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THE MOUNT EVEREST EXPEDITION OF 1922

*Read at the Joint Meeting of the Society and the Alpine Club,
16 October 1922. Map follows p. 452.*

I. DARJEELING TO THE RONGBUK GLACIER BASE CAMP

Brig.-General the Hon. C. G. Bruce, C.B., Chief of the Expedition

ABOUT the beginning of the last week in March the whole of the members of the Mount Everest Expedition collected at Darjeeling. Previous to this the Staff of the Expedition had been in Darjeeling for nearly a month to make all the necessary arrangements, select the porters, and to receive from Calcutta the large amount of supplies which had been previously forwarded from England. On our arrival we found that our agent, Mr. Weatherall, had carried out the directions which we had previously sent him in the most efficient possible manner. Not only had he our large stocks of local supplies, grain, etc., all ready for transport and beautifully packed, but he had collected from the surrounding district at least 150 Bhotias and Sherpas from whom we could select our porters. He had also a large selection of cooks ready for us to choose from. All stores, as they were received in Calcutta, were forwarded by the Army and Navy Stores direct to Kalimpong Road, where they were received by one of our transport officers, Captain Morris, handed over to the contractors who had undertaken the transport of the Expedition, and forwarded by them with the greatest possible speed to Phari Dzong. Naturally this took a good deal of arranging, as the stores arrived in no less than four different consignments, the last consignment of all, the oxygen cylinders, actually arriving in Calcutta on or about the date that the Expedition left Darjeeling. Luckily, owing to the first-rate arrangements made for all the clearing and forwarding of our stores, there was no delay on the arrival of the ship in getting the oxygen to Kalimpong Road.

Although we had a great deal of work to do in Darjeeling itself, it was really most interesting. The selection of coolies alone was of great interest. We chose seventy-five of the best men we could find; they were put into the hospital for three days to be under the observation of the civil surgeon; the pick of them were re-selected on his report. We also had to select an interpreter, and we found a most excellent youth in

the person of Karma Paul, a Christian Tibetan. He was a lad who had done no work for Government previous to our engagement, and was rather a simple person filled with a quaint little vanity of his own. His one idea in coming with the Expedition, beyond the fact that he wished to travel in Tibet, was to get a good report from it with a view to permanent employment afterwards. He was very light-hearted in his outlook. When he was Karma he was a Buddhist, and received blessings from every Lama he could get near to. When he was Paul he was a Christian. Otherwise he did very well for us, and never lost his keenness right to the very end of the expedition. There was also the sardar who was employed by last year's Expedition. On this occasion he played up and did very well right through the expedition. However, a great number of his duties as sardar were unnecessary, as they were much more easily carried out by the officers of the Expedition themselves. He went as general utility man to a large extent, but was also in charge as sardar of Col. Strutt's party when they returned post-haste from Rongbuk to Darjeeling in June, and on that occasion he received a first-rate report, both from Col. Strutt and Dr. Longstaff. By this it must not be thought that he was a saint. Among his many backslidings he committed two sins of the first class ; for one of which there was some excuse, for the second of which there was absolutely none. The first crime consisted in his having poisoned a well-known Lama at the head of the Dud Kosi. The second—an entirely unforgivable crime—was that he lost my ice-axe within four days of leaving Darjeeling.

Among the other followers of the Expedition were the cooks, a most important part. Having fixed on the men we thought were the most likely, my cousin and I took them out into the mountains and tested them as well as we could. I do not think there was any complaint whatever by any member of the expedition of the behaviour of the cooks, as will be seen later on, nor, under the conditions, of the quality of the food they gave us to eat ; in fact, they were quite a feature.

We also provided ourselves with a cobbler ; this cobbler has, I think, probably the distinction of being the absolutely thickest-headed person that I have ever met during the whole of my service in India. He did very well considering, his only complaint being towards the end that if he had known what was in front of him he would never have come. We had also a most excellent servant of the expedition called Chongay, whose first duty was the charge of the tents and stores. He did excellent service, and was ready to turn his hand to anything. A Lepcha plant collector was added to our personnel, and I must not forget to say that, owing to the kindness of the Commander-in-Chief in India, Lord Rawlinson, we had four young non-commissioned officers of the 2/6th Gurkhas attached to the expedition.

Before leaving Darjeeling we received a permit from the Dalai Lama authorizing us to travel in Tibet, and directing all his officers to give us

every possible assistance. As the permit mentions Mount Everest by name, I think now is the time to again refer to the name of the mountain. If you will look at the permit you will see that it is quite clearly called Chha-ma-lung-mo. Working this out I found that the Sherpas from the southern face of the Himalaya call the mountain by the name which I had got for it in 1909—Chho-mo-lung-mo, "the abode of the goddess"—which was confirmed afterwards by Dr. Kellas, and later by last year's Expedition; whereas on the north it is known by the name by which it is called in the Dalai Lama's permit. Chha-ma-lung-mo has been translated to me by Mr. Macdonald, the Trade Agent at Yatung, in two ways: first, as "the place of the female eagle," and secondly, as "the place where it is so high that even a bird goes blind when he gets there." I think we can take it that both names—with the small but important difference in the vowels—are in ordinary use.

Before we left Darjeeling, by invitation of the Buddhist Association and the Hillmen Association, all the members of the Expedition, including every one down to the cobbler, were entertained by these two Associations, and there, after much speech-making, we all received the blessing of the local Lamas and Brahmins. This gave the porters a particularly good send-off, and it is possible that their wonderful behaviour owed something to this stimulation. The Gurkha N.C.O.'s were doubly fortified, as they took blessings from both the Lamas and Brahmins, as also did the European members of the party.

A great gratification was a most kind telegram received from His Holiness the Pope just as the expedition was leaving Darjeeling; in fact, I think it arrived the actual day we took train. The telegram was as follows: "May God who lives in the heights bless the expedition."

By the kindness of the Himalayan Railway, the remaining heavy baggage and members of the party were moved round from Darjeeling to Kalimpong Road free. We all went round the Teesta valley in the normal manner, with the exception of Captain Noel, who elected to ride on the roof of the train with his cinema-camera and take records of that wonderful place. The valley could not really do itself justice, as we had had no less than a full month of fine weather, and the hot-weather haze rather obscured and belittled the scenery, besides tending to dry up the gorgeous tropical vegetation and jungle.

From Kalimpong the party broke into two for our journey to Phari Dzong in Tibet. On the whole we had a very comfortable march indeed through Sikkim and over the Jelep La to Chumbi, though we ran into rather rough weather from Gnatong for a march and a half over the pass. We also made acquaintance with the wonderful Chumbi mule transport. These mule-men work regularly seven months in the year carrying wool from Tibet down to Kalimpong, and they thoroughly understand the art of loading and travelling the mules. Not only that, but they march at the most astounding pace. The continual hard labour, I am afraid,

rather makes sore backs, but this is also largely due to the enormous and continual ascents and descents between a very cold climate and a very warm one.

The march through Sikkim in fine weather is, at any rate, a wonderful experience. After the very deep tropical valleys, it is very strange to emerge at Gnatong into what one might almost describe as uplands, from which more or less minor peaks rise, the whole country giving one quite an impression of the Scottish highlands in spring, both from the colouring and from the amount of snow on the mountains themselves. In the Western Himalaya snow lies many feet deep right into May down to a height of 11,000 feet, or even below, but here at the end of March we were troubled in no way by deep snow, and many of the peaks up to 15,000 feet appeared to be almost clear of winter snow. Most of the great amount of moisture deposited on these ranges falls during the summer months, the winter months being comparatively dry.

The descent into Chumbi, as it always is, was very striking. One leaves Sikkim behind and enters a valley which reminds one much more of the west than of the east. At Chumbi itself we were entertained by the Trade Agent, Mr. Macdonald, who accompanied us afterwards up to Phari Dzong. The road from Chumbi to Phari Dzong is again rather different in type, but quite beautiful in its way, and as wild as it is possible to make a forested gorge. It is very striking, emerging from the black and forested gorge of the Ammo Chu (the Chumbi river) on to the bare plateaux of Tibet.

When we were crossing the Jelep La we got a first-rate view of Chomolhari, which is 23,800 feet high, and stands right over the fort of Phari Dzong. It shot up into the air, doing full justice to its real height, and looked enormous. I collected the members of the Expedition who were with me, and I said, in order to encourage them, pointing to the top of Chomolhari: "Your advanced base camp will be very nearly as high as the top of that mountain over there." This seemed to amuse them very much, especially as there were great streamers of snow blowing off the summit.

On arrival in Phari we found all our stores collected, and also the whole of our tents pitched and mended by our excellent tindel Chongay, who had gone on before. The chief business we had to do at Phari was making our first contract for moving our enormous collection of stores by the local transport. Early in the year all Tibetan animals are in very poor condition, and it was apparent that this must be so. Everything was frozen up and dried, and it is a wonder how the animals themselves manage to keep alive at all on the amount of grass to be seen on the hill-side. However, we finally arranged to move from Phari in two days, but we were also obliged to take with us 50 of the Chumbi mules to complete the transport required. Ultimately our transport consisted of some 320 mules, yaks, cows, and donkeys, eked out with 15 or 20 coolies.

In order to save time we had determined to go by the short cut to Kampa Dzong, and contracted with the Dzongpens to get there in four days with 100 animals, 50 of whom were the Chumbi mules, and it was the greatest possible luck for us that we were able to take these same 50 mules. Two hundred yaks were to arrive in Kampa Dzong in six days, and we arranged for them to march with the sardar Gyaljen and two of the Gurhka non-commissioned officers, Hurke Gurung and Lal Sing Gurung, the other two N.C.O.'s being in charge of the treasure chests and marching with the advance party.

We all now collected in Phari with the exception of Mr. Crawford and Captain Finch, who remained behind at Kalimpong to bring on the oxygen. We left Phari on the morning of April 8 in bad weather, which very rapidly degenerated, until the wind was blowing half a hurricane and it was snowing very heavily. After a most unpleasant march of 16 to 17 miles we managed to make a camp, and it was here that we found the great advantage of having kept 50 of our Chumbi mules. The rest of the animals with the advance party drifted in up to ten o'clock at night. The camp was deep in snow, and the cold was rather severe. This was not exactly an encouraging entry to Tibetan travel.

The following day was a really magnificent march, but exceedingly trying. The wind was very high, but the weather perfect in other ways. The road led us over three great ridges, all being part of a great northerly ridge running from the northern slopes of Pawhunri, all these ridges being 17,000 feet above the sea, more or less. It was an exceedingly cold march, and very trying to men and animals. We finally camped under some small cliffs at a place called Hung Zung Tak; animals not arriving again many of them until ten o'clock at night, but the position was saved by our 50 Chumbi mules. We waited the next day, as the animals were completely tired out. This was partly due to the fact that owing to the snow at the last camp there had been a minimum amount of grazing and rest for the animals. The men, too, required cooked food, as no fuel of any kind was available at the previous camp. It was a good test of the stamina of the porters, none of whom suffered, although three on the second march who had stayed behind were benighted and stayed out all night just as they were, without bedding, being retrieved the following day perfectly happy. The running stream by our camp was frozen absolutely solid during the night.

On April 11 we marched to Kampa Dzong, leaving the nunnery of Tatsang on our right, and on our way passing through a great quantity of game. At Kampa Dzong we halted three days owing to difficulty in collecting such an immense mass of transport, and we were joined by Captain Finch and Mr. Crawford, who had had a very rough time crossing the Jelep. The blizzard which caught us on our visit to Phari had caught them on the Jelep, and so heavy had been the snow that it had lain 6 inches deep at Yatung and Chumbi, which are only 9800 feet above the sea.

Every member of the Expedition was provided with a riding-pony, as it was found that continuous walking without rest on these heights was likely not to improve the condition but to exhaust, whereas a mixture of riding and walking would gradually acclimatize and bring them into training. We were most particular also to see that all our porters were well clad and warm at night and well fed, and whenever possible we added to their ration allowance by buying them meat and any other local comforts that could be found.

From Kampa Dzong our road led us *viâ* the fort of Tinki to Shekar Dzong, and this, being over the same country as was travelled last year, requires no particular description. Shekar Dzong is most wonderfully situated and very striking as one approaches it. Shekar, I believe, means "shining glass," and from the white exterior of the forts and town situated on the brown slopes of the mountain it is a very suitable name. At Shekar we found an enormous number of lamas, and I think that the priests were even dirtier, if possible, than at Phari Dzong. If you happen to smack a young lama friendly on the back, say, a flake of dirt falls off. They are perfectly astonishing in their dirt. This, however, does not apply to the Dzongpens or others of position, for in this part of Tibet the Dzongpens wash on New Year's night, and I think—I think—their wives do also.

From Shekar our road led across the Arun *viâ* the Pangla La down into the valley of the Dzakar Chu, thence following that valley up to the Rongbuk monastery in the Rongbuk valley.

Our last march up the Dzakar Chu into the Rongbuk valley was exceedingly interesting. The valley itself is deadly bare and barren, and the mountains are great horrible humps with nothing on them. One suddenly arrives where the valley opens on to the Rongbuk monastery. It is wonderfully new and clean for a Tibetan monastery, and even its lamas in this respect take after the monastery. The Head Lama of Rongbuk was a very interesting character. He is of extreme sanctity, and pilgrimages are made to his monastery; and further, the Dalai Lama visits the Rongbuk monastery yearly by proxy. The Lama of Rongbuk has the distinction of being an incarnation, not of Buddha, but of a god, the God Chongraysay, who owns no fewer than nine faces, and this particular lama himself is reputed to be able to change his face as he likes. He received us extremely well, and was a most striking and interesting old gentleman with perfect manners and perfect courtesy—far the finest type that we had yet struck. Of course there was the usual Tibetan tea. This is most appalling, having butter, generally rancid, salt, and other ingredients added, and the whole churned up before being served.

There is a local belief—or possibly even more than local, as we found it in the Chumbi valley equally—that many years ago during a previous incarnation this lama was challenged by a Pembo lama, who was also a magician, to race to the top of Mount Everest; the lama having agreed, the Pembo lama jumped on his magic drum and, beating it for all he was

worth, started off on the drum to the top of the mountain. After the Pembo lama had nearly reached the top the followers of the Rongbuk lama suggested his starting. Just then the sun rose; the Rongbuk lama, leaping on a ray, was carried to the summit in triumph.

The Rongbuk lama was very anxious to know what was the reason for all the trouble we were taking to explore Mount Everest. I thought that my best way to explain it was that we treated the expedition as a pilgrimage, and that it was an attempt to reach the highest point of the Earth as being the nearest to Heaven. This point of view was accepted. I added also, with a view to my own comfort, that I had registered a vow never to touch butter until I arrived on the summit. I dislike butter at any time, and Tibetan tea was absolutely the limit. From that time on I drank it without sugar or milk. We took the opportunity here of having our men blessed.

From the Rongbuk monastery the whole southern end of the valley is filled by Mount Everest. In a way this particular view is very striking, but I personally regretted the presence of those horrible humps which form the Rongbuk valley. In my opinion they belittle and, if possible, bemean the great mountain range, besides committing the obvious crime of shutting out the gorgeous mountains to its right and left.

We hoped to be able to push on and take the whole of our heavy luggage beyond the snout of the Rongbuk glacier, but our transport would have none of it, and rightly so; halting here we established our base at a height of 16,500 feet and collected our full stores, and a very imposing mass they made. Owing to the work of the reconnaissance of 1921 and to the fine survey carried out by Major Morshead and Major Wheeler, we knew now fairly well the line of our advance. From Wheeler's map it was quite apparent that our line must be up the East Rongbuk glacier, but a detailed reconnaissance had to be carried out in order that we could lay out a series of camps and make an advance base before attacking the mountain. Therefore, while the staff of the Expedition was establishing the base camp and Captain Finch was getting his oxygen apparatus into order, Colonel Strutt, Dr. Longstaff, Major Morshead, and Major Norton started out to make full reconnaissance of the East Rongbuk glacier. It was quite apparent that the work of establishing the camps and of making a further advanced mountaineering base on the Chang La would be very severe indeed. On these camps being fully rationed, fully provisioned, and supplied with fuel, would depend the success of the attack on the mountain itself. Evidently there was an enormous amount of stuff to be moved, and it was also apparent that, owing to the very short time at our disposal, none must be lost. Moreover, to employ our own porters in moving the stores themselves would not only take a long time but would greatly exhaust the porters, and then they would not be near their full strength for moving camps as high as possible on the mountain. We had very carefully looked after these

men, and it would have been poor economy to overwork them before it was necessary.

I do not think that I have explained that the whole problem of climbing Mount Everest was one of pace. Owing to the severity of the winter and early spring, it would not pay to start earlier than we did, and in fact we had a quite low enough temperature as it was on our arrival in our base camp. In a good year we could count on respectable weather only up to June 15. In an early year the weather might break up any time after June 1. So that the problem was really a race against the monsoon.

Our base camp was now established on May 1. We could therefore say that we had our time divided up as follows: We aimed at getting our camp on the Chang La or North Col by May 15, and that would give us fifteen days for certain, twenty-one days with decent luck, and a month if our luck was really good, to work on the mountain itself. We considered this would probably be ample if these dates could be adhered to. I therefore strove by every means in my power to collect a sufficient number of porters to assist our own men. It must be understood though that the Dzakar Chu and neighbouring part of Tibet is very sparsely populated, and not only that, but the ploughing season and spring were approaching and it was absolutely necessary for these people to work on their fields. I had been given a promise of 90 porters to help, but only 45 were forthcoming. After two days' work these 45 said that their provisions were done and they must go for more. Taking the best guarantees we could, we let them go, but they never appeared again, so we had to set to work with our own men to move as much stuff as we possibly could and get the Expedition forward. At the same time we used the agent of the Shekar Dzongpen and our own sardar to scour and scrape the entire Dzakar Chu for porters. In order to get them we had to offer very high wages. These porters came up in batches, sometimes ten, sometimes half a dozen, sometimes five-and-twenty. They worked for short periods and then went away to their ploughing, but under these conditions and with a little arrangement we were able to get our work done.

We established a staging system up the East Rongbuk glacier, making Camps I., II., and III. as shown on the map. Each of these camps was fully rationed and supplied with a cook. This of course was done gradually, everything being pushed up in batches, and here the value of our transport officers and of our Gurkha N.C.O.'s came in. They were given charge of different stages. The Tibetan coolies could be used only for the first two stages; our own porters moved everything from Camp II. to Camp III.; and also great quantities of stores right up from the base camp to Camp III. The approximate heights were: The base camp 16,500 feet; Camp I. 17,800 feet; Camp II. 19,800 feet; Camp III. 21,000 feet. This required the most continuous hard work. I do not think ever before in the history of Himalayan exploration have

men been called on to do harder, or even as hard, work. I think their performance was absolutely without precedent. The track itself was very rough, the elevation was very great, and yet these men put a full month's stores into these camps sufficient to keep 12 Europeans and 50 of themselves. They also carried the great oxygen outfit, tents, and alpine equipment and an immense mass of stuff. Further than that, as soon as these camps were established they moved what was required to form the base at the Chang La, Camp IV., and from there carried loads for the first climbing party to 25,000 feet, and for the second party to 25,500 feet. I may point out that only on one occasion before has a camp been slept in for one night at 23,000 feet. This camp on Chang La was continually occupied by quite large parties, as mountaineering parties go. One man even made four trips to the 25,000 camp, on one occasion carrying as much as 40 lbs.

During the whole of this period the climbing parties themselves were being pushed up to the different camps, the transport officers taking charge of the lines of communication, headed by a party of climbers who were quickly established at Camp III., whence Mr. Mallory and Dr. Somervell prepared the road up to the North Col. Finally, the whole of the climbing party was assembled at Camp III.

While we were at the base camp our Sherpa coolies were visited by some of their relations, men, women, and children, who had come up from the great Sherpa settlements of Sola-Khombu and across the Nghaughu or Khombu La, which is 19,000 feet, and then up to our camp, some of the wives even carrying babies of six months old over this pass, and sleeping out in the open under rocks the whole time.

I am not going to touch on any of the mountaineering, as I am leaving that for Colonel Strutt, Mr. Mallory, and Captain Finch, but I must mention the way the porters took the accident. Two of them lost brothers, and others their special friends, but not a single man has shown any desire not to return; in fact, in Darjeeling on our return every single man volunteered for the next year. One man on the way down pressed me several times to know whether he might go back with a friend and try and retrieve stuff that we had left at the North Col. After the accident the Lama at Rongbuk played up very well. I paid money for services to be said in the monastery for the men who were lost, and he went out of his way to send for the porters and again bless them, which they thought a great deal of.

But Sherpas and high-living Nepalis have this belief: When there is an accident, and a man falls either in the high mountains or from a cliff into the river, it is called "Parmeshwar ko balidhan bhayo," which means "a sacrifice to God," and they believe that if any one visits the same place *on the same date and hour* he will equally fall and be killed.

When the camps were moved down after our last attempt under the direction of Captain Morris, he told me that it was perfectly wonderful

to see the effect of the south wind even in the two days that he was evacuating the camps. Whole hillsides had become rotten, and even the great seracs, which are shown in the pictures so clearly, had begun to tumble down, and the great trough in the glacier which Colonel Strutt will describe, was filled in no time with a rushing stream. As long as the west wind, the great enemy of all climbing at this end of the Himalaya, is blowing, the mountain is generally in a fairly safe and firm condition. Though the west wind is a horrible wind blowing the whole length of the Himalayas and inconceivably cold, still it is dry. The south monsoon winds are warm and wet and destructive.

One thing that was proved is that woollen garments for very great heights are not sufficient in themselves, and that it is necessary to have wind-proof outer clothes. I think it is extremely likely that the breakdown of Tejbir, the Gurkha who went so high with Captain Finch and with Captain Geoffrey Bruce, is due to the fact that he had no wind-proof clothing.

It is not my province to-night to touch either on the mountaineering efforts of the party or on the oxygen apparatus, but I may point out that the experiences of the Expedition must very much modify the scientific outlook on the power of ascending to great altitudes, on acclimatization, and on the manner in which oxygen should be employed.

Although I am not touching on the mountaineering side of the Expedition, I must here tender my thanks and the thanks of us all to my two transport officers, Captain Geoffrey Bruce and Captain Morris, for their hard and unselfish labours, and in one particular especially to Captain Morris, who counteracted the effect of my rather peculiar handwriting, thus making it possible for me to communicate with the President of the Mount Everest Committee. The thanks of all of us are also especially due to Captain Noel, the official photographer, for his unremitting and astonishing enthusiasm; the wonderful success which he has obtained we shall not be able fully to realize until we are able to enjoy his major work, the films.

Finally, before leaving Darjeeling Major Morshead gave me the latest figures of the two magnificent attempts made by the climbing parties on Everest. The first party—Major Norton, Dr. Somervell, and Mr. Mallory—reached a height of 26,985 feet, which is 185 feet higher than our first computation. The climb of Captain Finch and Captain Bruce works out at 27,235 feet. I am sure you will be glad to hear that Major Morshead's numerous frostbites are getting on very well indeed, and that he will not be incapacitated in any way, nor his profession in life interfered with.

I will bring my part of the account of this expedition to an end with a little story. On our way back to India we were met by a Babu in a good position. He said: "Sir, I hear you have climbed the Himal by means of thread—no doubt the thread of life."

87° 88° 89°

The Route of the MOUNT EVEREST EXPEDITION 1922 CHUMBI TO MT EVEREST

from the Maps of the 1921 Expedition.

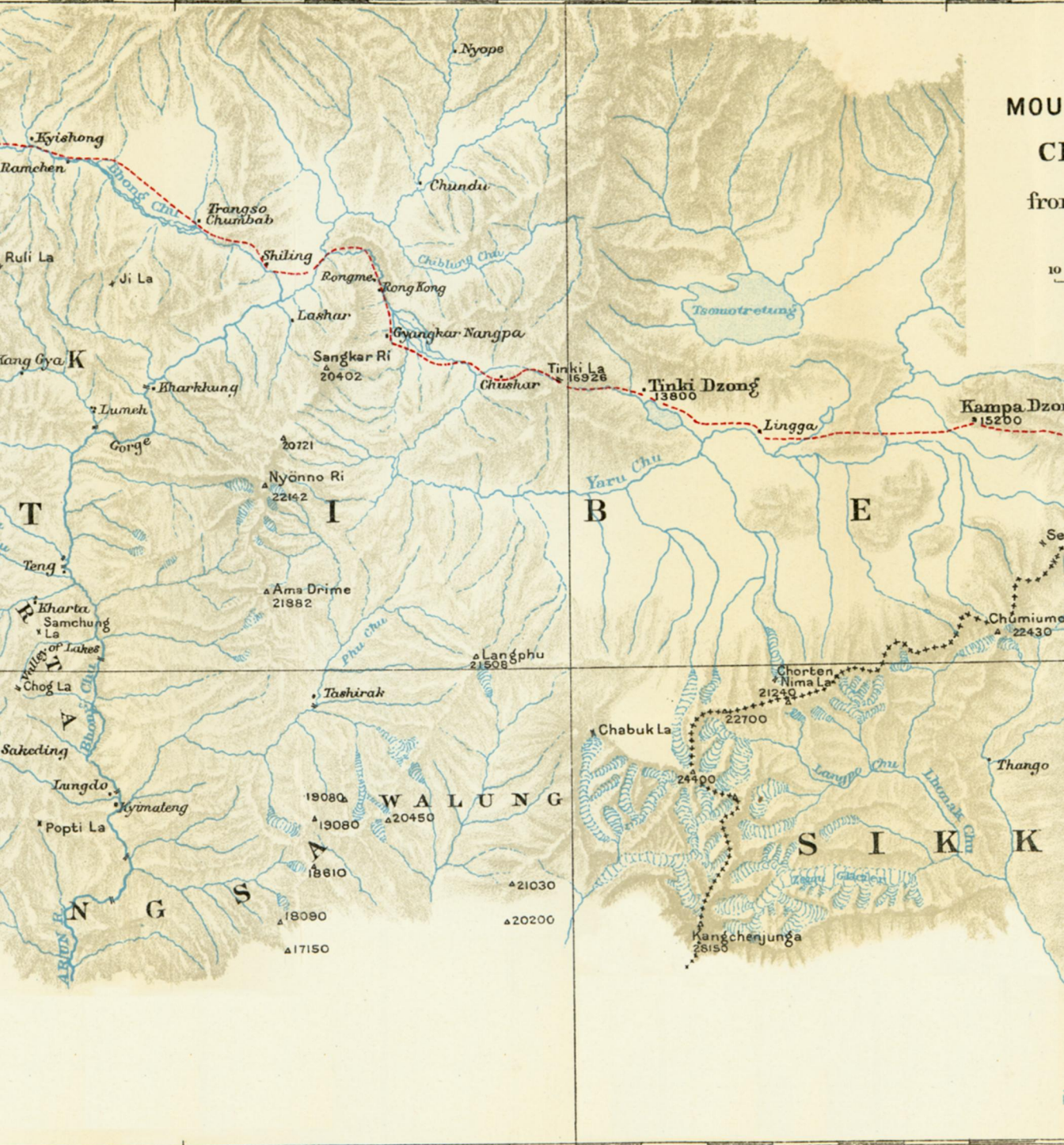
Scale 1/750,000 or 1 Inch = 11.84 Stat. Miles.

Route of the Expedition ----- Pass =
Heights in feet.



87°





89°

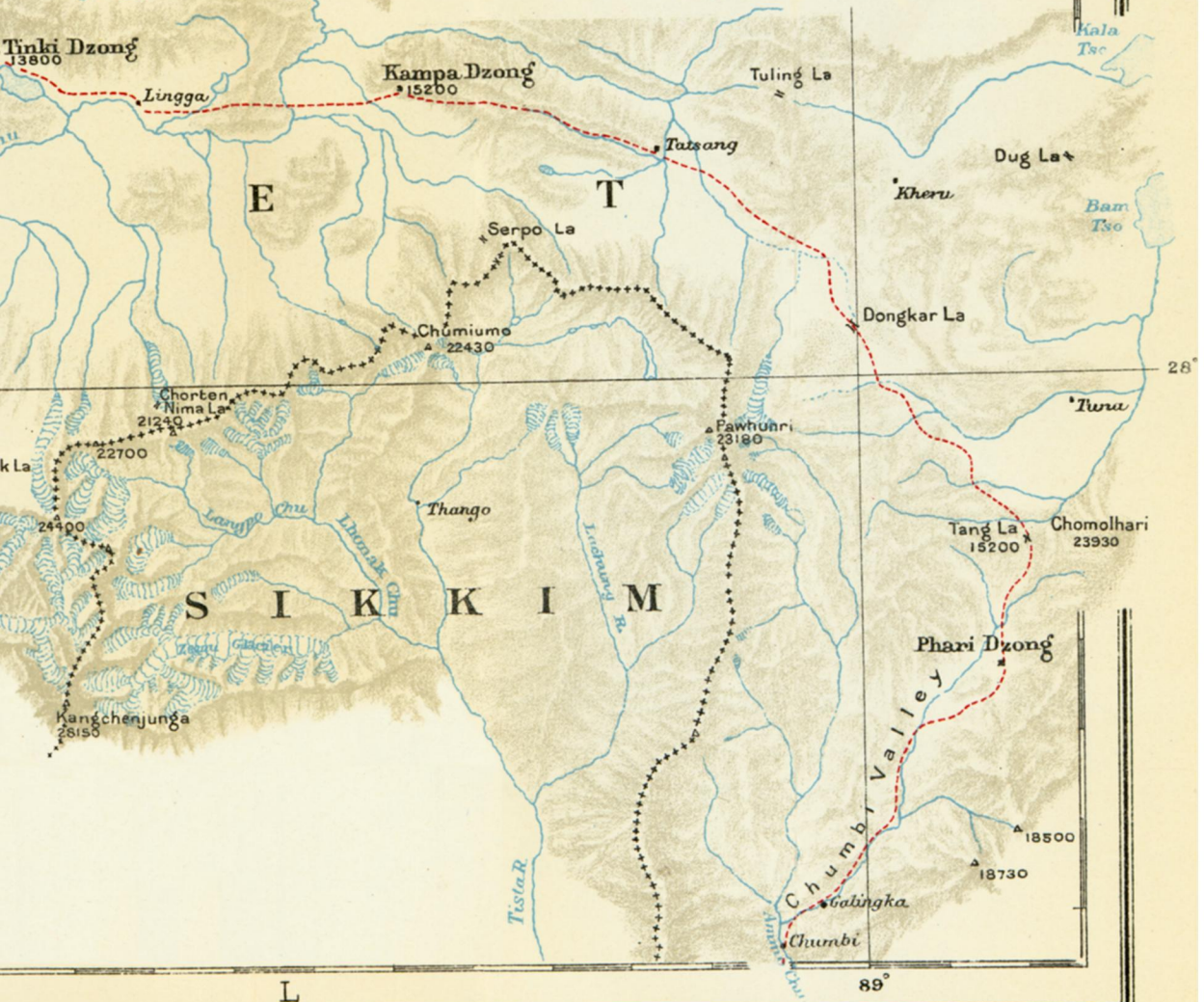
The Route of the MOUNT EVEREST EXPEDITION 1922 CHUMBI TO M^t EVEREST

from the Maps of the 1921 Expedition.

Scale 1/750,000 or 1 Inch = 11.84 Stat. Miles.



Route of the Expedition ----- Passes
Heights in feet.



L

89°

THE EAST RONGBUK GLACIER

Lieut.-Colonel E. L. Strutt, D.S.O., Second in Command
of the Expedition

ON May 2 with Norton, Finch, two Gurkhas and one coolie I started, under General Bruce's instructions, to find a site for No. I. Camp. We took to the rocky terraces high above the right bank of the Rongbuk glacier, which really constitute the lateral moraine of that glacier. Going very slowly but steadily over a quite good surface, we eventually reached the corner above the large opening where the east branch meets or did meet, the main Rongbuk glacier. Here the conditions changed and we descended towards the snout of the tributary glacier over abominably loose and slippery moraine. At a spot some 300 yards distant from the snout of the East Rongbuk we chose a site for the first camp. The place was sheltered, and it may here be remarked that this camp proved satisfactory and was perhaps the warmest spot that I struck in Tibet. The height is about 18,000 feet, and it is an easy three hours up, or one and a half hours down, from the Base Camp.

On the way back we took to the trough between the glacier and the moraine, which the coolies who were following us up with Morris appeared to have instinctively preferred. The terrace route was however the best, as was proved later when repeated bursts of a glacier lake occurred and flooded the trough. Morris at once set to work to build sangars in the camp. We returned to the base at 16.20, having proved to our complete satisfaction, on the ice and snow in the trough, the vile quality of the Swiss Oberland axes that Finch and I were supplied with. The day was fine, as was the following one, but heavy snow fell all day on May 4 in the Base Camp.

May 5.—The day broke brilliantly and the snow soon evaporated, the ground remaining dry and quite unaffected. Bruce had arranged that I should start on the first reconnaissance this day. I was given *carte blanche* as to my party. I chose Longstaff, Morshead, and Norton. They proved an ideal party, full of energy and experience and not too young. Morshead and Norton are blessed with the sweetest tempers and dispositions, while Longstaff and I, who are gifted with just the reverse, were able, on the strength of a friendship of many years' standing, to curse each other freely and without malice. We left the base at 09.45 with sixteen coolies. All were heavily laden, that is to say, the coolies were carrying about 60 lbs. and I about 20 lbs. The day remained fine and warm and the walk up to No. I. Camp *via* the trough was quite hot. We got into camp at 12.45 and found it already comfortably installed, thanks to Morris's and Geoffrey Bruce's exertions of the previous day. Norton and Morshead, who generally enjoyed the privilege of a little extra work, set out to explore the

further route up the East Rongbuk. A good night was spent, all four sleeping in a sangar with a canvas top over it.

May 6.—We left at 07.30 in fine weather and at once took to the left lateral moraine of the glacier. Subsequent experience in the descent caused us to modify this route and to choose the western medial moraine, over which an admirable path was soon automatically constructed by the passage of many heavily laden coolies. The going was atrocious and very slow, and no one, not even Morshead, appeared anxious to lead, at any rate I usually found myself *en tête*. At 11.50, in somewhat weary condition, we found ourselves on the bank of the large lateral glacier flowing from the west into the East Rongbuk, which glacier descends steeply from the peaks constituting the northerly spurs of the north peak of Everest. This glacier, consisting of hard slippery ice, had to be crossed, but I suspected the presence of a cliff near its point of junction, *i.e.* approximately point 19,360 feet of Major Wheeler's admirable map. Accordingly, I altered the course of the somewhat jaded party from due south to south-west, and halting them on the moraine proceeded to cross the tributary glacier, steering for point 20,590 well above us. There were ice cliffs in many directions, but I was nevertheless able to cross the glacier without difficulty and to return to the party. As it was late, we camped where I had left them. As it was obvious that this camp was unsuitable, Morshead and Norton returned later in the evening to the East Rongbuk glacier, and taking with some difficulty to the medial moraine, found a more or less sheltered moraine slope between the ice of the two glaciers, which entailed no subsequent ascent or descent *en route*. The weather was bleak and cold and snow fell in the night.

May 7.—We struck camp and got away at 07.30, descending to the East Rongbuk. In half an hour we reached the site for No. II. Camp, and dumped the heavy loads. It was a strange spot, point 19,360, with a high moraine opposite (east), and enormous ice cliffs with a frozen lake at their base to the north. Leaving Longstaff and all the coolies, except one, there to pitch the camp, Morshead, Norton, and I, with Namgya my own particular Bhotia, proceeded up the left lateral moraine of the East Rongbuk. After an hour's bad going over the stones we came to the spot where the next very large glacier descending from the south-west cuts across our route. To our right were high rotten schist-like cliffs, and to our left enormously high séracs or rather, perhaps, ice pyramids. Some of these pyramids must be from 150 to 300 feet high, growing in places out of moraine channels, in others out of the parent ice. It was obvious that we must take to the East Rongbuk ice at once. Building a cairn at the spot where we must leave the stones, we turned sharply east and forced a passage through the séracs. It appeared to be difficult but was really not so, at any rate to any one with much ice experience. In half an hour or so we emerged on smooth ice near the centre of the glacier; we now turned south-east and bore up the glacier, the point of

direction being approximately 22,340 some miles away and east of the great gap subsequently christened Rapiu La, on account of its genial climate. Soon, to our disgust, we came to an enormous trough or trench, shown on Wheeler's map, which seams the whole glacier from south to north, starting from near point 20,100 and continuing, for all I know, right down to the snout of the East Rongbuk. This trench is about 300 to 400 yards wide and some 100 feet deep; it is paved in many places with gravel-like moraine.

Some one thought that we should do better nearer the north peak, so avoiding the trench we bore to the south, steering for point 22,090 feet high above us. The heat was great, and we experienced our first real symptoms of mountain lassitude. It was here that, for the first and last time, I appeared to suffer less than my younger companions. We came to the névé slopes below 22,090, somewhere near 20,100, and commenced skirting towards the corner on our right front (south), round which we knew that Everest would become visible. The slopes were steep and slippery, step-cutting becoming occasionally necessary; we were always being driven too high, and about 13.00 hours the inevitable occurred: a great range of ice cliffs, 300 to 500 feet high, cut off all further progress. We turned sharp down to the left (east), and endeavoured to regain the glacier. The trench was by now left far behind us and to the north. The going was very bad, and although the route between the glacier and the north peak slopes was possible, it was very long and far too fatiguing for the laden coolies who must use it. We were all agreed that we must return to No. II. Camp, and on the following day cross the great trench and mount by the glacier throughout. We accordingly turned about and proceeded home. Morshead lagged behind, and I was hoping that it was fatigue overcoming him; however, he rejoined us near the séracs and informed us that he had been looking at the trench, had found a feasible spot, and had actually descended and crossed it. This was a fine performance, as well as a great relief, as I had been fearing prolonged step-cutting. It should be remembered that our whole object was to find an easy route where laden coolies could proceed without the assistance of the European climbers.

We returned to camp about 18.30. Longstaff, who had not accompanied us on account of what he described as old age, was ill with a sharp attack of what appeared to be influenza and which he had experienced before on his many Himalayan expeditions. We were all rather alarmed at his condition. My companions, including the invaluable Namgya, appeared to be very fit again, and Morshead, whose appetite, like his walking powers, is unsurpassable, consumed fourteen bowls of Hoosh. Two were sufficient for Norton and one for myself.

May 8.—We left camp at 07.55, with eight coolies carrying three tents and some food. Longstaff was no better and had to remain in bed. We took the same route as the day before and crossed the trench at the spot

discovered by Morshead; a large cairn consisting of rocks from the bottom of the trench was erected, and a Gurkha signalling flag was fixed in a sérac to mark the exit on the further side. We now struck the first snow at a height of about 20,000 feet; it was thin and the ice terribly hard and slippery underneath. As we approached the corner previously referred to, the wind rose and the cold became great; both these, however, diminished as we rounded the corner, and Everest suddenly burst on us in all his majesty at a distance of only about 2 miles.

The glacier began to become crevassed, and we roped ourselves and the coolies in three parties; at 12.27 we reached the spot selected by Longstaff months before as suitable for the advanced camp. It is a dreary strip of moraine between the glacier and the cliffs of the north peak. The scenery can be described as the very soul of utter desolation. To the south towers Everest, or rather the eastern half of the north face. This small portion is alone double or treble in size of any mountain that I have seen in Europe: the shoulder, point 27,390, is the highest point visible and appears overwhelmingly remote, although not 2 miles distant. To the west are the glittering ice slopes of the Chang La (North Col), and to the immediate north the steep broken rocks of Changtse's eastern arête. Down the glacier to the north are the inexpressibly dreary and hideous slopes of Kartaphu and his lower satellites. This spot (No. III. Camp, about 21,000 feet) is supposed to be sheltered from the west wind and is sufficiently protected against stone fall from Changtse. I should again like to pay a humble tribute to Wheeler's map and Longstaff's topographical instinct. We dumped our stores and rested for an hour or more in the only warm sunshine I ever experienced in No. III. At 13.45 we again tied up and, with the coolies unladen and going at express speed, attained No. II. Camp in about two hours. Longstaff's condition was still rather alarming, but he was very cheerful.

May 9.—Longstaff and three coolies left early, so as to be able to go slowly, *en route* for No. I. We others followed at 08.30. Keeping on the medial moraine and constructing many cairns, we reached No. I. Camp, a scene of great activity, in about three hours. Here we left Longstaff in good hands, and reached the base camp about 14.30. The reconnaissance had been a success, and we experienced the finest weather of the whole trip.

May 10.—Longstaff was carried down in the morning, and Mallory left for No. III. Camp with Somervell and forty of other ranks. Three bitterly cold days followed, but on May 14 Norton, Morshead, and myself, together with seven coolies, again set out for No. III., reaching No. II. in some seven hours' very easy going. The tracks had improved beyond all knowledge, thanks to the endless stream of traffic, and Morshead led most of the way at his usual terrible speed; the weather was fine. On the following day, May 15, with thirty-six coolies we set out for No. III. The men went admirably, but much of the snow on the glacier had

evaporated, and the ice was exceedingly slippery. Crampons were accordingly tried by some of the men—the only use that I saw made of these encumbrances. I may be prejudiced, but crampons appear to be effective only on level ice where slips are of no importance. We reached camp about midday, and found Mallory and Somervell just returned from the North Col, where they had been fixing ropes for the use of the coolies over the steeper parts.

May 16 was a very cold day, and we remained shivering in camp, every now and then assailed by furious blasts of down-draught from the westerly gale raging above.

May 17.—Morshead, Norton, Somervell, Mallory and I, with ten coolies, set out for the North Col, leaving at 09.15. We were roped in three parties, and followed in the steps cut by Mallory two days previously. Many of these, especially in the neighbourhood of the bergschrund, the scene of the tragedy of June 7, had to be remade. My companions, Europeans as well as natives, appeared to make light of the toil, but my wind grew steadily worse. I was soon obliged to give up the lead of my own particular party, and to tie myself on in rear. As there was no improvement I eventually untied myself altogether. Freed from the weight of the rope between myself and the next man—possibly half a pound—I was able to keep up with some comfort; at any rate, we reached the summit of the pass at 13.45. The heavily laden coolies—some were carrying about 60 lbs.—appeared in no way distressed; neither did I—when sitting down! The eastern slopes of the Chang La are steep in places. [It is always difficult to make comparisons, but for the benefit of mountaineers, I should compare it to the northern face of the Col Tournanche between the Matterhorn and Dent d'Hérens.] Owing to driving mists there was no distant view to the west, but the crossing of the col from east to west, or better in the reverse direction, appears to me perfectly feasible. Great care in selecting a route would, of course, be necessary, and the chronic gale from the west would be a terrible obstacle. Our route is the proper one to the summit of Everest. The Changtse rises grandly to the north, obviously a prolonged piece of step-cutting along a most exposed and precipitous ice ridge. Leaving several tents and our loads, we started down at 14.20. Although unable to lead, I found that I could still come down as last man, Mallory and I taking a party of six coolies down. With a little encouragement from above they showed great skill and care.

We were back at No. III. by 16.00. It was by now quite certain that the first attempt on the summit of Everest should be made by Somervell, Mallory, Norton, and Morshead. I was going infinitely worse than any of these; the first expedition, on account of there only being two Meade tents available for the 25,000 feet camp, should consist of not more than four Europeans. I had to choose between Morshead and myself, and I naturally chose the former.

I should, before completing this part of the lecture, like to make a few remarks on the first attempt on the summit. Before and while this attempt was being made there were in No. III. Camp beside myself, Finch, Geoffrey Bruce, and Wakefield; while Morris and Noel arrived on May 21. So bad was the weather on May 21 that I was anxious about the safety of the high altitude party. During the morning and early afternoon, Finch, Bruce, and a party of coolies stood by to start as soon as the conditions became at all possible. Over a foot of snow fell during the day in No. III. Camp, and the weather was bitter in the extreme. In the event of Finch being able to start with a relief party, I gave him written instructions not to proceed beyond the 25,000 feet camp in the existing conditions. Fortunately it cleared a little towards evening, and the party were observed descending to the Chang La camp.

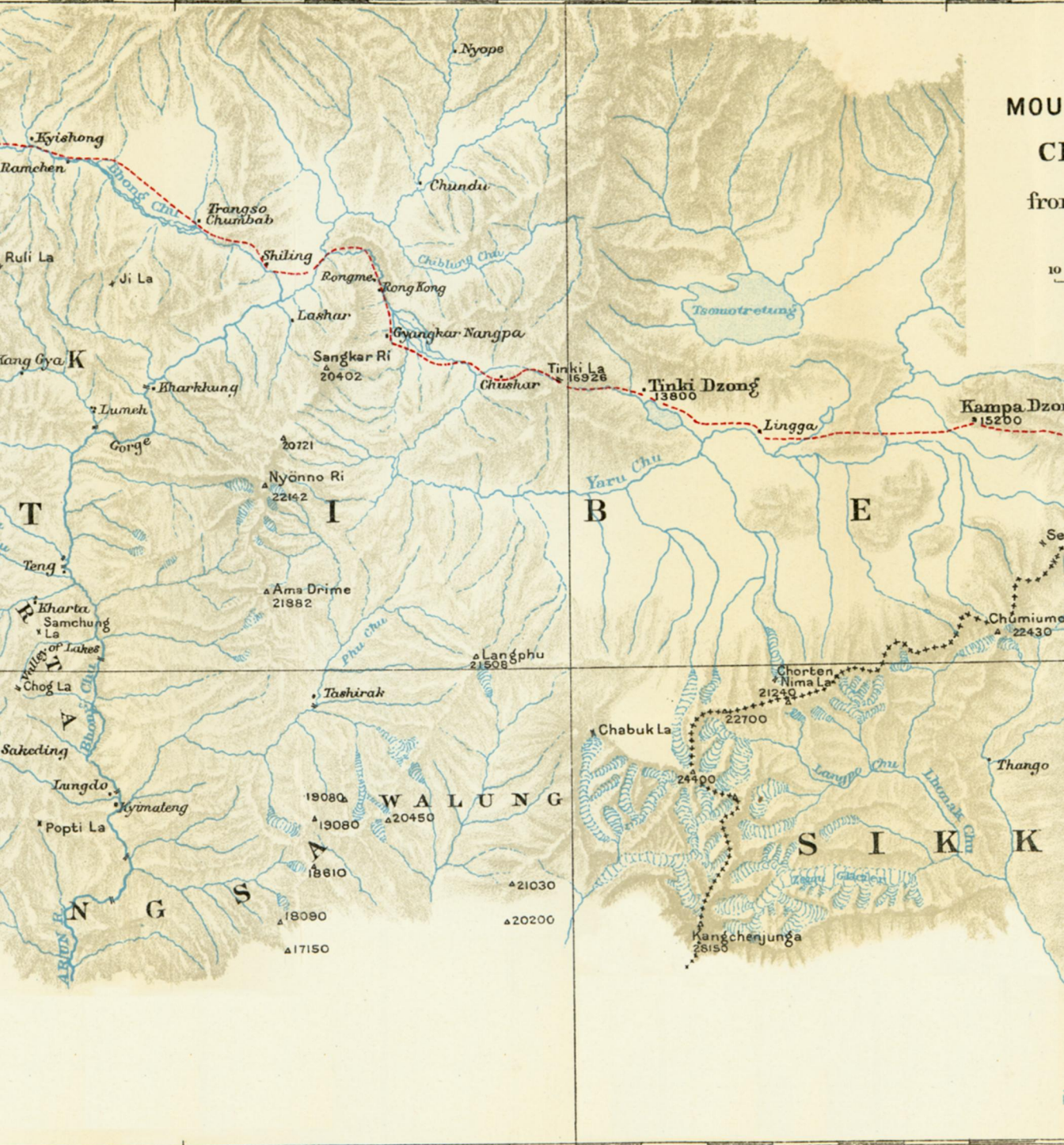
On the early morning of May 22, the temperature being then -9° Fahr., Finch and Bruce, using oxygen, with a party of coolies, started for the col, Wakefield being added to the party in case medical assistance was required. These met the high climbing party returning, and Wakefield accompanied them to No. III.

It may be asked why the attempt was made on May 21 without Captain Finch and without oxygen. My reply to this question is as follows: Finch had been ill at the Base Camp, and had not been able to put the oxygen apparatus into working order. He alone of all the members of the Expedition was conversant with its complicated inner economy. The coolies had been working like slaves getting up the absolute necessities, such as food and tents; it had consequently been impossible to bring up the oxygen cylinders, and, moreover, as I have stated, Finch had been too ill to test them. The weather was too uncertain to wait, and the monsoon might break at any moment. It seemed to me then, as it does now, that it was better to try and fail than never to have tried at all.

THE FIRST HIGH CLIMB

George Leigh Mallory

WHEN first the prospect of going to Mount Everest opened for me I used to visualize the expedition in my thoughts as a series of tremendous panting efforts up the final slopes. Later it became a symbol of adventure; I imagined, not so much doing anything of my own will, but rather being led by stupendous circumstances into strange and wonderful situations. Now it has become a problem; with no less interest, and even excitement, the Expedition brings to my mind's eye a view of the long mountain slopes set at intervals with groups of little tents, with loads of stores and sleeping-sacks, and with men. My object at present is to state this problem—partly because without it the story of our



89°

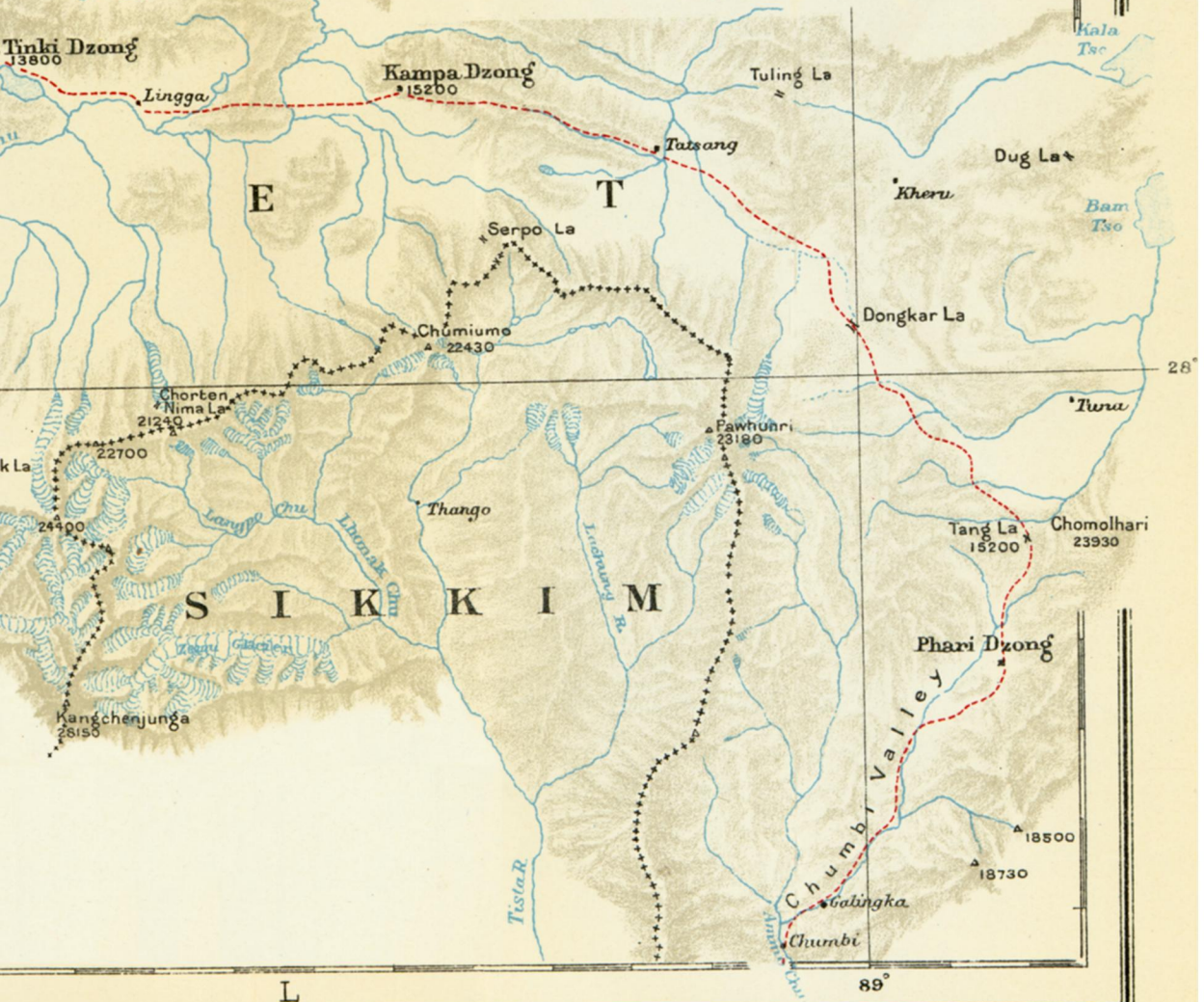
The Route of the MOUNT EVEREST EXPEDITION 1922 CHUMBI TO M^t EVEREST

from the Maps of the 1921 Expedition.

Scale 1/750,000 or 1 Inch = 11.84 Stat. Miles.



Route of the Expedition ----- Passes
Heights in feet.



L

89°

THE SECOND HIGH CLIMB

Captain George I. Finch

THE climbing of Mount Everest is a tremendous proposition. With a clear realization of this, I joined the expedition, ready to do my share in the conquest of the mountain by every means at our disposal. Optimism may be the attribute of fools; but they say that experience teaches even such, and my experience of Alpine climbing had already taught me that no stiff mountaineering problem can be tackled with much hope of success unless one believes wholeheartedly in the possibility of achievement. I think it was Sir Francis Younghusband who, somewhere or other, referred to the necessity of possessing the faith that removes mountains, and a purpose unhoneycombed with half-heartedness. With such an example in our minds throughout that long and, at times, rather trying journey across Tibet, where it was, perhaps, hard to keep one's optimism always unsullied, it was not impossible for one to cling to the watchword "Everest is climbable, and we shall climb it." Confidence alone were of little avail; but allied with enthusiasm and respect for the work in hand it engenders that concentration of mind and energy which acts like a searchlight upon the problem, and seeks solutions for the complicated questions of equipment, tactics, and so forth, involved.

A little over a year ago I had considered, somewhat carelessly and superficially I fear, the advantages of using oxygen as an aid to climbing Mount Everest, and had dismissed the idea on the grounds that the weight of any useful supply would be prohibitive. Prof. Dreyer, however, the Professor of Pathology in the University of Oxford, held the strong opinion that Mount Everest would never be climbed without oxygen, and that an ample supply could be provided in a sufficiently portable form to enable the summit to be reached. The question was examined by the Mount Everest Committee with an open mind, with the result that his opinion was endorsed, and it was decided to include oxygen in the equipment of the expedition. The oxygen equipment, consisting of very light steel cylinders for storing the oxygen and an ingenious apparatus for distributing it to the climber, was evolved by Major Stewart and Mr. Eager of the Air Ministry, and Mr. Unna, in close co-operation with Mr. Davis and Mr. Rosling of the firm of Siebe Gorman & Co. It was somewhat complicated, but frequent oxygen drill parades were taken very seriously by all members of the party.

There are those who do not believe in oxygen. Perhaps it is because simple obvious facts render them uneasy in their unbelief, that they rush into print with a wholesale condemnation on the grounds that its use in high mountaineering is what they rather loosely term "artificial," and therefore unsporting. Now, few of us, I think, who stop to ponder for a brief second, will deny that our very existence in this enlightened

twentieth century with all its amenities of modern civilization is, in the same slipshod sense of the word, "artificial." Most of us have learnt to respect progress and to appreciate the meaning and advantages of adaptability. For instance, it is a fairly firmly established fact that warmth is necessary to life. The mountaineer, acting on this knowledge, conserves as far as possible his animal heat by wearing specially warm clothing. No one demurs; it is the common-sense thing to do. He pours his hot tea from a thermos bottle—and never blushes! Nonchalantly, without fear of adverse criticism, he doctors up his inside with special heat- and energy-giving foods and stimulants! From the sun's ultra-violet rays and the wind's bitter cold, he boldly dares to protect his eyes with Crookes' anti-glare glasses; further, he wears boots that to the average layman look ridiculous! The use of caffeine to supply just a little more buck to an almost worn-out human frame is not cavilled at despite its being a synthetic drug the manufacture of which involves the employment of complicated plant and methods. If science could prepare oxygen in tabloid form or supply it to us in thermos flasks that we might imbibe it like our hot tea, the stigma of "artificiality" would, perhaps, be effectually removed. But when it has to be carried in special containers, its whole essence is held to be altered, and by using it the mountaineer is taking a sneaking, unfair advantage of the mountain! In answer to this grave charge, I would remind the accuser that, by the inhalation of a little life-giving gas, the climber does not smooth away the rough rocks of the mountain or still the storm; nor is he an Aladdin who, by a rub on a magic ring, is wafted by invisible agents to his goal. Oxygen renders available more of his store of energy and so hastens his steps, but it does not, alas! fit the wings of Mercury on his feet. The logic of the anti-oxygenist is surely faulty.

I have seen the opinion expressed—presumably by way of supporting the idea of attempting to climb Mount Everest inadequately equipped, *i.e.* without oxygen—that it is just as important to ascertain how far a man can climb without oxygen as to reach the top by what are called "illegitimate" means. It may be important, but it was not the object which the expedition had to attain.

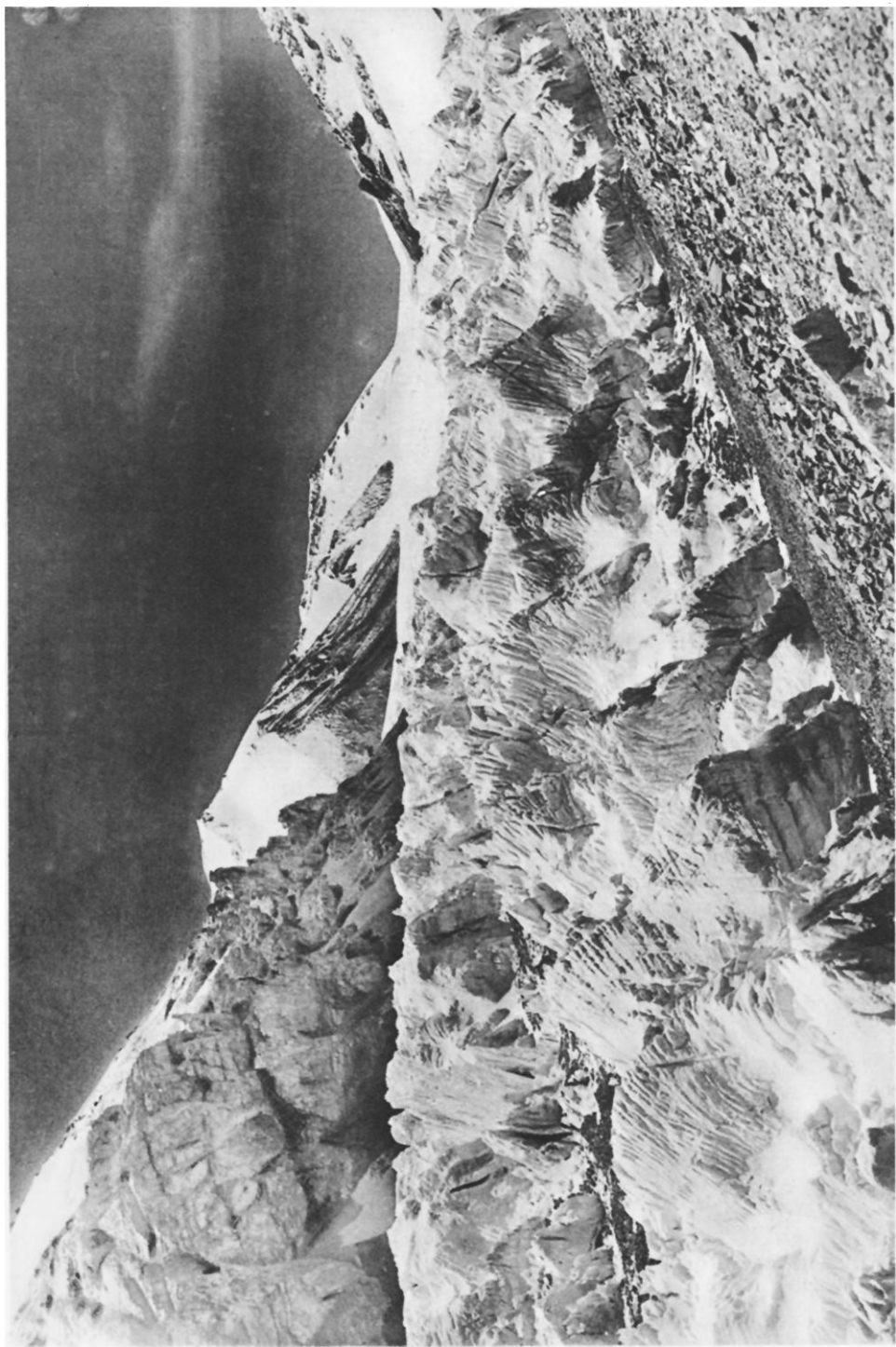
General Bruce had brought us safely, both mentally and physically, through Tibet to the Base Camp. Put baldly thus, it may sound a small accomplishment; actually, the task was one demanding the highest qualities of generalship and powers of organization. When we left him at the Base, his great fund of energy and cheerful good wishes for success continued to encourage us.

On May 20 Geoffrey Bruce and I arrived at Camp III. We were accompanied by Tejbir, one of the four Gurkha non-commissioned officers on the expedition and as fine a type of Gurkha humanity as one could wish to see. The cylinders containing our oxygen were found to be in good condition; but the apparatus—through no fault of the

makers, who had, indeed, done their work admirably—leaked very badly, and to get them into satisfactory working order, four days of hard toil with soldering iron, hacksaw, pliers, and all the other paraphernalia of a fitter's shop were necessary. Our workshop was in the open. The temperature played up and down round about 0° F., but inclined more to the negative side of that irrational scale. Even handling bits of metal in the bitter cold, often with bare hands on account of the delicate nature of some of the repairs, did not prevent Geoffrey Bruce from helping me with that energy, great will, and good nature that he showed so abundantly throughout the whole of our climb together. The masks from which the oxygen was to be breathed proved useless, but by tackling the problem with a little thought and much cheerfulness a satisfactory substitute was eventually evolved. Preparatory to embarking on the climb itself, we went for several trial walks—one over to the Rapiu La, a pass 21,000 feet high, at the foot of the north-east ridge of Everest, from which we hoped to obtain views of the country to the south. But only part of the north-east ridge showed hazily through drifting mists. Towards the north and looking down the East Rongbuk glacier, views were clearer, though partially obscured by rolling banks of cloud. Colonel Strutt and Dr. Wakefield, unoxygenated, accompanied us on this little expedition, and oxygen at once proved its value, so easily did Bruce and I outpace them. On our return to Camp III., the delicate white mists floating in the sky above the North Col seemed to beckon to us to climb these snowy slopes and see what lay hid in the back of beyond. So two mornings later we started off for the North Col on another trial trip. In the afternoon we returned to Camp III. There had been a considerable amount of step-cutting, for fresh snow had fallen, compelling us to deviate from the usual route; but even so oxygen had made a brief Alpine ascent of what is otherwise a strenuous day's work. We took 3 hours up and 50 minutes down, with 36 photographs taken *en route*.

On May 24, Captain Noel, Tejbir, Geoffrey Bruce, and I, all using oxygen, went up to the North Col (23,000 feet). Bent on a determined attack, we camped there for the night. Morning broke fine and clear though somewhat windy, and at 8 o'clock we sent off up the long snow slopes leading towards the north-east shoulder of Mount Everest, twelve porters carrying oxygen cylinders, provisions for one day, and camping gear. An hour and a half later, Bruce, Tejbir, and I followed, and, in spite of the fact that each bore a load of over 30 lbs., which was much more than the average weight carried by the porters, we overtook them at a height of about 24,500 feet. They greeted our arrival with their usual cheery, broad grins. But no longer did they regard oxygen as a foolish man's whim; one and all appreciated the advantages of what they naïvely chose to call "English air." Leaving them to follow, we went on, hoping to pitch our camp somewhere above 26,000 feet. But shortly after 1 o'clock the wind freshened up rather offensively, and it began to

snow. Our altitude was 25,500 feet, some 500 feet below where we had hoped to camp, but we looked round immediately for a suitable camping site, as the porters had to return to the North Col that day, and persistence in proceeding further would have run them unjustifiably into danger. This I would under no circumstances do, for I felt responsible for these cheerful, smiling, willing men who looked up to their leader and placed in him the complete trust of little children. As it was, the margin of safety secured by pitching camp where we did instead of at a higher elevation was none too wide; for before the last porter had departed downwards the weather had become very threatening. A cheerful spot in which to find space to pitch a tent it was not; but though I climbed a couple of hundred feet or so further up the ridge, nothing more suitable was to be found. Remembering that a wind is felt more severely on the windward side of a ridge than on the crest, a possible position to the west of the ridge was negated in favour of one on the very backbone. The leeward side was bare of any possible camping-place within reasonable distance. Our porters arrived at 2 p.m., and at once all began to level off the little platform where the tent was soon pitched, on the very edge of the tremendous precipices falling away to the East Rongbuk and Main Rongbuk glaciers, over 4000 feet below. Within twenty minutes the porters were scurrying back down the broken rocky ridge towards the snow slopes leading to the North Col, singing as they went snatches of their native hillside ditties. What splendid men! Having seen the last man safely off, I looked to the security of the guy-ropes holding down the tent, and then joined Bruce and Tejbir inside. It was snowing hard. Tiny, minute spicules driven by the wind penetrated everywhere. It was bitterly cold, so we crawled into our sleeping-bags, and, gathering round us all available clothing, huddled up together as snugly as was possible. With the help of solidified spirit we melted snow and cooked a warm meal, which imparted some small measure of comfort to our chilled bodies. A really hot drink was not procurable, for the simple reason that at such an altitude water boils at so low a temperature that one can immerse the hand in it without fear of being scalded. Over a *post prandium* cigarette, Bruce and I discussed our prospects of success. Knowing that no man can put forward his best effort unless his confidence is an established fact, the trend of my contribution to the conversation was chiefly, "Of course, we shall get to the top." After sunset the storm rose to a gale, a term I use deliberately. Terrific gusts tore at our tent with such ferocity that the ground sheet with its human burden was frequently lifted up off the ground. On these occasions our combined efforts were needed to keep the tent down and prevent its being blown away. Although we had blocked up the few very small openings in the tent to the best of our powers, long before midnight we were all thickly covered in a fine frozen spindrift that somehow or other was blown in upon us, insinuating its way into sleeping-bags and clothing, there to cause acute discomfort. Sleep



Phot. by Capt. J. B. Noel

1. LOOKING UP THE EAST RONGBUK GLACIER FROM ABOVE CAMP II



Phot. by T. H. Somervell

2. MALLORY AND NORTON APPROACHING THEIR HIGHEST POINT (26,985 FEET)



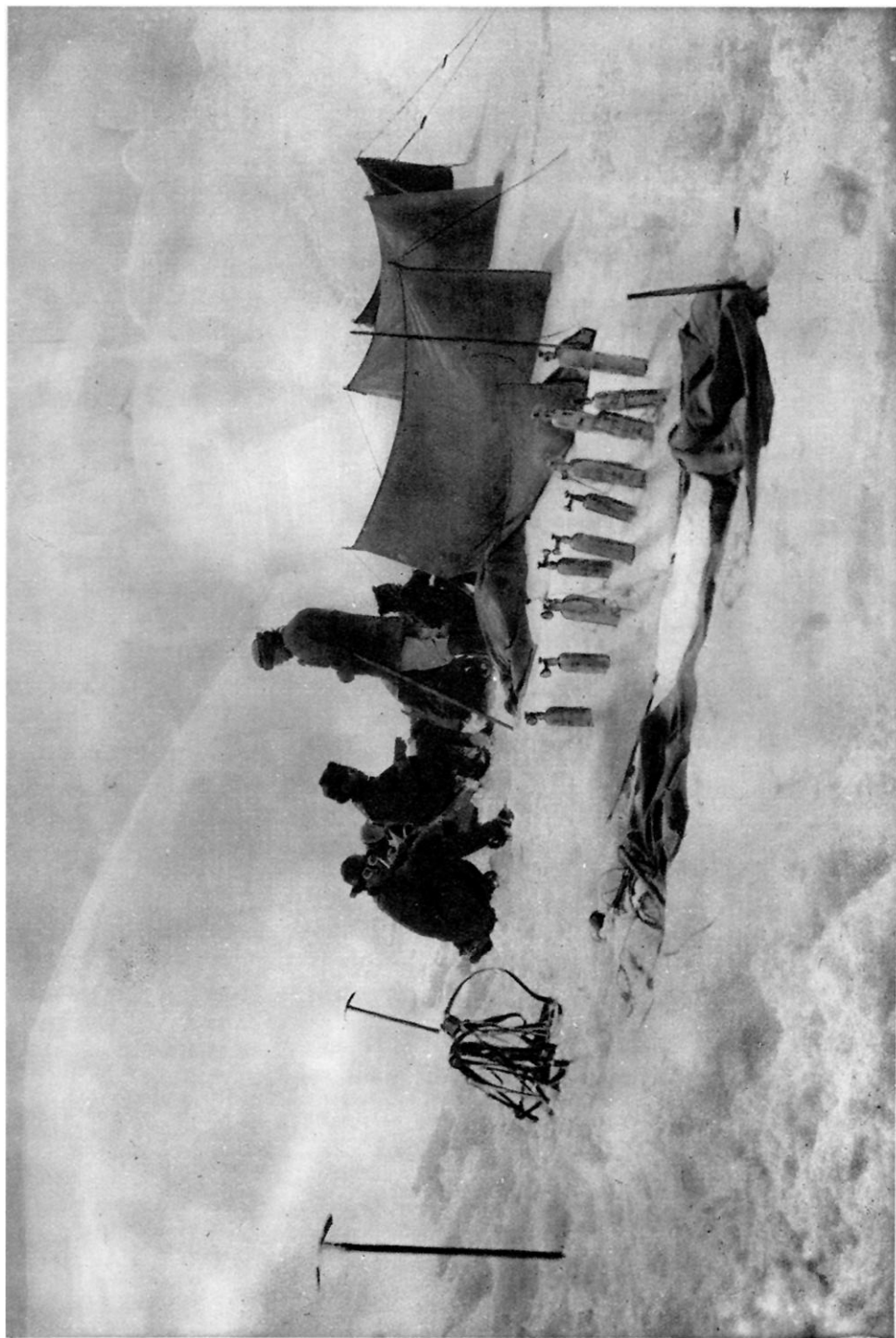
Phot. by T. H. Somervell

3. THE WAY TO THE SUMMIT FROM THE HIGHEST POINT OF THE FIRST CLIMB



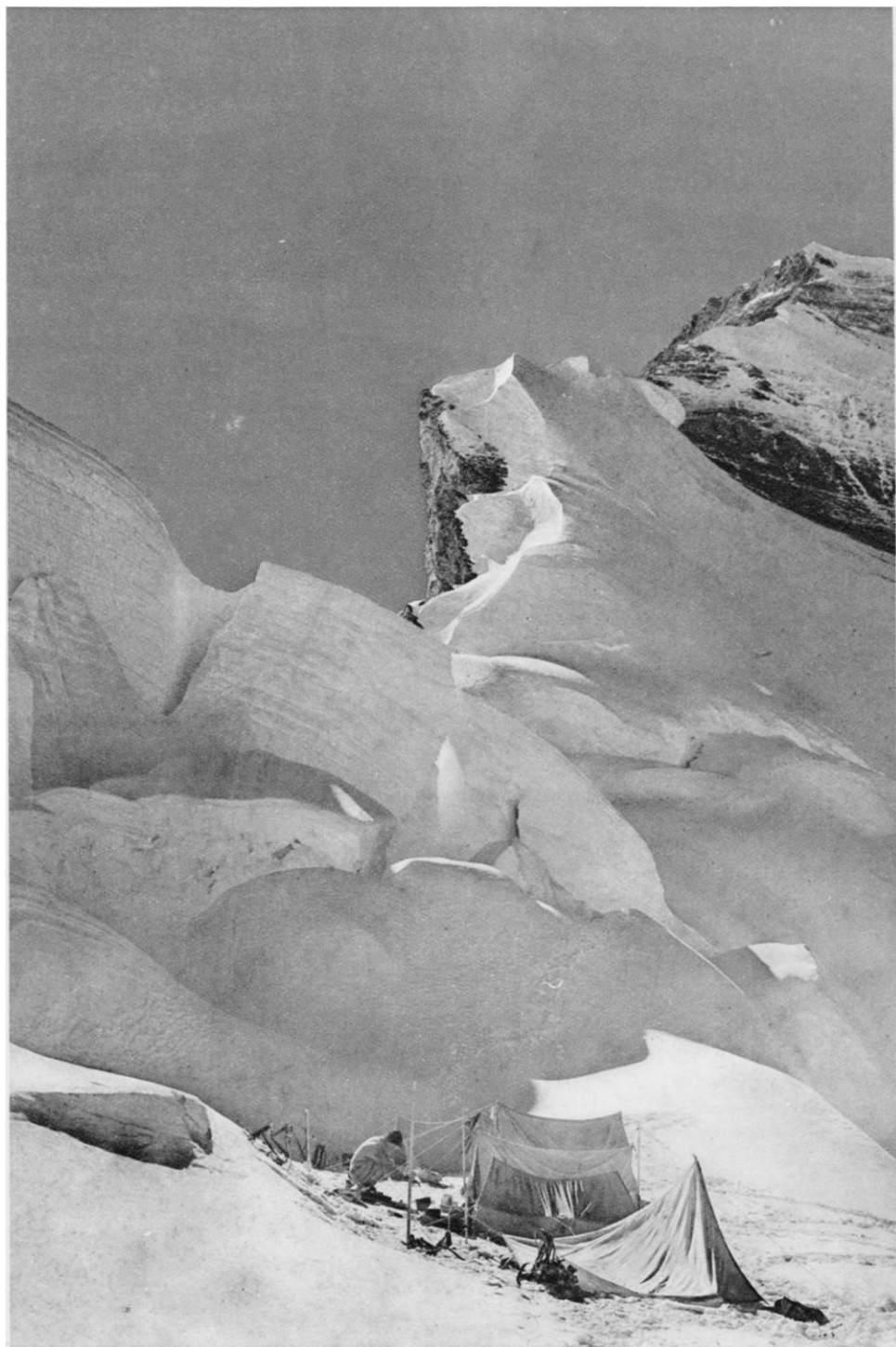
4. A FROST-BITTEN CLIMBER HELPED DOWN THROUGH THE SERACS TO CAMP II

Phot. by Capt. G. I. Finch



Phot. by Capt. G. I. Finch

5. THE OXYGEN PARTY AT THE CHANG LA CAMP



6. CHANGTSE FROM THE CAMP ON THE CHANG LA

Phot. by Capt. J. B. Noel

Cho Uyo

Gyachung Kang





7. LOOKING NORTH FROM 24,500 FEET ON THE NORTHERN RIDGE OF MOUNT EVEREST



T EVEREST

Phot. by Capt. G. I. Finch



Morshead

Mallory

Somervell

Norton



Phot. by Capt. J. B. Noel

9. THE FIRST CLIMBING PARTY



8. THE EXPEDITION AT THE BASE CAMP

Geoffrey Bruce

Finch



Phot. by Capt. J. B. Noel

10. THE BRITISH MEMBERS OF THE SECOND CLIMBING PARTY



Phot. by Capt. J. B. Noel

Tejbir



Phot. by Capt. G. I. Finch

11. TEJBIR THE GURKHA N.C.O. OF THE SECOND CLIMBING PARTY



12. THE AVALANCHE TRACK OF JUNE 7, BELOW THE CHANG LA *Phot. by Capt. J. B. Noel*

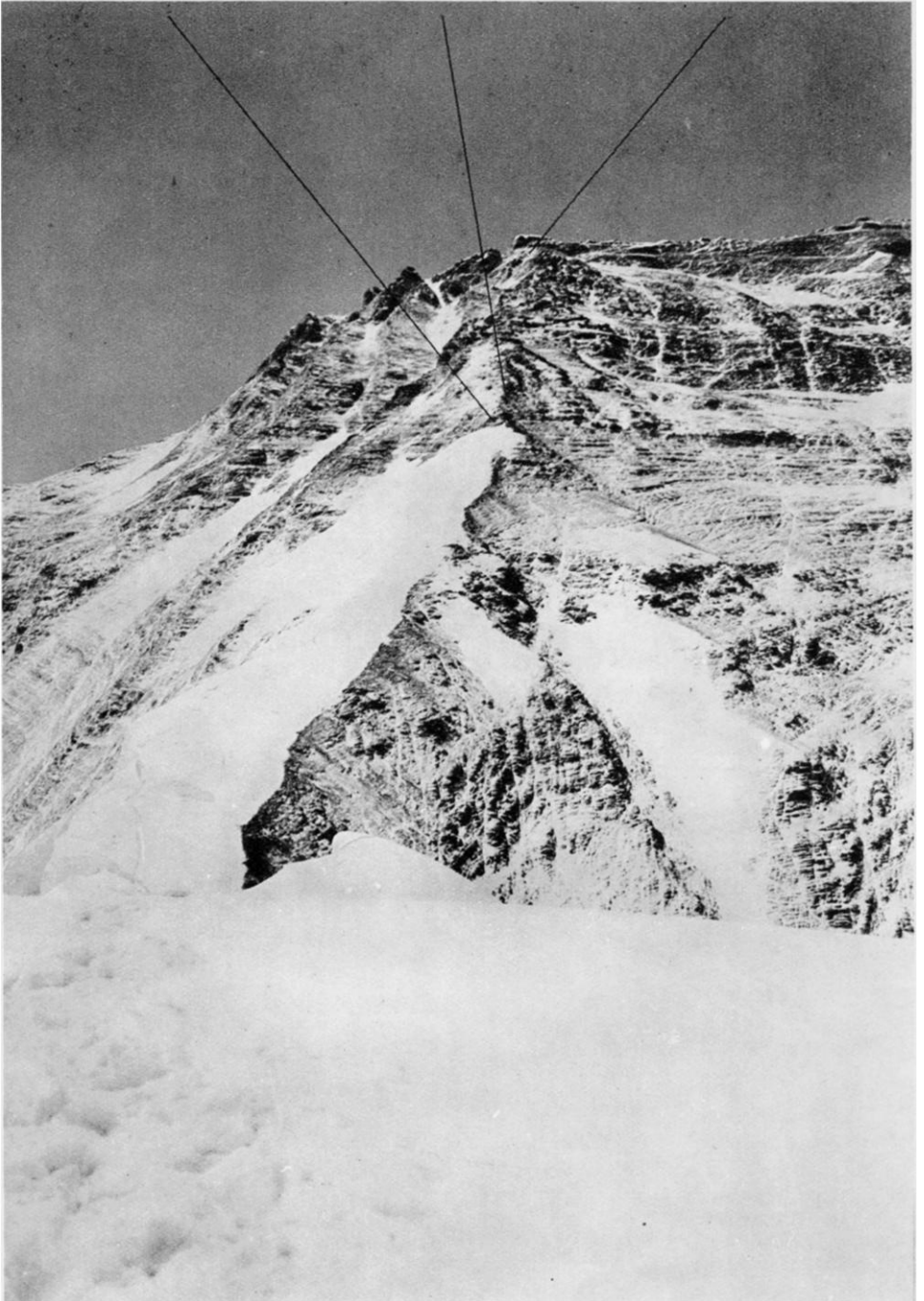


13. PARTY RESTING DURING THE ASCENT OF THE CHANG LA *Phot. by Capt. J. B. Noel*

Camp V
25,000 feet

Camp VI
25,500 feet

First Climb
highest point
26,985 feet



Phot. by Capt. G. I. Finch

14. THE NORTH FACE OF SUMMIT OF MOUNT EVEREST FROM THE CHANG LA

Second Climb
highest point
27,235 feet



Phot. by Capt. G. I. Finch

15. THE NORTHERN RIDGE OF MOUNT EVEREST FROM CHANG LA



was out of the question. We dared not relax our vigilance, for ever and again all our strength was needed to hold the tent down and to keep the flaps of the door, stripped of their fastenings by a gust that had caught us unawares, from being torn open. We fought for our lives, realizing that once the wind got our little shelter into its ruthless grip it must inevitably be hurled with us inside it down on to the East Rongbuk glacier, thousands of feet below.

And what of my companions in the tent? To me who had certainly passed his novitiate in the hardships of mountaineering, the situation was more than alarming. About Tejbir I had no concern; he placed complete confidence in his sahibs, and the ready grin never left his face. But it was Bruce's first experience of mountaineering, and how the ordeal would affect him I did not know. I might have spared myself all anxiety. Throughout the whole adventure he bore himself in a manner that would have done credit to the finest of veteran mountaineers, and returned my confidence with a cheerfulness that rang too true to be counterfeit. By one o'clock on the morning of the 26th the gale reached its maximum. The wild flapping of the canvas made a noise like that of machine-gun fire. So deafening was it that we could scarcely hear each other speak. Later, there came interludes of comparative lull, succeeded by bursts of storm more furious than ever. During such lulls we took it in turn to go outside to tighten up slackened guy-ropes, and also succeeded in tying down the tent more firmly with our Alpine rope. It was impossible to work in the open for more than three or four minutes at a stretch, so profound was the exhaustion induced by this brief exposure to the fierce cold wind. But with the Alpine rope taking some of the strain we enjoyed a sense of security which, though probably only illusory, allowed us all a few sorely needed moments of rest.

Dawn broke bleak and chill; the snow had ceased to fall, but the wind continued with unabated violence. Once more we had to take it in turns to venture without and tighten up the guy-ropes, and to try to build on the windward side of the tent a small wall of stones as an additional protection. The extreme exhaustion and the chill produced in the body as a result of each of these little excursions were sufficient to indicate that, until the gale had spent itself, there could be no hope of either advance or retreat. As the weary morning hours dragged on, we believed we could detect a slackening off in the storm. And I was thankful, for I was beginning quietly to wonder how much longer human beings could stand the strain. We prepared another meal. The dancing flames of the spirit stove caused me anxiety bordering on anguish lest the tent, a frail shelter between life and death, should catch fire. At noon the storm once more regained its strength and rose to unsurpassed fury. A great hole was cut by a stone in one side of the tent, and our situation thus unexpectedly became more desperate than ever. But Tejbir still smiled, and Bruce's cheerfulness was not found wanting; so we carried

on, making the best of our predicament until, at 1 o'clock, the wind dropped suddenly from a blustering gale to nothing more than a stiff breeze. Now was the opportunity for retreat to the safety of the North Col camp. But I wanted to hang on and try our climb on the following day. Very cautiously and tentatively I broached my wish to Bruce, fearful lest the trying experience of the last twenty-four hours had undermined his keenness for further adventure. Once again I might have spared myself all anxiety. He jumped at the idea, and when our new plans were communicated to Tejbir, the only effect upon him was to broaden his already expansive grin.

It was a merry little party that gathered round to a scanty evening meal cooked with the last of our fuel. The meal was meagre for the simple reason that we had catered for only one day's short rations, and we were now very much on starvation diet. We had hardly settled down for another night when, about 6 p.m., voices were heard outside. Our unexpected visitors were porters who, anxious as to our safety, had left the North Col that afternoon when the storm subsided. With them they brought thermos flasks of hot beef-tea and tea provided by the thoughtful Noel. Having accepted these most gratefully, we sent the porters back without loss of time.

That night began critically. We were exhausted by our previous experiences and through lack of sufficient food. Tejbir's grin had lost some of its expanse. On the face of Geoffrey Bruce, courageously cheerful as ever, was a strained, drawn expression that I did not like. Provoked, perhaps, by my labours outside the tent, a dead, numbing cold was creeping up my limbs—a thing I had only once before felt, and to the seriousness of which I was fully alive. Something had to be done. Like an inspiration came the thought of trying the effect of oxygen. We hauled an apparatus and cylinders into the tent, and, giving it the air of a joke, we took doses all round. Tejbir took his medicine reluctantly, but with relief I saw his face brighten up. The effect on Bruce was visible in his rapid change of expression. A few minutes after the first breath, I felt the tingling sensation of returning life and warmth to my limbs. We connected up the apparatus in such a way that we could breathe a small quantity of oxygen throughout the night. The result was marvellous. We slept well and warmly. Whenever the tube delivering the gas fell out of Bruce's mouth as he slept, I could see him stir uneasily in the eerie greenish light of the moon as it filtered through the canvas. Then half unconsciously replacing the tube, he would fall once more into a peaceful slumber.

Before daybreak we were up, feeling fresh and fit, though terribly hungry. We proceeded to make ready for our climb. Putting on our boots was a struggle. Mine I had taken to bed with me, and a quarter of an hour's striving and tugging sufficed to get them on. But Bruce's and Tejbir's were frozen solid, and it took them the best part of an hour

to mould them into shape by holding them over lighted candles. Shortly after six we assembled outside. Some little delay was incurred in arranging the rope and our loads, but at length at 6.30 a.m., soon after the first rays of the sun struck the tent, we shouldered our bundles and set off. What with cameras, thermos bottles, and oxygen apparatus, Bruce and I each carried well over 40 lbs. ; Tejbir with two extra cylinders of oxygen shouldered a burden of about 50 lbs. Our scheme of attack was to take Tejbir with us as far as the north-east shoulder, there to relieve him of his load and send him back. The weather was clear. The only clouds seemed so far off as to presage no evil, and the breeze, though intensely cold, was bearable. But it soon freshened up, and before we had gone more than a few hundred feet the cold began to have its effect on Tejbir's sturdy constitution, and he showed signs of wavering. Bruce's eloquent flow of Gurumuki, however, managed to boost him up to an altitude of 26,000 feet. There he collapsed entirely, sinking face downwards on to the rocks and crushing beneath him the delicate instruments of his oxygen apparatus. I stormed at him for thus maltreating it, while Bruce exhorted him for the honour of his regiment to struggle on ; but it was all in vain. Tejbir had done his best ; and he has every right to be proud of the fact that he has climbed to a far greater height than any other native. We pulled him off his apparatus and, relieving him of some cylinders, cheered him up sufficiently to start him with enough oxygen on his way back to the high camp, there to await our return. We had no compunction about letting him go alone, for the ground was easy and he could not lose his way, the tent being in full view below.

After seeing him safely off and making good progress, we loaded up Tejbir's cylinders, and, in view of the easy nature of the climbing, mutually agreed to dispense with the rope, and thus enable ourselves to proceed more rapidly. Climbing not very steep and quite easy rocks, and passing two almost level places affording ample room for some future high camp, we gained an altitude of 26,500 feet. By this time, however, the wind, which had been steadily rising, had acquired such force that I considered it necessary to leave the ridge and continue our ascent by traversing out across the great northern face of Mount Everest, hoping by so doing to find more shelter from the icy blasts. It was not easy to come to this decision, because I saw that between us and the shoulder the climbing was all plain sailing and presented no outstanding difficulty. Leaving the ridge, we began to work out into the face. For the first few yards the going was sufficiently straightforward, but presently the general angle became much steeper, and our trials were accentuated by the fact that the stratification of the rocks was such that they shelved outward and downward, making the securing of adequate footholds difficult. We did not rope, however. I knew that the longer we remained unroped, the more time we should save—a consideration of vital importance. But as I led out over these steeply sloping, evilly smooth slabs, I carefully

watched Bruce to see how he would tackle the formidable task with which he was confronted on this his first mountaineering expedition. He did his work splendidly and followed steadily and confidently, as if he were quite an old hand at the game. Sometimes the slabs gave place to snow—treacherous, powdery stuff, with a thin, hard, deceptive crust that gave the appearance of compactness. Little reliance could be placed upon it, and it had to be treated with great care. And sometimes we found ourselves crossing steep slopes of scree that yielded and shifted downwards with every tread. Very occasionally in the midst of our exacting work we were forced to indulge in a brief rest in order to replace an empty cylinder of oxygen by a full one. The empty ones were thrown away, and as each bumped its way over the precipice and the good steel clanged like a church bell at each impact, we laughed aloud at the thought that “There goes another 5 lbs. off our backs.” Since leaving the ridge we had not made much height although we seemed to be getting so near our goal. Now and then we consulted the aneroid barometer and its readings encouraged us on. 27,000 feet; then we gave up traversing and began to climb diagonally upwards towards a point on the lofty north-east ridge, midway between the shoulder and the summit. Soon afterwards an accident put Bruce’s oxygen apparatus out of action. He was some 20 feet below me, but struggled gallantly upwards as I went to meet him, and, after connecting him on to my apparatus and so renewing his supply of oxygen, we soon traced the trouble and effected a satisfactory repair. The barometer here recorded a height of 27,300 feet. The highest mountain visible was Cho Uyo, which is just short of 27,000 feet. We were well above it, and could look across it into the dense clouds beyond. The great west peak of Mount Everest, one of the most beautiful sights to be seen from down in the Rongbuk valley, was hidden, but we knew that our standpoint was nearly 2000 feet above it. Everest itself was the only mountain-top which we could see without turning our gaze downwards. We could look across into clouds which lay at some undefined distance behind the north-east shoulder, a clear indication that we were only a little, if any, below its level. Pumori, an imposing ice-bound pyramid, 23,000 feet high, I sought at first in vain. So far were we above it that it had sunk into an insignificant little ice hump by the side of the Rongbuk glacier. Most of the other landmarks were blotted out by masses of ominous yellow-hued clouds swept from the west in the wake of an angry storm-wind. The point we reached is unmistakable even from afar. We were standing on a little rocky ledge, just inside an inverted V of snow, immediately below the great belt of reddish-yellow rock which cleaves its way almost horizontally through the otherwise greenish-black slabs of the mountain. Though 1700 feet below, we were well within half a mile of the summit, so close indeed that we could distinguish individual stones on a little patch of scree lying just underneath the highest point.

Ours were truly the tortures of Tantalus; for, weak from hunger and exhausted by that nightmare struggle for life in our high camp, we were in no fit condition to proceed. Indeed, I knew that if we were to persist in climbing on, even if only for another 500 feet, we should not both get back alive. The decision to retreat once taken, no time was lost, and, fearing lest another accidental interruption in the oxygen supply might lead to a slip on the part of either of us, we roped together. It was midday. At first we returned in our tracks, but later found better going by aiming to strike the ridge between the north-east shoulder and the North Col at a point above where we had left it in the morning. Progress was more rapid, though great caution was still necessary. Shortly after 2 p.m., we struck the ridge and there reduced our burdens to a minimum by dumping four oxygen cylinders. The place will be easily recognized by future explorers; those four cylinders are perched against a rock at the head of the one and only large snow-filled couloir running right up from the head of the East Rongbuk glacier to the ridge. The clear weather was gone. We plunged down the easy broken rocks through thick mists driven past us from the west by a violent wind. For one small mercy we were thankful—no snow fell. We reached our high camp in barely half an hour, and such are the vagaries of Mount Everest's moods that in this short time the wind had practically dropped. Tejbir lay snugly wrapped up in all three sleeping-bags, sleeping the deep sleep of exhaustion. Hearing the voices of the porters on their way up to bring down our kit, we woke him up, telling him to await their arrival and to go down with them. Bruce and I then proceeded on our way, met the ascending porters and passed on, greatly cheered by their bright welcomes and encouraging smiles. But the long descent, coming as it did on the top of a hard day's work, soon began to find out our weakness. We were deplorably tired, and could no longer move ahead with our accustomed vigour. Knees did not always bend and unbend as required. At times they gave way altogether and forced us, staggering, to sit down. But eventually we reached the broken snows of the North Col, and arrived in camp there at 4 p.m. A craving for food, to the lack of which our weakness was mainly due, was all that animated us. Hot tea and a tin of spaghetti were soon forthcoming, and even this little nourishment refreshed us and renewed our strength to such an extent that three-quarters of an hour later we were ready to set off for Camp III. An invaluable addition to our little party was Captain Noel, the indefatigable photographer of the expedition, who had already spent four days and three nights on the North Col. He formed our rearguard and nursed us safely down the steep snow and ice slopes on to the almost level basin of the glacier below. Before 5.30 p.m., only forty minutes after leaving the col, we reached Camp III. Since midday, from our highest point we had descended over 6000 feet; but we were quite finished.

That evening we dined well. Four whole quails truffled in *pâté-de-foie gras*, followed by nine sausages, left me asking for more. The last I remember of that long day was going to sleep, warm in the depths of our wonderful sleeping-bag, with the remains of a tin of toffee tucked away in the crook of my elbow.

Next morning showed that Bruce's feet were sorely frostbitten. I had practically escaped ; but the cold had penetrated the half-inch-thick soles of my boots and three pairs of heavy woollen socks, and four small patches of frostbite hampered me at first in my efforts to walk. Bruce was piled on to a sledge, and I journeyed with him as his fellow-passenger. Willing porters dragged us down until the surface of the glacier became so rough as to impose too great a strain on our slender conveyance with its double burden.

Our attack upon Mount Everest had failed. The great mountain with its formidable array of defensive weapons had won ; but if the body had suffered, the spirit was still whole. Reaching a point whence we obtained our last close view of the great unconquered Goddess Mother of the Snows, Geoffrey Bruce bade his somewhat irreverent adieux with "Just you wait, old thing, you'll be for it soon!"—words that still are expressive of my own sentiments.

THE MOUNT EVEREST PHOTOGRAPHS

THE photogravures from this year's photographs published in the October *Journal* were concerned mainly, though not entirely, with the journey from Darjeeling to the Base in the Rongbuk valley below the snout of the main glacier. In this number, which contains the account of the two record-breaking high climbs, we publish a second series illustrating more particularly the alpine climbing and the personnel of the expedition.

Plate 1 shows the east Rongbuk glacier above Camp II., looking up to the south-east. Last year the climbing party came over the Lhakpa La at 22,500 feet, lying somewhere behind the hill in the centre of the picture, and crossed the smooth upper glacier to the Chang La. The route was not difficult, and the Kharta valley was a much more favourable camping-ground than the Rongbuk. But there was always the danger of a 22,500-foot pass in the line of communication and retreat ; whence the preference this year for the East Rongbuk route, despite the frightful séracs and the great medial trench described by Colonel Strutt, and very well shown in this picture. The route lies along the foot of the moraine slope to a point near the right-hand edge of the picture, and then strikes out through the séracs to the centre.

Plates 2 and 3 are enlarged from two V.P.K. negatives made by Mr. Somervell. They are taken much higher than any photographs were ever before made on the Earth's surface, and they are the only photographs

made above about 24,000 feet on this year's expedition. We understand that Mr. Somervell exposed several other films at Camp V., and spoiled them in development. Captain Finch found it impossible to give any attention to photography in the upper stages of his climb, though he took some excellent pictures from about 24,000 feet, reproduced later. Mr. Somervell's pair taken close to 27,000 feet are therefore of particular interest and importance. They show that the way to the summit is rough and dangerous from the unfavourable disposition of slabs lightly covered with snow; but there are no serious climbing difficulties except possibly on the 500 feet below the summit. The point reached by Finch and Geoffrey Bruce is included in Plate 3, a little above the centre of the picture and a little to the right of what appears to be the summit, though the true summit lies a little further back.

Plates 4 and 5 were taken by Captain Finch. The first shows a frostbitten climber from the second high climb being helped down through the séracs; the second an oxygen party resting at Camp IV. on the ice-ledge below the Chang La. The fantastic surroundings of this camp are admirably seen in Plate 6, looking north over Camp IV. to the Changtse. Mr. Mallory's account relates how on the first climb the party were stopped at once by a crevasse, and had to retrace their steps some distance northward before they could find a way on to the col. The track is dimly shown in the shadow above the tents, leading up towards the precipitous western edge of the col.

Plate 7 is made by joining two photographs taken by Captain Finch from about 24,500 feet on the northern arête. On the left one looks down to the head of the main Rongbuk glacier and across the West Rongbuk towards Gyachung Kang and Cho Uyo. Pumori on the left is hidden in clouds which conceal also the solution to the still undetermined problem: Where is the head of the West Rongbuk glacier, and where does the watershed lie? Evidently two important branches of the glacier descend from the Cho Uyo group; but the topography here is still unknown, and the principal head of the glacier may yet be found to lie close to the Khombu La. The long ridge of Changtse in the centre of this plate looks more precipitous than it really is, because the camera was tilted downwards to show the glaciers. And over the ridge we can see the "light rock peak" of Kellas which remains unnamed, and all the range of peaks lying east of the East Rongbuk.

Plates 8, 9, 10, and 11 show the two climbing parties, Lance-Naik Tejbir belonging to the second. The figure in the long picture of the whole party, above Finch and between Geoffrey Bruce and Somervell, is Mr. John Macdonald, son of the British trade-agent at Gyantse, who had come up with a consignment of money and remained some weeks with the party.

Plate 12 shows, a little to the right of the centre, the track of the avalanche that overwhelmed the third attempt, with the ice-cliff over which

the porters were carried. Plates 14 and 15, from photographs by Captain Finch, have been marked to show the approximate sites of Camps V. and VI. and the higher points of the two high climbs. The pictures overlap, but are tilted rather differently and cannot be joined accurately. It has therefore seemed best to reproduce them separately. They give a striking representation of the bare and unattractive northern face before the monsoon snow has whitened it.

The last picture, No. 16, is geographically important, since it shows clearly for the first time the glacier running down into Nepal from the ice-col at the head of the main Rongbuk. This glacier comes out of the western cwm, and Mallory looked down it in 1921, but bad weather made his photograph rather unsuccessful. We see here that the watershed runs over this col and over Pumori. What happens to it later will not be known until a third expedition is able to devote a little time and energy to geography.

GEOLOGICAL NOTES FROM THE OXFORD EXPEDITION TO SPITSBERGEN

N. E. Odell

(Contributed to the discussion following Mr. Frazer's paper, p. 335.)

THE dominant character of the mountains around Klaas Billen Bay is their terraced structure due to the horizontally bedded Carboniferous rocks and the varying hardness of their component zones. These zones include limestones, chert series, gypsiferous series, and kulm sandstones. Pronounced block-movements have given rise to plateaux, valleys, and fiords. The Carboniferous rocks rest unconformably on a complex base of granites and gneisses with, possibly, metamorphosed sediments. This complex comes to the surface only on the north side of the Nordenskiöld Glacier and in the base of Mount Terrier, where its vertical foliation and strike are well exposed. The main point of interest about this occurrence in Mount Terrier is the nature of the unconformity between the Carboniferous series and the basement complex. It consists of a great plain sloping slightly westwards, and it would appear to be part of a great "base-level" plain, such as that of Cretaceous age traced by Baron De Geer over the greater part of Spitsbergen. I found sandstone beds, but no conglomerate, resting directly on this plain along the whole south face of Mount Terrier, and from this and other considerations it would appear that it forms part of a great eroded surface of Middle-Carboniferous age. Looking east from the high interior of "Garwood Land," the flat-topped ranges to the north of Mount Svanberg at once suggest themselves as the continuation of this great plain of erosion.