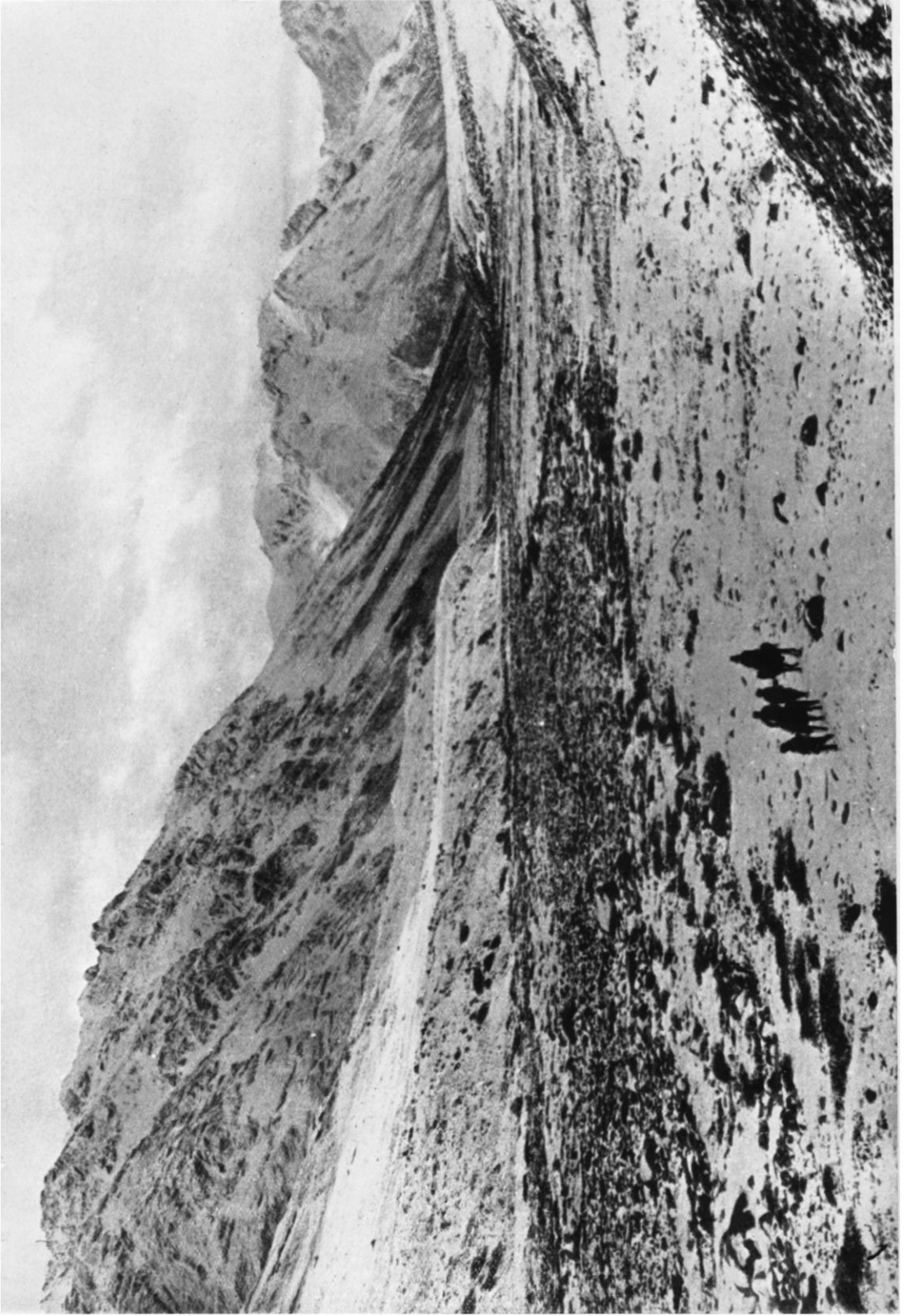
Our intention in going up to Thenthok Gompa had been to make a short journey northwards to fill in the Salween between Shari Dzong and Jepa, but this we were asked not to do by the Governor at Tsawa Dzogang, for the same reason that had prevailed at Lho Dzong. We therefore continued south along the main Chamdo-Sangachö Dzong road, reaching Situkha on September 11, three days from Thenthok Gompa. I remained here for ten days making up arrears of work, while Hanbury-Tracy explored both banks of the Salween as far up as Jepa. The roof of the house I lived in was infested with a species of colubrine snake (*Elaphe taeniura*), reaching 4½ feet in length, which lives on mice and small birds. I caught several, and others could often be seen peering out, or creeping about among the rafters.

On September 23 we crossed to the right bank of the Salween at Situkha by another leather rope bridge and turned south, keeping close to the river, which was now flowing in a much wider valley. As far as Wosithang we were

on King's route, but from there his path remained near the river, while we continued along the Sangachö Dzong road and climbed out of the Salween basin into that of the Brahmaputra, on September 28, by the Juk La, a low pass of only 15,400 feet. The rocks here were of limestone. We camped that night on the bank of the Chumnyö (meaning Crazy River, on account of its sudden floods) which flows into the Zayul river at Loma, and remained there for ten days on account of dense mist which hid the mountains and made survey work impossible. There was a lone cherry-tree near the camp (13,180) with brilliant red cherries growing singly and not in pairs. They were quite ripe but very bitter.

We had now, between us, crossed the Salween-Brahmaputra watershed six times (by the Gotsa La, the Yoni La, the Tunpla La, the Dokha La, the Trakge La, and Juk La), and we had been able to see further stretches of it in the distance on several occasions. We had found it to be composed mainly of slate and limestone; and apart from one of 21,680 feet, north of the Drindre La, we had seen no high peaks on this watershed, the crest of which appeared to maintain a remarkably uniform level of 18,000 or 19,000 feet throughout its length almost as far south as the Juk La. Handicapped by our lack of geological knowledge, we nevertheless had no doubt that it must be one range; possibly, if Wegener's theory is correct, one of a series of nearly parallel ranges pushed up at about the same period as the Himalaya themselves.

When the weather cleared up enough for us to move again, we crossed the Drindre La (15,610 feet) and on October 10 reached Pashö, a village of nineteen houses a day's march north of Sangachö Dzong. We then went up to Shugden Gompa *via* the Dama La (15,460), this being the winter route from Sangachö Dzong when the Dzo La is closed by snow. From Shugden Gompa we went up to the Trakge La to finish that route of which I had already explored the first half from Dzikar the preceding August. We had left most of our baggage at Pashö under the care of Nyima Töndrup, and were travelling as lightly as possible; and, now that the weather was getting cold again, we found it essential to have fires in camp, not only so as to have hot food, but simply to keep warm. For this reason, on our way up to the Trakge La we had to make our last camp some 14 miles south of the pass, at a height of 14,410 feet, because farther up the valley than that there was no fuel. This meant that on October 18 we had an unpleasantly long day of 28 miles, working up to the pass and then returning to camp. Luck was with us however. We finished work on the summit of the pass with the very last of the light, and it was not until then that a blizzard broke on us from the south, blowing straight up the valley with nothing to check it. We could hardly see a yard, and became so terribly cold that it took us almost eight hours to reach camp again. Shortly before we arrived (at 1.15 a.m.) we were met by two of our coolies who had come out to look for us. They lit a large fire of brushwood to unfreeze us and gave us a meal of *tsamba* before escorting us in. Lewa had gone back to Shugden Gompa two days before this on account of a bad closed abscess in the angle of his jaw, which was causing him a great deal of pain. My instruments were all at Pashö and I did not feel capable of opening it without them. When we reached Shugden Gompa again he met us with a beaming face,



*The path to the
Trakge La*



The Abbot of Sangachö Gompa



Khampa types from Jépa



Shödung Kharndempa: Governor of Zayul

completely restored to health. He said he had been driven to desperation by the agony and had finally taken a knife and operated on himself from inside his mouth. The results were magnificent.

We arrived back in Pashö on October 21, and left two days later for Shikathang. When we reached Gochen we found a messenger waiting for us who had been sent up from Minkhung Dzong by Kharndempa, the Governor of Zayul, with a present of 60 lb. of butter, 60 lb. of rice, and 60 lb. of excellent flour, and a letter authorizing us to take coolies through from Shikathang to Dening, in Assam. This was more than kind of him, and his letter was as welcome as his present. We had been afraid that possibly, in his absence, there might be some difficulty in procuring transport.

From Gochen, to vary the route back, we turned down the valley of the Zayul river (called indiscriminately Lhochü Ghu, Lhongpa Chu, or Chosen Chu), which had been explored by Colonel Bailey in 1911. This river flows in a deep, narrow valley with steep sides, well wooded for the most part, but the path is very good and we had no difficulties of any kind. Chikong appeared to mark a distinct climatic boundary. Above this village the forests were mainly of pine, with the houses built flush, or nearly so, with the ground; while below it there were many deciduous trees and the houses became of the true Zayuli type, raised on piles 8 or 10 feet in height with balconies in front on which the threshing is done, the ground being generally too damp for this. In this connection, and as is only to be expected, in the Zayul river, Rongtö, Chindru, and Ngagong valleys (*i.e.* where there are extensive forests) the houses are wholly of wood, with the exception of Sangachö Dzong and Gochen, where both forms are found; and elsewhere in the country we covered on this journey they are built of clay and stones, or occasionally of clay and wattle.

We reached Shikathang for the second time on 1 November 1936, and put up in the Governor's house, which was of course now empty. Colonel Bailey had only been able to make a compass traverse on his way down the Zayul river, and so we continued to work as far down as Shikathang in order to correct this with our more accurate instruments. But now work was finished and we had little to do during the eighteen days we had to wait while coolies were collected from the Rongtö valley. The one event which broke the monotony was when a certain woman, remarkable more for her greed than for her intelligence, went into a room between ours and the kitchen in an attempt to take the honey from a large swarm of wild bees which had made it their quarters. The bees, obviously annoyed, stung the thief severely, but, not content with that, they then turned on us. The attack began at 8 a.m., and although we fought a spirited action for nearly two hours with swats and smoke smudges, life became insupportable and we had to leave the premises in a body. Until 5.30 p.m. it was highly dangerous to venture near the house. Then, however, the bees retired for the night and we were able to return. On the next two days we repeated our flight into the wilderness, but after that the enemy had either forgiven or forgotten, and life became normal again.

From Shikathang to Dening, with heavy loads, it is seventeen marches over a bad footpath, and during the whole of that time it was impossible to buy

supplies, apart from an occasional fowl or a few eggs. Accordingly our forty coolies had, beside our baggage, to carry all their food for the journey. We did not realize it at the time, but when we reached Assam we found that their loads must have been considerably more than 100 lb. each. This is a huge weight in the type of country we were going through, and it says a great deal for their strength and endurance that only two of them gave up, both on account of accidents.

We left Shikathang on November 20 and crossed to the right bank of the Rongme Chu by the same bridge we had used on our way up to Lepa in 1935. We kept to the right bank of the river the whole way to Sadiya after this, and the first three days (to Walong) were especially interesting to me, because in 1933, when I was with Kingdon Ward, we had used the left bank on this stretch. From Shikathang down to Walong (below which is Mishmi country) we passed many small parties of Mishmis on their way north to spend the winter in the Rongtö valley. A number of these men could speak Assamese, and all seemed very surprised to see us. At Walong there is a big grove of orange-trees bearing a great quantity of large fruit. They were falling from the trees with ripeness, but were very sour. On November 27, after remaining one day in Walong because of heavy rain, we reached Minzong (Tibetan, Jiramarnong), a camping ground at the bend of the river where the Rongme Chu swings from south to north-west. A stream flows in here from the east, with a hunter's path running up it and over into the Hkamti Long. One of my coolies had made the round trip three years before from Shikathang, over the Diphuk La and back this way, in search of *takin*, which the Tibetans call *shimna*. Down to Minzong the path had run for most of the way through forest or tall reeds, but below this place, as far down as the Delei river, there are many villages, and large areas on the sides of the valley have been completely cleared, in many cases up to 1000 feet or more above the river. The crops are mountain rice, maize, buckwheat, and at least two kinds of millet, besides opium. Below the Delei forest predominates once more. From time to time we came upon bits of the mule-track which was made in 1911-12 almost as far up as Walong, but this is now largely overgrown by jungle, and in places has been destroyed by landslides, so that few stretches are in use.

On November 30 we reached Pangam, a large village of eleven huts, where we were greeted by Jaglum, the most influential Mishmi chief in the Miju country, which extends eastwards from the Delei river to Walong. I knew him well, for in 1933 he had gone with Kingdon Ward and myself from Pangam to Shikathang. He offered to come with us to Dening, but this was unnecessary as we neither expected nor met with any difficulty on our way. However, he accompanied us for the first 2 miles the next day, and sent a retainer with a ceremonial spear for the next three, so that due honour was done us.

We arrived at Theronliang on December 4, on the right bank of the Tidding river, which marks the limit of administered territory in the Lohit valley. From Walong on we had had scarcely a drop of rain and the whole of our trip through the Mishmi Hills had been a very real pleasure, and quite without leeches, when it might so easily have been the reverse. From the Tidding

to Dening there is an excellent mule-track, so that weather was no longer of importance to us, and, as though to emphasize its forbearance during the last fortnight, no sooner did we leave Theronliang than a heavy rain-storm broke on us, soaking us to the skin in a very few minutes.

On December 6 we reached Dening, where we were very kindly met by Mr. Walker, the Assistant Political Officer, and Captain Bond, the Assistant Commandant, who drove us the remaining 47 miles to Sadiya the following day.

APPENDIX: FAUNA OBTAINED DURING THE JOURNEY

Snakes and Amphibians.—These were mostly procured in Upper Burma, and showed, as was to be expected, a distinct overlapping of Chinese and Indian types. There was a large preponderance of pit-vipers, but apart from these no poisonous snakes were obtained on this occasion. The frogs were all previously known from India. One new species of lizard was found, which has since been named *Japalura kaulbacki*.

Mammals.—Owing to the religious prejudice against taking animal life in Tibet, we were unable to collect any mammals.

Insects.—We were fortunate in obtaining a large number of new species of beetles, grasshoppers, and crane-flies; one new species of saw-flies; several new varieties of butterflies; and two new species of ants.

Flowers.—The collection of flowers has not yet been thoroughly examined, but two, and possibly three, new primulas have already been determined, from the dry country in the neighbourhood of Lho Dzong.

Birds.—We collected no birds whatever.

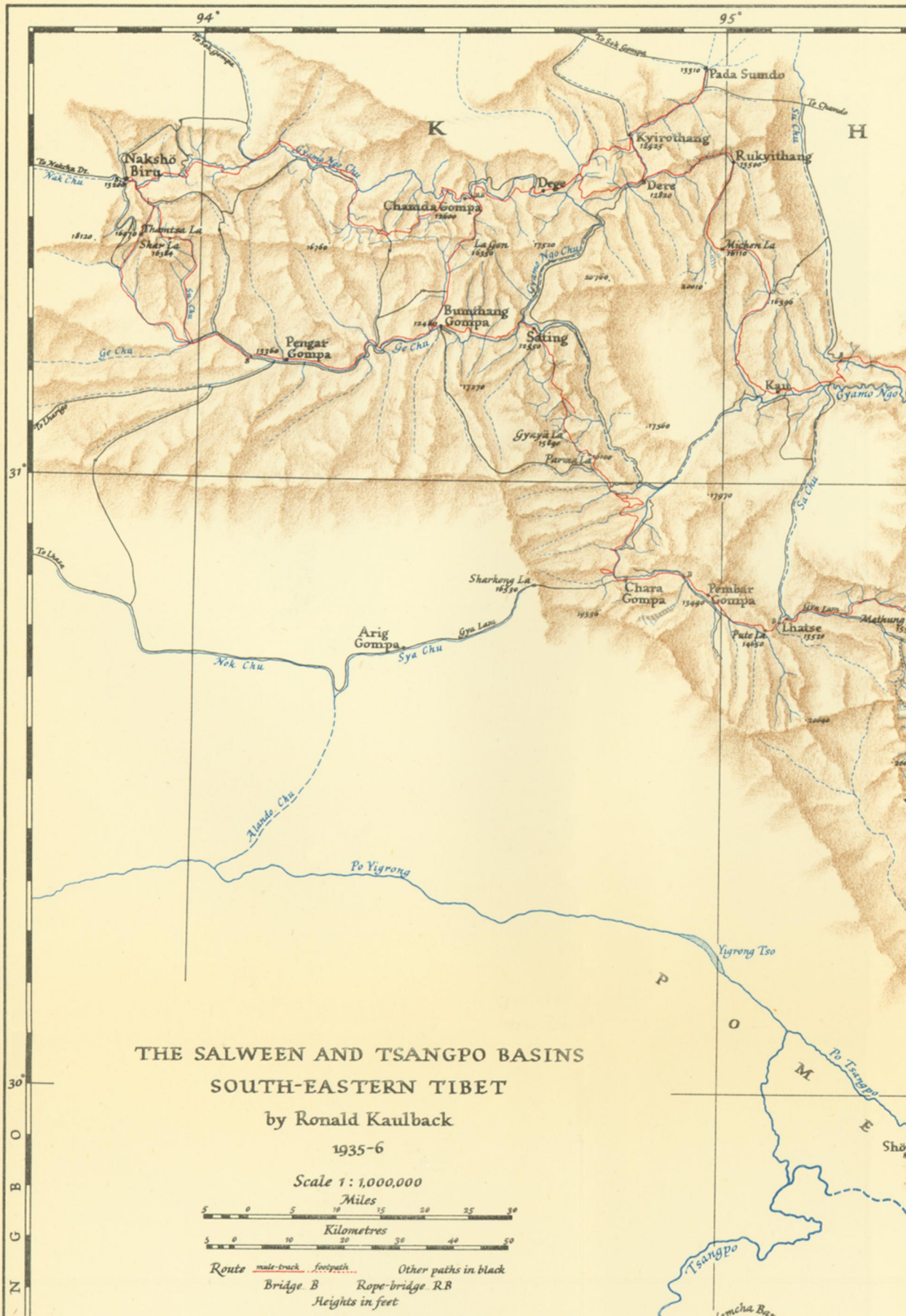
DISCUSSION

Before the paper the CHAIRMAN (Colonel Sir CHARLES CLOSE) said: As most of those here know, there is a region on the Earth's surface where seven of the greatest rivers in Asia are, as it were, bunched together. I will not repeat their names because I am sure you know them all. That particular region has been very largely explored by Mr. Kingdon Ward and for his explorations we had the pleasure of awarding him a gold medal. In 1933 Mr. Ronald Kaulback accompanied Mr. Kingdon Ward, and in 1935 he organized his own expedition and was accompanied by Mr. John Hanbury-Tracy. This time he did not go into the exceedingly tangled region where those seven rivers are almost united, but he went to an even more remote place. He went north and west into an area which no European had penetrated before. I think I may say that there are not many areas of about 50,000 square miles so very little known as that which Mr. Kaulback has explored. He went there living on the country, helped no doubt by his knowledge of Tibetan, and by the endurance and persistence that every explorer should have and which he has in a marked degree. I now ask him if he will kindly give us his lecture.

Mr. Kaulback then delivered a summary of the paper printed above, and a discussion followed.

The CHAIRMAN: We should all like to hear Mr. John Hanbury-Tracy.

Mr. JOHN HANBURY-TRACY gave a short account of his journey, from Shugden Gompa down the Ngagong Chu and north into the Salween basin, which has been incorporated in the paper printed above (pp. 106-09).



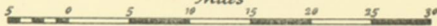
THE SALWEEN AND TSANGPO BASINS
SOUTH-EASTERN TIBET

by Ronald Kaulback

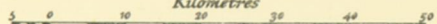
1935-6

Scale 1:1,000,000

Miles



Kilometres



Route *mule-track* *footpath* *Other paths in black*
Bridge *B* *Rope-bridge* *R.R.*
 Heights in feet

95°

96°



97°



M

Chamdo

Pashö

Shabye Zampa

Dzong

Dzongra

Dzong

Nera Gonsar

Trashitse Dzong

Rangbu Gampa

Bomda Gampa

Dzakar

Lachung Dzogang

Yartak Gampa

Thenthok Gampa

Tongpar

Yakha

Tsawa Dzogang

Situkha

Xigun Chu

Yu Chu

Dzer Chu

Melong

Syamo Ngo Chu

Tsanyi Chu

Syamo Ngo Chu

Daxiri Chu

31°

30°





SOUTH-EASTERN TIBET
Kaulback

Mr. STANFORD: I have absolutely no claim to say anything to you to-night, but I did have the good fortune to be able to assist Ronald Kaulback and John Hanbury-Tracy in the very early stages of their journey. It has been perfectly marvellous to hear now what they did and how far they got. As you are all aware from what you have heard to-night, they are no ordinary men, and that became deeply impressed on me during the two visits which Ronald Kaulback paid me in Myitkyina. My wife and I both realized that Mr. Kaulback was quietly confident that he was going to do a big thing, and that he had a very big thing to do. I know nothing whatever about Tibet, as I have never been north of Fort Hertz, but I hope that everybody can appreciate the extraordinary difficulties in that journey which have been entirely glossed over: the leeches, the incessant rain and cold, the complete absence of roads, and the trouble with food and transport.

The Myitkyina district is the only area, I think, in the Indian Empire in which human sacrifice still survives, though great efforts have been made to put it down. This is in fact one of the least-known parts of the enormous semi-circle of mountains which starts with the Pat Koi Naga Hills, and goes on to the Mishmi Hills, Singpho Naga Hills, the Kumon Range, and round to the Sajyang Pass; in between the frontier is still undelimited. The difficulties even in getting through into Tibet are enormous. Mr. Kaulback has said very little about them, and I had better not say more on that point except that there are tremendous gaps of natural history to be filled in in that area. Though most of the survey work is done, the mammals and the birds are practically unknown. Botanists have worked parts of the area very thoroughly: Kingdon Ward and, farther east, George Forrest, as well as Reginald Farrer, who died in Burma near the Tibet border.

One interesting discovery, to me at least, which Mr. Kaulback made on his way up before he actually crossed the watershed was that of the ibis-bill breeding in the Seinghku Wang. It has never been found anywhere, I think, east of Garwhal, and it has not been found breeding in the mountains of North China, but Mr. Kaulback has proved conclusively that the bird must have been nesting in the area he visited. There are also musk-deer in the area, but no European has ever obtained them.

The CHAIRMAN: We have listened to an excellent account of a fine piece of exploration. Mr. Kaulback and his companion actually mapped an area of something like 25,000 square miles. If anybody here wishes to do the same it will take them all their time to map such an area in twenty-one months. I think you can all picture to yourselves what is entailed in exploring such difficult country, practically the size of Ireland. Mr. Kaulback and Mr. Hanbury-Tracy achieved that, and what they have done represents new and valuable work from a geographical point of view.

I was glad to see my old friend the river Salween on the screen again. Many years ago I knew the Salween a great deal farther to the south. I remember getting to a village on the bank of the Salween and asking the headman, "How deep is the river?" The headman being in rather a difficulty scratched himself, as they sometimes do in that part of the world when mentally stressed, and replied: "The river is as deep as the hills are high." The Salween which I knew is very much like the Salween about which we have heard to-night. It rushes down through narrow gorges and is a great and impressive river, well worth exploring. We hope that our lecturer will carry out his determination to go one day and find its ultimate source. In saying that I bring my remarks to a close and, in your name and the name of the Society, thank Mr. Kaulback for his admirable lecture.