be argued definitely whether the monsoon season is not the *best* for expeditions among the greatest Himalayan heights.

The bitterness of defeat is effaced almost from my memory by the joy of the salvation of all our friends and all our porters; by the fact that between us nine, despite all weariness and exhaustion, there never was the shadow of a dispute, and that we stand still closer together than even before. The remembrance of warm comradeship, Germans and Britons allied together in the fight for the giants of the Himalaya; the knowledge of friendship, binding us with so many over there in India, will be with us for ever.

[We must again express our sincerest thanks to Dr. Bauer for the privilege of being able to publish the narrative of a feat without parallel, perhaps, in all the annals of mountaineering.—*Editor*, 'A.J.']

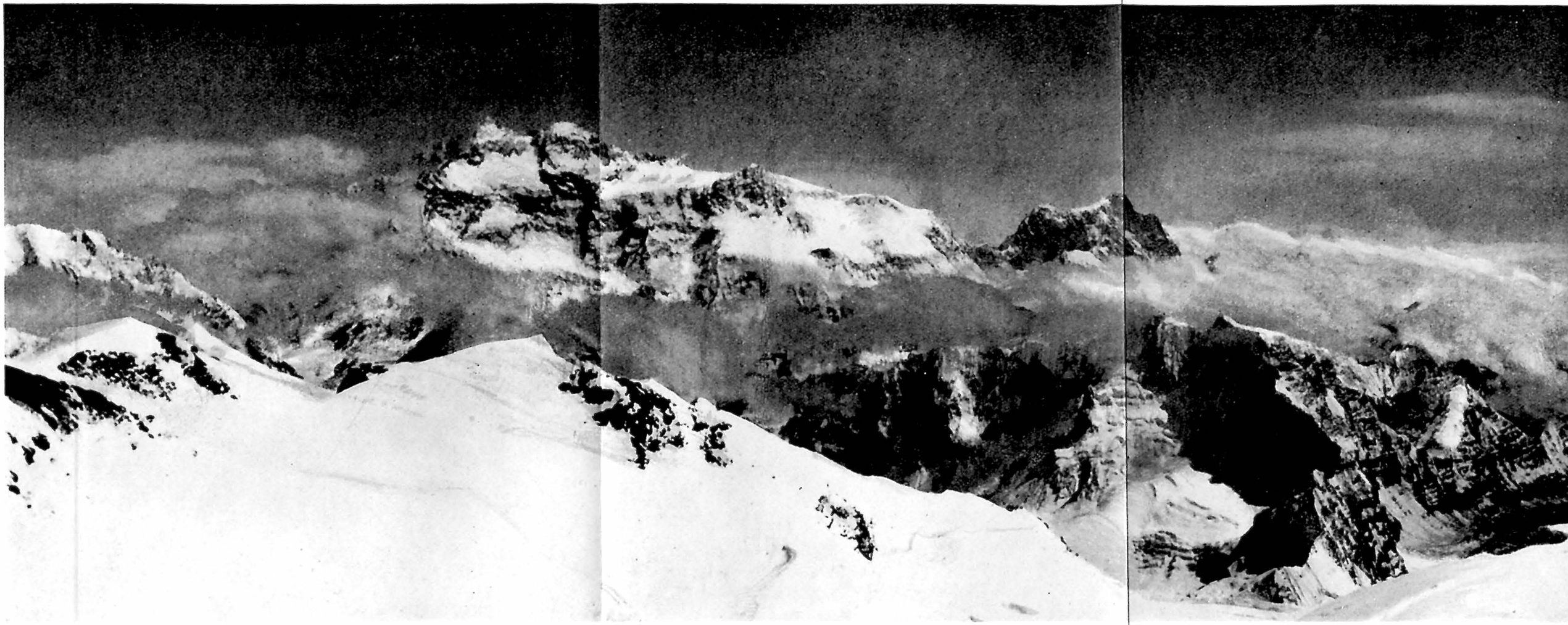
The Assault on Kangchenjunga, 1930.

By F. S. SMYTHE.

(Read before the Alpine Club, November 4, 1930.)

WHETHER or not Kangchenjunga is the second or third highest mountain in the world has not yet been ascertained definitely. Allowing for various corrections, such as refraction and levelling, it has been placed, unofficially, as superior by a few feet to its great rival K_2 in the Karakorams. Actually, allowing for the errors which are liable to creep into the most accurate Himalayan surveying, to say nothing of a fluctuating snowfall, and even the geological uplift stated to be still raising the greater Himalayan summits, it can be assumed that there is practically nothing in it one way or the other. However, according to the 'Himalayan Journal,' the *latest* heights are: K_2, 28,250 ft.; Kangchenjunga, 28,227 ft., with a possible error each way of 12 ft.

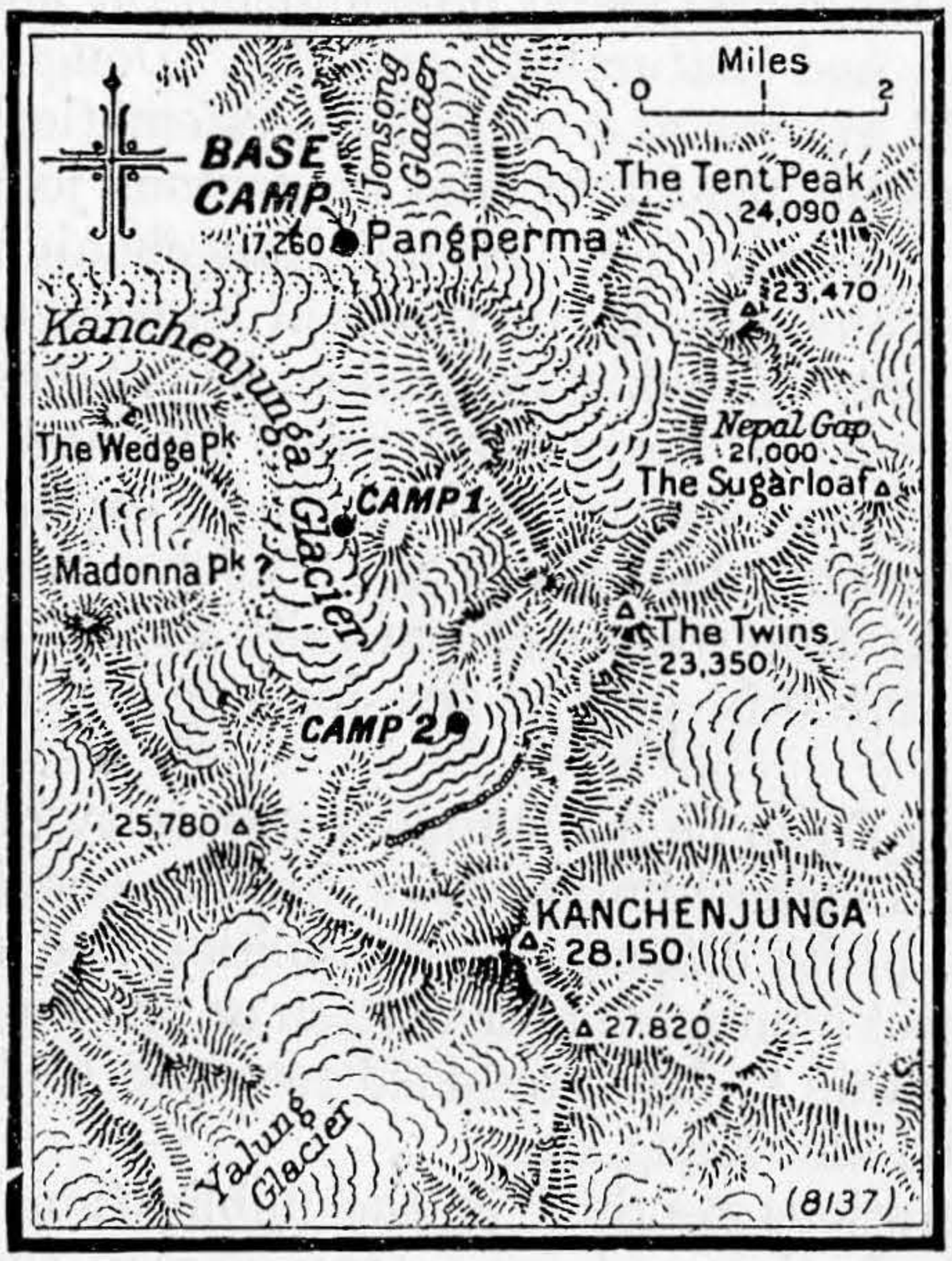
In a general way there are two types of mountain peaks: the mountain that forms its own massif, and possesses its own glaciers and valleys descending to low levels; and the mountain which is merely a point projecting above a complicated glacier system. Kangchenjunga is a good example of the former; K_2 of the latter. Everest stands at the dividing line between the two types. Only in height does it surpass Kangchenjunga;



Photo, F. S. Smythe.

KANGCHENJUNGA and JANNU from Summit of JONSONG Peak
(showing Upper Part of Kangchenjunga's N. Arête).

in beauty of form, and variety of scenery, flora, and climate, Kangchenjunga stands supreme above all other great peaks. It is not on the main watershed of the Himalayas, but juts out like a peninsula to the S. For this reason Kangchenjunga experiences the full force of the monsoon. Thus it has two winters, one normal, and the other the monsoon, splitting up the summer into two portions. The monsoon deposits rain only up to 17,000–19,000 ft.; above that it deposits snow.



By courtesy of 'The Times.']

There is an enormous precipitation of snow annually on Kangchenjunga, a precipitation probably at least three times greater than that of the Alps. The result is an abundance of hanging glaciers, all in a constant state of downward movement. There is no more terrible mountain in the world for ice avalanches. Owing to the monsoon there are only two seasons during which the mountain can be attacked. Both may be termed spring seasons. The mountaineer who goes before the monsoon experiences avalanche danger from the winter snows, and the mountaineer who goes after experiences danger from the monsoon snows. Thus, there is no real climbing season as we know it in the Alps, and little more than a month of reasonable weather can be expected on either side

of the monsoon. This weather is only too liable to be spoilt by local disturbances, including terrible westerly winds, blowing literally for weeks on end.

From these bald details it will be seen what a formidable proposition the mountaineer is up against. Even assuming the mountain to be easy, everything else is against him. And the mountain is not easy.

The history of Kangchenjunga is linked with that of many names famous in mountaineering, topography, and scientific history. Of these two stand pre-eminent, Sir Joseph Hooker, the explorer and naturalist, and Mr. Douglas Freshfield. Mr. Freshfield was the first to explore systematically the glacial approaches of the mountain, and his famous journey in 1899, so admirably described in 'Round Kangchenjunga,' was one of the boldest and most useful pieces of Himalayan exploration ever carried out. Leaving Darjeeling, he ascended the Teesta Valley, explored the Zemu Glacier and the possibilities of the great eastern face. Driven out from there by an exceptionally severe snow-storm, he crossed the Thé La into the Lhonak Valley, and in deep snow and generally unpleasant conditions crossed the 20,200-ft. pass of the Jonsong La, and descended into Nepal.

On the way down he had ample opportunity of studying the great face of Kangchenjunga above the Kangchenjunga Glacier. His analysis of its difficulties, possibilities, and danger was, I think, the most admirable ever written on the problem afforded by any mountain.[1] Mr. Freshfield returned to Darjeeling *via* the Mirgin La and Kang La.

His explorations resulted in the publication of a map by Professor E. J. Garwood, who accompanied the expedition; a map which, as we found, is amazingly accurate, and is still recognized by the Survey of India as being the most reliable one of that locality.

It should be realized that all the approaches to Kangchenjunga were explored in the first place by British pioneers, and that, therefore, no succeeding party can regard the mountain or any ridge upon it as a 'discovery.'

With the exploration of the approaches, it was only a matter of time before someone attempted to reach the summit. The first attempt was made in 1905 by a mixed party under the leadership of one Aleister Crowley, author of an intriguing volume entitled 'The Confessions of Aleister Crowley,' and an

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[1] *Round Kangchenjunga*, pp. 171–2; *A.J.* **22,** 122.

expert in black magic—if not in mountaineering! This party marched up the Yalung Glacier, and attempted the face above. The attempt ended in disaster, one European, and three native porters being killed.

Kangchenjunga remained untouched for 15 years, until Raeburn and Crawford's attempt in 1920, resulting in little more than a reconnaissance owing to continuously bad weather.

In the early summer of 1929 a young American, Mr. E. F. Farmer, accompanied only by porters, marched up the Yalung Glacier and, leaving his porters, attempted to reach the Talung Saddle *alone*. He was never seen again. Close examination of the porters, including Lobsang, his sirdar, revealed that he alone was to blame, and that he paid the penalty for contravening a first principle of mountaineering.[2] None of these, still less the Crowley effort, can be considered genuine attempts on the mountain. Indeed, Kangchenjunga did not even call in its greatest weapons of defence—storm, cold, and avalanche—it simply let its attackers defeat themselves. But its complacency was to be rudely shaken in the autumn of 1929.

A party of Munich mountaineers, under the leadership of Dr. Paul Bauer, left Darjeeling and, proceeding up the Teesta Valley, established their base camp on Green Lake Plain, at the same spot where Mr. Freshfield camped in 1899. From there they attacked a tremendous ice-draped spur plunging downwards from the N. ridge to the Zemu Glacier from a point about 2000 ft. below the summit. The difficulties of this spur were extraordinary, while the labour of porterage was immense. Once again the Himalayan porters—Sherpas, Bhutias, and Tibetans—showed what stuff they were made of. At a height of 24,000 ft. they were overtaken by a storm of great severity, during which no less than 7 ft. of snow fell. All hope of reaching the summit had to be abandoned. It was a question whether they could even retreat, and that they were able to achieve this proves the skill and courage of this gallant party. In fact, in the forthcoming article by Dr. Bauer in the current JOURNAL, the Editor describes their attempt as 'a feat without parallel, perhaps, in all the annals of mountaineering.'

There is only one criticism, and that is that the party, when they considered that no further difficulties existed between their highest camp and the summit, totally underestimated the mountain. Some idea of the difficulties overcome may be gauged from the fact that in reaching 24,000 ft. the party took more

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[2] See p. 363 *et seq.*

than twice as long as the Everest expedition did to attain 28,000 ft., from their base camp. Time and weather will repulse many future attempts on Kangchenjunga.

To climb Kangchenjunga had been the ambition of Professor, and no less of Frau, Dyhrenfurth for several years. The party to leave Europe under the leadership of the Professor consisted of Marcel Kurz, Dr. Richter, who besides acting as medical officer was correspondent to the German papers, H. Hoerlin, E. Schneider and U. Wieland: Hoerlin and Schneider being the German equivalent of that well-known Swiss pair, Amstutz and Schumacher. C. Duvanel was engaged as film operator. My own particular job, besides climbing, was to act as special correspondent and photographer to 'The Times.'

Before leaving Europe we were the recipients of much good advice from various members of this Club, including General Bruce and Colonel Strutt. Professor Dyhrenfurth was told what clothes and boots he should equip his climbers with, equipment founded on the experiences of many previous Himalayan, to say nothing of Polar, expeditions, and it is unlucky that this advice was not taken. Fortunately, I had myself some inkling as to what was to be provided, so I equipped myself with plenty of Shetland woollies and light underclothing. It was as well I did so, for when I saw the equipment that had been supplied, I found that I was expected to carry a total weight, including an ice-axe (but *not* a rucksack), of 32½ lbs. to the top of Kangchenjunga, nearly a quarter of my own weight. The boots, with crampons, alone weighed 12½ lbs.! Weight does not spell warmth, and it is over the graves of former mistakes, and not on the wings of new ideas, that the greatest Himalayan peaks will be conquered.

We arrived at Darjeeling towards the end of March, having abandoned at Bombay the 500 bottles of beer presented to the expedition by some philanthropist. But even without these, we had about 8 tons of stores. How it was all to be got to the base camp was simply impossible of conception. Colonel H. W. Tobin, the Darjeeling Secretary of the Himalayan Club, kindly volunteered his services as transport officer, and I shall not easily forget his face when, on entering the 'Go-down' that had been rented, he was confronted with the expedition's goods. We were fortunate in being able to obtain the services of Mr. G. W. Wood Johnson, who joined the expedition both as a climber and transport officer, and Mr. J. S. Hannah. Wood Johnson was invaluable to the expedition,

for he is a tea-planter by profession, speaks excellent Nepali, and is used to the management of native labour.

We were lucky also in having Mr. W. J. Kydd, at Darjeeling, to manage our mail and dispatches—no light task. Owing to the kind offices of Field-Marshal Sir William Birdwood, we were loaned a Gurkha N.C.O., who proved a very great help to the expedition. For sirdars we had Lobsang, Narsang, Naspati, and Gyalgen; of these Lobsang was incomparably the best.

On arrival in India we sought permission to pass through Nepal and attack Kangchenjunga from the west, but owing to the non-arrival of this permission were forced to plan an attack from the Zemu Glacier. Consequently, when at the last moment the Nepalese permit arrived, all our plans had to be altered.

As regards porters, many old Everest 'Tigers' were still keen to undergo perils and hardships of the nature of which they were fully aware. General Bruce had given me an introduction to his old servant, Lhakpa Chede. In this letter he flatteringly, if inaccurately, referred to me as his grandson. The effect of this was far-reaching, and I was henceforth known as the Nati Sahib, a fact proving with what esteem and affection the leader of two Everest expeditions is regarded in this part of the world. Although Lhakpa Chede could not come, I had for my servant Nemu, formerly 'Sandy' Irvine's servant. No one could have been more faithfully served than I was. Among the best of our porters must be mentioned Chetin, Lewa, Tsinabo, and Sonam, but these are but a few names among many equally good. No fewer than 400 porters had to be engaged, as mule or pony transport is impossible beyond Yoksam, five marches from Darjeeling. To obtain them we had to scour the Bazaar, and, as a result, many of the men we engaged were no good for the job.

Owing to the size of the expedition, Colonel Tobin considered it advisable to split up into three parties: the first with Wood Johnson as transport officer left on April 7, the porters leaving the day before; the second under the charge of Hannah was to leave the following day; and Colonel Tobin was to bring up the rear with 80 mule-loads of stores. The arrangement was that the first and second parties should send back porters over the Kang La to carry Colonel Tobin's stores over that pass. Unfortunately, however, neither Wood Johnson nor I knew anything whatever about this arrangement which had been made between Professor Dyhrenfurth and Colonel Tobin, with

the result that a complete breakdown later was only narrowly averted.

To reach our base camp we had to cross the Kang La, 16,373 ft., and the Mirgin La, 15,000 ft. The winter was a late one, and snow lay deeply on these passes. From Darjeeling we had to pass up and down over the intervening foothills, through some of the most beautiful scenery in the world. To begin with we were attacked by innumerable leeches, the most unpleasant pest of the great tropical forests that line the lower valleys of this part of the Himalayas. We arrived at Dzongri in a blizzard. The next morning 50 porters deserted. I do not blame them; clad as they were in cotton clothing, and without boots, it was hardly to be expected that they should traverse a pass that involved thousands of feet of snow travelling.

Beyond Dzongri we pitched camp at about 12,000 ft. below the Kang La. Owing to the doubtful weather, Professor Dyhrenfurth decided to cross the pass in one day. It was a gruelling business: Wood Johnson remained behind to see that the porters got over the pass, and I went back from the camp to help him. Many of the porters were completely exhausted. There was one old man, I remember, who, although bare-footed and staggering, refused to abandon his load. Wood Johnson was almost dead-beat himself, for he actually carried many of the loads up the last slope of the pass. It was not until after darkness that a little string of worn-out men stumbled down the last slopes to camp.

Meanwhile, Hoerlin and Schneider had made the ascent of the Kang Peak, about 18,000 ft., lying to the S. of the Kang La.

The following day, April 17, we descended to Tseram. The porters had now been marching for eleven days without a rest, and they were completely worn out. A large number of them had actually traversed the Kang La in bare feet, and had carried loads of 80 lbs. on their backs. No words of mine can express the admiration I feel for them for their effort. Many were snow-blind, too, and one or two had frost-bitten feet. We were a dilapidated party, and badly in need of rest and reorganization.

We had hoped to find porters and food sent up by the Nepalese Authorities, but these had not arrived, and we heard that the Subadar appointed by the Maharajah to look after us was some 20 miles down the valley. We accordingly dispatched Naik Tickeram Thapa, our Gurkha N.C.O., in search of him.

We had received a telegram asking us to make every possible search and inquiry for Farmer. It was suggested that we should look for him at the Decherol Monastery, but we found this to be a complete ruin. While investigating for traces of him up the Yalung Valley, Wood Johnson and I had an amusing experience. My servant, Nemu, suddenly became paralysed with terror, and declared that he had seen a snow-man. We crouched behind some rocks, and looking down the valley saw something moving among the boulders. We waited for a quarter of an hour, then suddenly, with majestic tread, out walked an enormous yak.

With the arrival of the Nepalese Subadar and a small quantity of coolie food, we were able to leave Tseram on April 21 and cross the Mirgin La to Khunza. On the way we passed the mouth of the still unexplored Yamatari Valley. Looking up it we could see some magnificent ice-peaks, whilst at the head of the Yamatari Glacier, Jannu rose in all its superb magnificence.[3] At Khunza we found that no provisions had been sent up from the lower villages, and the situation with only one day's coolie food left was a serious one. Fortunately, after some persuasion on the part of the Subadar, the Headman of Khunza produced several maunds, enabling us to carry on to the base camp.

At Khunza we were entertained to a devil dance at the quaint old monastery there, and not to be outdone in politeness, we 'obliged' with our gramophone. No one had ever seen a European before except the Headman, who remembered Mr. Freshfield. None of them had ever seen or heard a gramophone. The Chief Lama seemed to think that Messrs. Layton and Johnstone were the two holiest Lamas in Britain.

From Khunza we marched up the valley to Kangbachen, through woods carpeted with primulae, while above all towered cathedral-like peaks. At the end of the day we had to toil over the huge moraine of the Jannu Glacier, arriving tired at Kangbachen. Many of the porters did not turn up at all, and bivouacked out in the woods.

Owing, apparently, to intermarriage, a number of the inhabitants of Kangbachen are dwarfs. The fatigue of the porters made it essential for them to have an easy day. Professor Dyhrenfurth agreed with Wood Johnson, therefore, on a 3-hrs.' march. This information was passed on to the

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[3] *A.J.* **20,** illustration facing 177.

porters, who were quite agreeable. Wood Johnson and I were the last to leave. It took us 5-hrs.' walking, unladen as we were, to reach the spot at which the others had camped, and this in a severe blizzard lasting all night. The site selected was at some tumbledown yak huts at the spot marked in the map as Ramthang. More than half the porters never arrived in camp, and spent the night out, many of them without shelter, in the blizzard.

On the following day we ascended the northern moraine of the Kangchenjunga Glacier to a spot a little below the corner that Mr. Freshfield calls Pangperma, where on a bleak, chilly, and damp grassy shelf we made our base camp. During the 4 following days we devoted our time to digging ourselves in, while preparing for the attack on Kangchenjunga.

Some superb peaks are in the vicinity of the base camp, the finest of them being the Wedge Peak. The western face of Kangchenjunga is also seen, but although farther away, the great mountain loses little of its grandeur. Directly above the base camp are some of 19,000–23,000 ft. peaks. Wieland reached the summit of one of these, which is rather less than 20,000 ft., whilst Wood Johnson and I were beaten by a storm within 200 ft. of the summit of another higher and more difficult peak. The weather was bad, afternoon snow-storms being the rule.

As neither Wood Johnson nor I knew anything of the transport arrangements made with Colonel Tobin, the latter was, through no fault of his own, in serious difficulties on the Kang La. Had Wood Johnson realized this, he would, of course, have sent back local men from Khunza to Colonel Tobin's help. The same applies in a lesser degree to Hannah's *bandobast*. Colonel Tobin had made a number of recommendations, including the leaving of a European at Khunza, but none of these were adopted. The result was that a complete breakdown in transport was only saved by unremitting toil on the part of Colonel Tobin, and later by Wood Johnson and Hannah.

We left the base camp on May 1 and, ascending the Kangchenjunga Glacier, established Camp I about a mile from the cliffs of Kangchenjunga itself. We were now able to see what we were up against. Tiers of ice-walls, anything up to 1000 ft. in thickness, ran for miles across the mountain face forming the edge of hanging glaciers liable to discharge huge ice avalanches at any moment. Our sole hope was to reach the N. ridge from the eastern tributary of the Kangchenjunga Glacier. We had hoped to find rocky shelves which Mr. Freshfield



Photo, F. S. Smythe.

KANGCHENJUNGA (much foreshortened) from Camp 1; N. Ridge (in profile) on left.



Photo, F. S. Smythe.

Ice Avalanche from KANGCHENJUNGA about to sweep route between Upper and Lower Camps 2 and also site of Lower Camp 2.

had suggested might exist, but discovered instead hopeless precipices of rock and ice. Camp II was established at about 19,500 ft. up the eastern tributary glacier. From there we saw that the only way of reaching the N. ridge was to gain the lowest of three terraces stretching across the face of the mountain. The lower terrace is defended by a wall of ice varying in height between 700 and 1000 ft.

Professor Dyhrenfurth decided to attack this near its end under the N. ridge. This settled, he and Kurz, neither feeling at all fit and both suffering from high altitude throats, went down to the base camp. I must confess that until it was decided to attempt this ice-wall no thought of going on entered my head. A higher camp was established at about 20,000 ft. up the glacier, and from there Wieland, Wood Johnson and myself, who were the only fit members of the expedition, set out to investigate the route.

We found ourselves up against the toughest proposition any of us had ever tackled. The first day was devoted to making a staircase part of the way along a sloping ice-shelf. Then, in response to an urgent message from the base camp, Wood Johnson had to return with Hannah, who had only just arrived, and go down to Khunza in an endeavour to overcome the transport delay. This left only Wieland and myself, and we spent a very hard day finishing the traverse of the shelf; we then started work on a vertical or overhanging face about 30 ft. high. 'Welzenbach' pitons were used and hammered into the ice, the rope was then clipped through detachable rings, and finally through the permanent piton rings. It was certainly the most desperately difficult and dangerous ice-work that I have ever tackled, and had I had any say at all in the matter I should definitely have struck, because the risk of an avalanche occurring was too obvious to be ignored.

At the end of the second day Schneider came up, and on the third day we completed the ascent of the 30-ft. wall. Above this the ice 'eased off' to about 70°, sweeping up for about 200 ft. to the foot of another 60-ft. wall of vertical ice. At the end of these three days Wieland and I were tired, so the work was continued by Schneider and Hoerlin, the latter of whom had also arrived. They cut steps up to the foot of the final 60-ft. wall—a splendid piece of work.

All the time that we had been working many huge avalanches had fallen from the cliffs of Kangchenjunga. The weather, moreover, had been bad, and much of the work on the ice-wall

had been accomplished in heavy snow-storms. By the end of the fourth day I was sleeping badly. In fact, I lay awake for much of the night tortured with doubts and misgivings, and when I did sleep it was to dream of danger threatening the party. The next morning I did not feel fit enough, either mentally or physically, for a start.

Hoerlin and Schneider had planned to take up all the porters, and try to overcome the final wall and establish Camp III on the terrace. The only ones left in the camp were the cook and myself. I was sitting writing in my tent when I heard the thunderous roar of an unusually large avalanche. At the same moment I realized with a thrill of horror that it came from the direction of the ice wall. Dashing outside, I saw that a huge portion of the wall immediately to the right of our route was collapsing. Great masses as large as cathedrals were toppling to destruction. A fierce wind-blast was flung before the avalanche, raising clouds of snow sprayed out before the avalanche like the smoke from a cannon. At the same moment I saw the party, mere black dots strung out in a straggling line on the slope below. I saw them halt, and then dash frantically to the left, but already the clouds of snow had far outflanked them. It seemed hopeless, they must be blotted out like insects beneath a tidal wave. The next instant they had disappeared completely.

With incredible velocity, the clouds of snow, beneath which I could discern vicious torrents of ice-blocks, came rolling down towards the camp. I had stood like one in a nightmare, yet what I saw seemed but the fulfilment of my dreams of the previous night. Then thought of personal danger supervened; the avalanche was not stopping, it might sweep the camp away. I yelled to the cook, 'Run for it,' and together we plunged through the soft snow. But running at 20,000 ft. in soft snow cannot be kept up long, and soon we fell down exhausted. As we did so we looked round; the avalanche was stopping. I said to the cook, 'They are all killed, but we must do what we can.' We seized ice-axes and set off to the scene of the disaster.

The sky was filled with boiling clouds of snow. It was a dreadful moment when these began to settle, for I expected to see no sign of the party. Then to my great relief I saw some figures by the side of the avalanche. Approaching them I found a group of porters standing dazed by the edge of the débris, piled several feet high. Only one of them was moving, and that was old Nemu, who was probing energetically with an

ice-axe between the ice-blocks. I asked him what he was doing, and he replied, 'Load, Sahib, I lose load.' I said, 'I don't care a damn about your load, let's see who is still alive.' More figures appeared above, I could see something sticking out between the ice-blocks. Wieland saw it too. By the time I had got up Chetin had been dug out. He was terribly crushed. For some reason, simply, I think, because we were all dazed, we tried artificial respiration for some time. Schneider, too, was missing, and we thought he must be killed, but presently he turned up.

He had had a wonderful escape. He had actually been under the ice-wall when it had collapsed. He said, 'I heard a crack, and down it came, huge masses of ice. I thought I was dead, but ran to the left, and the avalanche missed me by 5 metres.' Chetin had been behind Schneider, and had not been able to run for it. The remainder of the party had been on the track where it extended farthest to the left. Even so the track was actually swept, and only running had saved them. Had they been ten minutes earlier or later everyone must have been killed. Their escape can only be called a miracle of the mountains.

We buried Chetin at the camp, marking the spot with an ice-axe. It seems a bitter thing to say, but he perished needlessly and uselessly, and a man such as he, perhaps the finest of all Himalayan porters, can ill be spared—R.I.P.

We descended to Camp I. The following day Professor Dyhrenfurth, Kurz and Dr. Richter came up, and a conference was held. I suggested abandoning Kangchenjunga in favour of something that *could* be climbed, such as the Jonsong Peak, but it was decided to attempt the N.W. ridge.

Ascending the icefall of the western tributary glacier, camp was established on an almost level snowy plain. Hoerlin, Wieland and I then ascended a steep 600-ft. couloir to the crest of the ridge. This is the most terrible ridge that I have ever set eyes on. It consists of huge rock-towers, and the amazing knife-edges of ice common to Himalayan arêtes. In all its 4000 ft. I do not think there is a single place where a camp might be pitched. It would be impossible to get porters up, and the rock is in many places terribly loose. Even if the ridge were climbed and a platform reached, 4000 ft. more of ascent would be necessary to attain the summit. This would entail passing over two other peaks—an impossible task if only because of its length.

In spite of a very adverse report, it was decided to proceed

with the attack. Unfortunately, Kurz, again unwell, had returned to the base camp, and it was a pity that his great experience was not consulted in the problem. Had he been present I am sure he would have agreed that retreat was the only thing left.

During the night after our first reconnaissance we were kept awake continuously by a storm of wind. What would be the position of a party overtaken by such a sudden storm on that great arête of ice and rock ?

The day after this we ascended the glacier to a small point at its head, starting from the col between the Ramthang Peak and the N.W. ridge. From here the said ridge looks totally unassailable, nevertheless it was decided to continue. On the following day Dyhrenfurth himself came up, and I sat with him on the summit of a gendarme while watching the advance of Schneider and Wieland. From this gendarme a 20-ft. *rappel* was necessary into a gap above which rose a tremendous rock-pinnacle, 300 ft. high. The ascent of this pinnacle afforded what must have been most difficult rock-climbing at an altitude above 21,000 ft. Schneider's leading was really magnificent.

On looking at the difficulties encountered, it was quite obvious that there was no hope. Professor Dyhrenfurth and I descended before the others. On the way down we witnessed a tremendous avalanche falling into the head of the Ramthang Glacier. The whole sky for miles round was filled with clouds of snow. Like the avalanche that killed Chetin its weight was incalculable.

From the Ramthang Glacier, Kangchenjunga looks hopelessly unassailable ; it is protected by hanging glaciers stretching for miles across the mountain face. The reports of Schneider and Wieland were so unsatisfactory that Professor Dyhrenfurth had no option but to abandon the attack ; but before returning to the base camp it was decided to attempt the beautiful Ramthang Peak, nearly 23,000 ft. high. Schneider and I were the only fit ones, and I was hampered considerably by being foolish enough to wear the ' expedition ' boots. These, with crampons, weighed $12\frac{1}{2}$ lbs. a pair, and are more suitable for a diver than a mountaineer. Lifting these boots up the Ramthang Peak was the hardest work I have ever undertaken. Schneider, of course, was far too sensible to wear them. We took ski to about 21,500 ft. on the E. ridge of the mountain. Then came an ice-slope of over 1000 ft. in which heavy cutting was necessary. Half-way up, however, we were lucky enough



Photo. F. S. Smythe.

The N.W. Arête of KANGCHENJUNGA
(with Camp 2 on Glacier).



Photo. F. S. Smythe.

On N.W. Ridge of KANGCHENJUNGA
(Twins and N. Ridge in Background).

to find good snow overlying the ice. While standing on this slope we witnessed a huge avalanche from Kangchenjunga, which I was fortunately able to photograph. This avalanche completely swept the ridge between our former upper and lower Camp II, and as far as we could see the site of lower Camp II as well. It took a mile of glacier in its stride.

The summit ridge of the Ramthang Peak provided a splendid ice climb, and had I not had to lift the 'expedition' boots along it I might have enjoyed it, for it put me in mind of the ice ridges of the Brenva face of Mont Blanc. In one place the edge was so thin that when traversing to the side one could put a head through a hole and gaze down 4000 ft. of terrific ice-armoured precipices forming the northern slope of the ridge. We reached the summit in thick mist which now and then blew apart disclosing tantalizing glimpses of peaks and glens. Returning to our ski we met Professor Dyhrenfurth and Lewa at the top of the ice-slope, but they did not continue farther, no doubt owing to the fact that Dyhrenfurth, besides being unfit, was also wearing the expedition boots! We ran down practically the whole way to the base camp on ski, a descent of over 5000 ft. Schneider is as good a ski-runner as he is a mountaineer, and I am afraid that I delayed him considerably. Also, in the bad light in a corridor between the icefall and the rocks below Camp II, I managed to fall into a concealed crevasse. I lay for nearly a quarter of an hour completely winded before I was able to drag my legs and ski out of the crevasse.

After 19 days it was a relief to get back to the base camp. I have never spent a more nerve-racking time in my life, for during the majority of those 19 days one never felt safe from the huge avalanches which fell from Kangchenjunga, and it was unpleasant to wake in the night and hear a thunderous roar coming nearer and nearer, and wonder whether the avalanche was large enough to reach the camp. I can only say that anyone who approaches this side of Kangchenjunga must take his own life *and* the lives of his porters in his hands.

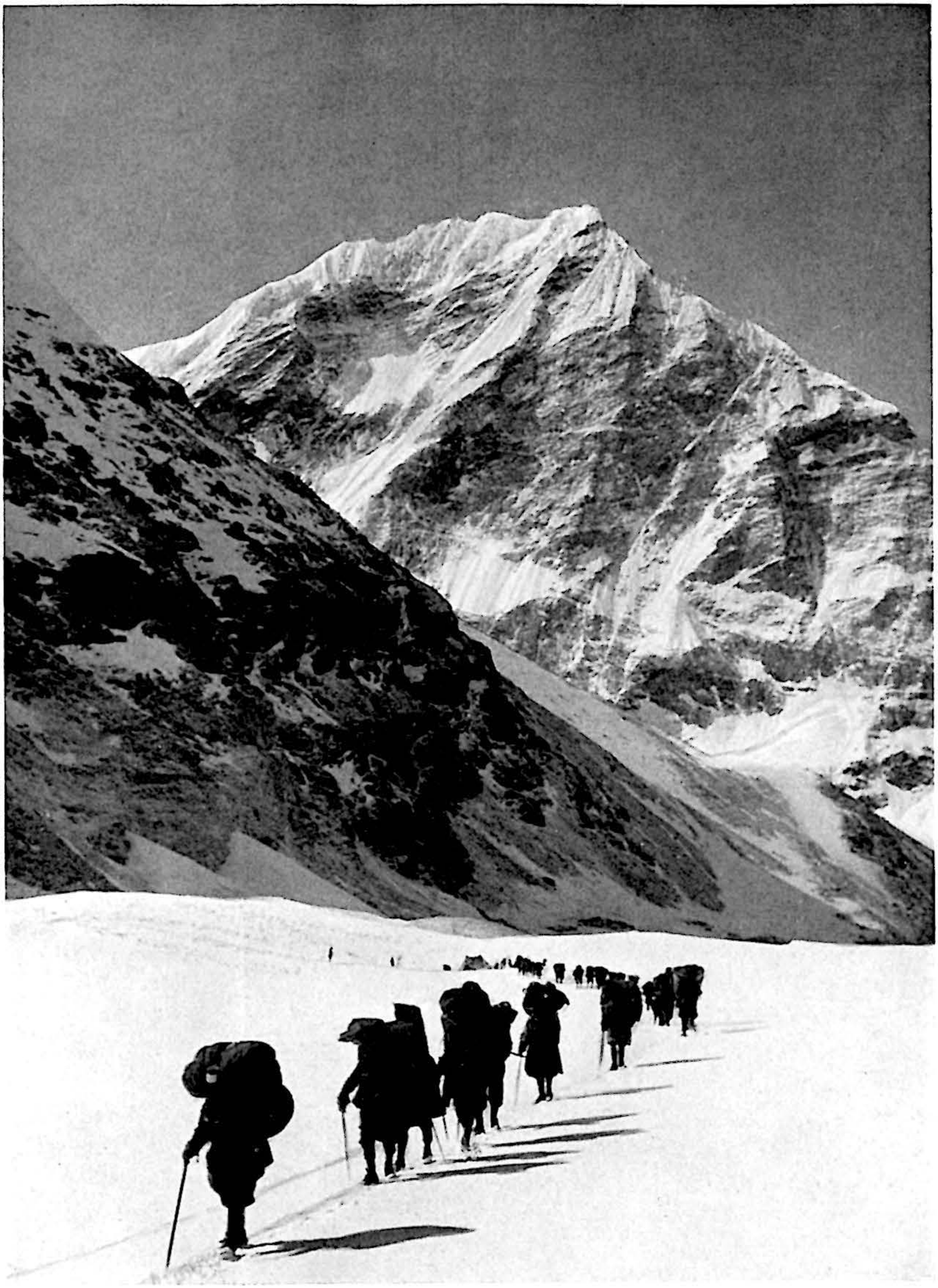
We now decided to cross the Jonsong La, 20,200 ft., and attempt the Jonsong Peak, 24,344 ft. Hannah, unfortunately, had to leave. His work with the transport had been invaluable and we could ill spare him. Schneider and Wieland left the base camp a day in advance in order to explore the Nepal Gap attempted in the past by Dr. Kellas. From the Nepal side they found a practical route well to the N. of the actual gap which led down easily to the Zemu Glacier. Schneider

also took the opportunity of ascending a peak marked in Professor Garwood's map as 23,470 ft. Thus he attained a point higher than Trisul, or Mount Kaufmann, the highest *summits* previously reached. He and Wieland, who had been unwell, rejoined us at our first camp on the Jonsong Glacier. Duvanel and Richter had been left at the base camp, but they were coming on later. Duvanel had been seriously ill; he had worked tremendously hard on the taking of the film, and had accompanied the expedition even up the ice-wall.

The problem was to get the 300 loads over the Jonsong La with only 80 porters to carry them. Thanks to the Nepali Subadar we were able to obtain some local help, many supplies had also been sent up by the kindness of the Maharajah of Nepal—to whom we owe a deep debt of gratitude—but it would be necessary to work the transport in relays, and the monsoon was approaching. Should bad weather supervene there might be a hopeless breakdown, and with one half of our transport on one side of the Jonsong La, and the other half on the other, we should be fairly stranded. But the weather did not break; it was the greatest piece of luck enjoyed by the expedition.

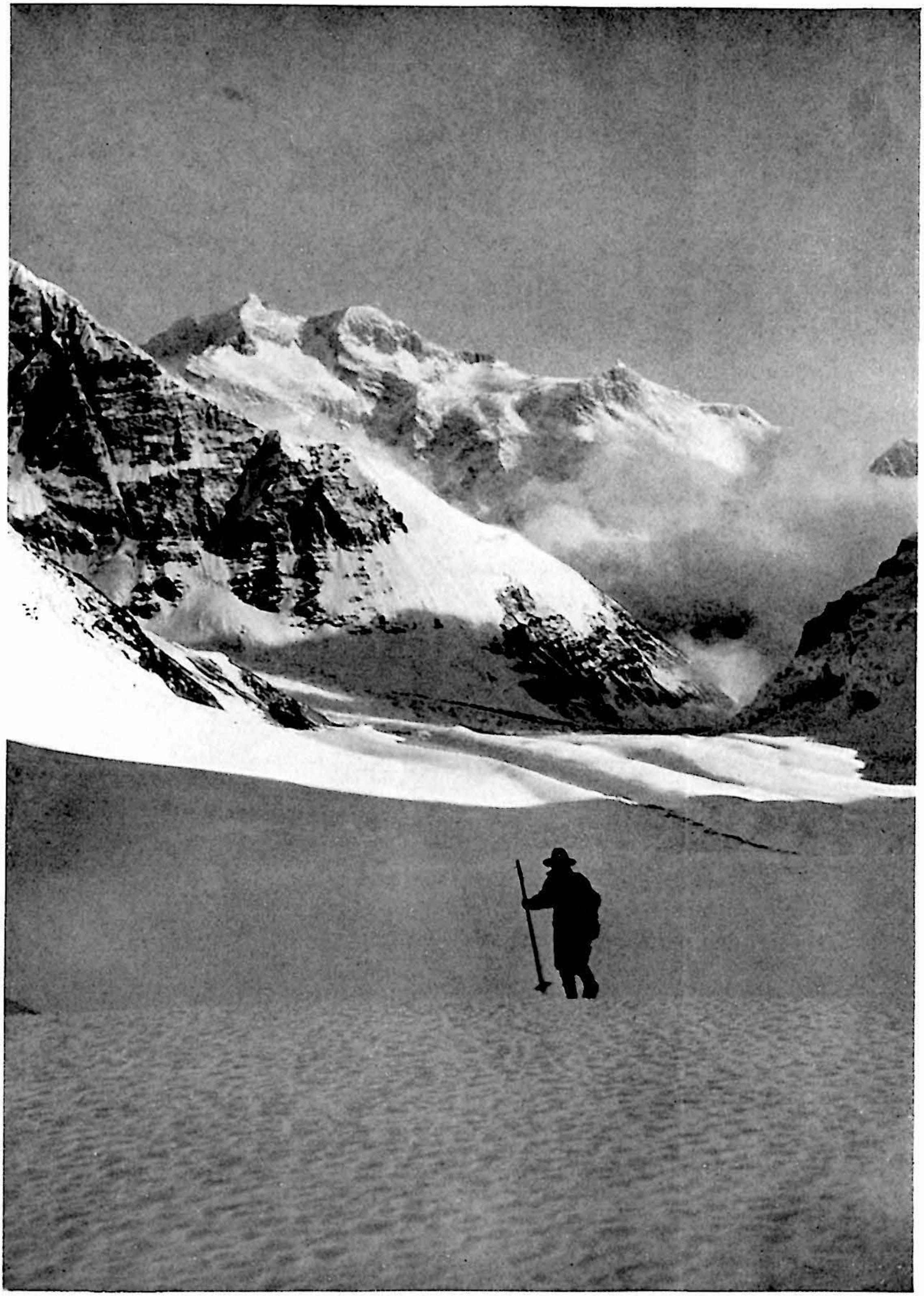
While on the subject of transport, I should like to say that, thanks to Colonel Tobin, Wood Johnson, and Hannah, the difficulties had been overcome, although these three had worked themselves almost to death. So hard had Colonel Tobin laboured for the expedition that his health had broken down, and he had been forced to return to Darjeeling. Without these three members the expedition would have been impossible. Apart from technical difficulties, things were not made easier by labour troubles. The porters had not forgotten the first eleven days, nor the many occasions on which they had had to subsist on half-rations, nor the night out in the blizzard, and now they declared their intention of striking unless they were granted one rest-day in four working days when traversing the Jonsong La. Once again Wood Johnson was thrown into an onerous situation which should never have arisen and over which he had no control. He had to placate our disgruntled labour. Of course the porters' requests were acceded to, for the men who carried loads to 26,000 ft. on Everest do not go on strike for nothing.

Between the base camp and the Jonsong La we established 3 semi-permanent camps. Frau Dyhrenfurth was left in charge of the first. She had borne hardships with uncomplaining fortitude. Many people had said that she would



Photo, F. S. Smythe.

Approaching the JONSONG LA.



Photo, F. S. Smythe.

KANGCHENJUNGA from JONSONG LA.

prove a hindrance to the expedition; she had been an asset, and her work with the transport and dispatch of stores had been invaluable.

On May 28 we crossed the Jonsong La, and descended some distance through abominable snow to our new base camp, the site of which was on the southern slopes of the Lhonak Valley and about 1000 ft. above the pinnacled Lhonak Glacier. We were now in a new country, a country of yellows and browns, similar to that of Everest. The precipitation here is markedly less than that of a few miles farther S., and the climate generally is different from that of Kangchenjunga. Only the Dodang Nyima Range separated us from the arid plateaux of Tibet, and it is practically on the edge of the monsoon area.

On May 30 Schneider, Hoerlin, Wood Johnson and myself left the base camp. We descended to the Lhonak Glacier, and ascended by the southern branch, taking care to keep well out of range of the great ice avalanches that must obviously fall from the hanging glaciers on the northern slopes of the Jonsong Peak. Crossing the glacier, we ascended to the ridge dividing the southern and northern branches, and there pitched Camp I. Dr. Kellas attempted the Jonsong Peak and reached the col on the N.W. ridge between the Jonsong Peak and a nameless mountain. Thence he had been forced to return by bad weather. This route showed him up as the great mountaineer he was, for at first glance it looks a hopeless one; actually, it is the one chink in the armour of the Jonsong Peak. Opposite Camp I the great 7000-ft. northern ice-face of the Jonsong Peak was seen in all its magnificence, but for once we could listen to the thunder of avalanches without fear of annihilation.

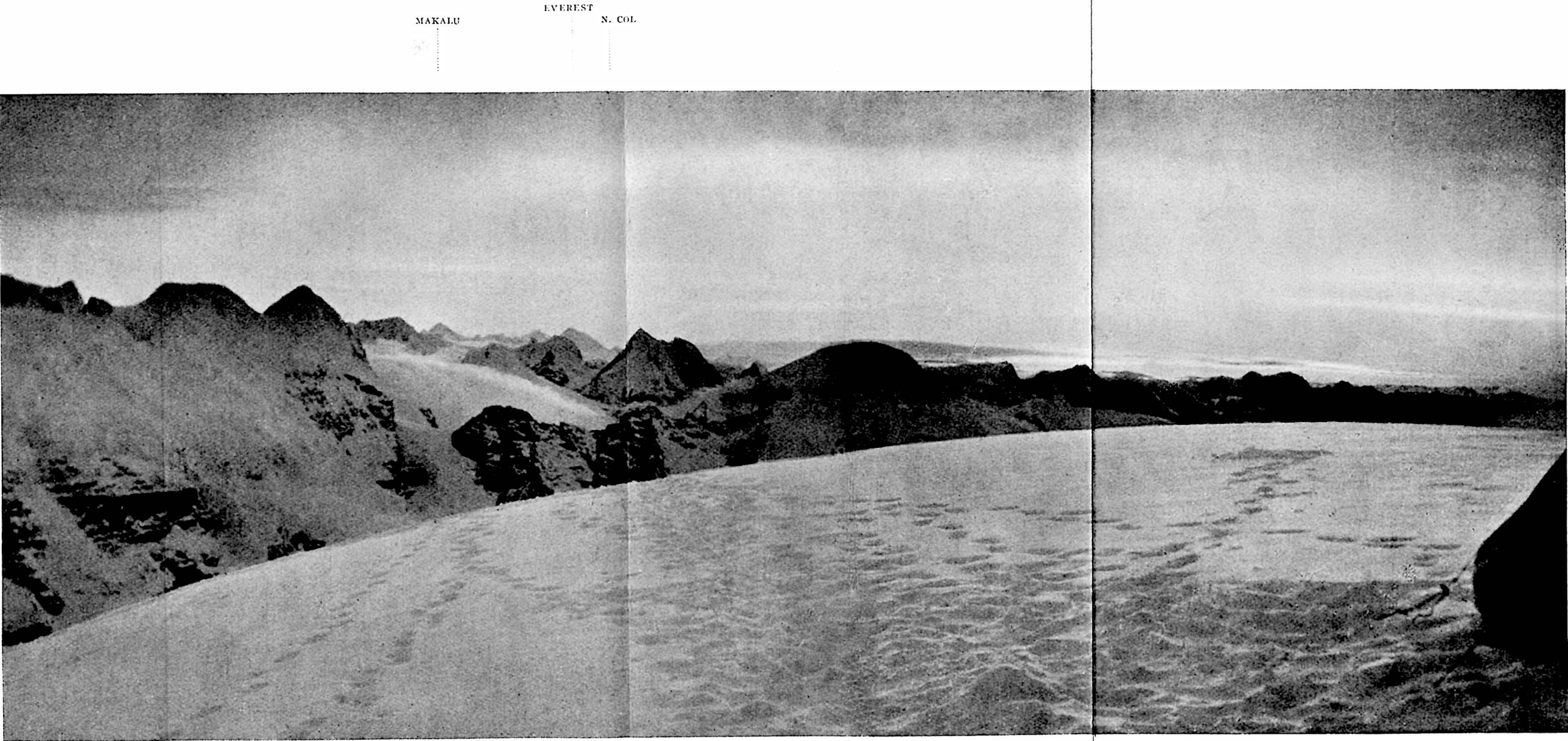
We had with us some dozen first-rate porters, the very pick of our 'Tigers,' and we left the next morning in good weather with high hopes. We had to descend some distance on to the head of the northern branch of the Lhonak Glacier. There we found terrible snow, a crust that held for a step or two and then let us in thigh or waist deep. In two or three hours we did not climb more than 200–300 ft., and it was very trying work for the heavily laden porters. Where the slopes steepened the snow was better. We ascended an icefall without difficulty, and toiled up a burning snow-slope to a perfect, natural camping site, under a stable ice-bulge, where we pitched Camp II.

The weather changed, and we awoke the next morning, June 1, in a heavy snow-storm. It was on this day, while we, mere men, were cowering in our tents, that Frau Dyhrenfurth

with the last of the expedition's loads crossed the Jonsong La with no companions save a Nepali Subadar, a Subadar Major, and her servant. Such was the kindness and courtesy of the Nepalese Authorities that these men accompanied her to the Jonsong La, the boundary of Nepal and Sikkim. Thus, mainly due to her untiring efforts, the loads were got safely across the pass, the only casualty being the broken arm of one of the porters. There were, however, minor tragedies, such as the fall of the typewriter and gramophone records. Of the latter only the thick classical ones survived, but our souls hungered not for Wagner or Beethoven, but for the bass-voiced gentleman who used to advise us daily to give ourselves 'a pat on the back.' Owing to our leaving the base camp before food and fuel had arrived, we were short of both these commodities. In fact, we only had enough Meta to heat two cups of tea a day. If the snow-storm continued we had no option but retreat. It was still snowing on the following morning, June 2, but just as we were about to pack up and retire the weather cleared.

In deep soft snow we trudged on up the slopes above. Our camping site had been a little above the col reached by Dr. Kellas, and the N.W. ridge is here ill defined. It was not until higher up that the slopes narrowed to a genuine ridge. Behind us was the fine nameless mountain to the N.W. of Kellas's col; Professor Dyhrenfurth named it the 'Kellas Peak.' I suspect, however, that personal nomenclature will be changed to native names by the Survey of India. This is a practice which, I think, should be strictly enforced, for however great a pioneer a man may be, his name, which may be anything between Smith and Montmorency, is hardly an adornment to a great peak in the Himalayas. One can but hope that the world's greatest mountain range will not suffer the fate of the American and Canadian Rockies or the pinnacles of the Chamonix Aiguilles. I except, of course, the case of Mr. Amery, who so worthily atoned for the crime of others.

It was hard work plugging up the snow-slopes, and here and there were dangerously concealed crevasses. Where the slopes narrowed to form the ridge there were three steep icy waves in which steps were necessary. The last wave, or perhaps it would be more accurate to say bulge, was of blue ice, but a way was found of circumventing it by a steep, roof-like ice-slope. Above this we found ourselves on the ridge. There a disagreeable surprise awaited us: the ridge rose to a respectable little peak, and then fell in a series of sharp knife-edges before rising to another little point. To the S. of the



Photo, F. S. Smythe.

Looking W. from Camp 3, 22,000 ft., on JONSONG Peak, Sunset
(showing EVEREST and MAKALU; 70 miles distant).

ridge lies a considerable glacier forming one of the tributaries of a large unknown glacier, at least 15 miles long, which flows from the Jonsong Peak in a N.W. direction. A descent to this glacier was obligatory. There were two routes, one directly down the steep ice-slopes immediately beneath the ridge, and the second over the little peak and the ice-ridge until the latter fell to the col between the first and second little peaks, whence a descent of 200 ft. of ice-slope leads to the tributary glacier. Both would involve heavy cutting. If we took the porters it would mean an extra day to reach the summit. It was decided, therefore, to camp on the ridge, leave the porters, and make a bid for the summit. It would be a hard long day, but it was the sole alternative to retreat, for we had not enough food and fuel to play a waiting game.

The sunset that night was a magnificent one. We saw Everest and Makalu in all their glory ; the N. ridge of Everest and the North Col were in profile, so was also the great Nepal face of the mountain plunging downward thousands upon thousands of feet at a tremendous angle. The wind rose at sunset and howled across the ridge. There was nothing to shelter us, and we experienced the full force of its bitter fury. There must have been at least 60° of frost that night.

Owing to the wind we were unable to leave until 9 A.M. the next morning. We climbed on two ropes, Hoerlin and Schneider on one, Wood Johnson and myself on the other. Traversing the little peak we found ourselves on a steep ice-ridge, considerably more difficult than, say, the summit ridge of the Mönch ; all were wearing crampons. Hoerlin and Schneider were soon far ahead, for this was Wood Johnson's first experience with crampons, but it is only fair to say that he climbed safely and efficiently. Without crampons we should have had hours of cutting, for the icy snow was of that texture into which crampon spikes bite, but into which it is impossible to kick steps. Below the col the angle was so steep that steps were necessary all the way to the bergschrund. Schneider led with his usual skill, and found an excellent bridge over the latter. In spite of the fact that he had to cut all the steps, he and Hoerlin were an hour ahead when Wood Johnson and I got to the glacier.

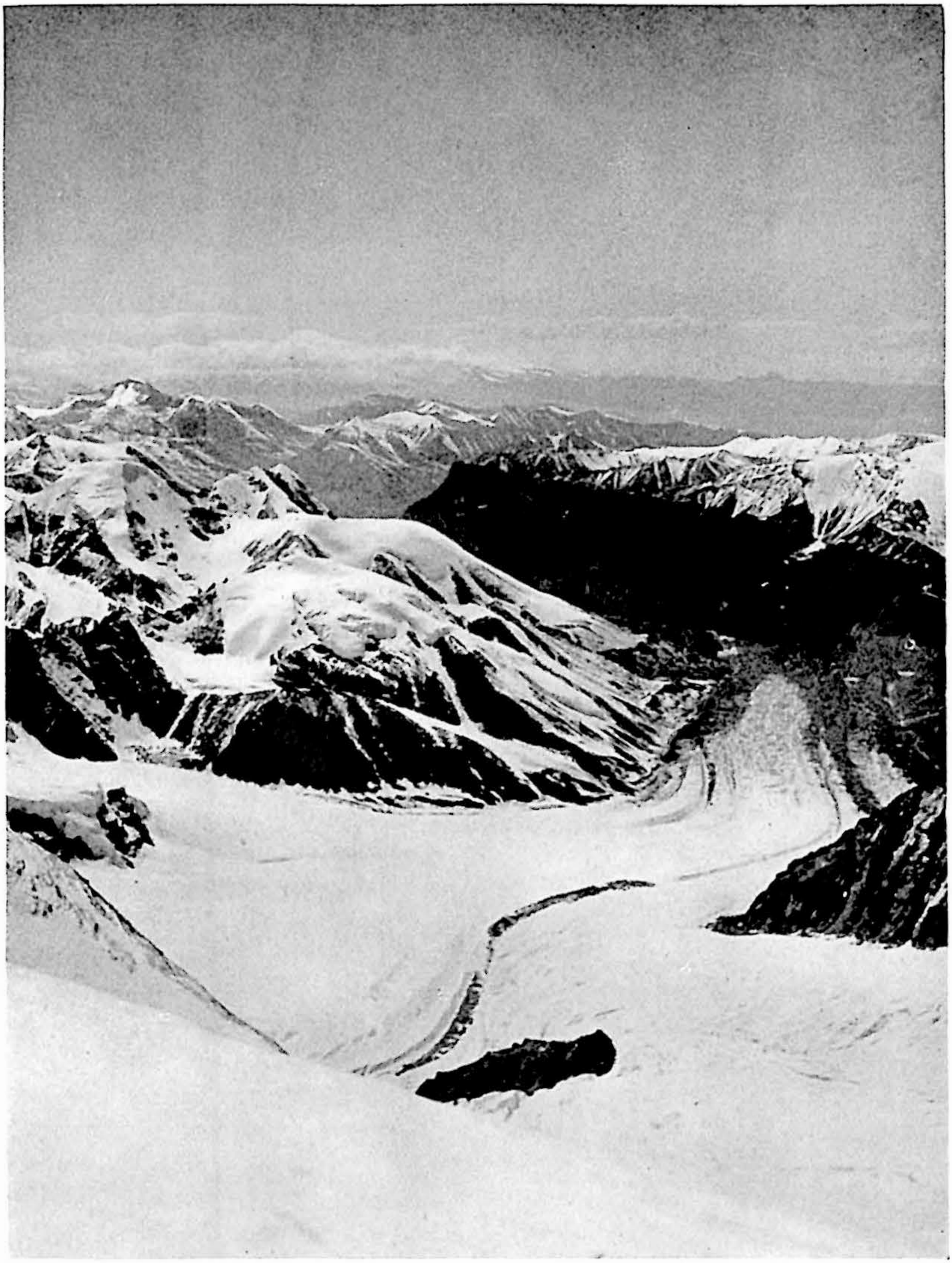
The glacier was practically uncrevassed, and a rope was unnecessary. Soon I noticed that Wood Johnson was going very badly, he said that he was too tired to go farther, and asked me to proceed; he added he would sit in the sun and await my return. I had no scruples about going on, because

I was leaving him in a perfectly safe place. The day was perfect and the sun blazingly hot, also I should be able to see him the whole way to the summit. Naturally, I supposed his fatigue due to altitude; had I known that he was to be taken ill later, there would, of course, have been no question of continuing. Accordingly, I hurried after Hoerlin and Schneider, now well over an hour ahead. Hurrying at high altitudes is not to be recommended, and though I got within 100 yds. of them I could go no farther, and sat down feeling very tired. It was not until half an hour later that I felt fit enough to carry on. Then I went slowly, for one finds in the Himalaya that once one gets tired or exhausted at an altitude of over 20,000 ft., it is difficult to recuperate.

The route lay up a steepish couloir, and then up some slabby tile-like limestone rocks, of a type similar, I should imagine, to those on Everest. Climbing was technically easy, yet a slip would be hard to stop. I reached a height of about 23,000 ft.; there I sat down, and was forced to realize with some bitterness that if I went on I should most certainly be benighted. There was no alternative save retreat.

On rejoining Wood Johnson I was shocked to find he was ill. He had actually lain unconscious on the snow for some time. His illness had been brought on, apparently, by a stomach seizure. It is only just to add that he had worked himself almost to death on the transport of the expedition, for since the departure of Colonel Tobin the work had devolved upon him. The problem was to get him back over the ice ridge to the camp. The porters would be useless, and Schneider and Hoerlin would be very tired on their return. As we sat in the snow considering the situation, two minute dots passed slowly up the last snow-slope of the Jonsong Peak. A few minutes later they were silhouetted on the summit, barely distinguishable against the deep blue sky. Theirs had been a great effort, they had climbed over 3000 ft. in 6 hrs., possibly the fastest going ever accomplished at that height—unless Longstaff went faster on Trisul, or Mummery on Nanga Parbat?

I made Wood Johnson eat some chocolate. This put new life into him, and he decided to make the effort to climb back to camp. That effort is one I shall not easily forget; had he been by himself I believe that he would have let himself go, and fallen fainting from his steps, but because he was roped to a companion he determined not to slip. Had he done so I could not have held him, for most of the work consisted in traversing ice-slopes where it was seldom possible to drive the



Photo, F. S. Smythe.

Unsurveyed country of N.E. Nepal
from Summit of Jonsong Peak.



Photo, F. S. Smythe.

Jonsong Peak (left), Jonsong La, Tent Peak
from Camp 1 on Kangchenjunga Glacier.

axe in sufficiently to make a firm belay for the rope. Slowly rope-length by rope-length we progressed. The declining sun flamed and died. Around us the snow glinted with a cold, deathly pallor. A furnace in bars of vivid scarlet spread behind Everest. Once there was a beautiful Brocken Spectre formed by our shadows silhouetted against the mist on the Lhonak side of the ridge, but we had little time to admire this. A bitter wind got up: howling across the ridge, it lashed us with stinging particles of snow, numbing our hands and feet. As I took in the frost-stiffened rope for the last time, Schneider and Hoerlin had already returned, and were watching us in the gloom from the glacier beneath.

At last we found ourselves on the easy ridge beyond the little peak. There our servants came rushing forth to meet us, and Wood Johnson collapsed; he could barely stagger. His effort had been great, and one of which any mountaineer might be proud. The traverse of the ridge cannot have taken less than 3 hrs. In our tents our servants massaged our hands and feet until circulation returned agonizingly. We both escaped frost-bite, but only just.

Schneider and Hoerlin were back late, and they were very tired. Food and fuel had come up, we had a right good dinner and, when it had finished, a bottle of rum circulated steadily between the two tents.

Wood Johnson was still very weak the next day, and fainted once on the descent. The wade across the glacier morass above Camp I was a trial to him, and it was with great relief that we got back to that camp. There we found Professor Dyhrenfurth, Kurz and Wieland, who had also come up to climb the Jonsong Peak. Schneider, Hoerlin and Wood Johnson intended going down to the base camp on the next day for a rest, and then Schneider and Hoerlin were to cross on to the Choten Nyima La and, if possible, ascend the Dodang Peak, 22,700 ft., the highest point of the Dodang Nyima Range. Although in need of a rest myself, I decided to accompany Dyhrenfurth's party next day.

We left in perfect weather, and ascended direct to a point just below Camp III, where camp was pitched on a snowy shelf. This was a double march, and the effect upon the porters was unfortunate. The same day Kurz and I prospected a route direct down from the ridge to the glacier which would avoid the long traverse of the ice ridge, for we hoped to make a camp at the head of the glacier, whence the peak could be climbed more comfortably in a day.

The night was a windy one, and the wind did not drop the next morning. The porters, as a result of the hard day's march, were sullen and dispirited, and refused to start. All we could do was to move camp a little higher to a more sheltered place in the lee of an ice-bulge. Professor Dyhrenfurth and Wieland, meanwhile, started to cut a staircase down the ice-slopes to the glacier.

The following morning dawned fine and calm. Wieland and I went ahead, and with Kurz enlarging the steps behind us, completed the staircase after several hours of hard work. While investigating a possible route over the bergschrund I managed to sprain my wrist. The snow bridge gave way, and I swung across the bergschrund holding on to my ice-axe with my left hand and severely wrenching the wrist. It was not until evening that we reached the head of the glacier. Once more with nightfall a high wind arose. It was bitterly cold, and impossible to find any spot sheltered from its onslaught, though we camped on the lee side of the col at the head of the glacier. It seemed to pour down almost vertically on our camp.

On the following morning the wind was still high, and it was not until 9 A.M. that it moderated sufficiently to enable us to start. It was still blowing in vicious gusts, and we wore every stitch of spare clothing. Oxygen had been brought up for use in the tents. I did not use it myself, as I wanted to see how I climbed under my own steam. The couloir, in which steps had been kicked previously, was now hard blown and icy. I led, cutting steps. On the slabs above, the wind was horrible, it roared across in fierce gusts, beating us with icy spindrift.

We took with us our servants. Although the porters of the first party had been sent down to the base camp for a rest, Nemu was anxious to accompany me. All through the expedition he had been a wonderful servant. He was an old soldier and, like most old soldiers, was an expert in the gentle art of 'scrounging,' but he never scrounged from me. If I broke anything, or missed anything, a replica was sure to appear the following day, and if I heard other members of the expedition grumbling, I said nothing. I broke four thermos flasks on the expedition, and at the end I was one of the few that still had one. The strain had told on Nemu, and though he gallantly struggled on for as long as he could, it was quite obvious that he had to go back. But he did not *want* to return; it was I who *forced* him to.

On the ridge we expected to find the wind worse, but curiously enough the higher we got the less violent it became, until finally climbing became almost pleasant. It was hard work, though. The rock was very rotten; the upper part of the Jonsong Peak is one festering sore of shaly limestone. We climbed unroped, for a rope was of little use, and the two remaining porters, Lewa and Tsinabo, were climbing if anything better than we were. At length we were clear of the interminable rocks, reaching a long slope of loose scree at about 24,000 ft. This would have delighted the heart of a roadmender, but to us was a trial.

I had already discovered that the secret of climbing at high altitudes is not so much physical as mental discipline. The men who will one day reach the summit of Everest will not be super-climbing athletes, they will be men capable of mental as well as physical effort, genuine philosophers at heart, capable of detaching their minds from the weariness of the flesh. After all, is not mountaineering a perfect blending of the physical with the spiritual?

My rucksack containing photographic apparatus seemed to get heavier and heavier, and more than once I considered abandoning it. Fortunately, I retained it. The scree petered out into a snow-slope. Kurz and Tsinabo were ahead. They plugged up it, and disappeared over a crest. I heard a faint shout. A minute or two later I mounted their steps and, putting my head over the edge, saw Kangchenjunga in all its splendour. In another second or two I stood on the summit grasping the hands of Kurz and Tsinabo.

The day was a wonderfully clear one. To the S. we could look for hundreds of miles across the cloudy pall of the monsoon that filled the valley with woolly *cumuli*. Although only a few miles away Kangchenjunga was smothered in new snow, indicating that the monsoon had already vented some of its rage upon it. Northwards, we could look over the brown plateaux of Tibet. There our view was limited only by the curvature of the earth. North-westwards, and an immense distance away, I should say at least 300 miles, two great snow peaks rose out of Tibet. Their direction was approximately in line with, but I think they must have been *beyond*, Lhasa. Only the upper parts were visible, their bases were concealed by the curvature of the earth. Though the tip of the little finger held at arm's length concealed them both, they somehow looked immense peaks. What are they? Seventy miles away to the W. rose Everest and Makalu. From our lower

camps we had seen them, too, but between the lower ranges. Now we saw them in all their superb magnificence. Looking at Everest we realized to the full why the natives term it the 'Goddess Mother of the World.' The western face of Kangchenjunga was in full view. Had Mr. Freshfield seen it from the top of the Jonsong Peak, and not Pangperma, I cannot help thinking that he would have been emphatic on its impracticability from the Nepal side. From Pangperma it is much foreshortened, a fact we had already realized when climbing on it. Everything is much steeper than it looks. From the top of the Jonsong Peak the upper part is seen in its true proportions. I believe that the final 1500-ft.-high rock-pyramid will prove too much for many future expeditions.

Wieland was behind, his servant having also fallen out; as Kurz and I prepared to go he joined us. At the foot of the scree-slope I found a sunny corner sheltered from the wind, and there sat down, spending half an hour gazing on the marvellous panorama. Wieland joined me, and we descended together, meeting on the way Dyhrenfurth and Lewa, who were at least an hour from the summit. I noticed that the former was wearing the 'expedition' boots. We rattled downhill at an almost Alpine speed, and were back in camp sometime before sunset, in spite of the preliminary stepcutting in the couloir and wind. We had averaged nearly 500 ft. an hour uphill.

Professor Dyhrenfurth was very late, and we were anxious. With nightfall the wind rose again. We were just debating whether we should start out to search for him, when at 8.45 P.M. he arrived, very tired. His geological enthusiasm had carried him from the highest summit to the lower peak as well. As a result he had been much delayed. The moon had risen, but shone on the other side of the N.W. ridge; he and Lewa had to fight their way down in darkness through a *tourmente* of wind-driven snow. Dyhrenfurth is 44 years of age, and his ascent had been a fine effort.

One word as to the porters. Lewa and Tsinabo had climbed with the skill of first-class Alpine porters. The time cannot be far distant when, as has been suggested by General Bruce, a Corps of Himalayan Guides will be formed. Such men as Lewa, Nemu, Lobsang, Tsinabo, and others of our 'Tigers' should form a splendid nucleus.

The following day we descended to Camp I. As luck would have it the weather was perfect, with scarcely a zephyr of wind. The day after we descended to the base camp, which

had been moved down into the Lhonak Valley, beneath the snout of the Lhonak Glacier.

There we found Wood Johnson, who was much better. The day after we arrived Schneider and Hoerlin came back, having ascended the Dodang Peak. With characteristic modesty they said very little about it, beyond the fact that they had had some of the worst step-cutting in their lives. The picks of their axes bore eloquent witness to this, for they were bent almost double.

Professor Dyhrenfurth was anxious to ascend the Lhonak Peak, the name he had given to the beautiful Weisshorn-like peak at the head of the Lhonak Glacier. Wood Johnson wished to return to his tea plantation, as his leave was soon due to expire. Frau Dyhrenfurth, Dr. Richter, Duvanel, and I decided to accompany him. In this we were influenced by the fact that the monsoon was obviously due to break on the head of the Lhonak Valley. It did so two days later, and the rest of the party were unable to carry out their programme.

We descended through country reminiscent of the Scottish Highlands, utilizing yaks for part of the distance. Two marches down the valley we ran into the monsoon, and though the weather was usually fine during the day, rain fell torrentially during the nights. The way had been well prepared by our own porters, sent down in advance, and by the local men from Lachen, who had constructed a bridge across the torrent of the Zemu Chu. So at last we re-entered the dense tropical forest of the Teesta Valley, where we crossed innumerable landslides brought down by the rains.

At Lachen we were hospitably greeted by two lady missionaries, and at Gangtok by the Maharajah and Maharanee of Sikkim and Mr. and Mrs. Dudley. So at last, on June 22, 10 days after leaving the base camp, we arrived as we had left Darjeeling in a fleet of ' Austin Seven ' motor cars.

[Some notes on the weather experienced on Kangchenjunga and in Sikkim during the earlier expeditions may be of interest :—

KANGCHENJUNGA :

Freshfield .	1899 .	September/ October	One great storm ; but mostly good. Very cold in October.
Crowley .	1905 .	August/ September	Mists and snow.

KABRU :			
Rubenson	1907	October	Extreme cold. Clear.
N. SIKKIM, etc. :			
Kellas	1910	May/July	Not good.
Kellas	1911	April	Heavy snowfalls. Hot sun.
		May	S. winds and snowfalls. More snow below and less snow above 19,000 ft. in May as compared with August.
		June	Weather broken, turning worse towards the end of the month. Continuous mists.
Kellas	1912	July	Weather good on the whole. Mists.
		August	In August southern ranges in Sikkim may be practically unassailable.
KANGCHENJUNGA :			
Raeburn	1920	July	Wet.
		August	Generally fine with good visibility.
		September	Cold, wet and misty. Snowfalls down to 13,500 ft. Improvement later.
		October	Fair and cold.

Editor, ' A.J.']

EGYPTIAN MOUNTAINS.

BY G. W. MURRAY.

THERE is a widespread impression shared by residents in Egypt, as well as by those at home, that the deserts of Egypt are flat sandy expanses dotted with rare oases—in fact, that the only climbing possible is on the larger Pyramids. Those who campaigned in the Libyan Desert or Northern Sinai during the late war had plenty of experiences to confirm