

The
GEOGRAPHICAL JOURNAL

Vol LXXXIII No 1



January 1934

THE MOUNT EVEREST EXPEDITION, 1933: *A paper read at Afternoon and Evening Meetings of the Society on 6 November 1933 and repeated on the evening of 8 November 1933, by*

HUGH RUTTLEDGE

EIGHT years had elapsed since the last expedition to Mount Everest when the good offices of the Government of India and of Colonel J. L. R. Weir, Political Officer in Sikkim, secured at last the permission of the Tibetan Government for another attempt. The news was received in August 1932, and this gave but little time for preparation in England, if the new expedition was to start early in 1933.

The Mount Everest Committee, consisting of representatives of the Royal Geographical Society and the Alpine Club, under the chairmanship of Admiral Sir William Goodenough, met without delay. Its first task was to select a leader. Unfortunately General Bruce was no longer available in an active capacity, though he was a member of the Committee; and neither Brigadier E. F. Norton nor Major Geoffrey Bruce was able to accept an invitation to lead. It was necessary to find some one with experience of Himalayan peoples as well as with mountaineering knowledge, and eventually the lot fell upon me. I had served for nearly five years in the Himalayan district of Almora, in the Kumaun Himalaya, and had climbed a good deal with Gurkhas and Sherpas. The advice of members of previous expeditions was freely placed at my disposal, and I was given practically *carte blanche* in the selection of the climbing party and of equipment and stores. The party finally selected consisted of: Hugh Ruttledge (Leader), E. O. Shebbeare, Colin G. Crawford, F. S. Smythe, Captain E. StJ. Birnie, Lieut.-Colonel Hugh Boustead, T. A. Brocklebank, Doctor C. R. Greene, P. Wyn Harris, J. L. Longland, Doctor W. McLean, E. E. Shipton, L. R. Wager, G. Wood-Johnson. Of these, Crawford had been with the expedition of 1922, and Shebbeare with that of 1924. Four others were members of the party which climbed Kamet in 1931.

Every effort had been made to secure a party of which every member, with the possible exception of the leader and the chief transport officer, should be capable of taking part in the final assaults on the mountain. The numbers

were slightly increased beyond those of previous expeditions in case it should be found advisable to stay on after the break of the monsoon, in which case a strong reserve would be necessary. The medical examinations were conducted by the R.A.F. Central Medical Board and by Doctor Claude Wilson, and were of great severity. It was realized of course that the tests applied to pilots of the R.A.F. who are carried to high altitudes without exertion and without preliminary acclimatization, and who use oxygen in liberal quantities, could not afford adequate data for determining the qualifications necessary to take a man high on Mount Everest, but it was at least possible to make sure that his heart and lungs were thoroughly sound, that he had powers of resistance to oxygen lack, and that he would be likely to be able to withstand the great strains imposed by such an expedition.

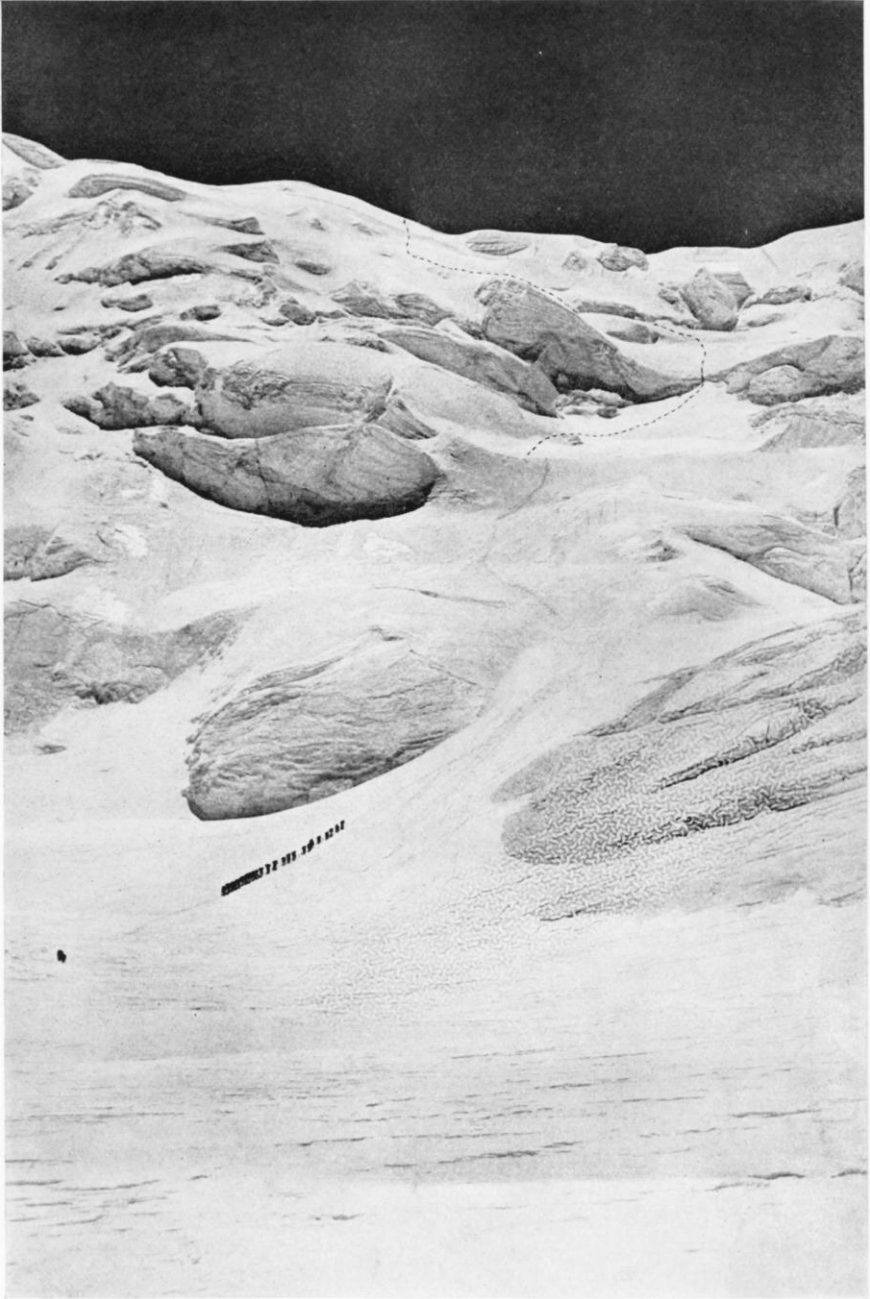
Not many innovations were made in equipment and stores. The principal was perhaps a new kind of tent combining the properties of an Asiatic *yurt* and of the arctic tent used by the late Mr. Watkins in Greenland. This was of octagonal shape and double skinned. It proved of the greatest value in bad weather conditions. Three such tents were taken.

The oxygen question was still open, and we could not afford to dispense with anything which might contribute to success. The apparatus taken by former expeditions had been heavy and cumbersome. Doctor Greene set to work with his fellow members of the British Committee for Oxygen Supply, and produced an improved and simplified apparatus, admirably made by Messrs. Siebe, Gorman & Co. It weighed only 123½ lb.

Experience has shown that parties going to high altitudes suffer from considerable loss of appetite, and have, in fact, to make a duty of eating. It was therefore necessary to devise a high-altitude ration which should include the correct quantity of vitamins and calories. Doctor Zilva of the Lister Institute very kindly came to our help in the matter. In the event, our calculations were somewhat upset by the fact that slow acclimatization enabled the climbers to assimilate the ordinary foods of civilization up to and even beyond a height of 23,000 feet; and we were obliged to draw upon stores intended for the march and for the lower camps. To eliminate the risk of scurvy in a country like Tibet, where fresh vegetables, fruit, and fresh meat are difficult to obtain, we had recourse to a highly concentrated form of lemon juice.

The main body of the expedition left England on 20 January 1933, by which time various climbing plans had been collated, improved upon by Longland, and discussed in detail by all available members. They provided for no less than four assaults on the summit in the course of one week, but could be indefinitely extended in accordance with the vagaries of the weather.

The keynote of this year's strategy was a slow and methodical advance. No two men acclimatize at exactly the same rate, and it was intended to make our speed, so far as possible, that of the slowest member. The expedition moved out of Darjeeling in two parties with a week's interval; the last leaving on March 12. This was thirteen days ahead of our predecessors. We had been fortunate in recruiting about seventy men of the best type of Sherpa and Bhutia porters, several of whom had previous experience. Among them was Lhakpa Chedi, the best of the "tigers" of 1924.



Phot. H. R.

Slopes of the North Col from Camp IIIa, showing track of ascent (continued by pecked line)



Phot. E. E. S. S.
*Climbing the ice slope below the great crevasse on
the North Col*



Phot. F. S. S. S.

Camp IV

We had hoped to proceed to Kampa Dzong by the Lachen Valley and over the Sebu La, which is, in good conditions, much the best and shortest way. Unfortunately the Sebu La was closed to traffic early in March by a sudden heavy fall of snow, so we were obliged to proceed *via* Gangtok and the Natu La, over into the Chumbi Valley and on to Phari. The two parties reunited at Gautsa, where a little preliminary acclimatization was secured at a height of over 12,000 feet.

The Phari authorities have sometimes given a good deal of trouble in the matter of transport. We were spared this by having secured the services of Pangda Tshang, the Tibetan Government trader, who undertook to move our thirty odd tons of equipment and stores right through from Kalimpong to Kampa Dzong.

The Tibetan plateau can be terribly bleak and cold in the early spring. At Shabra Shubra, under the shadow of the great peak Chomolhari, we had 36° F. of frost, followed by a long march through a blizzard which took considerable toll of the party, though no one actually fell out. After this rough introduction, the crossing of the high Donka La and Chago La was unexpectedly easy; after which no serious inconvenience was encountered anywhere except from the strong westerly winds and the dust which blew into our food and into our eyes and throats, causing some trouble from laryngitis and pharyngitis. The porters suffered as much as we in this respect.

On the march from Tatsang to Kampa Dzong we took the opportunity of climbing a hill about 18,000 feet high, both for the purpose of testing our condition and obtaining a view. It was a perfect day. We climbed slowly without distress, and at the summit were rewarded by the most glorious panorama which most of us have ever seen. To the south were the great Sikkim peaks which Doctor Kellas climbed: Pau Hunri, Kangchenjau, and Chomiomo; to the south-west, Kangchenjunga, with the Bavarians' ridge in full view; Jongsong and innumerable unnamed peaks. Nearly 100 miles away to the west was a great triangular snow peak which could only be Mount Everest. The snow had that yellow look which only distance can give.

We descended to the pass on which Kellas died in 1921 and continued down a long narrow valley at the end of which, with tremendous suddenness, appeared the soaring battlements of Kampa Dzong. Here our sirdar Nursang was awaiting us with the advance baggage, guarded by a one-eyed Tibetan mastiff to which he had given the extraordinary name of Policie. This dog faithfully carried out her charge. She was apt to resent a sudden and informal approach, but soon got to know, with unerring accuracy, the members of the expedition, and confined her attacks to her own countrymen, of whom she spared neither sex nor age.

Our passport, and the innate friendliness of the people, smoothed over all transport difficulties; no simple matter when it is understood that transport has to be changed at the headquarters of each successive Tibetan district; no less than four such changes had to be made on the 350-mile march to Mount Everest.

At Tinkye Dzong, the Dzongpen was a native of Lhasa, very sociable and extremely bored by his relegation to an outlying district. He welcomed us with open arms. We organized a sports meeting. The football, begun by the

porters, was soon joined in by the entire Tibetan population, and the ball was soon lost to sight as the multitude surged madly across the ground to the grievous detriment of tent ropes. Boustead gave some boxing lessons which were heartily taken up by some Tibetan children, whom it was impossible to separate once they had joined battle. Then Longland gave an exhibition of pole jumping, which was a great success. All this was followed by a banquet at the Dzongpen's house, where his wife, with her wonderful hoop-like head-dress and a black patch on her nose, did the honours with great dignity.

It is one thing to secure an adequate number of transport animals but quite another to get them laden in good time at the beginning of a march. The drivers all struggle to secure the lightest loads and pandemonium rages. The Dzongpen took an active part in the conflict and got us off in fairly good time for the long march over the Bahman Dopte pass. This northerly route was adopted partly because the inhabitants of Gyanka Nampa to the south had an unenviable reputation as thieves.

We got something of a fright at Dochen, where our postal agent, Lobsang Tsering, had a fall from his horse and broke his collar-bone. The administration of anaesthetics at an altitude of over 14,000 feet is evidently a risky business. Lobsang Tsering did not come round for some time, and Greene and McLean had to work very hard on him before he came to life again.

At Shekar Dzong we made the unpleasant discovery that a good deal of our equipment had been pilfered during the march. Grave suspicion attached to the transport drivers whom we had taken on at Dochen. The Shekar Dzongpen, always anxious to oblige, flogged several of them according to Tibetan (and our own mediaeval) practice, but no confessions resulted and nothing was ever recovered.

We climbed the "hill of shining glass," which is what Shekar means, because it was known that Mount Everest, 50 miles away, can be well seen from there in fine weather. With the telescope we could see something of the northern arête, but not enough to judge it in any detail, for there was much cloud about.

From Shekar Dzong, one of the senior porters was despatched over the Khombu La to make some direct recruitment at Sola Khombu, the home of the Sherpas. He was held up by heavy snow and we did not see him again till operations were well forward on the mountain. But when he did come he brought forty-six of the finest porters I have ever seen, among them the famous Narbu Yishé, the *purana miles* (Urdu-Latin for old soldier) of 1924.

We were now marching southwards direct for Mount Everest. The weather was somewhat unsettled: we found heavy winds and a good deal of snow in crossing the Pang La, and got no view of the mountain before dropping down into the valley of the Dzakar Chu. One march short of Rongbuk, at Chödzung, some of us climbed the hill behind the camp in the evening and were lucky enough to get a magnificent view of the north face less than 20 miles away. From this distance it was seen in true perspective, and we realized how much steeper the north-east arête is than it seems to be when viewed from Rongbuk.

On April 16, after marching for hours up a stony and desolate valley which appeared to lead nowhere, we suddenly turned a corner and found the great Rongbuk Monastery outlined against a grim background of wind-torn mists



Phot. H. R.

Looking up the North Ridge from the top of the North Col



Phot. F. S. S.
Pumori from the North Col



Phot. H. R.
Changtse from the crest of the North Col

behind which, we knew, was Mount Everest. A bitter wind was blowing off the mountain, and we lost no time in pitching camp. Fortunately for us the head Lama had recently come out of retreat and was willing, as on previous occasions, to bless the expedition. He did so next morning with full ceremony, to the infinite satisfaction of the porters.

The expedition had reached this point in good health save for sore throats, but the bitter cold of the Rongbuk valley soon led to complications. Wyn Harris developed influenza, and Crawford chest trouble. On the morning of April 17 we covered the 4 miles of rough going to Base Camp at 16,800 feet and put the invalids to bed. We were twelve days ahead of our predecessors. Shortly afterwards one of our strongest porters, Ondi, went down with double pneumonia, and to save his life he was packed off under Crawford's care to the Kharta valley, five marches away.

Our plan this year provided for a slow advance up the East Rongbuk glacier. It was laid down that each successive camp should be thoroughly stocked and held for at least four days previous to a further advance. Camp I was duly established on April 21. A considerable amount of snow about this time hindered progress, but there were nine members of the expedition at Camp II by April 26, where a temperature of 50° F. of frost was experienced at night.

The glacier above Camp II is somewhat intricate, and no time was lost in climbing up the mountain behind it from which the best route could be observed. It would be almost impossible to force a way upwards through the séracs but for the existence of two troughs which descend from the upper reaches of the glacier. The problem is to find a way into the left-hand trough, then out of it on to the open glacier, and down into the medial trough. A way was soon found by Smythe, Boustead, and Wood-Johnson, and red flags were placed to indicate the position of dangerous crevasses. After this the porters could always be allowed to move up without escort.

Wind and snow turned back no less than three reconnaissances towards Camp III, but this was eventually established on May 2. The advance party experienced blizzards similar to that which drove out the party of 1924, but the arctic tents were so efficient that in this case no retreat was necessary, and by May 6 twelve members of the expedition were in full occupation.

We had felt considerable anxiety as to changes that might have taken place in the condition of the North Col slopes. It was soon evident that the 1924 route was out of commission. There was now a tremendous ice slope which would have taken weeks to cut up, and at its foot was the debris of many ice avalanches. The only practicable route was that adopted in 1922; this would require considerable care in view of the fatal avalanche which occurred there in 1922, when seven porters were overwhelmed and killed.

It was arranged that parties should work on the wall in shifts, each man cutting steps for about twenty minutes at a time, while his companions drove in pitons and fixed ropes for the safeguarding of porters. To save time and energy a subsidiary Camp IIIa was pitched close to the foot of the wall just out of reach of possible avalanches. The brunt of the work fell upon Shipton, Smythe, Wyn Harris, Wager, Greene, and Boustead. Bad weather persisted throughout this period, with the result that it took from May 6 to May 15 to

make the route up to the North Col. The general angle of the slopes was very steep, and at one point Smythe had to cut steps up a vertical ice wall some 40 feet high. The old ledge near the crest of the col which was used by the 1922 and 1924 expeditions was no longer in existence, but a ledge was found, in reality the lower lip of a crevasse, about 250 feet below the crest, and Camp IV was established here on the morning of May 15.

Meanwhile two causes for anxiety had appeared. Firstly, Wood-Johnson developed a gastric ulcer which necessitated his descent to the Base Camp. He had shown great strength and staying power, and his loss was severely felt. Secondly, news was received by wireless from Calcutta that the monsoon had appeared off the east coast of Ceylon on May 12. It was evident therefore that no time must be lost.

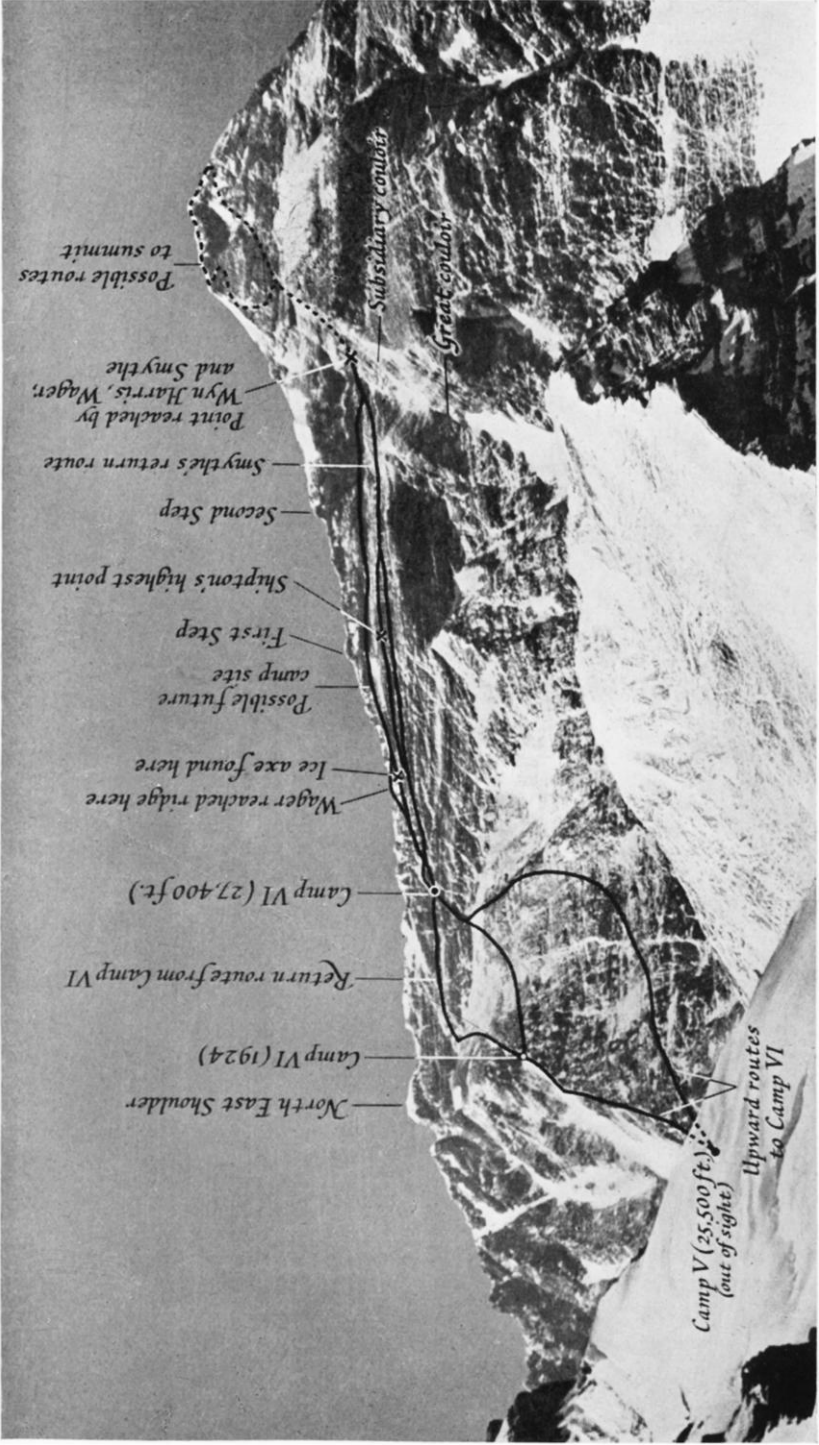
According to our tactical plan, the leading party would not spend more than five days at Camp IV lest deterioration should set in. During temporary lulls in the storms, three attempts were made to reach the site of Camp V, but all were abortive. Finally however a splendid carry was made on May 22. Wyn Harris, Greene, Birnie, and Boustead with twenty-one porters were to establish Camp V, and Wyn Harris and Greene would go on next day to establish Camp VI. Longland and Wager accompanied them for training purposes. Owing to the distance of Camp IV below the crest, this involved a long day's work with an ascent of 2,900 feet. Only one porter broke down, and he was escorted down to Camp IV by Longland. Greene, who had had insufficient acclimatization on the North Col, unfortunately strained his heart on this day, though he insisted on going as far as Camp V. On the way he found one of Captain Finch's oxygen cylinders, which was in perfect working order.

This new Camp V was at 25,700 feet, 500 feet higher than it had been placed before. It was on a fairly good platform which accommodated four Meade tents, but being on the north ridge it is very much exposed to wind. All the porters except eight were at once sent down with Greene to the North Col.

It was vitally important to get on to Camp VI next day, but another spell of bad weather set in and the high party was marooned at Camp V till the morning of the 25th, when it had to retreat, in the course of which several porters were attacked by frostbite. A party going up from the North Col in support met them halfway down the ridge, and the two parties returned together.

Misfortunes never come singly. There had been a heavy fall of snow, which rapidly made the continued occupation of Camp IV impossible, as avalanches started to slip down on to the ledge, threatening to overwhelm the tents. In order to keep up a position of attack, six climbers now took a camp (IVa) up on to the very crest of the North Col itself; an exposed position but safe from avalanches. With them went a newly picked lot of porters who occupied one of the arctic tents. There was no difficulty in procuring volunteers for this service. The rest of us, knowing that there would not be sufficient room at the new camp, descended to Camp III.

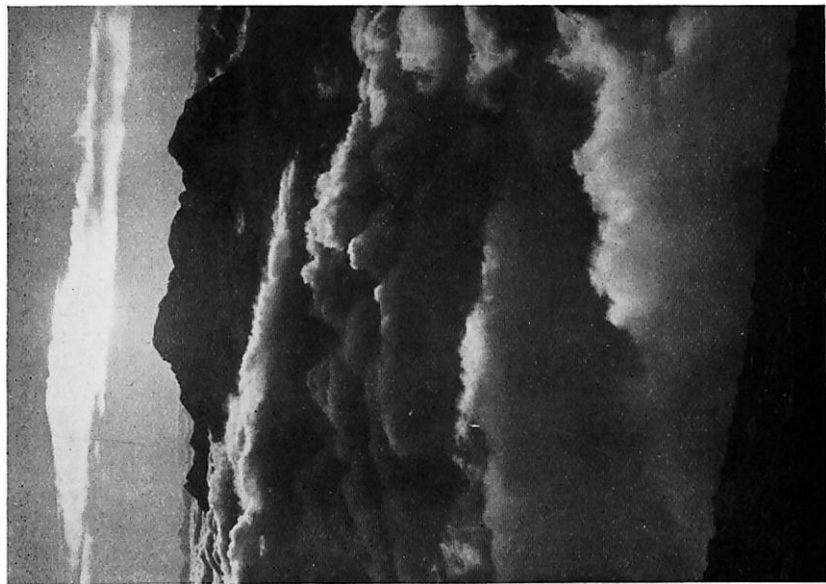
Camp V was reached again on May 28 by Wyn Harris, Wager, Longland, and Birnie, and on the 29th the first three, with eight porters, managed to



Telephotograph by Capt. Noel of the North Face from the 1924 Base Camp, showing 1933 climbing routes



*Phot. F. S. S.
Changtse from Camp V*



*Phot. F. S. S.
Cho Uyo and Gyachung Kang from Camp V*

place our sixth camp at a spot about halfway up the great "yellow band," 600 feet higher and more to the west than the Camp VI of 1924. The effort reflects the very greatest credit, not only on the porters, but on the men who led them, none of whom were fully conversant with their language.

Shortly after the single tent had been pitched one of this year's many blizzards rushed up from the west almost without warning, and in a few seconds it was impossible to see more than a few yards ahead, and all the goggles were iced up. Longland had the responsible task of bringing porters down and carried it out with perfect judgment in the very worst of conditions, verifying his direction by reaching the top of the north ridge and finding, a little lower down, the old Camp VI of 1924.

Next day Wyn Harris and Wager made the first assault on the summit. They had spent a bad night and the air was very cold, although the wind was not blowing at more than 10 miles an hour. They suffered a good deal before the sun's rays warmed things up a little. After about two hours' climbing, and at a point about 200 yards east of the first step and 60 feet below the crest of the north-east arête, they found lying upon gently inclined but smooth slabs an ice-axe. It looked perfectly new, the axe-head of bright polished steel. This axe can only have belonged to Mallory or Irvine, and we think it likely that it marks the site of a fatal accident in 1924, whether during the party's ascent or descent. We think that on the whole the former is the more probable, but it is only fair to state that Mr. N. E. Odell adheres to his conviction that he saw the two climbers both below and on the second step on the day when he followed them up in support. Curiously enough, Smythe and Shipton, while themselves following up in support of Wyn Harris and Wager, thought they saw the latter two on the second step, but satisfied themselves that rocks, over which clouds were racing, had given the illusion of human movement.

Wyn Harris and Wager were much embarrassed by having a dual objective: a reconnaissance of the second step combined with an attempt to reach the summit either by that route or by Norton and Somervell's route of 1924. In consequence, they lost much time in the neighbourhood of the second step, found it was impossible, and were forced to follow Norton and Somervell's route, traversing across the north face 200 or 300 feet below the crest. They crossed the great snow couloir and reached a point on its western wall approximately the same as that attained by Brigadier Norton. The height of this point is about 28,100 feet, and they were there at 12.30 p.m. in the day, having started at 5.40 a.m. Clearly there was no chance of reaching the summit, which would have required at least another four hours for its ascent, and of returning in safety. They might have gone on some little way up the very difficult rocks, for they were not completely exhausted; but had they done so it is doubtful if they would have reached camp again. They were perfectly right to turn when they did, and their work on this day was beyond praise.

On the way back they attempted once more to tackle the second step, but were too exhausted for further climbing. Wyn Harris retrieved the ice-axe, leaving his own in its place, and Wager struggled up a few feet to the crest, and is thus the only man who has looked down the great ice-fluted south-east

wall of Mount Everest. They reported their adventures to Smythe and Shipton at Camp VI, and managed to reach Camp V that evening.

Next day Smythe and Shipton were storm-bound in their little tent, snow falling to a depth of several inches and wind making it impossible to go out; but on June 1 things looked a little better, and although there was too much snow on the slabs to give any real hope of success they set forth. Shipton had neither eaten nor slept well at the high camp, and somewhere below the first step he realized that he must give up, following the rule that no man should go on till he was too exhausted to return unaided. Finding that Shipton was able to get back by himself Smythe quite rightly went on alone, and reached the same point as Wyn Harris and Wager, at 10 a.m. This left him ample time to reach the summit, but unfortunately the snow of yesterday had made the slabs at this point completely unclimbable; and Smythe had the mortification of having to turn when he was going quite well with success almost within view. To explain these conditions it is necessary to observe that snow hardly melts at all above 25,000 feet; and that at 28,000 feet it is of the consistency of castor sugar, affording no sort of support to the feet except in one or two places, where wind pressure has been able to harden it. As the slabs dip outward and downward the danger and difficulty of crossing them when snow lies upon them may be imagined.

Smythe returned by a slightly lower traverse, saw Shipton off on his way to Camp V, and then spent his third night, this time alone, at Camp VI. He slept for thirteen hours at a stretch, heedless of a gale which was blowing, and next day found his way down the whole way alone to the North Col. Shipton had spent the night at Camp V after a narrow escape from a blizzard. A similar storm assaulted Smythe on his descent, and he was several times blown off his feet. It is interesting to note that neither man suffered from any heart trouble as a result of their terrific experiences, though they did have slight frostbite. Wyn Harris and Wager, on the other hand, both suffered from temporarily dilated hearts.

There was nothing for it now but to take the whole party down to Base Camp for a rest. We hoped that possibly a break might occur in the monsoon which would enable another assault to be made soon. Greene examined everybody with great care at Base Camp, and passed nine men in all as fit for further service. A return up the glacier was begun on June 11, and Crawford and Brocklebank went on ahead to examine the North Col slopes. They found the fixed ropes buried 2 feet under snow and the slopes in such condition that any interference with them would inevitably have caused a big avalanche. We stayed for over a week at Camp III, watching Mount Everest get steadily whiter and whiter, and coming reluctantly to the conclusion that after the first big snowfall of the monsoon the mountain remains snow-covered till the autumn, when the west wind of Tibet comes to life again. That west wind is the only agent which will remove snow from the north face. We visited the Rapiu La and climbed the unnamed peak above it, obtaining wonderful views of the south-east face and south ridge of Mount Everest, and confirmed thereby our opinion above stated.

After this we returned once more to Base Camp and reported matters to the Mount Everest Committee, adding that various members were prepared

to stay on at the Base Camp and observe weather conditions for another month or two, and that the few remaining fit men had volunteered to make another assault should opportunity offer. The Mount Everest Committee however, after full consideration of the facts, very wisely recalled the expedition, and we left the Base Camp on the return march on July 2.

The majority were able to travel *via* the delightful Kharta valley, but the invalids, of whom there were three, had to be taken by the less attractive route of the Dzakar Chu. Shipton and Wager forced their way directly over the Himalayan range from Gyanka Nampa to Lachen, while Crawford and Brocklebank crossed the Choten Nyima La.

A short summary of what was learned from this year's expedition may be of some service:

1. The policy of slow acclimatization appears on the whole to have worked well. But the need for striking the balance between it and the parallel process of deterioration should never be lost sight of. Our plan was to establish the higher camps and go for the summit after not more than five days at Camp IV. In the event, bad weather interfered with every plan and upset every calculation.

2. I think it has been established beyond reasonable doubt that the second step is so severe an obstacle that it is a waste of time to attempt it any further, and that therefore the only reasonable route to the summit is that taken for the first time by Brigadier Norton. This route is definitely impossible unless the slabs are found dry and comparatively free of snow.

3. One result of slow acclimatization is the continued capacity to eat more or less normal food at considerable altitudes. A special high-altitude ration is hardly necessary for acclimatized men up to Camp V.

4. The selection of the best type of party will always be extremely difficult, for every man acclimatizes at a different rate and reacts in a different manner to altitude. One thing is certain: mere records of climbs done with guides are of little value in determining whether a man is capable of doing a full share of work on an expedition of this kind.

5. Still further improvements are possible in equipment, notably in the matter of material for tents and the substitution of sleeve openings for canvas doors. The arctic tents of this year were a great success, but might be improved still further.

6. The provision of wireless apparatus was of definite value. This might be extended in future to the use of very light receiving or even transmitting sets for use at the highest camps.

7. That Mount Everest will be climbed some day I have very little doubt; but it will need the coincidence of at least two things: firstly, not less than three days' consecutive fine weather; and secondly, the simultaneous reaching of the top of their form by not less than four men, and preferably six.

DISCUSSION

Before the paper the PRESIDENT (Major-General Sir PERCY COX) said: Before I turn to my duties as President this afternoon I should like to say how tremendously fortunate I feel that the first occasion on which I have the honour



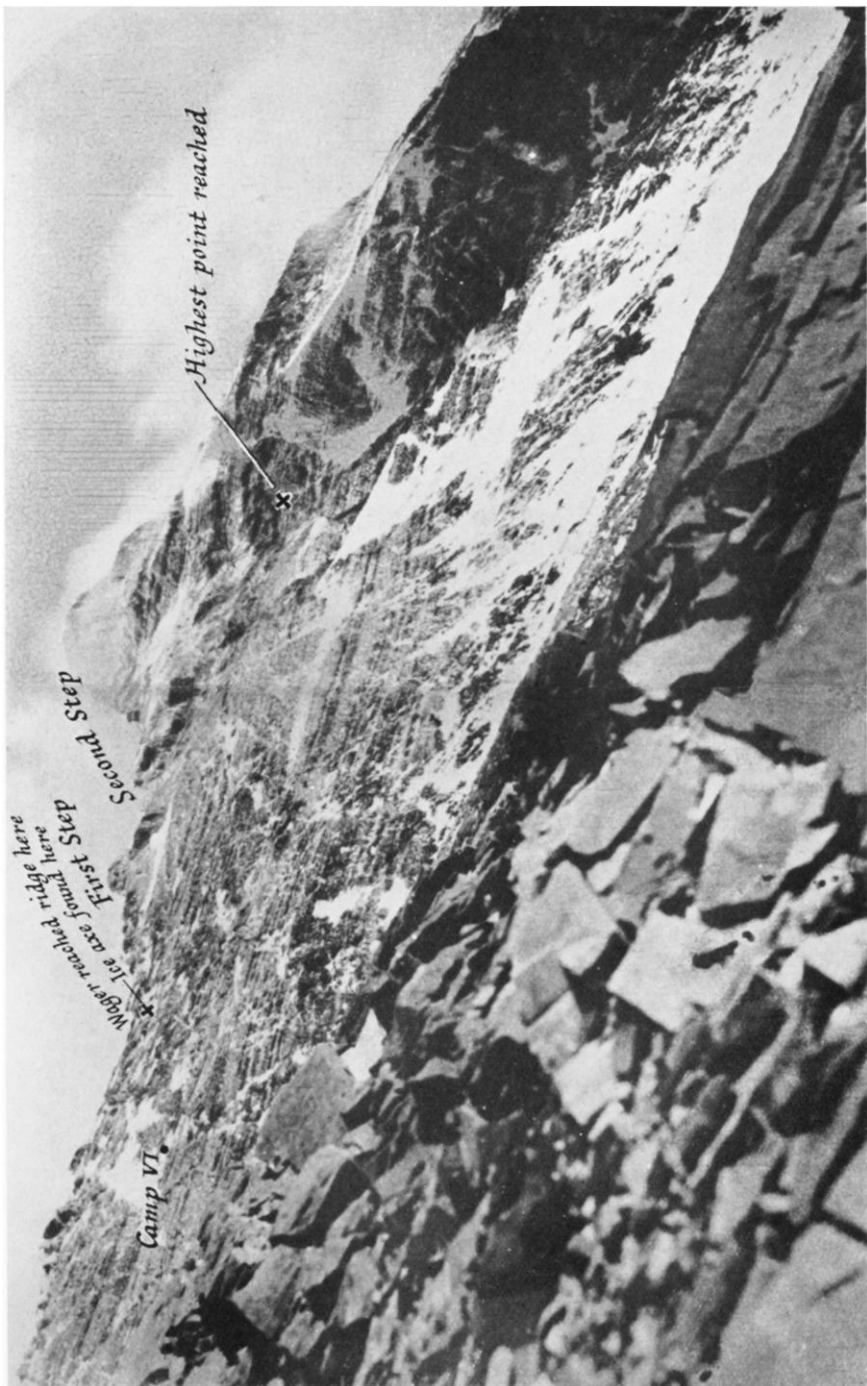
Phot. F. S. S.

Looking north-east from Camp V



Phot. F. S. S.

Wyn Harris and Wager leaving Camp VI for Camp V on May 30, after the first assault



Camp VI.
Wager reached ridge here
Ice are found here
First Step
Second Step

Highest point reached

x

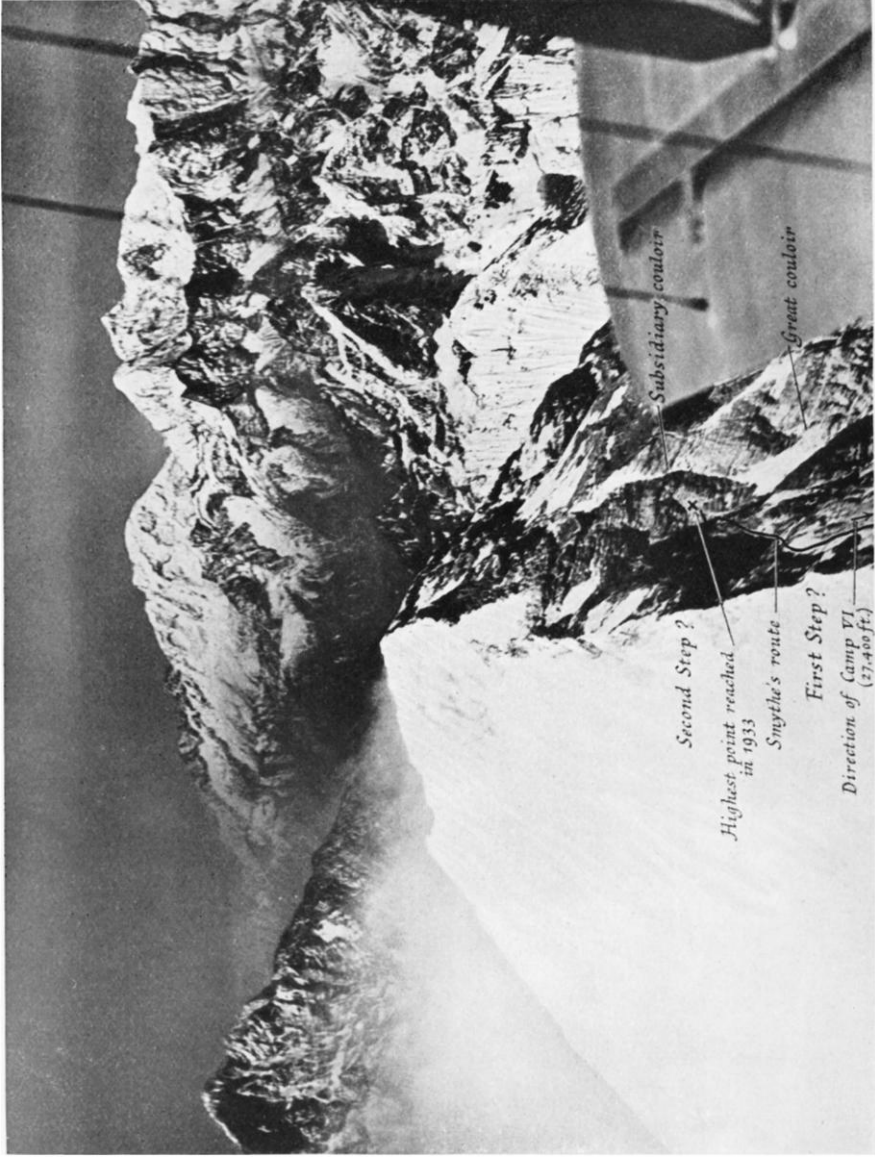
The North Face from above Camp V, May 29

Phot. L. R. W.



Phot. F. S. S.

Looking north from the east side of the great couloir at about 28,000 feet



“The Times” World Copyright
The summit and last section of the north-east ridge; from a photograph taken on the Mount Everest Flight

of occupying this Chair should be one of such enormous interest. This will certainly be a red-letter day in my life.

Before introducing the lecturer, in case any of you would like to have your memories refreshed, I will briefly mention what has taken place in regard to the several expeditions for what I may call the "Assault on Mount Everest." For the last forty years the ambition to climb that mountain has been in the minds of Englishmen, whether serving in India or alpinists and mountaineers at home. In particular, General Bruce and Sir Francis Younghusband have probably had it in mind for quite that time. It was, of course, very difficult to arrange an expedition, quite apart from the question of climbing, as there were countries to negotiate with who were not always easy to deal with, and there was also the question of finance. But in 1920, after the Great War, interest in Mount Everest revived and a Committee was formed of members of the Alpine Club and of this Society to collect funds and endeavour to promote and organize an assault on the mountain.

In 1921, as a result of the efforts of that Committee, an expedition was sent out under Colonel Howard-Bury. It was not intended that that expedition should attempt to scale the mountain. Their duty was to make a reconnaissance, explore the approaches, and see if they could recommend any particular route. They sent in a most valuable report from which it was evident that the main factor in the problem of climbing Mount Everest was the weather. It is not possible to legislate for the weather or to know for long in advance what it is likely to be, but on one point they were convinced, namely that if the mountain was going to be climbed it could only be done in the early months of the year.

The next year another expedition was sent, under the command of General Bruce, to attempt the assault. They reached a height of 27,000 feet, that is, within about 1800 feet of the summit. They were beaten by the weather. In 1924 a third expedition went, and Norton and Somervell reached 28,000 feet; Colonel Norton, as he then was, whom I am glad to see present, reaching about 100 feet higher than Somervell on that occasion. Again the weather obliged them to beat a retreat. Unfortunately, when Norton and Somervell returned to camp, Irvine and Mallory decided to make a final attempt before abandoning the task. They had got, perhaps, a few feet higher, though it cannot of course be said for certain, when they were seen by Odell moving above the Second Step. Then the mountain became suddenly enveloped in cloud; the climbers were lost to sight and never seen again; and unless Mr. Ruttledge can tell us anything more, we know no more now than we did then as to their fate.

This year the expedition was entrusted to Mr. Hugh Ruttledge, our lecturer of this afternoon, and it is for me to tell you something about him. He entered the Indian Civil Service in 1909. Prior to that, as a young University graduate spending a holiday in the Alps, he came into touch with Edward Whymper, the great alpinist of Matterhorn fame. From that time Mr. Ruttledge has always been keenly interested in mountaineering. On going out to India in the Civil Service he was for many years stationed in the plains of India, for example at Lucknow, but whenever he came home he went in for mountaineering. In 1926 his duties fortunately took him to Almora, and Kumaon, where he was always in sight of the high Himalayas and among the foothills of the range. While there he naturally had great opportunities for climbing various peaks, and Mrs. Ruttledge accompanied him on many of his expeditions, including a perambulation of Mount Kailas, the sacred mountain famous among Tibetans. He and Mrs. Ruttledge were allowed the privilege of making the pilgrimage, with the result that Mr. Ruttledge is now a "Mahatma." You have heard of the title Mahatma in connection with Mr. Gandhi! The Society is indeed fortunate in

the catholic achievements of its alumni: we have Haji Abdullah Philby among our fellow members, and now Mahatma Ruttledge. But, so far as I know, Mahatma Ruttledge has not become a Buddhist!

Mr. Ruttledge then read the paper printed above, and a discussion followed.

Mr. L. R. WAGER: The last Mount Everest Expedition has been described as non-scientific; in fact, a distinguished member of this Society described it as "resolutely non-scientific." It would be fairer to say that our resolution was directed more to the primary objective, that of reaching the summit of the mountain. Nevertheless, Dr. Greene, as you have heard, made various observations and actually carried out experiments at a height of 25,000 feet, and Mr. Shebbeare, who is an all-round naturalist, was continually adding to his already considerable knowledge of the animals and plants of the country through which we travelled.

One interesting point that seems to have emerged this year is that plants, like animals, have an upward limit beyond which they cannot exist happily. At Camp I, at 19,000 feet, there were about twenty or thirty species of flowering plants belonging to twenty or thirty different genera. None of these existed at Camp II, which was only 1000 feet higher, and even lichens, of which there were three or four species at Camp I, could not be found at Camps II and III. It looks very much as though plants, through lack of oxygen or carbon-dioxide, or moisture, or some such essential, cannot grow above about 20,000 feet.

This year we endeavoured to make more systematic observations of the weather than had been carried out on previous expeditions. Mr. Ruttledge has already explained how very important this matter of the weather is. Mallory gave it as his considered opinion that the chances of any one party reaching the summit of Mount Everest were about fifty to one against, and these odds were largely, in his opinion, due to the very doubtful factor of weather. In the winter the north face of Everest is a dark rock face, because any snow that falls is soon blown away by the violent west winds which blow almost continuously. As the summer approaches a little more snow falls, the winds are less violent and gradually the mountain becomes snowed up. You have just seen photographs which give a good idea of the steepness of the Yellow Band, as we call it, which crosses the north face of the mountain at 28,000 feet. This band consists of overlapping slabs which dip north at 30° but which, like the tiles of a roof, give a face whose general slope is 40°-50°. A mere sprinkling of snow on these slabs covers up the small cracks and roughnesses of the surface which the climber has to rely on for foothold. The snow falls as very fine single-crystal powder, not in flakes, and of course gives no support to one's feet. Therefore it seems that the mountain must be climbed before any snow has fallen, or at any rate while the winds are sufficiently violent to blow away any snow that does fall.

The objection to climbing earlier in the year is the powerful and cold wind. It is rather strange that high up on the mountain the more exercise the climber takes the colder he becomes. That is because the least little bit of exercise causes violent panting, and since the air that the climber is breathing is at a fairly low temperature, there is a general cooling down from somewhere in the lung regions. This is rather a strange feeling which I remember Wyn Harris and I got, to some extent, when we left Camp VI early in the morning when the north side of the mountain was still in shadow. We had to stop occasionally in order to reduce the speed of our panting and warm ourselves up.

That then is the difficulty of climbing Mount Everest very early in the year, and the snow is the difficulty which arrives later. Can therefore the meteorologist

in Calcutta be depended upon to give us warning as to when the monsoon which brings the snow is going to occur? This year Dr. Sen, of the Meteorological Office in Calcutta, sent us daily weather reports, and of course being in a mountain region, we did not at first believe those reports at all. Then we began to realize that Dr. Sen's reports were actually forecasting the weather about two days before it actually came. He also told us when the monsoon was likely to occur; but that seemed so ridiculously early that we could not believe that either. Nevertheless he was right. In future I think we must accept what the meteorologists tell us, and make our arrangements accordingly.

It was an unpleasant surprise this year to find that even by May 30 the mountain had too much snow, although only a sprinkling, to allow it to be climbed, and one wonders what unpleasant surprise the next Mount Everest Expedition will have. But we must at least prepare against the difficulties we know. This is only a tentative suggestion, but I think the difficulty of the early monsoon should perhaps be prepared against by reaching the Base Camp a fortnight earlier even than this year, and allowing those who acclimatize early to make their attempt in the middle of May, when it is reasonably certain that the slopes will be free from snow. Those who acclimatize slowly would be in reserve to make their attempt if a good spell should occur in early June. Of course there will be violent cold winds in May, and it is not certain whether a climber can stand up to those winds or not. The one thing however which I think is quite certain is that as soon as the upper part of the mountain is sprinkled with half an inch of snow there is no hope of climbing it until the snow is blown away. I think Mallory's estimate of fifty to one as chances against climbing the mountain can be reduced. From our further knowledge of the weather, acclimatization, deterioration, and so on, I should think it would be fair to say the chances of any one party being able to get to the summit are perhaps now only five to one against.

Brigadier E. F. NORTON: On the walls of the Rongbuk Monastery there were in 1924 some crude frescoes, one of which depicted the demons of Mount Everest pushing a white man down off the mountain. I think the Lama who painted that picture was not a bad prophet, for before the departure of this year's expedition, when Mr. Rutledge and I were discussing the chances, I remember saying, "Only two things can cheat you of the top: the failure of the porters to carry to Camp VI, or the weather." As you have heard to-night, weather, and nothing but weather, did cheat this party of the top—such weather in the month of May as we never anticipated, as we have never experienced before, even in 1924, followed by what was, I believe, the earliest monsoon of a century. I think it clear that the demons of Mount Everest had a hand in it this year!

But if they were cheated of their chance of the top, to this year's expedition can be attributed several achievements which will be a big contribution to ultimate success. First and foremost, I put the fact that they have removed once and for all the fear that the porters would break down and fail to carry Camp VI sufficiently high, a fear which has been the bugbear of everybody connected with this problem ever since Mallory and Geoffrey Bruce had to return for that reason in 1924.

Again, this year's expedition has made it a commonplace for parties to sleep night after night at the higher camps above Camp IV: to sleep not only two nights but a third night at Camp VI at 27,400 feet, and to sleep the clock round! That makes one smile when one looks back and thinks that in 1922 four of us started out from the North Col to see whether it was possible for human beings to exist without oxygen at 25,000 feet, and if they could exist, could they sleep? And particularly when one remembers that one of our leading scientists before the

departure of the 1924 expedition said to General Bruce, "You may put a party at 27,000 feet, but nobody will ever sleep there without oxygen."

Again, this year's expedition has proved that parties can continuously climb and descend that steep snow and ice wall below Camp IV, after monsoon conditions have set in, with impunity. There again they have removed one of the greatest bugbears of all previous expeditions, although personally I should feel a little happier if I knew the explanation of the immunity this year from a danger which overtook the 1922 expedition the very first time they tried it. I do not think we quite know why. Anyhow, they have proved that the odds are very much more against an avalanche after the monsoon has set in than we ever thought.

No one who has not himself tried to organize an assault on the mountain can realize what these three achievements of the 1933 expedition, coupled with their improvement in equipment and with their contribution to the acclimatization problem, mean as a contribution towards the success of a more fortunate party another year. Make no mistake: success was never on the cards this year. This expedition never had a chance. Mr. Ruttledge, the leader, succeeded in laying out on the mountain what we had regarded before he started as the ideal organization of the camps and the ideal disposition of the climbing parties. To him and to the porters, no less than to those who trained and led the porters, must go the credit for complete success in this department. And when we turn to the climbers, Wager and Wyn Harris did exactly what their job was. They disposed, I think, once for all of any hopes of the ridge route, and they cleared the way for Smythe's and Shipton's attempt. I consider that Smythe's single-handed attempt on that horribly dangerous wall under the conditions it was in at the time represents the legitimate limits of resolution and courage if it does not rather overstep them.

I said this year's expedition had cleared the way for future success, but in one respect I must admit that the prestige of the mountain has gone up and our optimism as to any one party succeeding on any one occasion has proportionately diminished. I am talking of the actual physical climbing difficulties. There is a tendency now, I think, to regard that wall, on which three successive parties have now been brought to a halt, with more respect than before. I have been fortunate in encountering that wall under better conditions than the others, and I personally have no doubt that it is negotiable, given rock completely clear of snow. With any depth of snow on it—and here I am only repeating what I said when I came back in 1924—there is no question that it is absolutely unsurmountable. And I think we can trust the demons of Mount Everest to see that we are very unlikely to find the rock completely clear of snow.

In conclusion, I should like to congratulate the speaker this afternoon on a very fine story told with all that modesty which has been so characteristic of the conduct of the whole of this year's expedition.

MR. T. A. BROCKLEBANK: I am afraid I have not much to contribute to the discussion as I am not a man of science, but I hope I cannot be accused of being in any way "resolutely non-scientific." Brigadier-General Norton raised the question of the condition of the snow this year on the North Col slopes. I can only say that most of the time when it was open to traffic after the first difficulty of reaching the North Col had been surmounted there was, after a time, a good hard track most of the way up from which we hardly varied our route. That probably made the passage from Camp III to Camp IV a great deal safer than it would otherwise have been. On the other hand, the second time we went up the glacier on May 15 we attempted to reopen that route. By then the monsoon was in full blast, and not only was there a foot or two of new snow covering up

the fixed ropes but underneath that the old snow appeared to have remained, and one could drive an ice-axe in right up to its head, and even then there was no evidence that one had reached anything firm.

Mr. Ruttledge has told us this afternoon a great deal about various members of the party, but remarks about himself have been conspicuously absent. I shall always remember one little scene at Camp III on, I think, May 31, when those of us who were resting there were waiting and waiting for news of Wyn Harris and Wager. We had hoped to hear the previous evening some news of their attempt, and naturally by the next day we were all somewhat anxious. I think the only visible sign of Mr. Ruttledge's anxiety was when he went out of the tent—the whole mountain was covered in cloud—and solemnly trained the telescope on the mountain and looked into a perfectly blank cloud.

The PRESIDENT: You will all agree, I know, that we have had a most extraordinarily interesting lecture. The photographs have given us a vivid idea of what the party went through. Mr. Ruttledge himself, as Brigadier Norton has said, has spoken modestly and said little of his own part in the project, but we can all see from the man and from the story he has told what great qualities of leadership he must have displayed in running the expedition as he did and bringing the party back without casualty of any sort, a fact which does great credit to every member of the expedition and himself. I do not feel qualified to enter into the technical aspects of the ascent, of which we have heard from Brigadier Norton, but I do feel that as long as the summit of Everest remains unconquered there will always be some Englishman ready to undertake an expedition to climb it. For the present, as you will have gathered, the outlook does not appear very promising. I can only express the hope that if the Tibetan authorities relent in a year or so's time, Mr. Ruttledge may be able and fit enough to conduct an expedition again. I am sure we could not possibly have a better leader.

As you have been notified, Mr. Ruttledge has been good enough to agree to give us two lectures, one in the afternoon and one in the evening. Seeing that he is exceedingly busy with his book, this is no small task to impose upon him, but he has readily responded to our appeal for a second lecture in order that as many Members of the Society as possible may have an opportunity of attending the lecture. I will ask you to show in the usual manner your enthusiasm for the admirable lecture which he has given us this afternoon.

At the Evening Meeting the President introduced the lecturer in terms similar to those used in the Afternoon. Mr. Ruttledge then repeated the lecture printed above, and further discussion followed.

Mr. F. S. SMYTHE: After Mr. Ruttledge's most comprehensive account it is very difficult indeed to find anything else to say. The factor that cannot be stressed too strongly is, of course, the time factor. This year the plan of attack, with the exception of acclimatization, was substantially the same as in 1922 and 1924, and attacks were launched from the North Col. With too prolonged acclimatization, deterioration sets in, and when planning an attack this has to be considered. When Shipton and I first went up from the North Col to make a reconnaissance towards Camp V we climbed 1500 feet in about one and a half hours. At the same time, I very much doubt whether we should have been able to have climbed to 28,000 feet. When we went up later we found we could only manage about 600 feet an hour from the North Col to Camp V. But given the same easy ground above Camp VI, I think we could have climbed at 400 to 500 feet an hour; and so what you lose on the roundabouts of deterioration you gain in the swings of acclimatization.

With regard to attacks on the mountain, they must be launched from a camp as high as possible, and the question arises, is Camp IV on the North Col the best point from which to launch an attack? There are some who think that Camp V would be better. Camp V this year was most frightfully uncomfortable. We had little tents of aero-wing canvas. I am afraid I referred to them as "gossamer" canvas. The snow blew, not only through the entrance, but through the side of the tent and made life very uncomfortable indeed. If one could get up to Camp V a small Arctic tent like the tents we used up to Camp IV but weighing much less than 80 lb., and capable of sleeping four men and enabling them to live as comfortably as possible in it, I think one could spend some days at Camp V and choose the time for the attack. The possibility of getting three days' good weather is far less than the possibility of getting two days' good weather, and the possibility of two days is not half that of one day, but somewhere about one-tenth. If Camp V could be made really comfortable, and the attack launched from it, I think there would be a much greater chance of getting to the top.

As regards the position of the camps, it does not seem that Camp V can be improved upon. For one thing, a longer carry from Camp IV would be almost impossible. This year, with Camp IV at only 22,800 feet, and Camp V at 25,700 feet, it was as long a carry as any porter could possibly be expected to do. Camp VI was pitched well to the east this year with the idea of gaining the crest of the North-east Ridge to the east of the First Step, but we know now that the ridge is not the best route. Therefore the next expedition should endeavour to pitch Camp VI under the First Step.

As regards Brigadier Norton's traverse route, I think it would be much better to go lower along the Yellow Band, which is slightly concave in angle, for when coming back low down from my highest point I found it much easier climbing than going. It is necessary to get into the subsidiary couloir on the other side of the steep buttress, at the foot of which the main couloir and subsidiary couloir bifurcate. This subsidiary couloir is the most dramatic thing on Mount Everest, because it forms the only breach in the band which runs across the northern face of the final pyramid. It is much better to traverse the buttress low down because the upper part of it is steeper than the lower.

One of the difficulties of the final assault, apart from the time factor, will be getting back to Camp VI. The sudden storms which approach with no warning are very disconcerting. The storm which caught Shipton on the way down and the storm which caught me were the most sudden I have experienced on a mountain. They were unheralded by clouds and came out of a blue sky. In five minutes a wind probably over 80 miles an hour was blowing. If the climbing party is caught in such a storm it is not going to get back to Camp VI. There is 300 feet of very steep ground. It would probably be advisable to take some light line and fix it to a piton above the worst section. Then the climber, who is going to be pretty weak and tottery about his legs, may have a chance to get down without disaster.

General BRUCE: I should like to stress one point. I do not think we can be in any way disappointed that the summit was not reached. The expedition did all that men could possibly do. It may be that their performance has been equalled before, possibly on one or two occasions; but even that is doubtful. I really want to make one or two remarks with regard to the porters. I think it is becoming a tradition among Sherpas, and what makes me think so is that many came to join the expedition of their own accord. They came from Solar Khumbu to join Mr. Ruttledge without compulsion. They were simply advised that they were wanted and forty-six men came. There could have been no compulsion.

Think of a very primitive people who are taken up to work on the great mountains without anything like the incentive or interest that we have, and who experienced from the first difficulties and dangers, and actually lost, on our 1922 expedition, no less than seven of their people in one accident, and another falling down a crevasse. You would have thought that might have put them off. But in 1924, when I went back I found 250 of them waiting to be chosen. Since then they have taken part in all the expeditions in the Eastern Himalaya, notably Dyhrenfurth's Expedition to Kangchenjunga, and both the Bavarian attempts on the same mountain; and on those expeditions they have suffered further losses and an immense amount of frost-bite. But that seems to egg them on more than ever. When I got up to Darjeeling this year they were absolutely tumbling over each other in their eagerness. The tradition of joining in the great exploration of the mountains has arrived, and I think in future first-class porters will always be forthcoming. I do not know whether there is anything in it, but after the first expedition they all said to me that the accident was the sacrifice claimed by the mountain and that now half the terror of the mountain would go. How far that modifies the case I cannot say, because they have had many accidents since. Still, that was the idea, and not only amongst the porters but amongst ordinary Nepalese. Lhakpa Chedi did not think much of that himself. He and I were old friends, as we had been travelling about Sikkim before these expeditions were thought of. That was about the time that I was told by the doctors that if I walked uphill I should die!

There is one question I should like to ask Mr. Ruttledge. When the expedition was driven off the mountain in 1922, during that winter the Lama at Rongbuk monastery had a beautiful picture painted which I understand was intended to depict the defeat of the 1922 expedition. I think it is probably in the monastery now, and I wonder whether Mr. Ruttledge saw it. It pictured the demons of Mount Everest driving the expedition off the mountain, and little demons spearing the unfortunate leader. I can certainly bear witness to the character of that very remarkable man, the Head Lama of Rongbuk, to bear out what he did this year, and, I think, what he has done for all expeditions; when the morale was low he blessed the porters and re-established their confidence. I do not think I have more to add except to wish "Good luck" to the next expedition to Mount Everest which may or may not go in 1936.

Mr. COLIN G. CRAWFORD: I should rather like to disagree with Mr. Ruttledge on one point. He disclaims any relationship with Mahatma Gandhi, but he certainly adopted Mahatma Gandhi's gospel of non-violence. As regards the expedition this year I should like to draw one or two comparisons between the 1922 expedition, of which I was a member, and the 1933 expedition, and although the points have already been somewhat laboured I would like to draw attention to the difference in weather conditions. I looked up my diary for 1922 and I noted that in my 1922 diary I mentioned the bad days, while in 1933 I mentioned the good days. In a period of one month, May 4 to June 4—this was mostly on the glacier and of course did not affect conditions at greater altitude—I only noted two days of sun and one day of very bad wind. Of course one always had the wind, and one only noted exceptionally powerful winds. In 1933 there were about two or three good days, all the rest being bad days. We had very bad weather in 1922. Still, if the weather in 1933 had been no worse than in 1922, I believe that the mountain would have been climbed.

Both Mr. Ruttledge and General Bruce have mentioned the improved morale of the porters. In 1922 one felt they were subdued by the mountain; there was an undercurrent of apprehension. In this year's expedition one did, of course, have failures, but they were laughed at. One gentleman succeeded in concealing

himself in the cook's tent for three days when he was required to carry; and when he was finally dragged out everybody laughed at him, instead of being rather impressed by the circumstances that must have produced his state of mind. Similarly, when one of the porters broke down on the North Col all the rest of the men just laughed at him. The porters have completely lost, as far as I can judge, their traditional fear of the mountain.

I am under the same disability as Mr. Smythe, who had, apparently, noted points to speak on and found Mr. Ruttledge had dealt with them all before. As to the Arctic tents: our equipment this year was very much more complete than in 1922, and I personally was never cold in an Arctic tent. Actually when one slept five or six in an Arctic tent one was far too hot. Our sleeping-bags were designed for more severe conditions than you could experience in an Arctic tent. In a Whymper or Meade tent I think conditions were none too warm, but in an Arctic tent one began to feel one was in an Indian hot season. I think those Arctic tents made all the difference this year in the successful occupation of the higher camps.

The President expressed the thanks of the Meeting to the lecturer and renewed his congratulations to the leader and all members of the Expedition.

Since a large number of Fellows and their friends were unable to obtain admission to the Evening Meeting on November 6, a third meeting was held on the evening of Wednesday, November 8, when Mr. Ruttledge very kindly repeated the lecture.