



VUE DES GLACIERS D'OBÉR-AR ET UNTER-AR PRISE DU SIEDEL-HORN PRÈS LE PASSAGE DU GRIMSEL DANS LE CANTON DE BERNE.

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*Reproduction of an old print from the collection of R. W. Lloyd.*

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## THE SWISS EVEREST EXPEDITION— SPRING, 1952<sup>1</sup>

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*The substance of a paper given to the Alpine Club on January 20, 1953*

IT was a great occasion for the Swiss when the opportunity came for attempting the ascent of Everest from the south. The attempt was all the more interesting because although invaluable information had been drawn from the photographs taken during Shipton's reconnaissance in the autumn of 1951, the greater part of the route had not yet been explored.

At the time when a group of climbers from Geneva belonging to the Club de l'Androsace were feverishly preparing for an expedition to climb Cho-Oyu, it was found that the *Fondation Suisse pour Explorations Alpines* at Zurich had received permission from the government of Nepal to make an attack on Everest from the south. Equipment and funds were quickly got together. The Foundation decided that the best thing to do was to commission the climbers from Geneva; and to them were attached a group of scientists financed by the town and canton of Geneva. Whatever some British Himalayan climbers may say, mountaineering expeditions are interested in joining up with men of science as long as they will not delay the climbers in any way. These scientists can benefit from an organised expedition and obtain the opportunity to carry out work of the greatest value. It was in this way that Madame Lobsiger of the Museum of Ethnography at Geneva, Lombard, professor of geology at the University of Brussels, and Zimmerman, head gardener of the Botanical Gardens at Geneva, came to join the climbers.

Dr. Wyss-Dunant, a well-known climber from Geneva, who had already taken part in an expedition to Sikkim, east of Nepal, under the auspices of the *Fondation Suisse pour Explorations Alpines*, was appointed leader of the expedition, whilst René Dittert acted with success as *chef technique*.

The best way to the south-west foot of Everest seems to be the one from Katmandu, the capital of Nepal, which crosses five ridges of

<sup>1</sup> We are indebted to Mr. Ivan Waller for this translation from the original French.—*Editor*.

3,000 to 4,000 metres in an easterly direction as far as the Dudh Kosi, a valley which is thenceforward followed northwards to reach Namche Bazaar and thence the Khumbu glacier. The majority of the Sherpas came originally from the district of Sola Khumbu in the neighbourhood of Namche. They left their native district to live at Darjeeling, which is three weeks' march towards the east. It is there that they are engaged as high altitude porters for Himalayan expeditions. Our head Sherpa, Tensing, is one of the most intelligent. He is a charming man endowed with remarkable endurance. Amongst his credentials, Shipton had written on the occasion of an attempt on Everest from the north, 'Tensing is the best high altitude porter. He undoubtedly has a great future.' In 1947 in Tehri Garhwal our head Sherpa, Wangdi Norbu, had slipped from the ridge joining the White Dome and Kedarnath (6,940 m.). The unfortunate man had pulled Alfred Sutter down with him and had broken an arm. As leader of the expedition I had replaced the incapacitated Sirdar immediately by Tensing. From then on Tensing performed with much credit as the new head Sherpa.

The coolies recruited in the Katmandu plain to carry our four tons of material as far as Namche Bazaar were excellent. On arrival at their destination, they were paid off and replaced by local porters more accustomed to the climate of the high mountains.

Several of our Sherpas were returning to their native valley for the first time since they had left it ten or twenty years before. On this occasion, parents and friends came in great numbers from the villages round about to see their sons, their brothers and even their sisters, for four Sherpanis had come with us as portresses. These mountain people gave us potatoes which were much appreciated because in Switzerland this vegetable is a national dish. They also brought tombas filled with chang, beer made from millet grass, and rackshi, a barley liqueur, and there was much celebrating.

After the first halting place we went on to the Thyangboche monastery, the most wonderful Alpine site in the world. The Grand Lama, who is sixteen years old, was, unfortunately, away. His deputy, a fatherly Lama, received us very cordially and offered us salted Tibetan tea with yak butter in it. The tea embarrassed us not a little, for if one drank down the beverage straight away while it was still hot, the taste was just about bearable, but then a watchful apostle immediately filled up the empty cup again. One was faced by an agonising dilemma, for if one did not drink, which after all seemed to be the best solution, the mixture when it cooled became quite repugnant, whilst if one drank straight away there was no means of stopping it. Fortunately Lambert has a stomach in keeping with the rest of his constitution, and he was glad to empty a great number of our cups which we surreptitiously passed to him.

The Lama advised us not to kill any game before the ascent so as not to upset the gods. He gave us pills to bring us good luck, tiny little balls with a very strong flavour resembling juniper berries. We found

it best to swallow them whole, and not to chew them up. After the reception we visited the temple. In accordance to custom we had to take off our boots. The floors were terribly cold, especially as outside it had started to snow. While passing along the terrace we set all the prayer wheels spinning at a giddy speed, so well in fact that instead of pleasing Buddha we annoyed him, and one of the wheels came off its bearings so that I pinched my fingers.

After this second halting place we debated which route to follow, because Shipton's sketch map did not mention the Lobuja Khola which flows out of the Khumbu glacier and his itinerary goes further to the east. Tensing, who herded yaks in his youth on the Lobuje pastures on the moraines of the Khumbu glacier, assured us that on leaving Thyangboche, we ought to take the first valley on the left. A reconnaissance was organised to explore the ground, in the course of which we ascended throughout on the right bank of the Khumbu glacier. The mist was thick and the view was completely blocked out. In spite of this we were able, by comparing what we could see of the slopes low down with the photos of Shipton's expedition, to find the lower slopes of the col which dominates the Khumbu séracs, called the Lho La, and we established beyond all doubt that we were on the correct route.

Three days later when the caravan of porters was going up the right bank of the glacier, tracks of the Yeti or 'Abominable Snowman' were seen all around. Lombard and Zimmerman, the geologist and the botanist, were the first to see the tracks, which was not surprising because the climbers were always looking at the mountains and saw nothing. These footprints were exactly the same as those which had been photographed by Shipton's party in the autumn of 1951. Three days before this, during our reconnaissance, we had found ourselves in the midst of a family of Yetis without being able to see them in the mist. Disturbed, they had made off towards the west in the direction of a 5,500 metre col. The legend goes that these animals or primitive men live very high up amongst the snows. Now, following our observations, it seems that they live round about the snow line, and if their tracks have often been found very high up, it is because they make for the cols to get away from human intruders.

It is difficult to find a good site for the Base Camp because there are no streams along the whole length of the moraines. A frozen lake was the only source of water available, but this camp was too far from the mountain and it was necessary for us to establish a second camp two and a half hours further to the north. This was our Camp I. The way there passed along a corridor four kilometres long, bordered on either side by pillars of *penitente* ice varying in height from a half to thirty metres. This passage was enchanting, and beyond this myriad of pinnacles, reflecting like mirrors in the sunlight, there rose the most fantastic peaks, which dominated this cirque of steep mountain walls fluted with blue and green ice.

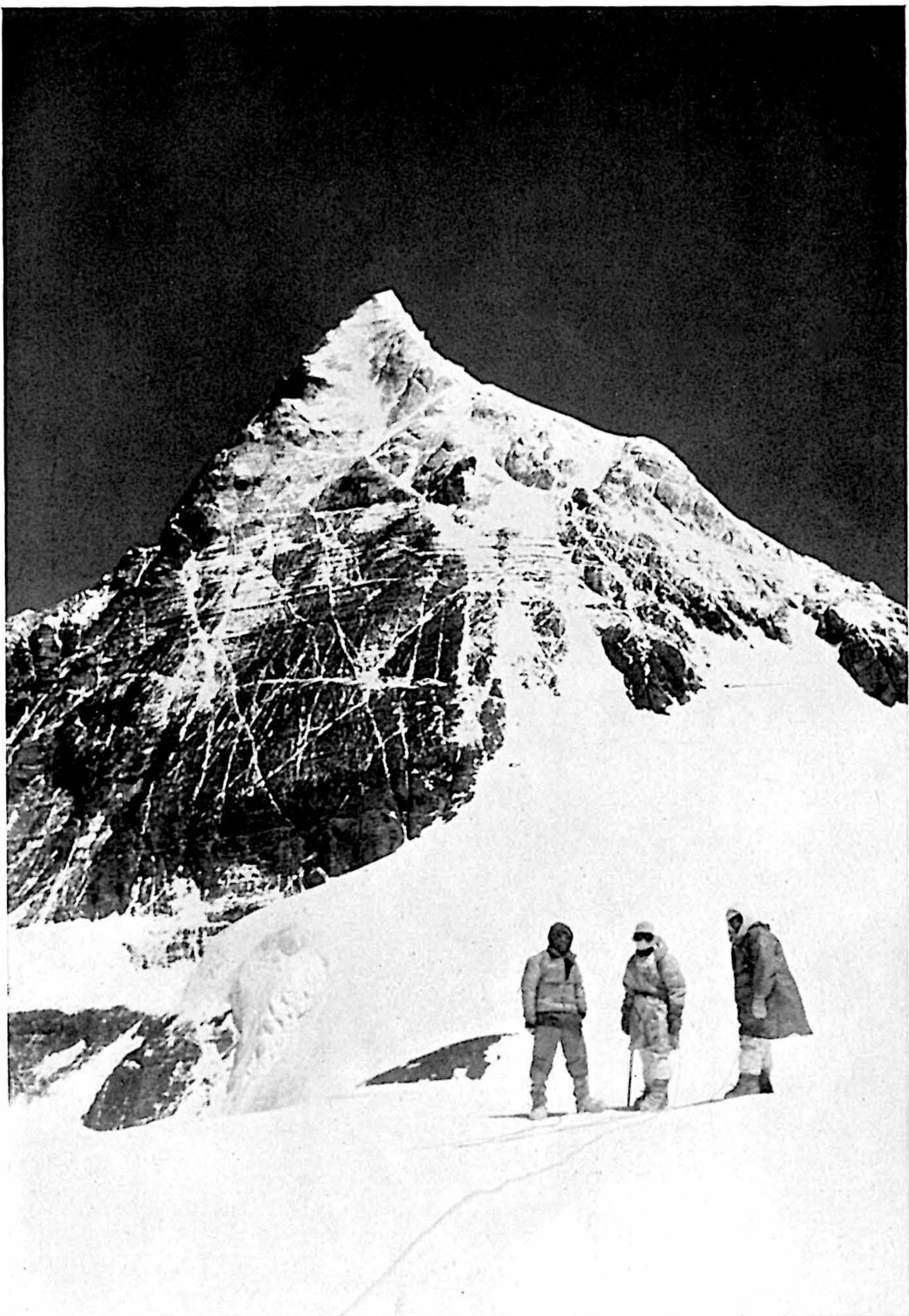
Camp I was situated at the foot of the 1,000 metre icefall of the Khumbu

glacier. Finding a way through this labyrinth is most exhausting work, but once the route is established, progress becomes much more simple. Unfortunately the only way out towards the top was found to be directly below the West spur (7,190 m.) of Everest, and the route had to skirt the foot of slopes from which hanging glaciers threatened to send masses of ice crashing down at any moment. Shipton was right in saying that in this place one ought not to venture on this side of the glacier because of the risk of avalanches. Since, however, there was no alternative, we were obliged to pass right across the avalanche cones formed by the debris of snow and ice which fall from this South-west buttress.

During this present expedition a final crevasse completely barred the route. After having tried in vain to swing across on the rope and land on a snow boss on the upper wall, Asper, the best climber in the party, descended twenty metres on a doubled rope into the depths of the crevasse and succeeded in climbing an ice chimney up the opposite side, and a rope bridge was then erected. To anchor it three wooden stakes were buried a metre deep in the snow with a loop of rope belayed to each. An ordinary climbing rope was passed twice through the three loops so that whoever crossed lay flat on his stomach on four lengths of rope stretched across the crevasse. While crossing, to keep in balance, a leg was allowed to hang down as low as possible, whilst the foot of the other leg was hooked on to the ropes. Lambert, after that, fixed a second rope a metre away from the first for hauling loads which were suspended from a snap link. This second cordage facilitated the crossing because it was then possible to hold it in one hand and prevent the risk of swinging down underneath the rope. As far as I was concerned, the crossing of this crevasse was always very painful because not long before leaving Switzerland I had broken a rib in a ski-ing fall, but I was able to conceal my discomfort from my comrades.

This icefall will always be a most unpleasant obstacle to surmount, not because of the difficulty but by reason of the perpetual danger of falls of masses of ice. On several occasions we did in fact witness the collapse of various ice towers; some sheared off diagonally and almost without noise, others toppled over onto the séracs standing below them. The crashing blocks released most beautiful avalanches which were soon reduced to a cloud of dust. Often the route passed beneath these menacing towers of ice, and the risk was very real, but the worst danger came from the avalanches which might have been released from the south slopes of the West buttress; but happily these were rare during the dry season. On these huge 1,500 metre slopes, the lesser snowfalls which occur from time to time are swept off by the wind, so that they do not create too great a risk. On the other hand, during the monsoon the avalanches must be terrible and they sweep at least half the width of the glacier.

On one day only, small ice avalanches twice ravaged a couloir, making a terrific noise. They crossed our track without hurting anybody for they had the good manners to come down half an hour before and half



THE SOUTH FLANK OF THE S.E. RIDGE OF MOUNT EVEREST, SEEN FROM THE TOP OF THE  
EPERON DES GENEVOIS. FIGURES LEFT TO RIGHT—AUBERT, BHOTIA TENSING, FLORY.

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an hour after the passage of a caravan of porters. On the left going up, the icefall will always be climbable, in fact if we had not been able to climb the upper wall of the giant crevasse which barred the route, we could have passed close under the mountain beneath an immense ice wall, but this offered no attractions. During the autumn expedition the passage of the icefall seems to have been easier and the route could be made nearer to the middle of the glacier. Four poles four metres long had been brought up from the valley and they facilitated the passage of some of the snow bridges, but the climber needed to be a tight rope walker to use them.

The second serious obstacle on the route is the slope which leads from the head of the Khumbu glacier to the South Col. It is nearly 1,100 metres high at an angle of 45 degrees. This is not excessive in itself, but it is steep enough to make step-cutting necessary when the slope is iced, particularly for the descent. If it is possible to climb the Lhotse glacier, it is certainly preferable to the great couloir to the left of it. Unfortunately in the spring of 1952, the slopes of this glacier were so iced that we had to give up the idea of going that way. The route direct to the South Col was likewise too icy. The best route therefore was that by the Geneva Spur, but it had the great defect that it was impossible to place intermediate camps on it. Only one ledge about two metres wide could be built on the rocks, and this served as a depot for loads. It took us two weeks to work out the best way, to put the fixed ropes in position, and finally to reach the South Col. In autumn 1952, two camps were established on shelves on the Lhotse glacier, after which a rope of four Sherpas was taken by surprise at the foot of the Lhotse couloir by a fall of séracs which killed Mingma Dorji and seriously injured the others. Beyond these camps the long traverse to the Col would always be unpleasant, as it demands prolonged step-cutting. It is possible that, in succeeding years, the ascent by the Lhotse glacier will be easier; let us hope it will be for future expeditions. In the spring of 1952 our Camp V was established after a snowfall of about 30 cm. One solitary avalanche fell from the summit couloir of Lhotse; it did not spread in width, and remained a narrow slide pursuing a straight course from top to bottom. This was a good sign, as it showed that the new snow on either side had adhered sufficiently not to be disturbed by the avalanche.

On the huge walls of the South face of Everest the wind blows almost continually, making a ceaseless noise like an express train. This infernal blast of air sweeps the snow from the couloirs, leaving nothing but bare ice. It caused us considerable anxiety to see the greenish mirror of the slopes increasing every day. Meanwhile the tracks made during our reconnaissances towards the col had beaten down and consolidated the layer of new snow which covered the ice so that, where we had passed, a path of snow adhered to the ice and allowed us to pass easily up and down until our final descent from the South Col.

Camping on the South Col is infernal; the perpetual wind blows across the saddle which is in the form of a wide dip, 300 metres long,

running across the ridge at a height of 7,900 metres. At the bottom of the dip the snow does not stick and the stones are blown bare by the wind. If the tents had been torn the climbers could not have withstood for long the fury of the gale. Modern equipment for expeditions tends to become lighter and lighter, but for the South Col it would be a good thing to provide tents in reinforced fabric even if they were heavier. The force of the wind could also be broken considerably by building a series of low stone walls, but at this height, the least effort is extremely laborious. In our party nobody had the reserves of strength to build a wind breaker of this kind, and in any case the effort to bend down is so exhausting.

The last part of the climb from the South Col to the summit, a rise of 1,000 metres, is a typical summit ridge, but it does not present any serious difficulty except as a physiological problem. It does, in fact, seem that the altitude of 8,500 metres may be the limit above which human beings can no longer live. It is a fact that all the animals on which the doctors have experimented, have collapsed at the pressure corresponding to this altitude. Our oxygen apparatus contained potassium peroxide which released oxygen when breathed into. It was excellent but it could not be used while actually on the move.

The final assault was planned in the following manner ; a first party consisting of Flory, Aubert, Lambert and Tensing was to go up to the South Col with as many Sherpas and as much equipment as possible. They were to establish a camp on the Col, place a tent higher up on the mountain, and finally attempt the ascent. An hour after their departure for the Col, Ajiba came back with an attack of malaria, and his load had to be divided between the other Sherpas. Nobody had reached the South Col before this party, although Chevalley, Asper and Phu Tarkay had climbed on one occasion very high up the great couloir.

The first assault party did not reach the top of the Geneva shoulder before nightfall. The climbers were obliged to cut bivouac platforms in the very steep snow slope. Two tents were put up as well as could be, in which Sherpas and Sahibs slapped their feet all night to prevent their toes from freezing up. Next day they climbed the shoulder and descended a hundred metres towards the Col where the wind blasted them with its fury. On this day Tensing returned twice to the forced bivouac site to bring more equipment to the South Col, which showed his extraordinary endurance.

The third day, while three sick Sherpas went down again to Camp V, Aubert, Flory, Lambert and Tensing explored the South-east ridge of the mountain. The east flank is too steep and falls 2,000 metres to the Kangshung glacier, so that the south flank of the ridge is preferable. Our friends rejoined the ridge by a couloir at about 8,400 metres, where they found a good platform and put up the tent. Their task was accomplished, but meanwhile the idea of attempting the summit had come simultaneously to Lambert and Tensing. They remained in the tent without sleeping sacks and without heating, and passed the night melting snow over a candle so as to drink, and drink,



THE S.E. RIDGE OF MOUNT EVEREST, ABOVE THE CAMP ESTABLISHED AT 8,400 M. THE HIGHEST POINT IS NOT THE ACTUAL SUMMIT, WHICH LIES FURTHER BACK AND IS OUT OF SIGHT.

and drink. At this height one can no longer eat any food because of the lack of oxygen, and the body becomes dehydrated in this rarified and extremely dry air. Thirst becomes unbearable.

The fourth day, after two bivouacs, Lambert and Tensing set off for the top. The weather was not good. For five and a half hours they made their way along the South-east ridge, remaining always on the south flank. They reached an altitude of at least 8,600 metres, having climbed 200 metres higher than the tent. They were not more than 250 metres in height below the main summit, and 100 metres below the South peak. Had they gone further they would not have had the strength to come back, so they decided to climb down again. It is a sad truth that at this height it is almost a relief to give up, because existence is so unpleasant; when the decision to turn back has been taken it is as if a great load has been taken off one's back.

On returning to the Col a small hillock of snow separated Lambert and Tensing from the tents. They were so weak that they could not climb it, and they lay down in the snow and abandoned themselves to their fate. Fortunately their friends came to look for them. They took off their crampons, led them to the tent and gave them something to drink.

The fifth day, while all four were descending the Geneva shoulder, they met the second party composed of Dittert, Chevalley, Asper, Hofstetter, myself and five Sherpas, on its way up to the South Col. They told us of their attempt and encouraged us with 'You will certainly reach the summit for there is no difficulty at all,' but to themselves they thought 'we would not like to be in their place.' The same day the second party reached the Col, having collected on the way a tent left behind at the first party's bivouac.

The following day the wind kept us in our tents. For my part I coughed a lot and at midday Hofstetter, who was quite fit, suggested that he should take me down. It took me two and a half hours to get ready, then we climbed slowly up the snow slope to the top of the shoulder. When we got there it was three o'clock in the afternoon, and Hofstetter told me it was too late to get down to Camp V. I became terribly angry, having worked for 2½ hours to get myself ready and all for nothing. No! I would descend alone. I unroped and set off. Hofstetter came after me and stopped me. To calm myself down, I sat for a while on my sack, then I returned to the Col.

The third day the weather was brilliant and windless. It would have been an ideal day for the summit, but no one felt strong enough to make the attempt. We took advantage of this good day to go down. At the depot at 7,450 metres, Sarki, ill and deteriorating, could go no further. Asper, Chevalley and Dittert spent the night with him without a tent, while Hofstetter, Mingma Dorje and I went back to Camp V for the night, helped by the light of Bengal flares which Dawa Thondup and Ajiba lit at the foot of the couloir.

Next day at six in the morning, Dawa Thondup and Ajiba went up to the depot and served café au lait in bed to the bivouackers, and then

tea. They brought down Sarki. The assault was ended, Lambert and Tensing had accomplished a magnificent performance, supported by all the other members of the expedition.

The climbing of Everest is a delicate problem which demands special tactics. Apparently unimportant mistakes all add up to reduce the chances of the climbers. An attempt must be made to acclimatise without deteriorating too much. In our case, the majority of the climbers were too exhausted before the final assault. We had remained too long at high altitude, three weeks at 7,000 metres. It seems that 6,300 to 6,500 metres may be the height at which one can best acclimatise, and this is the height to which one ought always to return after the preliminary reconnaissances. It is important to avoid long periods at greater heights where everybody deteriorates and becomes exhausted beyond recovery.

The success of the final assault will depend entirely on making it possible to breathe an atmosphere which will permit climbers to exert normal efforts. Even if we admit that oxygen can make it possible to perform as if on Mont Blanc, for example, in spite of the apparatus weighing 10 or 15 kilogrammes, the ascent to the summit would not be just a game. It needs four or five hours to get from the South Col to the top and two to three hours to get back. The oxygen outfit which we were given may be excellent for aviators who go up as high as 10,000 metres, but it was not good enough for a climber who has to make a considerable effort. It is likely that what is needed is a mixture of oxygen, nitrogen and carbon dioxide to give wings to the climbers' feet.

To finish up, I would like to confess frankly that on Everest the last part of the climb is not amusing, because life up there is altogether too unpleasant, and when one has passed beyond 8,000 metres one is very glad to come down again. Certainly this opinion is not new, and it has been voiced by all the valiant British mountaineers, although they have been drawn to the highest summit in the world with their whole hearts set on climbing it.

It is practically certain that the ascent is possible and the expedition which succeeds in reaching the summit will have accomplished a wonderful achievement.