

MOUNT EVEREST : THE LAST LAP

BY E. F. NORTON

ELEVEN years have passed since the last attempt on Mount Everest and eleven years is a big slice out of the active life of an Everest climber. Whenever the next attempt on the mountain is made it is doubtful if there will be any candidates for the top who have had previous experience of the 28,000 foot mark, and if it is unduly postponed the whole expedition may be composed of climbers who are new to the mountain or even to high climbing in the Himalaya. The number of those who have reached the big couloir is now, since the death of F. S. Smythe, reduced to three. It may therefore be thought worth while to put on record any experience of this area which is available and has not already been recorded.

This briefly is my excuse for re-opening a topic on which so much has already been written.

The problem of Mount Everest is now confined to that of the last 1000 ft. of the climb and it is this which I propose to discuss, but there are two points in connection with the organisation of a future expedition and its conduct up to 28,000 ft. which may be worth raising, though here one man's opinion is as good as another's.

We are probably all agreed that we have done with the 'mammoth expedition'; I hope so; apart from other considerations, economy alone must dictate something on as modest a scale as is compatible with efficiency, and my only comments on the arguments in favour of the small expedition, so ably stated by Shipton and Tilman are, first, a plea that a doctor should be included among the climbers. The number of occasions on which a doctor has saved lives or has at least lifted a heavy responsibility from the shoulders of a leader are too numerous to be disregarded. Secondly, in arriving at the number of climbers required, it must be remembered that out of a party new to Himalayan conditions, no matter how carefully selected, a proportion of even the toughest of Alpine climbers is likely to prove unfit for the last lap at extreme altitudes apart from those that fall by the way from the various diseases that can so easily be picked up in Sikkim or on the Tibetan plateau. Let us not spoil the ship for a ha'p'orth of tar.

I hope that Tilman's experience in 1938 has disposed once for all of any idea of tackling the North Col from the W. and we can therefore anticipate a layout of camps up the E. Rongbuk glacier similar to that of previous expeditions. But it is worth noting how much better Camp I would be as a base camp than the old site below the snout of the main Rongbuk glacier. Camp I has always been a sun trap and it enjoys longer hours of sunshine than the old base camp; it is far less exposed to wind and it has the great advantage of being one day nearer

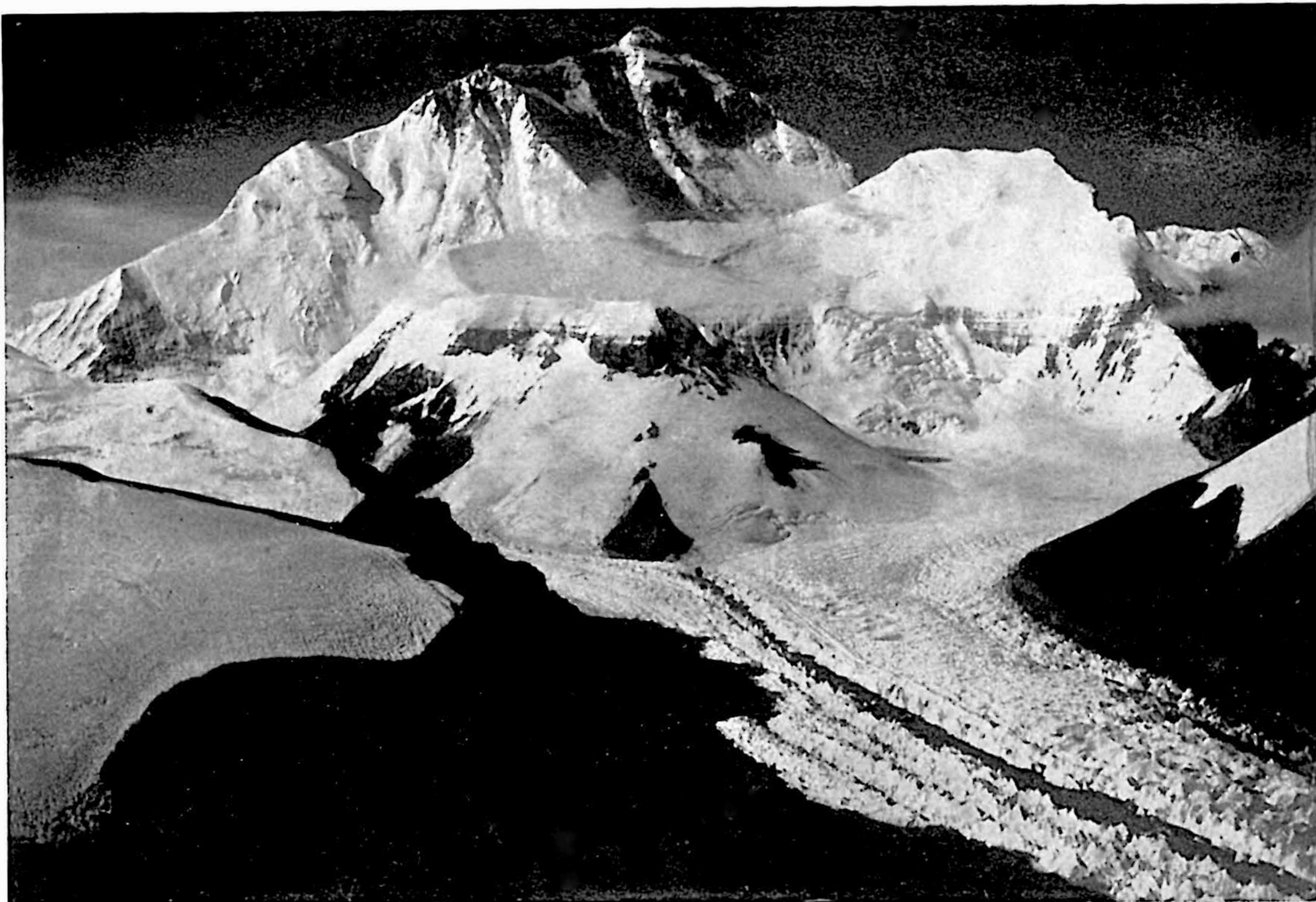
the mountain. The more modest the scale of the expedition the less is the importance of having the base camp easily accessible to the outside world and the better is the chance of being able to dump a smaller load of stores there. Whether it can in fact be reached by animal transport is another matter ; mules have reached it without difficulty and there seems no reason why yaks and donkeys should not, but this is not enough ; the crux of the matter is that it may not be easy to induce the Tibetan transport drivers to take their animals there. Once this is done it offers a far pleasanter home from home than the old base camp.

Next, a brief analysis of the structure of the last 2000 ft. of the mountain may be of interest. When on the march between Chödzong and Rongbuk in 1924 I climbed to a point which gave me a somewhat unusual view of the mountain, with the N. face viewed obliquely from the N.-E. It was about midday on a clear April day and the sun's rays appeared practically tangential to the N. face, which was thus broken into light and shade so that prominent features were picked out in sunlight while most of the face was in shadow. It was clear that from a little below the N.-E. shoulder a depression or ill-defined shelf ran obliquely upwards and across the face to approach the great couloir at about 28,000 ft. This is the line of least resistance which has now come to be regarded as the best line of approach to the final pyramid. It was also possible to see to some extent round towards the southern face of the second step, and it was its repellant appearance from this angle which dictated my conviction that the ridge route would not go. I hope, however, that Wager's and Wyn-Harris's reconnaissance in 1933 has finally disposed of that route.

The shelf I describe, though it is scarcely so well defined as to merit the term, runs obliquely across the 'yellow band.' This band of schistose limestone stands out clearly against the black rock above and below it in all views of the N. face of the mountain. It is roughly 1000 ft. deep, and on its eastern end it extends in depth from just below the first step to just below and including the N.-E. shoulder ; its upper edge crosses the great couloir at 28,000 ft. and is continued to the W. immediately below a formidable band of black cliffs which crosses the whole face ; the first and second steps, the buttresses which run down from them, and the overhang at the head of the great couloir are all features of the massive limestone in this band of precipices.

It is broken to some extent and appears to be least steep at about the point where the three attempts have been made to break out from the great couloir. This is the breach in this formidable defence of the final pyramid and it should be realised that any attempt to cross the great couloir much lower than at the top of the yellow band, though it might facilitate the break out, would then entail climbing this rock band where it appears from photographs to be uniformly precipitous.

The yellow band, particularly about its central strata, is different from the rocks composing the rest of the face. Its ledges in places tend to form horizontal bands instead of sloping downwards and outwards and, for a good portion of the traverse between 27,000 and 28,000 ft.



MT. EVEREST.

This photograph although evidently taken well before midday gives some indication of the 'shelf.' It also shows what I have called 'the final breastworks of the summit' viz. the two bands of cliff still to be negotiated after reaching the face beyond the Great Couloir: one across the base of the final pyramid and the other immediately under the summit.



MT. EVEREST.

This air photograph of the summit and N.E. arête, corrects the tendency to minimise the steepness of the N. face which occurs in all photographs taken from below—though here, of course, it is exaggerated.

The two bands of cliff to be negotiated on the final pyramid can be picked out, one immediately below the summit and one a little lower just above a fairly continuous series of snow beds.

followed in 1924, give excellent walking, hardly to be classed as climbing. Wager and Wyn-Harris noted the same thing on their climb to Camp VI. It was, I suspect, the nature of these strata that tempted me and both succeeding parties to retrace our steps when rounding the angle into the great couloir, just about the top of the yellow band, and to select a slightly lower line with better holds.

Now it is an interesting and undoubted fact that the last 500 ft. of the final pyramid is of the same colour as the yellow band and to the layman it seems probable that the rock is the same in both cases. This appears to conflict with a statement in Wager's geological chapter in *Mount Everest 1933*, to the effect that the top 1000 ft. of the mountain is all of the same massive limestone which forms the second step : the latter is dark grey in colour and it is possible that under the conditions of 1933 Wager never saw the top of the mountain clear of snow and so missed this difference in colour. It is a point that needs clearing up for it has a distinct bearing on the chances of negotiating easily the final steep wall immediately below the summit. The dark massive limestone of the second step and its prolongation to the W. is slippery holdless stuff as Wyn-Harris and Wager discovered and as I can confirm from a brief attempt I made to climb directly upward just to the E. of the great couloir ; the rock of the yellow band, on the other hand, is, as I have said, stratified at a more kindly angle and sometimes offers a handhold, a rare thing on the face of Mount Everest.

With Odell and Wager in the offing, however, I would be wiser to steer clear of geology or I shall get into trouble, and to turn to climbing where, metaphorically, I shall be on firmer ground. The exact nature of the climbing in the neighbourhood of the great couloir is a subject which will probably interest candidates for a future expedition.

Despite Smythe's view I am, in theory at least, in favour of crossing the great couloir as high as possible and this means about the top of the yellow band. I say this because the higher the couloir is crossed the easier the angle of ascent beyond it to reach Smythe's subsidiary couloir at a point where it is not too steep ; for the subsequent descent, if for no other reason, it is important that the angle of descent should be as gentle as possible. This involves crossing the great couloir at a point where I, as well as Wyn-Harris and Wager, found it full of granular snow. Smythe, curiously enough, found the snow in the couloir hard and had to cut across it ; he may have crossed rather lower at a point where the sun strikes it, for higher up it may well be that the sun never reaches it even in June. If this is the case there is much to be said for a slightly lower crossing. As I found it, it was a distinct *mauvais pas*. The snow was of the consistency of coarse salt ; stepping rather steeply down onto it one sank right through, thigh deep, without a chance of selecting a foothold on the rock of the couloir bed, and the powdery stuff poured down in a cascade. The chances of a disastrous slip seemed so great that I hesitated for some time before taking the plunge.

Once in the snow one could feel one's way and I remember no similar trouble on recrossing it later—probably because I could enter it with

less of a drop from the west. It is possible that this unpleasant step could be avoided by searching for a better point of entry or safeguarded by a piton and a short length of rope. It is hardly a place where one climber can secure another on a rope.

I have always classed the wall beyond the great couloir as far as I went as more dangerous than difficult—*pace* Ruttledge who in his 1933 book, says that I considered it to be both. Smythe speaks of it as both difficult and dangerous, but he tried it under much worse conditions, while Wyn-Harris's and Wager's opinion is not quoted at first hand. The reason I would so describe it is that one walked straight ahead on one's balance, stepping from tile to tile ; there were no gymnastics and the footholds, though slippery, were of adequate width, sometimes as broad as a boot sole and not often less than half that width. The danger lay first in the fact that it was so steep that, though one was on one's balance, there was not much margin ; a slight steepening of the general angle might have thrown one off one's balance with the consequent need of handholds, and of these there were none. It was the sort of place where it was not easy to turn round in one's steps. Secondly, the ' tiles ' all sloped downwards at a sufficient angle to make a slip very possible. It was so necessary to fit one's boot nails into some corrugation that I had constantly to sweep off the powdering of snow with my mitts before placing my feet. In no circumstances should this place be attempted under the conditions Smythe met. Wager suggests that oxygen might be used for this wall alone ; I never saw the 1933 oxygen apparatus but I should have been very sorry to have carried the 1924 apparatus here.

My impression when I turned back was that I was nearly half-way up the worst of the wall and that the going on ahead to a point where the angle eased off appeared no worse than what I had already negotiated. But I was traversing upwards at a fairly easy angle and I descended by the same line. Should I have been forced to ascend more steeply the subsequent descent over this sector would have been very dangerous and I have always considered that, for the purpose of the descent by exhausted men, it might be advisable to fix some 200 ft. of light Alpine line on the ascent, a process involving both time and effort. Smythe agreed with me about this.

Since I made this estimate of the difficulties of this pitch the publication of Smythe's photographs and of Wyn-Harris's and Wager's experience on the massive limestone, as well as of the latter's geological notes have to some extent modified my opinion. It looks as if one would be climbing on this unpleasant rock before emerging onto the face of the final pyramid and it may prove even more slippery and holdless than the ' tiles,' while the snow of the subsidiary couloir may be powdery or hard enough to necessitate arduous step cutting.

Once on the face of the final pyramid Somervell and I always thought, both from study with a telescope from the base camp and after a close view from 28,000 ft., that we should have but little trouble up to the summit of the mountain. Since then, however, I have seen the aerial photographs of the Houston-Everest flight, one of which, reproduced

in Ruttledge's book of 1936, gives an unpleasant impression of the final breastworks of the summit. Admittedly aerial photographs taken downwards accentuate the degree of slope, just as those taken upwards by a climber with a tilted camera diminish it, and as does also a visual reconnaissance from below. The true picture is a compromise between the two and all that can be said is that we should be prepared for some unpleasant surprises in the last 1000 ft.

There is one more factor which affects the chances of success—the question whether the last 1000 ft. may prove beyond the limits of human endurance by reason of the lack of oxygen in the air at this height. It is significant how many have had to 'give it best' at or just below the 28,000 ft. level, but this is the only real argument for such a contention. Had we been on easier ground, and if we had had the time, Wyn-Harris, Smythe and I could all have gone on at least for a time. I have been told that the rate of diminution in the oxygen content between 28,000 and 29,000 ft. is very slight and if this is true it is reasonable to suppose that men who are physiologically gifted in this respect should be able to go well beyond 28,000 ft., probably to 29,000 without an artificial oxygen supply. The experience of three parties is much the same. There seems to be no deterioration in the capacity for clear thinking, but there is a dulling of the sensations such as determination for the task in hand, and the sense of fear is not acute; this needs watching or it may in the ultimate resort lead to carelessness in a nasty place. And of course the rate of progress up-hill becomes lamentably slow. Once one turns downhill, however, all is well, and if the climbing difficulties call for no undue exertions one descends at something at least comparable to an alpine pace, while at the end of a 12- or 14-hour day, even after going to a great height, parties used to finish quite strongly.

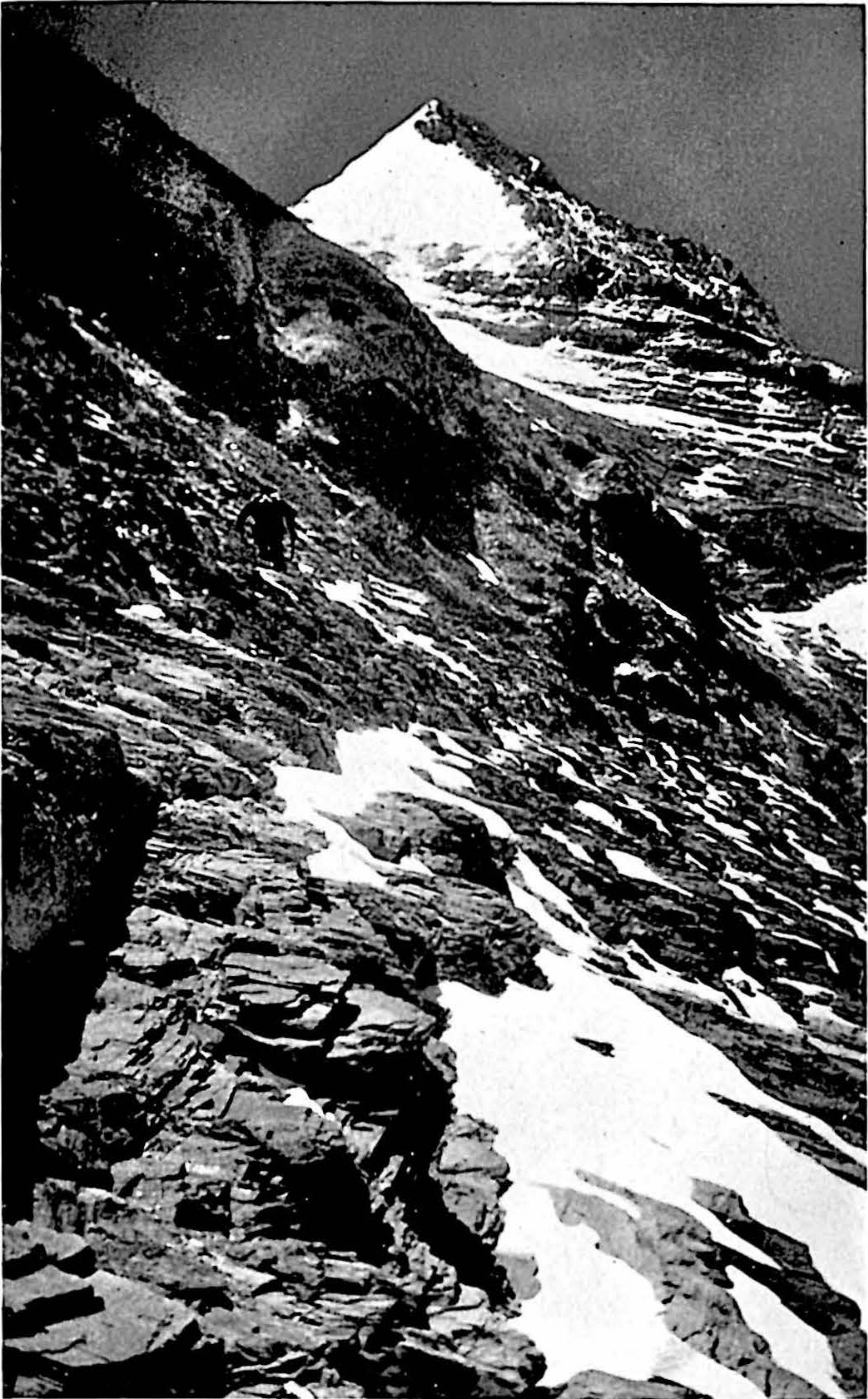
I am not quite so certain about the possible results of sleeping a second night at about 28,000 ft. Smythe did it at 27,400 ft. and slept better than he had done for some nights, though the descent next day was exhausting. I believe that a party reaching the summit would be well advised to aim at sleeping that night at least below the yellow band and should not tempt the high gods too far. Add to this the necessity for extreme caution over the descent of the rock walls in the last 1000 ft. and it would seem that a party should be off the top by 4 P.M. at latest.

All of this leads me to the main point I wish to make. When reading a paper to the Alpine Club in 1924 I said that, above the North Col, I advocated two, and not more than two, camps. Since then we have had much additional experience, not only on Mount Everest but also on other of the greater Himalayan peaks. In almost every case there has been a tendency to underestimate the problem and to make the final assault from too low, and I am now very much disposed to modify the view I expressed in 1924. I have already referred to what has to be done on Mount Everest beyond the great couloir and I believe that, unless a substantial improvement is made on the position of Camp VI of 1933 for a future final camp, we are liable once again to see the

finalists defeated by exhaustion or by the clock, as has so often happened before, not on Mount Everest alone, but on Kanchanjanga, Nanga Parbat and K.2. What is more I feel sure that there will be little time for investigating alternative possibilities. So far as previous experience can take it, a future party should follow a clear cut plan with no deviations ; one of my objects in trying to assemble all known data in advance is to facilitate the making of such a plan, even by a party without experience of the mountain.

I can only suggest two possibilities for improving on the position of the highest camp in 1933. First, the scree slope just below the first step which is suggested by Smythe on p. 158 of *Mount Everest 1933* and, presumably, figures in the foreground of the photograph on p. 216 of the same book. This is some 400 ft. higher than the site of Ruttledge's Camp VI and, say, 300 yards further W. But it is still some distance, perhaps, an hour or two's traverse, from the great couloir, and the approach to it is steep, a serious consideration if it becomes necessary to send porters down from it unescorted. The second suggestion is perhaps rather a wild shot. I have thought it possible that a platform for one six-foot square tent might be built at just about the spot at which I parted from Somervell in 1924 and from which he took the photograph which is reproduced opposite. I have an impression that there was a possible site just by the big rock which figures on the left-hand side of that photograph. I must admit that this idea only occurred to me years after I saw the spot and it may have been induced by wishful thinking. Failing this, it is possible that a little further back, along the line by which Somervell and I approached this spot, diagonally upward across the yellow band, a ledge might be found capable of being developed into a tent platform. Anywhere in this area a camp site would be ideal as it would put a party within easy reach of the great couloir in a matter of minutes ; further, the whole descent thence to the 1924 Camp VI site is so easy that porters could return unescorted with reasonable safety except in conditions of mist or blizzard. Either alternative would require 2 or 3 hours more than the carry to Camp VI, achieved in 1933.

The 1933 site of Camp V can hardly be improved upon and it is quite a big lift for laden porters above the North Col, say 2500 ft. A new Camp VI might be formed about an hour's climb S.-W. from the site of Camp VI of 1924, along the line which Somervell and I followed. Just below the yellow band on this line the shelf or depression I have described is most marked and there are some patches of snow on easily sloping ground which I feel sure would provide a camp site at about 27,100 ft. The carry to this point from the 1933 Camp V site would be about the same as that between Camps V and VI of 1924. Starting from here, and continuing along the 1924 route, you follow the line of least resistance, all easy going, and leading direct to the possible site for a Camp VII at about 28,000 ft. which I have suggested. If, on arriving at the top of the yellow band, just E. of the two great buttresses which run down from the area of the second step, no possible site has



MT. EVEREST FROM 28,000 FT.

'This photograph was taken by Dr. Somervell from the top of the yellow band (marked by a line of snow in the middle of the picture). It shows the big rock in the left-hand bottom corner and the two buttresses just ahead of the figure. Note that the tilted camera has greatly minimised the steepness of the slope.'

[To face p. 29c.]

been discovered, the party could turn back and traverse more or less horizontally along the top of the yellow band, reversing Wyn-Harris's and Wager's route, to the foot of the first step, and establish Camp VII there, after which returning porters could descend direct—escorted if necessary—to the new Camp VI or to Camp V, and so home either that evening or next day.

I am, however, so impressed with the necessity for shortening the last day's work that I feel that time and effort spent somewhere near the spot from which Somervell's photograph was taken in building a tent platform even on an unpromising site would give far better value than an equal amount of both expended in traversing back to the first step. It is worth remembering that the Sherpa, like the Gurkha, is a bit of an expert at dry wall building and the exertions demanded would follow a comparatively easy day's work. It should not be difficult to locate the spot from which Somervell's photograph was taken. The buttresses are obvious in the photograph, just ahead of my figure and I believe that the top of the yellow band can be identified just below it, while the big rock on the left of the photograph was, if I remember right, the biggest in the area.

In advocating three camps above the North Col I am fully alive to all the disadvantages of such a policy. It adds to the amount of material to be carried and to the number of porters required to go high ; it involves an extra day on the mountain above the safety of the North Col, with all the attendant risks of a break in a short spell of fine weather, besides the inevitable deterioration in the physical condition of climbers and porters ; it necessitates persuading at least two porters to carry loads higher than ever before, and this may be far from easy, particularly if the party includes no one who can talk Gurkhali. I am a great believer in simplicity and, so well do I recognise all these disadvantages, that I would be the last to advocate an intensification of siege tactics if it can be avoided, but I doubt the possibility of reaching the sort of final camp site that I have in mind by two long carries above the North Col.

In the chapter on ' Reflections ' in his 1936 book Ruttledge discusses this question and, while himself advocating an improvement on the position of his highest camp of 1933, still adheres to a six camp lay-out. Ruttledge's views carry immense weight for there is no authority on Mount Everest who has accumulated so much information, has sifted it so thoroughly, or has analysed it more soundly ; but he has only considered a final camp just below the first step. Should my alternative suggestion be considered feasible, it is possible that he might agree about the necessity for a Camp VII, for the site in question, though at much the same height as the foot of the first step, involves a considerably longer traverse to the W. Whichever method is adopted, I suggest that the plans for a future climb should not leave the siting of the highest camp in the air. Planning for Mount Everest is apt to be a case of ' l'homme propose mais Dieu dispose,' but the way up to the great couloir is now so well established and straightforward that it is

reasonable to suppose that a sound plan can be made and carried out up to this point with a fair degree of certainty, if only the weather is kind and the porters prove as stout as their predecessors.

The rest is on the knees of the Gods. A future party may be defeated by lack of oxygen or by climbing difficulties. Let us at least ensure, in so far as it is humanly possible, that we are not once more compelled to yield to the logic of time and space.