

leading from nowhere to nowhere, so they are for the entertainment of the mountaineer rather than for the use of the traveller. Some of them are none the less well worth crossing, and I for one have found that little passes do not always make little days. Elsewhere in the JOURNAL I have described how I once spent twenty-eight hours assisting at the first crossing of the gap between Manden and Kjærringen, when we had nine hours of continuous step-cutting in the ice-filled gully shown in the accompanying illustration.¹⁹ After this expedition I took an interval of an hour for a meal at Skogadalsboen, after which I had occasion to make a hurried journey over the Keiser to Turtegrö, where I arrived at the end of the thirty-seventh hour of a very active day. As an example of what can be done with better management within a reasonable day I recall a pass-crossing expedition which I made with Peder Bjerk in 1908. We began by going from Turtegrö to the head of the western branch of the Ringsbræ, and then made the ascent of a difficult little ice and snow-filled gully to a gap in the ridge just to the S. of Soleitind. We then went down to the Berdalsbræ and up to the head of that glacier, crossed the main ridge pass over to the southern side of the chain, traversed the upper part of three glaciers on this southern side, crossed back to the northern side by Skagastölsbandet and so back to Turtegrö. We had been away thirteen hours, and in that time had crossed six different glaciers and the five passes between them.

THE SOUTHERLY WALLS OF KANGCHENJUNGA AND THE RATHONG PASS¹ (I.A).

BY HAROLD RAEBURN.

FIRST EXPEDITION.

KANGCHENJUNGA,² 'the Five Great Snow Peaks,' is one of the best known of Himalayan mountains. Its photograph from Darjeeling has been frequently reproduced, and the view of its snows from that rail-head and much

¹⁹ *A.J.* xxv. 706.

¹ Pronounced 'Ratong,' with a very faint aspirate before the 'o.'

² Lit. Kung-chen-dzö-nga, 'snow-great-peaks-five.' I believe its original name was simply 'The Great Snow,' analogous to Mont Blanc, Elbrus, and Ben More.

frequented hill-station is one of the modern seven wonders and glories of the world.

It is nevertheless the fact that even now comparatively little is known of the inner recesses of its glaciers, and the number of parties who have trodden its snows can be counted on the fingers of one hand. No climbing has been done on Kangchen itself, except the two attacks from the S.W. or Yalung side, that of Dr. Jacot Guillarmod in 1905, and the second of the expeditions of 1920.

Reasons political and climatic largely account for the mountain climber's neglect of this magnificent group. A good one-half is in the jealously guarded country of Nepal, and it is only recently that the Sikkim side has been made more easily accessible in the political sense. The physical difficulties of access still remain, in Native Sikkim, practically as great as in the time of Sir Joseph Hooker in the middle of last century, and the cost of an expedition to the snows, involving as it does the employment and feeding of a large number of coolies, has very greatly increased of recent years. This naturally tends to discourage adventurous young officers or civilians on leave or holiday at Darjeeling from attempting any expedition of importance.

In 1920 I was fortunate enough to be able to carry out a project long thought of and planned, viz., to make a reconnaissance of the southerly accesses to Kangchen. The mountain is now reckoned by the best authorities³ as probably the second highest in the world. I had another object, and that was to get as near as was politically possible to the world's highest peak, Everest.

Darjeeling in the rains is not a cheerful or encouraging starting-place for the would-be mountaineer. To compare the conditions prevailing for the first week or so after my arrival with the very worst weather Skye or the English Lakes can show, would give a balance strongly against the Indian centre.

The view consisted of mist, more or less dense, and the roaring of the rain on the roofs—sheet-iron painted red—of the town seldom ceased day or night. At last one morning came a magic change. From my window at dawn, above the billowy clouds which hid all the intervening ridges, rose into the northern heavens vast domes and peaks of purest white, the Kangchenjunga range, smothered in new snow.

³ See Burrard and Hayden, *A Sketch of the Geography and Geology of the Himalayas*. (Calcutta, 1908.)

As the highest ridges are composed of a beautiful pale granite rock, it requires the long shadows of the dawn or of the sunset to define where snow ends and rock begins.

On July 22 the first expedition left Darjeeling. It consisted of two Europeans, Colonel H. W. Tobin, D.S.O., and myself, with Sirdar Gyaljen (Sherpa), cook Kusay (Lama or Tammung), and twenty-one coolies, four of whom were women. These and four of the men were to be sent back when our hill base was gained.

The objects aimed at were the examination of the S.E. outliers of Kangchen, the investigation of possible (?) routes up its S.E. face, and the complete traverse of the Talung Glacier. ('Talung' = valley of the rock avalanches—Waddell.) Very few parties appear to have been on this glacier. The only published accounts I can find are those of the late Sir Claude White⁴ and of Colonel Shawcross.⁵

Neither Graham's party in 1883, or Freshfield, Garwood, and Sella's in 1899, actually descended from the southern approach, the Guicha La (16,400 ft.), on to the glacier.

Our 1920 party started out by the Jongri route. For the first three nights we had the comfortable bungalows, with fine gardens and lovely views, when clear, of Chakung, Rinchipung, and Pemionchi. On the fourth we stayed in a Bhutia farm-house at Tingling. With suitable precautions, such as laying down a sheet of waterproof on the board floor and putting up a barrage from a couple of Keating quickfirers, we passed a peaceful and tolerably comfortable night.

The small son of the house (about ten) was learning to be a Lama. He was most diligent and devout, if a trifle monotonous. For over an hour at evening and again at dawn he chanted from a sheet of torn and dirty paper, inscribed with Tibetan characters, to his admiring mother and relations, and some of our coolies. His mother was greatly pleased when I congratulated her on her son's learning.

Next day, July 26, we crossed the Rathong and climbed up to Yoksun. Here we again put up in a Bhutia house. This time a small private (!) room, partitioned off, was assigned to us. We observed, however, that there were numerous peep-holes, each generally occupied by the bright and wondering eye of a youthful lady or gentleman of our host's family.

We had had a fine day to start with, but heavy rain always

⁴ Sikkim and Bhutan, 1909.

⁵ 'Round Pandim,' *A.J.* xxii. 591 seq.

fell in the afternoon, and the possible camping grounds were very wet and muddy.

From Yoksun a very up-and-down track ascends the right bank of the raging glacier torrent of the Rathong, never very near the river, but the roaring of its unseen waters is like a perpetual thunderstorm. The track passes through a dense jungle of great forest trees and tangled undergrowth. High up in the hollow limb of a giant oak our men pointed out an enormous mass of honeycomb. 'Dang' is the Bhutia word for honey, and they call a bee 'Dangma,' or the honey-mother ('Ma' is really the same as 'Maga,' Greek 'Maia,' our May). Several heavily flooded side 'Chhus,' or streams, had to be crossed, and after refusing to stop at the coolie day-stage, the rock called 'Nybi,' a foul and limited space under an overhanging cliff, we arrived at the place where the Praig Chhu, the eastern branch of the Rathong, is crossed for the long ascent to Jongri. There should be a bridge here, but it was gone, and no possibility existed of crossing.

Our Sirdar thought it might be possible to build a bridge in three days, but I could not agree with him. I had an idea that a passage to the upper Praig Chhu Valley direct, avoiding the extra ascent and detour by Jongri, should exist somewhere on our bank. On questioning the coolies, one, a Nepalese, of the Goorung or shepherd clan (I do not know his name, and he was always called Goorung), said he knew a high route, breaking off from the usual track a couple of miles N. of Yoksun. We took the back track next morning, and led by Goorung, climbed steeply up a ridge running eastwards, just N. of the first big 'Chhu' above Yoksun. The track, overgrown with jungle at first, improved higher. The great oaks, magnolias, and chestnuts changed to rhododendrons, pines, and mountain bamboo, and our E. running spur led to the N. running ridge bounding the watersheds of the Praig and Tangung Chhus.

We passed several bears within smelling distance—I mean of our noses, not Bruin's. The men called the bear what sounded like 'Toom'—the Tibetan is, I believe, 'Tommo.'

The ridge we were now on was called Arralong. It runs up and over the peak styled Longjong (15,500 ft.) on Garwood's map. Always in mist, we skirted the steep rocks of the summit, over open pasture land, with dwarf rhododendron and juniper, and with several bamboo shelters of the mist-dwelling Goorungs. Our highest camp in a little valley beside a huge boulder was 14,000 ft. We then crossed the

western spurs of Jubonu, only very partially seen, and descending slightly past several glacial tarns arrived at Alukthang, called by all our men 'Agluthang.' Similarly, in my experience, all the people near the Kabru massif call it 'Kaboore.'⁶

Sunday, August 1, was an off-day on the Agluthang meadow, covered with myriads of lovely Alpine flowers (18,200 ft.), and luckily the morning was fine. Most splendid views of Pandim, of the glaciers of the Pandim-Kokchirangkang (Dome) cirque, *not* the Kabru cirque, and a glimpse of part of Kangchen's S.E. face through a col, *not* the Guicha La, at the head of the valley.

There is no direct access to Kabru from this valley, the Praig Chhu, the eastern branch of the Rathong. Mr. W. W. Graham's pioneer party in 1883 ascended Jubonu (19,450 ft.) from here, and thought they had made the ascent of Kabru also. Their claim to have done so is quite intelligible when we read Graham's accounts in the *Geographical Journal* and in the *ALPINE JOURNAL*, along with the very incorrect map he was probably using, the G.T.S. map published in 1885, two years after his visit to Sikkim. Graham's *two* parties, for he visited Jongri in March with Imboden, and again in September with Boss and Kaufmann, did the most and best *climbing* which has hitherto been done in Sikkim.

The four peaks they ascended were in every case the extreme southern outliers of the two southerly prongs of Kabru and of the Pandim group, and were mainly rock peaks. None, I think, much, if at all, exceeded 20,000 ft. in height. Certainly Jubonu, which Graham made 21,300 ft., is triangulated nearly 2,000 ft. lower. The peak on the Kabru S.E. ridge climbed by Graham's party in September 1883 is called on the old map 'Kabru E. Peak.' It is the mountain styled by Freshfield and Garwood the 'Forked Peak' in the former's 'Round Kangchenjunga.' It is like Jubonu, a rocky southern outlier. To the eye it appears little if at all higher than that peak, and its summit is distant from the top of

⁶ Lord Ronaldshay, who camped here with his party in late October, obtained the name 'Wanglathang' from his guides, from the word for a medicinal root gathered here by the Lamas. For the Guicha La he got 'Guichak,' meaning 'Locked Pass.' This seems to me the correct name, as it appears evident that this once frequented pass has been closed for many years, most probably by great rock falls in the Talung Gorge; also from the effects still apparent of the great murrain among the Yaks of forty years back.

Kabru's triangulated peak about *five miles* by the connecting ridges.

The peak Graham and Imboden climbed, on the S.W. prong of Kabru, was ascended in *March*, with the snow-line down to 10,000 ft. It does not look much more than 18,000 ft., or about the same height as the peak 'at the western extremity of the range' which he climbed in September with Boss and Kaufmann. In the case of the last peak—one of the Kangla peaks—Graham was justified in his description of its situation, quoted above, as the map incorrectly makes the Kangla the western end. Graham never entered the Yalung Valley, and in fact never crossed the Nepalese frontier for more than a few hundred yards. This is obvious from his dates and times.

Graham was a most enterprising and plucky pioneer, and deserves the greatest admiration and credit for his brilliant exploits. He was obviously greatly troubled by mist, and his Swiss companions were as obviously misjudging Himalayan peaks by using Swiss standards. If we recognise that Graham's basic error was the fundamental one of mistaking Kabru for Kangchenjunga, it is easy from his dates and times and compass directions to understand where he was, and what peaks his party ascended. Mr. Freshfield's journey in 1899, and Professor Garwood's map resulting from this, adopted by the G.T.S. in the 1906 Sikkim map, makes the matter clear.

From Alukthang we sent back the extra coolies, the four women and four of the men, and crossed the Guicha La (16,400 ft.). I admired the manner in which Colonel Tobin and the heavily loaded coolies ascended the last 1,000 ft. of steep loose boulders. Misty on the northern side, and there were no views from the top. We descended to the lovely flowery grassy recess of Tongshyong Pertam, and pitched camp at 14,500 ft. Numbers of the tall and beautiful flower-spikes of *Rheum nobile* were all around.

The morning of Tuesday, August 3, was again fine, and from 15,000 ft. we got glorious views of the S. peak of Kangchen and its S. and E. ridges, also of Pandim's impossible north-western side. Pandim I believe possible by the S. ridge. Colonel Shawcross made an attack on Pandim,⁷ reaching a height of about 19,000 ft. This was in December. All south-eastern aspects of Kangchen's S. peak are most repellent.

⁷ 'Round Pandim,' *A.J.* xxii. 591 *seq.*

A great spur springs off its E. ridge, separating a glacier on its N.E. side from the Talung Glacier below Tongshyong Pertam. This glacier is named on Garwood's map Tongshyong Glacier, somewhat unhappily, as it has no connexion whatever with Tongshyong Pertam on the southern side of the Talung Glacier.

Kangchen's E. ridge sinks to 19,300 ft. at the head of this glacier before rising to Simvu on the E.

The N. side of this col (19,300 ft.) was gained in 1911 by Dr. Kellas with some coolies. Dr. Kellas, with his usual prudence and mountain wisdom, did not risk the descent on the S. side.⁸ As far as we could see, the col does not appear suitable for any but well-trained and booted men. The S.E. spur of Kangchen's E. ridge offers a possible access to the S. peak of Kangchen, but it would be along a very elevated route, involving several nights at heights greater than any camps hitherto made. The highest is that of Mr. C. F. Meade and Pierre Blanc on Kamet in 1913—23,500 ft.

The Talung Glacier, as remarked by Colonel Shawcross in 1900, is not correctly shown on Professor Garwood's or the G.T.S. maps. There it is represented as flowing straight S.E. from Kangchen. In reality it is deflected N.E. for a time by a great spur running N. from Pandim, afterwards flowing almost due E. This great glacier has little resemblance to an Alpine or Caucasian glacier. Such a vast mass of dirt and boulders fall on it from the frightfully steep walls which hem it in, that no ice is visible for miles. One can hardly blame the surveyors who for long refused to recognise the existence of any glaciers at all in the Kangchen group. We descended from here the whole length of the glacier, as, unlike the Zemu and Yalung, the Talung has no side moraine furrows. The going was bad, but numerous medial moraine ridges, some with grass and bushes, even small trees, growing on them, allowed us to thread the labyrinth of boulders covering the glacier, and we pitched camp on a small plot of sand. This was just to the N. side of the ice-caves in the snout, whence issued in two torrents the Talung or Rinpiram River. The height I made 12,200 ft.

Next morning, August 4, we failed to discover a possible crossing of the torrent coming from the Tongshyong Glacier, so were forced to ascend the glacier tongue and cross to the S. or right bank of the Rinpiram.

⁸ *A.J.* xxvi. 114 seq. (with map).

The week following was spent in forcing the descent of the wonderful gorge of the Talung or Rinpíram. The scenery is fine in the extreme, but mist and rain, and our anxiety to get through before the coolies' food ran out, tended to diminish our enjoyment of its beauties. No track exists, and a way had to be hewn through dripping forests, through bamboo thickets, much enjoyed by the bears, up cliffs and down clay and stone banks to the rugged boulders of the torrent bed. The walling precipices rise in some places from 3,000 to 4,000 ft. above the river, and from them leaped countless waterfalls, some completely vanishing in spray. At one place the furious Rinpíram plunges with a thunderous roar into a huge chasm some hundreds of feet deep. We had to construct improvised bridges over the various side 'Chhus.' The coolies behaved splendidly under most uncomfortable and depressing conditions, and carried their heavy loads without complaint. They occasionally jibbed a little at the steep clay river cliffs, but the ice-axes and ropes here came in most useful. The former to cut out steps in the nearly vertical clay walls, the latter to secure the loaded men up and down dangerous places, and to safeguard the crossing on slender, shaky, pole bridges which we had to construct over the various flooded torrents met with.

Our only loss was a severe one to me. My ice-axe, a faithful friend of a dozen years, doubly valued as a gift of the late Colonel Harry Walker, A.C., was swept away by one of these flooded torrents.

Our Goorung proved much the best woodman of the party. Indeed, without him I doubt if we should have got through these tangled jungles. About noon on August 9 our good Goorung dropped upon a newly-cut track, presently this improved, and climbing a shoulder we at length came upon a clearing in the forest with burnt trees and patches of maize. The coolies cried with joy, 'Our lives are saved!' They had finished the last of the rice that morning. A most picturesque aboriginal turned up. He was a Lepcha, dignified and taciturn, but guardedly friendly. His garment was a single sheet of cloth forming a kind of kilt, the upper part thrown over his right shoulder, leaving the left side of the body bare. At his side he wore the straight Lepcha 'ban,' or knife, like a Roman sword. His colour was by no means dark, about that of old ivory, and features quite fine and far from unintelligent. The name of his settlement was, he told us, Tingla. It is not on any map.

Chief Tingla was evidently keen to pass on our hungry-

looking company, and declared he had no food to spare, but that plenty was to be got at the village lower down the valley, called Sakyong.

This is on the 1906 G.T.S. map of Sikkim. He sent a henchman to show us his bridge and the way, and we reached Sakyong in the evening—a Lepcha settlement—where we found food in abundance. Our real difficulties here came to an end. From Sakyong we descended to the Talung and crossed by a long bridge of rotten rattans, supporting in V-shaped slings a couple of loose bamboo stems as roadway.

The crossing of this swinging, dancing, slack rope affair, over the leaping snowy cauldron of the great river, was a first experience to Tobin and myself. Perhaps neither of us quite enjoyed it, but of course we acted, for the coolies' benefit, as though we did. We passed Pontong on the other bank and stopped at Be, where is a Sikkhimese bamboo rest-house. We spent a most interesting night in the Lepcha monastery of Lingthem, returning to Darjeeling *via* Gangtok and Teesta Bridge.

Colonel Tobin, whose leave was up, rode the 60 miles from Gangtok in one day. I followed more leisurely on foot down the most beautiful and not too hot valley of the Teesta, riding the 22 miles up from Teesta Bridge. We were well satisfied with our coolies, nearly all Sherpas, like Gyaljen, our Sirdar. When we first encountered the serious difficulties of the Talung Gorge, we gave them the choice of turning back or of pressing on. One and all declared cheerfully and smilingly, 'It is as the Sahib wills.'

The only two passages I can trace of this trackless upper Talung are Sir Claude White's by the left or N. bank, and Colonel Shawcross by our side, the right, in 1900. Colonel Shawcross's trip was made in December, the dry season, and by keeping high up he was enabled to avoid some cutting. His party took, however, only one day less than ours.

I have said nothing about the leeches. These are unspeakable, and what I should like to say would be unprintable.

SECOND EXPEDITION.

The second Kangchen reconnaissance left Darjeeling on September 2, 1920. Mr. C. G. Crawford, A.C., and the writer being the two European members.

We were greatly disappointed that Captain Minchinton, who has done such good climbing in the N.W. and was with

Mr. Crawford last year in Cashmere, was unable to obtain leave.

Through the great kindness of the responsible authorities of India and of Nepal, I had been fortunate enough to obtain permission to examine this time the south-western approaches to Kangchenjunga, from the Yalung Valley in the latter country.

We therefore chose the direct route to what we understood was the highest village in that valley, Tseram.

Our start from Darjeeling was for several days along the favourite excursion route to the N. by the Singalilla ridge. Thirty coolies under Gyaljen Sirdar were despatched the day before *via* Pemionchi and the valley of the Ringbi to Yampung, to make rendezvous with us there.

The first four stages are in British Sikhim, along an excellent riding road with comfortable bungalows on the Sikhim-Nepalese frontier ridge, and increasingly grand views in clear weather.

With Kusay Lama, the cook, we rode along the ridge, staying at Tonglu, Sandakpu, and Falut. Sandakpu (11,929 ft.) is the station from which the best view of Everest is obtained, but it was not till we were leaving Falut that a break occurred in the rain and mist. It was a marvellous view. From our hilltop (11,800 ft.) we could see dozens of great peaks in Eastern Nepal from Gosaintan (26,291 ft.) eastwards. The mighty throne of Makalu (27,790 ft.), however, almost obscured Everest, which is surrounded and guarded by half a dozen 25,000-ft. peaks. These snows, and the snows round the sources of the Tambar, were of course somewhat remote, and seen over many leagues of the dark forest-clad foothill ridges of Nepal. These showed where the vast gulf of the Arun River gorge separated the constellations of Everest and Kangchenjunga. Much nearer, the Kangchen group rose in icy majesty due N. and N.E., with Kabru the most prominent, Jammu the most striking in outline. The eastern peaks of Sikhim were terminated by the graceful cone of Chumalhari (23,930 ft.) on the Tibet-Bhutan frontier, a view of over 300 miles of the mightiest mountains on the globe. Huge masses of monsoon cloud soon poured up the Arun Valley, and rapidly all views vanished. The horse-track leaves the ridge at the Chiabanzan Col, and we here abandoned our ponies, and with a Goorung porter struck up steeply due N. along the Nepal and Native Sikhim frontier. The track is very indifferent, and we had two days of very strenuous up-and-down ridge-walking. The first night was spent on an eyry-like ledge on the Nepalese

side of the hill of Migu, at a height of 12,000 ft. Next day we traversed on the Nepalese side to the valley of the Yangma— pines here and sheltered; then climbed up steeply to the E., crossing the frontier back to the Ringbi basin and Sikkim by an easy pass, the Ghara La, about 14,000 ft. Fine plants of the curious *Saussurea Gossypina* on the col. We then traversed in thick mist round the sources of the Ringbi River, below another Nepalese pass, probably the Tag La of Colonel Waddell (14,850 ft.). We passed the main source of the Ringbi, a rocky tarn ('Tag Mo Tso,' or 'The Lake of the Tigress'?), but the mist was troublesome. We here met two of our coolies, who had been sent up by the Sirdar to look for us but had instead lost themselves. We did not get into Yampung till after dark, a heavy day. Next day, September 7, we crossed the Dui La, or 'Pass of the Devil' (14,900 ft.), and descended to the most beautiful camp in Sikkim, the lovely pine-encircled meadow of Gamothang, or 'The Level Mead,' about 12,000 ft., with a prattling trouty-looking river running by. This has now only the remains of a yak hut, and is quite deserted, but used once to be a frequented summer station. Next morning we climbed up to right or N.E., to a remarkable lateral moraine running along the valley. The corresponding moraine on the other side has evidently been washed away. The moraine led to a curious region of small glacial tarns and moraine heaps. Evidently this region has at one time been under an ice-sheet. We climbed over a shoulder or pass and descended past the deserted hut of Bogta, honoured by a name on the sixteen miles to inch map of the G.T.S., to a remarkable glacial lake, 'The Lake of the Peacock's Tail.' This is well named, the blue-green waters are dappled with white and other colours, by great boulders lying on the bottom. From here we climbed over to Nepal by the Chumbab La (15,900 ft.). Mist was intermittent. The dominating visible peak is the Kangla Peak (18,300 ft.), streaked with 'glaciettes.' We camped at a big boulder below the Semo La, 'Cold Pass.' Next morning we crossed the La (15,300 ft.), and descended steeply past the remarkable boulder 'Preu g'yab tak,' or 'Monkey-back Rock,' into the valley of the Kangla Nangma. Colonel Waddell⁹ made one of his pioneering efforts to reach the glaciers of the Kangchenjunga group in this direction, and gained the top of the Semo La, but his men would go no farther, for fear of the Nepalese.

⁹ *Among the Himalayas* (1899).

He published a photograph and sketch of the peaks seen from 300 ft. above the pass (15,600 ft.), which are very interesting. I think his identifications of peaks, however, are mainly incorrect. He was too low to see over the 18,000 and 20,000 ft. peaks of the Kangla Nangma cirque to the great peaks beyond.

The valley and river originate from the above cirque, and the stream is the first glacier stream met with on this route. Sarat Chandra Das calls the river the Yangma. The Kang La (pass) to the Rathong on the E. is like the Guicha La N. of Pandim, a side col. In the valley was situated the famous refuge place of Lhatsun Chembo, the patron saint of Sikkim, called 'Namga t'sal,' or 'The Heavenly Garden.'

In Garwood's and the G.T.S. map the name is placed much too high up. The real site is on the glacial flat at the junction of the valley with that of the Yalung.

Crawford and I crossed the stream dryshod by jumping on boulders, but the loaded coolies had to wade mid-thigh. On the N. side we struck a good track coming from the Kang La, which leads over a shoulder to a bridge over the Yalung below Tseram, but the bridge was gone, and we had a stiff fight through jungle and in dense mist and heavy rain up the left bank of the river. We failed to find a crossing and had to camp in rhododendron jungle, very wet and tired.

On September 10 we got over the snout of the Yalung Glacier, about 13,500 ft. The great glacier of Yalung dies out miserably and meanly in a ghastly waste of sand, mud, and boulders, from which sprout numerous small streams to form lower down the river.

The terminal moraines are of enormous size and extent, and the glacier must be nearly double the size of the Talung.

The weather was cold, wet, and misty, no views, and we had considerable difficulty in finding the capital city of this populous-looking valley on the map. It consists of one deserted yak-hut. The monastery marked Dechenrol has been ruined and deserted for about forty years, and the only place now inhabited, by two men in summer, is the middle of three Ramsers. By the way, Tseram is merely Ramser in another form. All throughout Western Sikkim and Eastern Nepal (?) yaks and Bhutias are vanishing, and are replaced for a few months by wandering, bamboo-sheltering Goorungs with their big roman-nosed sheep.

We sent back half the coolies from Tseram. From September 11 to 16 we remained in camp at Tseram. The weather



A. M. Kellas.



C. G. Crawford.

LOOKING DOWN TALUNG SADDLE GLACIER
from Kangchenjunga Camp. (P. 47.)



C. G. Crawford.

KANGCHENJUNGA
from Yalung Glacier. (P. 47.)

was vile, and new snow fell down to 13,500 ft. Tseram I made 12,200 ft.

I made with Gyaljen and a coolie a reconnaissance up the valley as far as the highest ruined yak-hut (*ca.* 15,500 ft.), but saw only vast wastes of boulders—a great Himalayan glacier—and lower rocky slopes covered with new snow. Heavy rain and sleet at our height. Crawford had unluckily caught a chill on arrival here and had to stay in tent. As he was feeling the height and cold, we decided to go down the valley for a few days to more genial conditions.

On September 16, leaving Gyaljen in charge, Crawford, cook Kusay, and five coolies and I left Tseram for the winter village. This was called Yengutang, and was stated to be one long day down, two up the valley. The track, somewhat overgrown, drops steeply down beside the foaming Yalung.

The groves of the pine-like tree Juniper at Tseram soon change to giant pines of two species—*Webbiana* and *Brunoniana* (?), tree rhododendrons, and then deciduous forest trees. We crossed at about 9,000 ft. to the left bank; then to our surprise we climbed nearly 3,000 ft. to the top of the ridge bounding the valley on the S. Here we camped in the usual mist. Next day we descended a long ridge, the lower part very steep indeed, into a sunny valley, forested above, cultivated below. The first maize field was at 7,400 ft. We were hospitably received by the headman of Yengutang, who was sick, and his capable-looking wife, and a good house given us for the coolies. We preferred our tent.

People came from far and near to see us with the usual small presents, and our stock of the simpler medicaments was heavily drawn on. The people said no white men had ever been here before, but our route is partly the same as Sir Joseph Hooker's in the middle of last century. I think, however, he entered the valley, which Sarat Chandra Das calls the Kabilee Valley, lower down by a side glen, and his village Yenkutang is a lower part of the same settlement. The people were mainly, especially the women and children, Bhutias, but a number of men working baskets and mats were strongly hindooised, and much darker than the others.

We were interviewed by several men, who stated they were Nepalese officials, and I showed our permit, and also wrote out for the headman's protection a statement as to who we were, and our reason for being there.

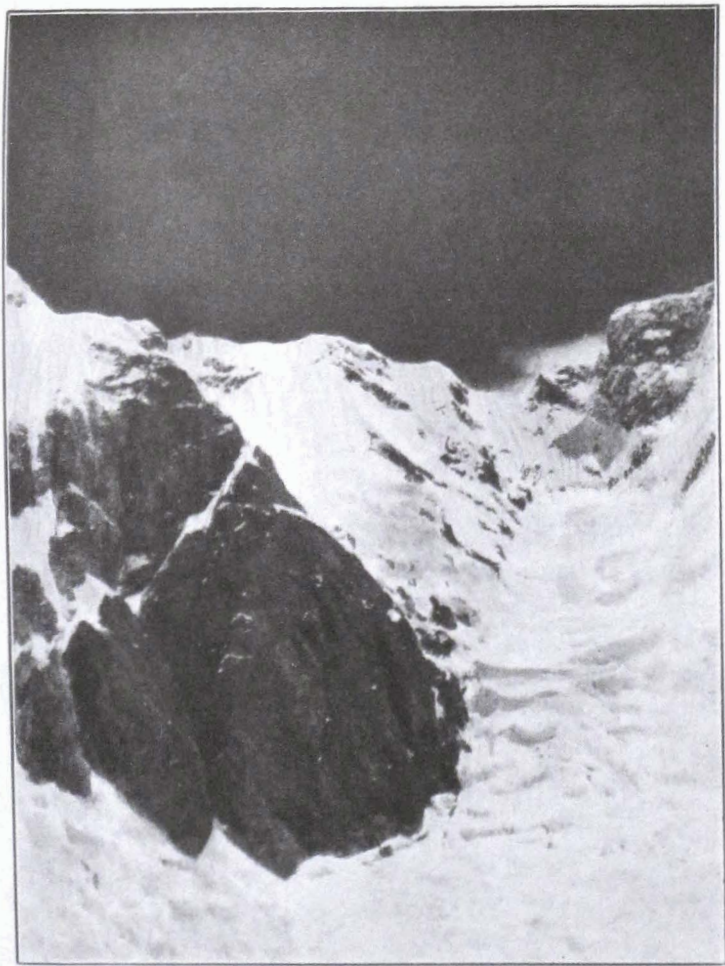
We had a tremendous deluge the night of September 18, after that the weather improved steadily.

We left Yengutang on the 20th, meeting a torrent of the sheep descending from the upper valley. One gain this was, if we lost our chance of fresh mutton, the sheep swept the track clear of leeches. We reached Tseram, in quite fine and genial weather, in a day and a half, and found Gyaljen and the coolies all right, and they had got the extra stores ordered to leave Darjeeling nine days after us. The contract to do this was punctually and correctly executed by Tensing Wangdi of Darjeeling.

On September 23, in fine weather, we started to shift camps gradually up the valley, leaving a few men at Tseram to relay wood. We camped the first night at Upper Ramser, about 15,500 ft. Fine views in the evening of a beautiful sharp peak guarding an evident col at the head of a glacier coming in from the E. This could be no other than the peak styled 'Little Kabru' on the Freshfield-Garwood map. I cannot help thinking this an unfortunate name for such a fine peak, and we propose another, Rathong Peak, as will be seen later it dominates a fine and useful pass between Yalung and Rathong. The maps are very far wrong in the representation of the Yalung glaciers and peaks. Professor Garwood has placed a ? on his map of the glaciers, as his party saw nothing of them except the terminal moraine, some thirteen miles from the source. The Sikhim map has omitted the ?. The only party to visit the glacier before ours was that of Dr. Guillaumod in 1905. From Upper Ramser, as noted, one looks due E. to an obvious col at the head of a glacier pouring into the Yalung from that direction. Little Kabru, or the Rathong Peak, dominates this on the N., but no trace of Kangchenjunga, the Talung Peak, or even of Kabru is visible. The Yalung Glacier, instead of flowing due S.W. from Kangchen, flows nearly due S., then, bending abruptly round almost a quadrant of a circle, flows almost due W. If one reckons it from the Talung Col, then it assumes almost an S shape.

On September 25 we rounded the corner and saw Kangchen's western ridge, partly hidden by a great spur or rib from the Talung Peak.

We camped at 'Tso' camp, about 16,000 ft., after crossing an inflowing glacier from Jannu's western spur. Here we found some old tins and a piece of boot-sole, the only relics seen of the 1905 expedition. On the 26th we crossed the huge ice-hills and threaded the boulders and glacial lakes of the Yalung Glacier to the E. or left bank, pitching tents on a sheltered green recess behind the moraine at about 16,500 ft. We



H. Raeburn.

TALUNG SADDLE
from 20,500 ft. on E. Yalung Glacier. (P. 47.)



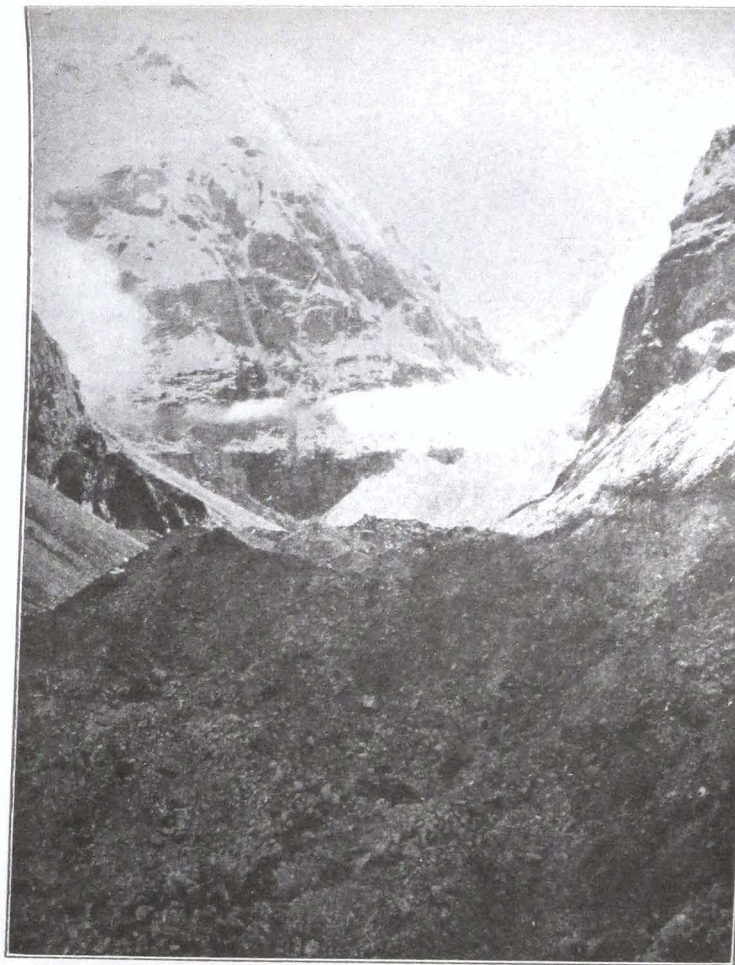
H. Raeburn.

RATHONG PEAK OR LITTLE KABRU.
from W. (P. 47.)



H. Raeburn.

S.W. FACE OF KANGCHENJUNGA
from about 20,500 ft. (P. 47.)
(Showing ice dust of an avalanche.)



H. Raeburn.

THE NEPAL SIKHIM FRONTIER (W. SIDE) AT
HEAD OF RATHONG LA GLACIER
from top of Central Moraine. (P. 48)

called this 'Nao' camp, as a herd of *Ovis nahura*, or Burrhel, called by our men 'Nao,' fled from it on our approach. The great westward-running rock rib from the Talung Peak shut out views of Kangchen from here. With Gyaljen and a few picked coolies we crossed, on the 28th, an inflowing glacier from the Talung Peak and climbed to 19,000 ft. up the rock rib. Splendid, but not encouraging, views of Kangchen's S.W. face and of the Talung saddle (22,130 ft.) rewarded our exertions.

Westwards, the really ferocious peaks of the Yalung ridge thrust vast ice-horns far into the cloudless sky. We camped in a good place but a long way for water, at the lower end of the Talung rib, about 18,000 ft.

Next day we made a reconnaissance of the N. side of the rib and camped at about 18,500 ft. on partly snow-covered débris. Our aim was to try to gain a white mantle of snow which from Darjeeling may be seen to lie across the broad bosom of Kangchen, with a sickle-shaped gorget of rock at its upper extremity.

On September 30, with Gyaljen and three booted coolies, we ascended the now snow-covered and crevassed branch of the Yalung flowing from the Talung saddle, and crossing to the rocks of Kangchen's face, made a camp on snow-covered débris at about 20,000 ft. We sent back the coolies the same day, as our men were too few to relay and carry tents as well. Crawford, Gyaljen, and two of the coolies went very well at this height, the former even taking part of the load of a young coolie in addition to his own.

On October 1 the weather was glorious, although very cold before sunrise. We three prospected up Kangchen for about 1,000 ft., but were compelled to recognise that our European, coolie, and food strength was inadequate to allow of any serious attack.

The Talung saddle looks vicious in the extreme, everywhere defended by overhanging masses of ice, and the beautifully grooved accordion-pleated snow skirts of the upper slopes were a serious warning. The roar of the ice avalanches from Kangchen and Talung seldom ceased for long, day and night. An interesting point noted was that, confirming my experience on Elbrus at 18,000 ft., we found steep rock-climbing at nearly 21,000 ft. considerably less trying than hard steep snow. We spent another night at the high camp and descended easily, reaching Ramser yak-hut in two days.

THE CROSSING OF THE RATHONG PASS.

My original plan of campaign embraced the search for a direct not too difficult pass from Rathong to Yalung. This I felt sure must exist. Our discovery of the evident col under Kabru's S.W. shoulder encouraged an attempt to convert this into a 'La,' to which the name of Rathong might apply.

We instructed Gyaljen to take the camp and bulk of the coolies back to Pemionchi by our outward route, there to await our arrival.

On October 4 Crawford and I, with two light tents and three picked booted coolies, of whom the best was a cheery sturdy lad called Durgi, left Ramser for the attempt. We had four days' provisions, extensible to five or six.

We got off at 3.30 A.M., and after walking about half a mile up the Ramser meadows, climbed the high moraine of the Yalung, and managed with some pickaxe work to get the coolies safely down the 150-ft. rubble cliff on to the glacier. By dawn we were over.

Very fortunately the Rathong Pass glacier is provided with a most even and convenient high central moraine, remarkably good going along its narrow top.

Very fine views at dawn of Jannu and of many leagues of the Nepalese foothills, now freely sprinkled with the first fall of winter's snow. Several small glaciers poured into ours from either side. These do not disturb the central moraine. From 9 to 10 we halted, boiled tea with water from a convenient ice-pool, and rested just below the steep rise to the pass. The coolies did not like the look of this. A small ice-fall seemed almost to block it, but on the left or N. we could see an easy passage existed over avalanche débris from the very steep slopes of the peak (Rathong Peak) on the N. Luckily also I observed the footmarks of a snow-leopard, which greatly encouraged our men, and they followed cheerfully thereafter. We easily evaded the ice-fall, and at 11.15 gained the 'Laptse' or pass-top, and on being told 'Nepal-Sikhim,' our boys shouted and laughed in triumph over the croakings of their comrades and the local men.

The E. side opened on the enormous glacier cirque embraced by the two southerly ridges of Kabru. The descent looked very easy, but our men, who plunged ahead with joyous shouts, soon began to sink past mid-thigh. There was a lot of soft new snow here, and it was only after many hours of heavy toil, and being forced for the first time to apply the 'whip' to our tired men in the shape of tots of cognac, that we

succeeded in reaching grass at dusk. We pitched camp beside an infant feeder of the Rathong River, with good turf and juniper bushes. A heavy shower of snow at night. On the 5th we descended to a deserted yak station on the right bank of the Rathong, and crossing with difficulty ascended an excellent path to a col S.W. of Kabur, about 14,500 ft., and descended the other side to Jongri, 13,140 ft.

We camped the same evening in tall forest at Bakhim, and next day crossed the Praig-Chhu by a good new bridge and descended (?) the terribly up-and-down track to Yoksun. On the 7th we made Pemionchi early in the afternoon.

Gyaljen arrived, ahead of the coolies, a couple of hours later, greatly astonished to see us there already.

We regained Darjeeling at 5 p.m. on October 9, but some of the coolies did not turn up till two days later. The track from Jongri was found greatly improved by the Sikhimese authorities in view of Lord Ronaldshay's visit to the Guicha La, carried out at the end of the month most successfully.

The Rathong Pass, with less or harder snow, is an easy pass in an Alpine sense. There are no cairns, except ours, tracks, or marks on it. It seems possible, however, that it may have been crossed during the early migrations of the Tibetans into Sikkim. There is a curious tradition among the Bhutias of a wonderful country of riches and eternal youth at the head of the Yalung Glacier. This tradition is quoted in Mr. Douglas Freshfield's 'Round Kangchenjunga,' from the narrative of Baboo Sarat Chandra Das. The Baboo passed by Tseram and Khunza, and as I read his description, crossed the Jongson La into Lhonak, and the Chorten Nyma La into Tibet. He tells of the tradition of the magic country of Na¹⁰ Pemathang at the head of the Yalung Valley, where dwelt in peace and plenty seven Lepcha couples. It may be that Tibetan immigrants, keeping above tree level, have crossed from Khunza to Ramser by the Lhapsong La. Then the tempting-looking opening on the far side of the Yalung Valley led them over to the Rathong Valley, there to discover a rich land only inhabited by a few Lepchas. There are evidences, in ruins and ancient cultivation, of a somewhat extensive Bhutia summer settlement at the foot of the track leading over to Jongri by the Kabur Pass.

Our track southward from our pass led us past the foot of the great glacier, really almost one stupendous ice-fall nearly 8,000 ft. high, up which the two plucky young Norwegians, Rubenson and Monraad Aas, conducted a body of coolies to

¹⁰ 'Nga' = five (?).

a great height, and by themselves very nearly gained the top of the *north-east* or untriangulated summit of Kabru. It is most probable their height was 23,900 ft. at least. There is no perceptible difference in the height of the two chief peaks of Kabru. It seems possible the N.E. is the higher.

We also passed very near the site of the camp whence another very plucky climb was made in March 1883 by Mr. W. W. Graham, with Imboden as sole guide. This is a fine sharp peak, mainly rock in summer, and looks about 18,500 ft. high.

THE LATE MAJOR BERNARD HEAD'S EXPEDITIONS IN
THE DART DISTRICT, NEW ZEALAND.

By H. F. WRIGHT.

ON November 23, 1910, Major Head,¹ with the guides J. M. Clarke and Alex. Graham, made the first ascent of Mt. Aspiring, the highest mountain S. of the Haast Pass, which had defied all efforts of climbers to scale it.

This success formed a fitting introduction to a comparatively unknown Alpine region of the Southern Alps. The wonderful array of unclimbed peaks and unexplored country visible from Aspiring deeply impressed Head's party.

In December 1911, with the guides J. M. Clarke and J. P. Murphy, Head crossed from the West Matukituki over a high saddle, which he named the 'Cascade,' on to the Upper Dart Basin. This expedition made the first descent from the Cascade down the Dart River to Paradise. The extent and character of the Dart Glacier (inadequately shown on existing maps) determined Head to put in a summer in this region.

On January 1, 1914, Head arrived at Paradise. He collected ample stores, and had with him the following party—guide J. M. Clarke, the late Lieut. C. Ferrier (killed at Ypres, November 1914), and F. Leonard, Government Surveyor. The work of the latter was to survey the Dart Glacier and correct existing maps.

Head established a camp at Chinaman's Flat and waited patiently for the Dart River to fall, but it was January 26 before fording was possible.

¹ Major Head was killed in Gallipoli in 1915.