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station observations and the scientific exploration of the region, whilst the main force is landed in McMurdo sound.

In this case it is hoped that the geographical work of the main party will not be confined to the main southern effort. If, as is anticipated, a large quantity of provisions can be carried to the foot of the great glacier, a sufficient portion, together with the remaining ponies (which cannot be taken up the glacier), can be utilized by a small party to prosecute the further exploration of the mountainous land in a south-easterly direction, and determine finally whether it has connection with King Edward VII. Land, or whether it continues in the direction of Graham Land. Such work should be of great geographical importance, and, together with the exploration of King Edward VII. Land, should throw great light on the nature and extent of the Great Barrier. The general outline of the scientific work of such an expedition is too well known to need repetition, and the advantage of comparative observations in two stations needs no comment. It may be well, however, to lay stress on the advantages which such sciences as magnetism and meteorology will gain by the duplication of observations in known places as being the only means by which secular change and seasonal variation can be determined. Attention might be drawn also to another consideration of great importance. The collaboration between those who have made observations on recent expeditions, and those who have dealt with such observations, should lead to the solution of many elusive problems. For instance, the examination of geological results may point to the exploration of critical localities whence data of the highest importance may be gleaned. Again in meteorology, it seems not too much to expect that consultation will lead to devices whereby some accurate conception of the precipitation and evaporation in various regions may be ascertained. Yet again, the extent to which the study of ice-physics can be carried should now be more surely known, and suggestions as to the prosecution of such study should be more clearly defined. For the better elucidation of these and kindred matters, it is hoped that it will be possible to consult the best expert advice, and secure the formulation of the most detailed and practical instructions. In conclusion, it may be urged that such a programme as has been briefly outlined cannot fail to produce scientific results of high importance, as well as serve a patriotic end, if a proper attention is paid to the details of organization.

THE LOHIT-BRAHMAPUTRA BETWEEN ASSAM AND SOUTH-EASTERN TIBET, NOVEMBER, 1907, TO JANUARY, 1908.*

By NOËL WILLIAMSON.

THE river shown on the maps as the Brahmaputra enters the north-eastern corner of Assam through the Mishmi hills. To the Assamese it is known

* Map, p. 480.

as the Lohit; Tibetans call it the Zayul Chu, and the Mishmi name is Tellu. It is the eastern branch of the Tsangpo or Brahmaputra, and after meeting the Dibong, another branch from the north, the two join the Tsangpo, here known as the Dihong, some 15 miles to the west of Sadiya.

Attempts to trace the Lohit have been made at various times—Wilcox and Griffith in the early part of last century; then Rowlatt, and, in 1869, Cooper. Of these Wilcox reached the farthest point, the Ghalum river. In 1854, the French missionaries Krick and Boury penetrated as far as the Zayul valley, in which Rima lies, but were murdered by Mishmis the same year. In 1882, the great traveller A-K carried his explorations down the Zayul Chu as far as Sama, a few miles below Rima, and prior to this certain influential Khamtis had on three different occasions traced the river from Assam up to Rima. In 1885 an attempt was made to prove that the Zayul eventually found its way, not into the Brahmaputra, but into the Irawadi. The following year the ground was cut from below this theory when Needham and Molesworth followed the river up to within a short distance of Rima. None of these travellers gave us a reliable map of the region, and it remained unvisited for the next twenty-one years.

The first two years after my arrival at Sadiya in 1905 were occupied in making myself acquainted with the frontier tribes generally. Anxious to see something of the Mishmis and make myself acquainted with their country, it was my intention to penetrate into the hills as far as possible with local transport, and, if opportunity occurred, to map in the course of the Lohit as far as the limits of British territory. That I should have been in a position to carry on survey work was due to the great interest taken in the matter by Sir Lancelot Hare, K.C.S.I., Lieutenant-Governor of Eastern Bengal and Assam, and to the valuable assistance given me by Mr. John Eccles, M.A., of the Survey of India.

The names of the tribes inhabiting the hills surrounding the Assam valley as shown on our maps are those by which they were known to the Assamese when we occupied the country. These names are still in general use, but they are neither recognized nor understood by the races to whom they refer. Thus the term "Mishmi" is used for the tribes living in the hills between $95^{\circ} 30'$ and 97° longitudes along the north-eastern frontier of Assam, and the people through whose country the first part of the present journey was made are commonly known as Digaru Mishmis, presumably because they live somewhere near a river called the Digaru. They speak of themselves as Taroañ.* The latter half of the journey was amongst a tribe calling themselves Miju (M'ju).

I left Sadiya by boat on November 28, 1907; and on December 7 a Taroañ chief, with several men of his village, appeared at my camp at Samkha in reply to a message that I wanted him to help me with porters to take me as far as his village, Tashalun. He arrived with a large

* Pronounced Tâ-ro-añ, the *n* being nasal.

following, but it consisted mostly of small children. So it was late before we got away, since to readjust the loads to my diminutive porters' capacity took some time and not a little tact. On December 9, Tashalun was reached after a weary three days' trek up and down the dry stony beds of streams, the only paths in these parts. For the Mishmis, who come down to visit Sadiya only during the winter months, the beds of rocky streams, which are dry at that time of the year, form convenient paths. But for the white man wearing nailed shoes it is a tiring game. The country from 4 miles north of Sadiya and from Sunpura to the foot of the hills is covered with dense forest without a sign of human habitation. Here and there, buried in the growth of centuries, are to be found traces of a kingdom of prehistoric times. Gait, in his 'History of Assam,' gives legends of these ruins dating back to the time of Krishna, but tells us that nothing is really known about Sadiya prior to the beginning of the thirteenth century, when the Chutiya dynasty held sway. The Chutiyas sacrificed human beings as a part of their religion, and this method of propitiating the household spirit is still in vogue amongst the Rangpangs living in the hills between Assam and the Hukawng valley.

Tashalun was found to consist of one house surrounded by a number of granaries hidden in dense jungle. In these parts a few houses, or even one, make a village. The explanation is that quite a large community collects under the one roof and really represents the inhabitants of several houses of the ordinary hill type, a household consisting of wives, brothers, brothers' wives, sons, and their wives, etc., etc.

On the 10th I was ready for a forward move, but the elders of the place arrived to say that the porters were all crying and unable to carry loads that day owing to the terrible hardships they had suffered on the road from Samkha! Of course this report was nonsense, and only a prelude to a suggestion of higher wages. Having satisfied them on this point with a promise of one rupee per porter as far as the Tidding river, we arranged to start the next day without fail. The rest of the 10th was occupied in climbing to the crest of the range overlooking the plains, and from a height of 4700 feet a magnificent view was obtained of the Lohit where it debouches on the plains and divides up into a multitude of channels. The water looked a deep blue, and distance rounded off the edges of the numerous islands, giving the whole the appearance of a toy archipelago. Turning in the opposite direction, I got my first peep into the country of the Taroañ—a rugged mass of hills, the nearer peaks here and there covered with snow, and at the back of all a great wall of snow-clad ranges. On my return to Tashalun that evening, the village elders came to tea and stayed until it was time for rum.

On December 11 we got off safely. About half my porters consisted of women, who are more used to heavy loads than the men. They all carried a fair 40-lb. load, but I found them very slow. They were a

cheery, merry crew, however, and I had not the heart to be very angry when only a portion of my tent arrived in camp that night.

My party consisted of my cook—a Buddhist Magh from Chittagong—and a chaprasi, an Angami Naga. I had to confine myself to these two owing to difficulties in obtaining more porters. The cook, however, was not long before he had enlisted one of the local gentry to assist him in the “kitchen.” Chowna Gohain, a Khamti chief with great influence in these parts, and a son of Chowsam Gohain, who assisted Cooper in '69, accompanied me, and with him came two of his Khamtis. In addition to the transport difficulty, there was that of food. Rice, I was told, was not available in large quantities, and the fewer mouths to fill the better. Our march on the 11th took us over the first range facing the plains at an altitude of 4600 feet, and we camped that night at the Aharo stream (4200 feet), looking down into the valley of the Tidding. Next day we descended to a village called Salungum (2300 feet), where I was told I must stop the night, as fresh porters would have to be arranged for for the next stage, though I had hoped to have got as far as the Tidding river that day. However, there was nothing else for it, and as it commenced to rain later in the day, it was perhaps just as well. The people evinced the greatest curiosity as to the object and direction of my journey, and were firmly convinced that I was making for Rima. As news of any event out of the common travels fast in these hills, the authorities at Rima must have heard about my approach to their border long before I reached it, and had they intended to offer objections to my crossing into their territory, I should have seen or heard something to that effect when at my farthest camp—Sati. But the Tibetans made no sign, and I am pretty sure my journey might have extended to Rima without difficulty or objection. This may not be the case again (unless we find China in possession), as possibly in another few years the effects of the Lhasa expedition will have worn off. But as the orders against British subjects entering Tibet are strict, I had to turn back short of Tibetan territory. The 13th found me scrambling down the remainder of the range to the Tidding river, which was crossed (altitude 1200 feet) a mile above its junction with the Lohit. The crossing was made by a bamboo trestle-bridge, which also served as a fish-trap. The streams running into the Lohit are of no depth in the dry winter months, but the current is too strong to admit of their being forded. So a temporary bridge is run across on bamboo supports, held in place by boulders, the footway consisting of a single bamboo with a very shaky rail on one side. Below the footway, in the stream at the point where the current is strongest, several cone-shaped baskets are fixed to the supports, and all fish swept in are very soon drowned. In addition to this temporary bridge every village has its rope bridge, many of them 300 feet in length for use when the rivers are swollen. They are of the single-rope type, and all goes well as far as the bottom of the sag, but from there onwards

hard work with hands and feet is required to haul one's self up the other side. One variety consists of several canes laid together, with a hoop of cane as a runner, through which the traveller passes his shoulders, and, with his legs crossed over the canes, shoots off head first. The other is constructed of a fibrous creeper twisted into a cable, which is both soft and smooth. On this is a wooden runner rounded to fit the cable, and to it several ropes are attached. The passenger ties himself with these



FIRST VIEW OF UPPER LOHIT.

ropes below the runner in a sitting position, and away he goes down to the centre, from where he pulls himself up the other incline.

On December 14 we climbed a small spur and got into the valley of the upper Lohit, at which I got my first peep from a height of several hundred feet. From here on we practically had no climbing. Occasionally we had a slight rise of a couple of hundred feet or so to get over a spur, but beyond that I was surprised to find how easy the country was. In places we came on long flat shelves along and above the river, which only wanted the undergrowth cleared away to become

an excellent level road. But oh! that undergrowth! It was a mass of thick reed, with a tunnel through it which the people called a path. On December 14 I reached the Tellua river, and on the 15th the path took us close to the edge of the Lohit and past a charming sandy bay called Narra. A rope bridge over the Lohit was near at hand, and the offer of a rupee soon obtained a volunteer to give an exhibition of how a crossing was made. This took him three and a quarter minutes. We then turned up the left bank of the Um, and after a short climb came out on a level piece of country surrounded by hills, where was Kupa (2000 feet), a village of three houses. The headman Kumnu on first acquaintance seemed a bit sulky, but we soon became excellent friends, and next morning he had arranged for porters to take me on to Sameling.

From Kupa the path returned to the Lohit, and we crossed the Delli river at its junction with the Lohit by the ordinary type of rickety trestle bridge. A short distance brought us to a flat piece of ground below Sameling (1650 feet), where we decided to camp. That night we found that we had selected the spot to which the village *methan* were accustomed to return of an evening to sleep, or rather where they did *not* sleep! I wish they had, instead of wandering round during the night poking their noses into everything. Here Vichy, my chaprasi, who had started fever, became much worse; and on the 17th, as no porters had appeared by 9.30, we halted to give him a chance of recovery. This halt gave an opportunity of climbing out of the valley to look at the surrounding country, of which no view was obtainable near the river, except of an occasional peak, the hills on each side being so steep that they shut out everything. A friendly Taroañ took me up a hill called Birakhu, on which had stood Kaisha's village, destroyed by Eden in 1855 for the murders the previous year of the French missionaries, Krick and Boury. The site has never been reoccupied. Birakhu, having lately been cultivated, was fairly clear of trees, and a glorious view was obtained. As one plodded up the steep path the headwaters of the Delli first came into view, and then snow and more snow and more snow. I looked forward to a grand panorama at the top, but at an altitude of 5200 feet the mist swept up from the valleys and all was blotted out. After a time it cleared sufficiently to show me the hills and give me a view of the country in the neighbourhood, but nothing of the great ranges stretching from the north-west round to the north-east. On return to camp that evening I found Vichy worse. The local nobleman who had consented to help the cook in return for his food plus pay had complained in the morning of a stomach ache, the result, probably, of a too liberal diet at my expense. I had dosed him with strong ginger, but evening found him still in pain, and he refused to take more. He expected one dose to effect a magic cure, and if it did not he considered the medicine was not worth taking a second time. An evil spirit had

got hold of him, he confided to me, and the only sure remedy was to propitiate it by sacrificing a white fowl. To do so with full ceremonial three whole days apart from the world were necessary, and therefore he had to tender his resignation. He came to see me a few weeks ago in Sadiya, and was much hurt at my mildly suggesting that "the evil one" had been a surfeit of pork. The custom of shutting one's self off from contact with one's fellows is common all along this frontier, on such occasions as a birth, a death, sickness, or some other unusual occurrence. It is called doing "genna," and takes place whenever the slightest ground can be found for it. There is a story of a certain well-known frontier officer being refused admittance to a house where usually he was an honoured guest. On asking the reason, he was told that the household was doing "genna," as the family bitch had just produced pups. On the 18th I again halted for Vichy. The next day, as he was no better, I left him behind with money and medicine in the house of a headman, who promised to look after him, and so lost one of my only two servants. On the 19th, porters having arrived, we marched to Pangum, crossing the Du river, which is smaller than the Delli, but too broad to be forded in comfort. The Du is the boundary between the Taroañ and Miju tribes, and Pangum is the first of the Miju villages. It consisted of some seven houses, the ruler being Dagresson, a headman of great influence in these parts, a sturdy old gentleman with a pleasant face. On the road between Sameling and Pangum I passed a cane bridge



HALLI RIVER FROM SOUTH BANK OF LOHIT.

over the Lohit, where I found a large party of Mijus waiting to cross, as all the cane hoops had been taken to the other side by previous travellers. On the 20th and 21st I remained at Pangum, while Dagresson made arrangements to get me porters who would go through to the end of my journey and return here with me. I arranged to give each man Rs.10 for the trip. Through porters are a great advantage, as the delay in collecting others daily at each stage is thus avoided.

One day at Pangum was occupied in climbing a hill near the village, from which I was able to fix my position. No view, however, was obtained, as the forest was thick and the hills round me too high. The altitude of the village was found by B.P. to be 2131 feet, and that of the winter level of Lohit below the village, 1756 feet.

At Pangum I found a couple of Tibetans, traders from Rima, bartering Chinese opium for Mishmi teeta (*Coptis teeta*), from the roots of which a decoction is made valued in Tibet and India as a tonic and febrifuge. The opium is soft stuff from which the moisture had not been properly extracted, unlike the hard Indian article, which is much preferred by these tribes. All villages I passed through had patches of poppy, but only in very small areas. The cultivation of the poppy gives the owner much trouble. The field has to be fenced in and constantly watched to guard against the depredations of deer and village cattle, who are particularly partial to the plant. The drug is commonly used by the hill people, Dagresson being an exception to the rule. He was a great trader, and he told me one day, "No, I don't take opium, because it is an article with which I trade. Were I to eat opium, I should be eating up my profits."

The want of small coin gave me some trouble during my journey, as I had not brought enough change. A porter for an ordinary march received 8 annas pay, and when one had to give a rupee between two of them it caused a lot of explanation and worry, not only to one's self, but also to the porters. There is little money in these hills, and a Mishmi remarked to me one day that the only way to divide a rupee between two people was to cut it in half.

Dagresson, shortly after my arrival at his village, produced a couple of letters addressed to "Mr. Nicholl, Rima." Mr. Nicholl was a traveller who was expected to arrive at Sadiya from Rima in 1904, and these letters had been sent up by my predecessor at Sadiya through Dagresson for delivery. Mr. Nicholl had never got as far as Rima, and the letters had been carefully preserved for three years. While at Pangum, Dagresson was particularly anxious that I should go as far as Rima, but on my telling him that it was impossible, we agreed that I should make my way to Walung, a village he described as belonging to himself, though inhabited by Tibetans and close to the Rima border. Tibetans, he told me, resorted in large numbers to the headwaters of the Du river to trade, and owing to the isolated position of the Rima province, I am inclined to think that that portion of Tibet relies to a great extent on Assam for imports through the hill people, who are never likely to give us trouble, lest we close our marts to them.

We left Pangum on the 22nd, and reached Tila (2600 feet), following the Lohit. As Dagresson had not been able to get the full number of porters, it was a question of leaving behind the theodolite and plane-table or my tent. In the end the tent was left with one of the many

Mrs. Dagrassons, who was selected custodian as she was the proud possessor of a padlock on one of her granaries. The mention of the theodolite reminds me that on first entering the hills I explained that it was utilized for keeping my watch correct to time. Some of these people had a glimmering what a watch was, one of them describing it to his fellows as a device which told noon-time even in the height of the rains when the sun could not be seen for days. This explanation allayed any superstitious fear which may have existed in their minds, and after that I was frequently asked to set up the "time maker."

At Tila I took up my quarters for the night in a Miju house. Things



MIJUS AND TIBETAN TRADER AT SATI.

were not made pleasanter by the cook having to use the fireplace alongside my bed as a kitchen. Culinary operations always cause great interest amongst savages, and consequently the smell of Miju combined with the smoke from the kitchen fire was a little overpowering.

The Halli river (2075 feet) was crossed on the 23rd near its junction with the Lohit, and we then suddenly entered a country covered with pines. From here onwards the rapids of the Lohit became more frequent and resembled small falls. The upper Lohit is nowhere navigable. In fact, it is possible only with great difficulty to get small "dug-outs" as far as the Brahmakund. The night of the 23rd we spent in the forest near the Sa stream (2580 feet), and again out in the open on the 24th at the Ma Ti (stream), as there were no villages at

hand (2580 feet). At the Ma Ti a crowd of people came from Chang-gu, on the other side of the Lohit, to see me, bringing presents of fowls and eggs. Chang-gu is the village from which Cooper turned back to Assam in 1870. As it was Christmas Eve and cleanliness is next to godliness, I had to cast conventionality to the winds and bathe in front of my bonfire surrounded by an admiring circle. After leaving the Halli river no large streams like the Delli and the Du are met with on the right bank. From here the large streams which feed the Lohit flow in from the left bank.

On Christmas Day we reached Wanung (2350 feet), a village with one house, which was found empty on arrival except for an idiot child. The owners were considerably surprised when they came in later to find us in occupation and making ourselves quite at home. The road ran in many places over the boulders in the Lohit bed, and the going was extremely bad. The boulders were enormous, and a slip down between them would have meant a broken leg. Halfway to Wanung we got a view up-stream of a long stretch of the Lohit, with the Ghalum flowing into it in nearly the same line. From a distance they looked one river; a closer view, however, showed the Ghalum to be less than half the size of the Lohit. At the junction of the two rivers, which we passed just before reaching Wanung, the Lohit makes a bend of close on a right angle and narrows from 100 to 60 yards. The river is then a constant succession of rapids and small falls. December 26 found us making for Sati, the path as usual running over level tiers well above the river, varied by occasional drops to those awful boulders. The scenery was very grand and wild—great steep spurs studded with pines falling to the Lohit on either bank, and a foaming roaring mass of water cutting through the centre of the picture. Sati was not reached as expected on the 26th, as a halt for the night was made at Dagresson's suggestion in the forest near the Klang Ti (3020 feet). Sati could have been reached that day, but as an influential Miju lived there, etiquette demanded that my arrival should be announced with due ceremony; a sudden appearance might have clouded the political horizon! So Dagresson went on, and I followed him next morning, arriving at Sati in half an hour. After all he need not have been so particular, as we found the local king, Maiyuonson, away on a trading trip; one of his wives, however, welcomed me and took me in. Chowna, my Khamti friend, shared with me the front room, in which as usual there were two fireplaces. He used to light his fire and have a cheerful blaze; I didn't! The result was that his warm side of the room was always crowded, and my cold end left severely alone, for which I was very thankful at times.

On arrival at Sati, Dagresson again urged my going on to Rima, saying there was nothing to prevent my doing so. Much as I should have liked to, it was under the present orders impossible. Besides,

except for purely sentimental reasons, there was not much to be gained. I had learnt what I wanted to—the attitude of the hill people and the nature of their country—and so had to refuse the tempter Dagresson. It had been my intention to go as far as Walung, but Dagresson had to admit that though he had great influence there, still the people paid revenue to Tibet; so that village was also barred to me. I could see the old gentleman was very disappointed at my decision. However, he packed off his son Tungno to Walung shortly after our arrival at Sati, with orders to kill a cow of his there, and come back sharp with beef and rice with which he wished to feast the party. Tungno returned next day, and the beef was excellent; not that I had anything to complain of in the way of scarcity of meat, as these people go in largely for capons, and a fine bird can be easily got for one or two rupees. Walung is one march from Sati, and it is two more marches on to Rima—the last being a short one. With Tungno came three Tibetans from Walung, who presented me with some eggs and a fowl. They were wild-looking men and very dirty, more so than the Mijus. The authoritative manner in which Dagresson talked to them struck me particularly, and I fancy the Rima people look with a certain amount of awe on the inhabitants of these hills. I remained at Sati during December 28 and 29, and fixed my position with theodolite and plane-table. Dagresson, who was doing the honours of his country, seemed to think a return journey to Pangum by the same route a waste of time. “If you won't go to Rima, and have only come to see the Miju country, see as much of it as you can. Cross the Lohit here and travel back to Pangum along the other bank,” was his suggestion, which suited me in every way.

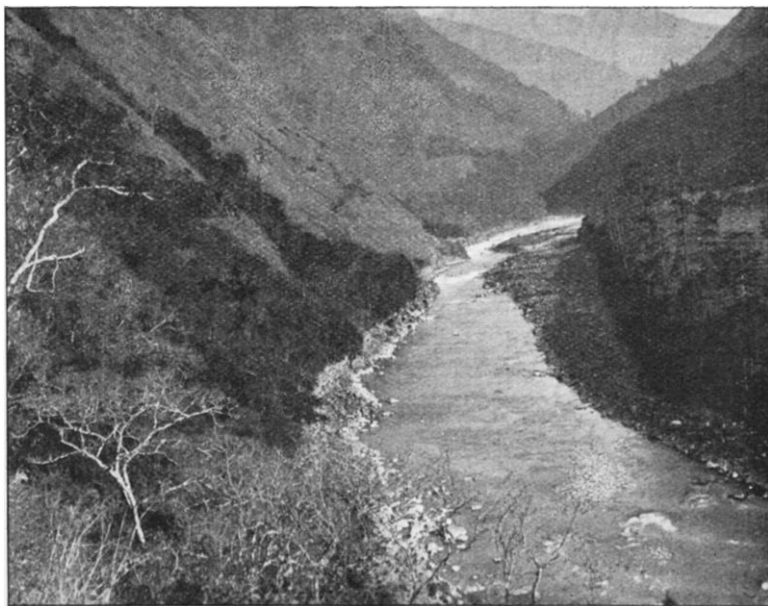
While at Sati I climbed a peak to the west of the village, and at an elevation of 6000 feet had a fine view to the north-east and east, only spoiled by a haze through which one could see no great distance. The great snowy range to the east, commencing north of the Khamti Long, stretches away in about long. 97° to the north, and curves round towards the Lohit and Rima, being in places 15 to 20 miles distant, and forming the divide between the Lohit and the Irawadi. A Miju of Sati, who came up the hill with me, explained that due east on the other side of this range the Kunung river took its rise, and, running south, entered a country “where Sahibs live.” By this he meant Burma, and was referring to the N'Mai Kha. “Kunung” is the name by which a tribe occupying the hills to the north-east of the Khamti Long is known. Another tribe, known to the Khamtis as Kinung, has its habitat between the Kunung country and China. The Khamtis report the Kunungs to be decent, quiet folk, but speak of the Kinungs as a warlike, turbulent people who dress like Tibetans. At Sati I met another Tibetan trader from Rima. He seemed to think I was on my way there, but appeared quite indifferent. The position of Sati was found to be lat. $28^{\circ} 1' 3''$ and long. $96^{\circ} 54' 2''$.

On December 29 I commenced my return journey, crossing on a bamboo raft a deep pool of the Lohit where there was little current. The river here was about 60 yards wide. At my crossing-point at low-water level a B.P. observation for the height of the Lohit gave 3186 feet. A-K gives the elevation of the Lohit at Rima as 4650 feet, a drop to Sati of about 1500 feet. This is a good deal for the distance, but, as I have already said, the Lohit here descends very rapidly. Another B.P. observation taken at Shirong gave 2688 feet, a fall of 500 feet in 9 miles. The difference between flood and low-water level is 35 to 40 feet; on the Dihong (Tsanpo) the difference is 55 feet some 10 miles before it enters Assam.

Our camp on the 30th was amongst charming surroundings. A flat piece of ground covered with dry bracken in a pine forest about 80 feet above the Lohit, and a clear hill stream alongside; a clean smell in the air, a great bonfire of pine logs—one sighed at the thought of a return to civilization and all its worries—and round me a crowd of Mijus, very savage and very dirty, but withal merry and willing, watching me eat my dinner with the greatest interest. The Miju and other so-called Mishmi tribes compare in manners most favourably with the Abors. It would be impossible with the Abor to allow him near one at meals. Out would go his paw to seize anything new to him, and he would be annoyed if one objected. On the 30th, after leaving Sati, I asked Dagresson to join Chowna and myself at lunch by the wayside, the *pièce de résistance* being a capon presented me by my late hostess, Maiyuonson's wife. Dagresson declined the capon, but asked for some bread, as he was hungry. It appeared that Maiyuonson was his father-in-law, in whose house he could touch no meat; nor could he after he had left the house eat any meat which had come from it. My bread had no connection with Maiyuonson, and so he could eat that. A curious custom, and calculated, I should imagine, to discourage a prolonged visit by a Miju to his father-in-law!

On December 31 we passed through Kraw, a village belonging to the Lamat clan of Mijus. The Lamats live on the left bank and up the Ghalum, which was crossed by a fishing-weir near its mouth. We halted close by on a level plain of short grass under the Miju village of Shirong. This is about the farthest point reached by Wilcox in 1826, owing to the refusal of the Lamats to let him proceed past the Ghalum. After dark I took observations for latitude with the help of Chowna, who held the lamp. It was bitterly cold, and poor Chowna must have been glad when it was over. He was not very enthusiastic on star-gazing in a wintry wind. The Shirong men were all away at Sadiya buying cattle, but soon after our arrival the ladies of the place appeared with presents of fowls and eggs. It is here that the Lohit makes its great bend from north to west, the latitude being $27^{\circ} 53' 5''$ and longitude $96^{\circ} 53' 7''$, the altitude, as I have already said, being 2688 feet. On

New Year's Day we passed along above the Lohit, over a very fair path to the La Ti (2400 feet), a river about 30 yards broad. Crossing it, we struck up a steep hillside, and, after rising 1300 feet, found ourselves on a big open plateau between the hills and the Lohit, about three-quarters of a mile broad and 4 miles long, covered with short grass. On it were dotted here and there a number of houses, each surrounded by their own granaries and bamboo clumps. All was so different from what one had been accustomed to. Instead of being close to the Lohit surrounded by dense forest, we were up high on rolling downs well away from the river. The plateau generally, as well as the village, is



THE LOHIT AFTER IT MAKES ITS GREAT TURN FROM SOUTH TO WEST.

called Chang-gu, the headquarters of the clan called Malu by the Taroañ and Peri by the Mijus. It was from here Cooper turned back in the seventies. The story told me at Chang-gu was that the Tibetans, hearing of Cooper's intended visit to Rima, sent word to the Lamats and Malus not to let him through. The Tibetans gave out that if anything happened to Cooper, these clans would be held responsible. This frightened the Malus in case of any misfortune befalling Cooper, and they objected to his going forward. So he had to turn back. It is quite possible the Tibetans did honestly think that harm might come to him amongst the Mijus, and that they themselves might be held to blame. There is little doubt, I think, that the Rima people did have,

and probably have to this day, a dread of the wild Miju. Take the case of A-K. The Tibetans had no idea who he was, and appear to have acted solely with a friendly object when they warned him about the perils of the route between Rima and Assam. The head Tibetan responsible for Cooper's return sent him a present, I was told, of a Tibetan mastiff and a sword, with the message that as he had now seen Tibetan specimens of both, there was no necessity for him to proceed as far as Rima itself. Chang-gu (3700 feet) is marked on maps as Prun, which name nobody recognized. It may have been a mistake for Peri, the Miju name of the clan.

At Chang-gu I saw an animal much like a highland bull. It had been purchased at Rima, and had a thick, shaggy black coat, long slender horns curving forward, then turning back, with sharp points, a tail thick and short, with tail-hairs about 18 inches long; height at the withers (which were not high) 12.1 hands. The Mijus called the animal *chula*, the Tibetan name being *dzu*. It is a different species from the ordinary Tibetan cattle called *man-tsu* by the Mijus, and *lor* by the Tibetans. The price paid for the animal had been three Assam silk cloths, or about 30 rupees. These cloths and musk-pods are the articles principally taken by the Mijus to Rima for barter, 10 rupees a tolah being calculated as the value of the latter.

In Chang-gu I came across a couple of Tibetan traders. They came one day to the house I was putting up in, solemnly sat down close to where I was writing, and after gazing on me for half an hour, got up and walked away without a word. I trust I met with their approval! I remained at Chang-gu on January 2 and 3, 1908, and climbed a hill (5300 feet) to the south-east. The Chang-gu plateau lay at my feet to the north-west, and to the south I looked down a sheer drop of nearly 4000 feet into the La Ti. The haze was very thick that day, and I could only get occasional glimpses of the great snow-barrier between the Lohit valley and the Khamti Long to the south and south-east.

The Mijus bury their dead in a suitable spot near the house. A child is buried at once, but the corpse of an adult is kept in the house from two to four days. The length of time intervening between death and burial depends on the wealth of the deceased—the wealthier the man, the longer the period. The reason given me was, "A rich man has a bigger house and more property in it than one poorer. It is a greater wrench for the spirit of the rich man to part for ever from all his belongings, and consequently we let his body remain in the house as long as possible to please the dead." A month or so after burial, when the deceased's relations have had time to prepare for it, a feast is given to the village. The grave is then opened, and the remains are burnt, the ashes being left untouched.

My stay at Chang-gu came to an end on the 4th, when I continued my homeward journey, reaching the Gam stream that day. *En route*

we met a party of Mijus, carrying great loads of pork. They proved to be a bridegroom and his friends off to Chang-gu to fetch the bride, and were taking the wherewithal to feast her relations. Dagresson failed to arrive that night in camp, and his son Tungno reported that papa was sleeping peacefully on the road, having been overcome by the many stirrup-cups he had drunk with the local kings of the Chang-gu plateau. He arrived next morning, looking bedraggled and bleary-eyed, but a drink of hot tea made him look more himself. Tea I found very much appreciated by all these people, and I am not sure that they do not prefer it to rum. The tea, however, they get from the shops on the



TAROAÑ.

frontier is vile stuff and expensive. On my showing the Tibetans at Pangum some of my tea, I was told that only the wealthy classes at Rima drank it in that form.

The cold at our camp of the 4th was very bitter. Next morning at dawn the thermometer registered 29° Fahr., and it must have been a good deal lower during the night. The whole of this valley in the winter has a damp cold temperature, and this is especially the case on the left bank, where, owing to its low declination in December and January, the sun is shut out from many places by the height of the hills to the south. All along the banks pine trees lie rotting. My suggestion

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to float down logs to Sadiya, where there was a market for them, met with all sorts of objections as to its impossibility. The hill savage is very wanting in initiative, and the idea will not catch on until some outsider leads the way. On January 6 I recrossed the Lohit to Pangum, the bamboo raft being worked by one of the Tibetans whom I had seen there in December.

The spectators at meals solved a matter one day which had been puzzling them for some time. "What is that brown stuff the sahib breaks up and drinks with hot water?" One brilliant mind at last declared it to be *kaning* (opium).* Cadbury's chocolate accused of being a narcotic!

While at Pangum I measured Dagresson's house, which was 252 feet long and 18 feet broad. It contained twelve rooms, three having two fireplaces, the rest only one. In addition, there was the front common room with the usual two fires. Numerous doors down one side of the house, and on the other a narrow verandah with exits on to it from each room. The house is raised off the ground about 3 feet, and is made of bamboo with timber supports and a thatched roof. This house is of the ordinary type, but of course few are as large. On my asking Dagresson how many people lived with him, he replied that he really did not know, but would count them up for my benefit. So a long piece of stick was selected, a place on the ground in front of me swept clean; down squatted Dagresson, and after many false starts the census began. The sons living with him headed the list, and after he had muttered each one's name a piece was broken off the stick and laid on the ground: these totalled fourteen. The same process for his daughters, a row of nine representing them, and six more for his wives. He had had many others, he explained quite cheerily, but six only remained to him then. A row of thirteen pieces gave the number of his male slaves, and ten the female ones. Here the stick gave out, and a fresh one had to be called for. His sons' wives came to thirteen—a total with himself of sixty-six. But nothing had been said about his grandchildren, and on my mentioning them the old man groaned with weariness. However, more space was swept clean, and he proceeded to tackle the sum. He made out there were thirteen living with him, but thought there were more whom he could not remember. We had to stop here, as the unaccustomed mental exertion was telling on the old gentleman. However, he had accounted for seventy-nine persons in his own house. Leaving out the twenty-three slaves, and fifteen for his wives and daughters-in-law, there were forty people under his own roof directly descended from himself. Also he had other sons with their offspring living in separate houses. Of course this case is an exceptional one, but generally tribes on this frontier are very prolific; even among those who

* A corruption of *kanî*, the Assamese word for opium.

are monogamous it is quite common for a woman to bear her husband ten children. The infant mortality from exposure, however, is very great—70 per cent. at the least; and it is an example of the survival of the fittest, from the survivors springing a hardy race of mountaineers.

On January 9 I left Pangum, after an affectionate farewell from Dagresson, Tungno his son, and all their wives. He came in to see me at Sadiya in March, 1908, bringing with him a Tibetan from Rima, but, I regret to say, died shortly after his return home. His influence rendered the portion of my journey east of his village nearly free of all transport worries, usually one's greatest difficulty, and his place will be hard to fill. Tungno his son has succeeded, but unfortunately he has taken to opium, and can never be the man his father was. This reminds me that a report has come down in the last month that the sale at Rima of Chinese opium to the Mijus has lately been put a stop to. I hope this is true, as the habit is doing untold harm in this little corner of the globe.

On January 12 we reached the Tidding river. Instead of crossing we followed it up as far as Pariling. From here we moved to Teronlung (1970 feet), a village on the right bank, and on the 14th crossed the outer range at an elevation of 5922 feet (B.P.), following the path by which the hill people bring up cattle from Assam. A well-graded bridle-path could be constructed over this range without difficulty. That night we camped at the Tiju river (1550 feet) amongst the low foothills, and next day our party was back in the plains.

In appearance and dress there is nothing to distinguish the Miju from the Taroañ. Each speak a dialect which is understood by the other. They intermarry, and both tribes are polygamous, the only limit to the number of wives being the length of the purse. Each tribe is divided into clans, which are exogamous, and marriage is between adults. Though living on the borders of Tibet, no trace of Buddhism is found among them. Their religion is animistic, and consists in the propitiation of the various spirits to whom sickness, failure of crops, and suchlike calamities are attributed. The propitiation takes the form usually of the sacrifice of a fowl or a pig, a small portion being set aside for the spirit, the rest going down the throats of the offerer and his family.

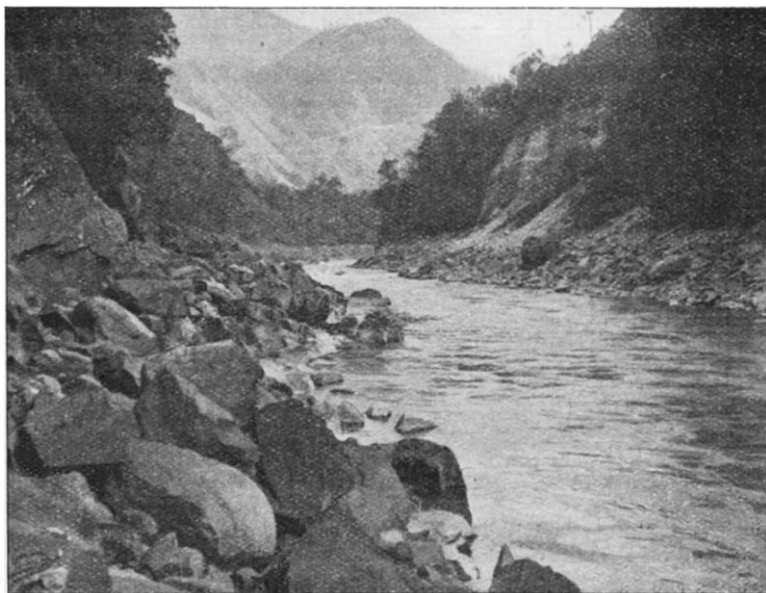
Travelling amongst the numerous tribes which occupy the hills to the east and north of Assam, one is struck by the strange similarity which is sometimes met with between people divided from one another by great distances, and between whom there never can have been any communication in their present locations. The Miju and Taroañ tie their hair on the top of their heads like some of the Lushai clans. Among the "crop-haired" Mishmis we find the men and women cutting their hair very much like the Angami men, and, more curious still, the women wearing the same broad black cane garter below the knee which one meets with amongst the Angami men. The earring of the Taroañ

and Miju women is identical with the large ring of thin brass wire which the Eastern Angami women pass through their ears. But strangest of all is the likeness between the Abors and the Ao, Lhota, Sema, and Trans-Dikhu tribes of Nagas, separated from one another by the whole breadth of the Assam valley and the Brahmaputra. The Abors male and female cut their hair in the round fashion peculiar to these Nagas, and the curious tattoo-markings on the legs and faces of the Abor, Ao, and Trans-Dikhu women are extraordinarily similar, though we find no trace of such marking amongst the tribes occupying the 200 miles of intervening hills. I doubt if many corners of the globe can compare with the region between the Brahmaputra and Irawadi systems in respect of the number of tribes speaking dialects so totally different that no two tribes can understand one another, and yet they spring (except the Khasis and Khamtis) from the same stock. Their languages are classified by Grierson as Tibeto-Burman, and a comparison of common words, as *fire*, *wood*, etc., and of the numerals of such widely separated people as Abors, Aos, Lusheis, and Eastern Tibetans, shows a marked resemblance between the various languages.

As already said, in appearance, dress, etc., there is practically no difference between the Taroñ and Miju tribes, and, unless otherwise specified, any description applies to the two tribes equally. The men let their hair grow long, and tie it in a knot on the top of the head. They wear a small apron in front, a sleeveless coat of a very dark blue, usually ornamented with red thread, open in front, and reaching well down the thigh; a cloth 3 feet wide and 5 feet in length, worn during the day like a Highlander's plaid, at night serving the purpose of a blanket; slung over one shoulder, a large bag, usually of bearskin, hangs in front to the waist, and over the shoulder a strap supports a long knife. Sometimes a piece of coloured cloth twisted round the hair knot completes the attire. Ornaments consist of long cylindrical silver earrings with bell-mouthed ends; some quarter-rupee pieces sewn on a leather strap as a necklace, and a silver charm box of Tibetan manufacture, studded with turquoise, on the chest. The women wear a short little sleeveless jacket covering the breasts, of the same colour as the men's coats; a short under-cloth as a petticoat, and a longer one reaching to below the knee, which is used as a covering at night. They tie their hair behind, and above the forehead wear a thin band of silver fastened under the hair at the back. They wear earrings like those of the men, and some in addition pass a large ring of thin brass or silver through the top of the ear, which is held up in place by a cord across the head. Long strings of glass beads, amber in colour, depend from the shoulders; a number of thin silver rings hang round the neck with a silver charm box like that of the men. All of them, men, women, and children, are great smokers, using home-grown sun-dried tobacco in pipes. The pipes, about 10 to 12 inches long, are of various

kinds, some with silver bowls and mouthpieces, others plain bamboo roots.

These people usually build their villages low down close to the rivers. The want of water prevents their occupying the cooler heights, and as they live at peace with one another, there is no necessity for a strategical site on the top of a hill. They may occasionally have a fight, but they are not raiders or head hunters like the Naga tribes on this frontier. Even in war heads are not taken. All that the victor does, I am told, is to cut off the hair of the slain, which is buried in front of the victor's house. Living at peace as they do, they are constantly on the move, trading between Tibet and Assam. Agriculture and hunting are their other means of livelihood. They are well to do,



BOULDERS ON THE LOHIT RIVER.

and their villages are plentifully stocked with fowls and pigs. Of cattle I saw few, though they buy quite a number from Tibet and Assam, but quickly slaughter them at festivals. There is no permanent cultivation, but a fresh patch of the hillside is cleared and utilized for a couple of years, after which it is allowed to rest for eight or nine years, when it is again cleared, all growth being burnt and worked into the ground. Rice is not largely grown. The staple crop is maize, which they grind into a coarse flour or boil whole. They make from fermented grain a liquor of which they drink large quantities, but I saw little drunkenness.

Their weapons consist of a single-edged knife about 18 inches long,

and a spear. They own crossbows, but the ordinary bow with which they move about is a light one of the usual pattern.

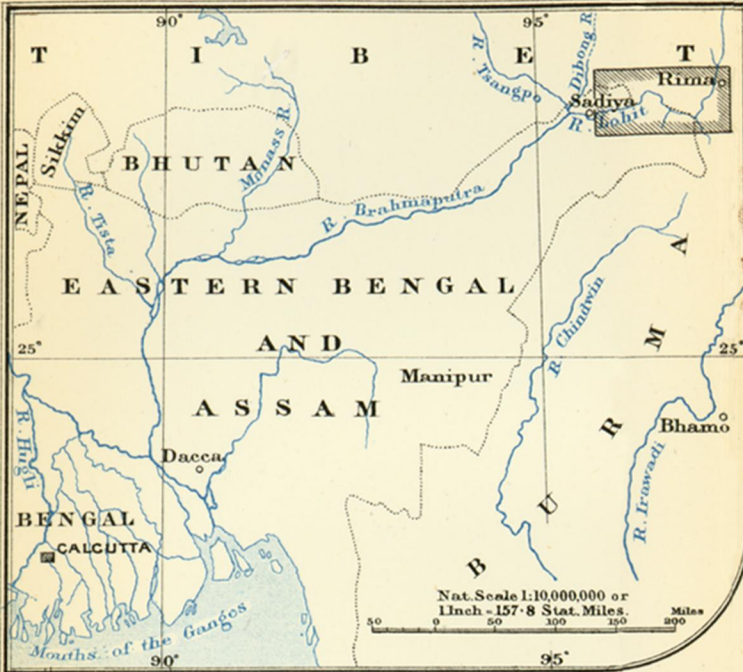
Wandering in the wilds, one is apt to wonder what will be the future of the country—whether in another twenty years it will be in the same uncivilized state as it now is, or whether sufficient reason will arise for opening it up. These hills, it must be remembered, are peculiarly situated. They separate two countries, Assam and Tibet, from one another; the distance from the plains of Assam to the border of Tibet is less than 50 miles in a straight line and 110 by road, the whole route lying through a country occupied by a quiet, peaceable people, who at present look to us as the paramount power, and from whom we may expect nothing but obedience; a people amongst whom no trace of Tibetan influence is found. With the awakening of China, how long these conditions will continue is a subject that I cannot touch on here. An effort to take advantage of the present situation should, I think, be worthy of consideration from a commercial point of view. To connect India with the borders of south-east Tibet by a good mule-track as a beginning would be easy, could be carried out at no great cost, and should attract trade. The attention of the Calcutta Chamber of Commerce was drawn to a trade route from Assam to Tibet over forty years ago by Cooper, who went up to investigate. He met with failure, but in those days the hill tribes were unfriendly, which made all the difference. The country itself presents no difficulties; it is, in fact, a strikingly easy one for a mountainous tract. The highest altitude is met with when crossing the outer (or first) range, and even here we have to face only an actual rise of 4600 feet, after which no high altitudes obstruct the way. The banks of the river would appear specially formed for a road; large flat tiers running parallel to the Lohit, with easily surmounted spurs extending to the river itself, rising gradually from 1200 feet at the Tidding, to 3100 at Sati, an ascent of 1900 feet in 70 miles. It is a natural highway into Tibet, and only requires the hand of man to render it easy and expeditious.

At present trade is infinitesimal. The imports which pass up to Tibet from Assam through Miju traders amount to little, and of Tibetan exports there are none. But would these conditions continue if an easy and fairly expeditious route existed? I very much doubt it. At present south-eastern Tibet, or the Rong, as the country is known, has no industries, because she has no incentive for the development of her resources. She is cut off from convenient marts on all sides. Thousands of maunds of wool are wasted annually simply because there is no market, and that not only wool of the ordinary quality, but also of the costly variety called bashu from which shawls are made. Were communications improved along the natural outlet and the line of least resistance, viz. the Lohit valley, facilities for export would be brought within the reach of all. Once the Tibetan learned that every pound of

wool had a marketable value in Assam, and that Assam could be reached quickly, comfortably, and safely, and that there he could purchase tea, clothing, etc., in return for his wool, commercial interchanges would be assured, and both countries would benefit to a considerable extent. Trade intercourse just now is impossible, as Tibet is a forbidden land to the trader. But a good bridle path from the limit of British territory to Sadiya, a place in close proximity to the terminus of the Dibru-Sadiya railway, would attract the Tibetan to trade with us.

Events have been taking place of late which are likely to increase interest in this section of the Lohit valley. I refer to the Sinitication of Tibet, and if reports in the public press be true, it is only a matter of months, not years, before the Rong, instead of forming a part of Tibet, will become a Chinese province. Assam will then be separated from China by only 50 miles (in an air line) of mountainous country, which can be traversed with ease.

How this is likely to affect affairs it is difficult to say. The Chinese colonist may under orders prevent all intercourse between the "foreign devils" and the Tibetans. Or if left to his own devices, we may find him keenly alive to the advantages accruing from easy communications with Assam. Sir Thomas Holdich, in 'Tibet, the Mysterious,' draws a picture of the Tsangpo valley with a railway and Gyala Sindong with a hotel. Why not, then, a railway running up the Lohit towards Sechuan? A railroad as far as Rima is practicable, but from there the country is difficult. The Tila La and two other high passes have to be surmounted, and the Salween, Mekong, and Yangtse to be crossed—at first sight a formidable array. But then we must remember that the altitudes of these passes do not represent their heights above the surrounding country. The altitude of the country itself is 5000 feet or more, which substantially reduces the height to be encountered. Again, the rivers are not the enormous rivers we know them to be further south, but at the points crossed are confined within narrow limits with a rock formation suitable for bridge foundations. But however costly, were there facilities for quick communication between India and Western China, the possibilities of commercial expansion would appear to be boundless. Given a railway, every ton of our exports for Sechuan would be captured for this route instead of being carried a long sea voyage from Calcutta, only then to commence the difficult journey up the Yangtse. With such improved communications, the resources of Sechuan, one of the wealthiest provinces of China, would develop enormously; with an easy and expeditious route, there is no reason why the Chinese coolie should not seek for employment on the tea gardens of Assam, and so possibly solve some of the present labour difficulties. The prospect of forging the link connecting India with China may be visionary, but, again to quote Sir Thomas Holdich, "it is not more visionary than twenty-five years ago was that of a modern hotel at the Victoria falls of the Zambezi."





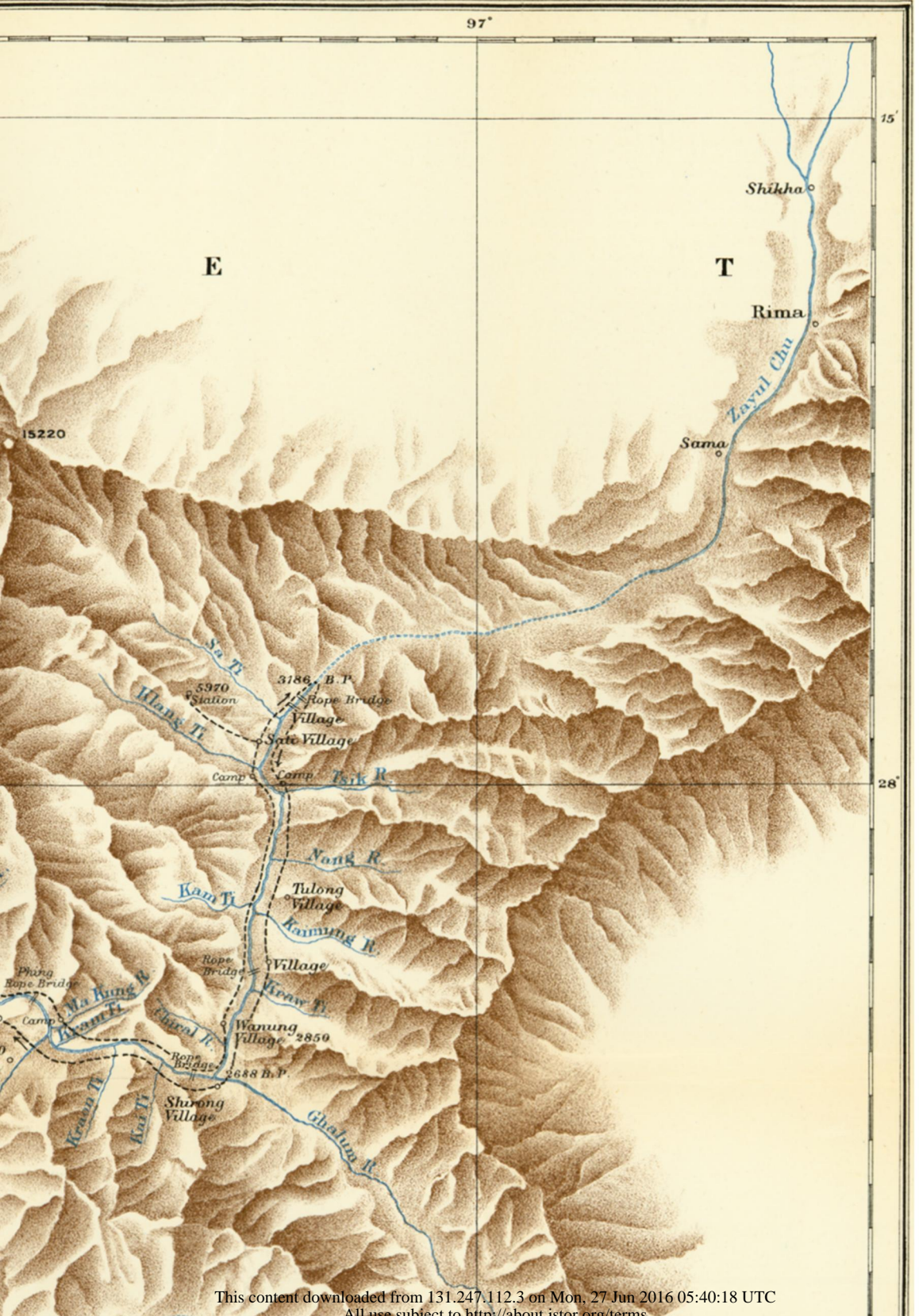
THE LOHIT BRAHMAPUTR
 From a Survey by
NOEL WILLIAMSON

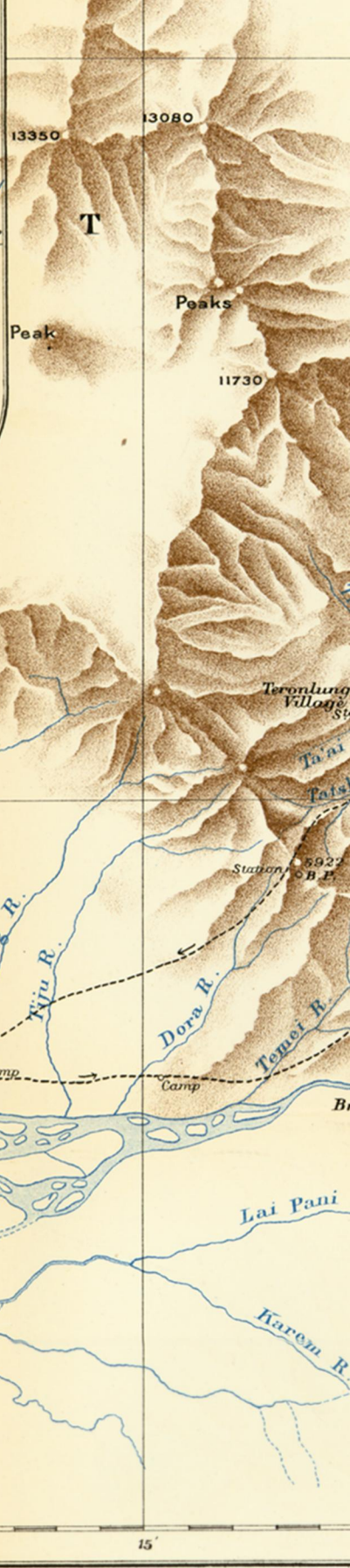
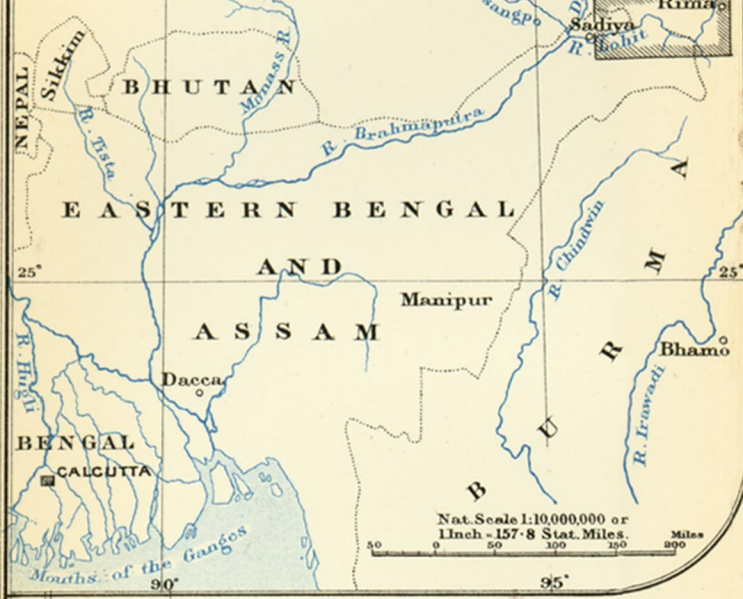
Note
 This map is based on a plane-table survey checked by astronomical observations for latitude made with a 6 inch theodolite. The heights of the peaks are from the survey of India.



T BRAHMAPUTRA
 a Survey by
WILLIAMSON

Note
 on a plane-table survey checked by
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THE LOHIT BRAHMAPUTRA

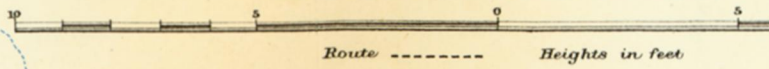
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Nat. Scale 1: 250,000 or 1 Inch = 3.94 Stat. Miles.





T BRAHMAPUTRA

a Survey by
WILLIAMSON

Note
 on a plane-table survey checked by
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 peaks are from the survey of India,
 E. Williamson's route from boiling point

250,000 or 1 Inch = 3.94 Stat. Miles.

0 5 10 Stat. Miles.

----- Heights in feet

0' 45'

