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[We are greatly indebted to Mr. Farquhar for his valuable article.—*Editor*, 'A.J.']

Lessons from the Mount Everest Expedition of 1933.

By T. G. LONGSTAFF.

SINCE I appear to have a worse superiority complex than any other member of the Club it is suggested that discussion of, and conclusions on, the lessons to be learned from the last Everest expedition will best be stimulated by making me the devil's advocate. To this end I am impelled to assume

the rôle of an unbeliever in the fetish of acclimatization and of an advocate of rush tactics, leaving Hugh Ruttledge and his companions to champion the angels of orthodoxy. My essay goes to them before publication for simultaneous castigation in the present number of our JOURNAL. It may be years before another attempt can be made and so it is important to put on record any deductions we can make which might help others in the future.

It is forty years since that great mountaineer Clinton Dent proclaimed [1] his belief in the possibility of ascending Mt. Everest : it is nearly thirty years since I confessed to a similar belief in the pages of this JOURNAL.[2] The greatest obstacle to success are those sentiments of the Tibetan Government which take root in the origins of their ancient civilization, objections which we must respect even though we do not share them. This is the obstacle which delays that continuous perseverance in attack to which any mountain must inevitably yield. In 1924 four men got to 28,000 ft. (8534 m.). In 1933 four men again reached this altitude, three of them reaching approximately the same point as Norton, but when the mountain was in worse condition than it was in 1924. Eight porters carried to 27,400 ft. (8351 m.) and were willing to go higher or to start again. Good leadership in all our expeditions has tended to improve the porters : and although next time porterage should be still better, yet to have established such a record in such a season is a feat of which this expedition may well feel proud.

But I stick to what I wrote after the 1922 expedition : 'Everest is not an easy mountain—it is pedantic so to miscall it, and not fair to those who will one day reach its summit.' [3] The task is set at the limit of human endurance and only a combination of favourable circumstances will render victory possible. The last 1000 ft. present technical difficulties of a high order. The slabs beyond the couloir are not likely to be descended without accident unless free from snow, or with

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[1] Clinton Dent, 'The Possibility of Ascending Mount Everest,' *Nineteenth Century*, Oct. 1892 ; and 'Physiological Effects of High Altitudes,' *Geographical Journal*, 1893, vol. i, p. 48.

[2] Longstaff, *A.J.* **23,** 256 ; **24,** 193.

[3] Longstaff, *A.J.* **35,** 67. Statements that the mountain is 'easy' emanate, we have noted, from foreign periodicals whose editors are acquainted with (parts of) the Alps alone, or from those Britons who have never even viewed Everest.—*Editor.*

the aid of a fixed rope. I think the last expedition has confirmed Norton's choice of route. The great couloir must be crossed high up, but I consider the climbers should then traverse upwards as far W. as possible so as to get up directly from the N., avoiding recourse to the eastern ridge till the last possible moment.

As a friendly opening, I would deny that the last expedition were the discoverers of the benefits of acclimatization. I accuse them rather of having allowed deterioration to overcome those benefits through remaining for unnecessarily long periods at the high camps. There was much disablement of one sort or another. Six members of the party spent an average of over fifteen consecutive nights on the North Col. Birnie spent eight nights at Camp V (25,700 ft.: 7833 m.); after this he not unnaturally 'stood in considerable need of medical attention.'[4] Conversation with members of the party leaves me with the conviction that they went from Camps IV to V better on their first essays than subsequently. But we lack evidence: we want tables of climbing times of all the parties, on each section of the ascent, to compare with those published by the preceding expeditions.[5] The great loss of weight experienced by all Himalayan parties who have stayed long at great altitudes, including that of the Duke of the Abruzzi in 1909, is of itself proof of the malignancy of deterioration and of the danger of making a fetish of acclimatization. But the true test of deterioration is loss of resistance to fatigue.

We must acknowledge the evidence of the craving of the party for strong meats at the high camps, as also Smythe's three nights with a final good sleep at Camp VI (27,400 ft.: 8351 m.), as a definite advance on previous experience. We expect advance. Our honoured member, Henri Brulle, ascends Mont Blanc at 80 years of age: he has forgotten perhaps that a century ago he should have bled at the nose and ears at 4000 metres—to have complied with popular expectations of the time—while Fraser doubted whether he or Moorcroft could really have crossed passes of 17,000 ft. because the air must have been too attenuated to expand their lungs.[6] A changing world is nothing new, and we should remember that belittlement of to-day's achievement will be

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[4] Ruttledge, *A.J.* **45,** 229.
[5] Norton, *A.J.* **35,** 61; **37,** 2, 8, 13.
[6] James, *Jl. Bihar and Orissa Research Soc.* **18,** 122, Part 2, 1932.

normal in that future when scientific instruments for the determination of solar energy shall have been taken to the top of Mt. Everest—or possibly to Makalu by mistake?

Smythe's physiological complex is evidently ahead of his generation; but he shared with Mallory the distinction of having been to great heights three years out of four, which is the most advantageous method of acclimatization there is. Yet it appears doubtful, from the record, that even Smythe could have attacked again without a few weeks' rest at least at Camp I in order to recover from the effects of deterioration, which in the end seem to have overtaken even his perfect degree of acclimatization. It is notable that in none of the expeditions does it appear that any member would really have been fit for a second attempt on the top: surely another proof of deterioration?

Then there is the seeming paradox that those members of the party who acclimatized slowest seemed to suffer least from deterioration. The most striking example was that of Odell, who in 1924 spent eleven days on or above the North Col and retained his form to the end. But surely it is not unnatural that those who attain the benefits of acclimatization slowly should be slow to deteriorate? Given perfect acclimatization at 23,000 ft. a climber could probably rush the summit after only one night at Camp V and another at Camp VI. To leave men who acclimatize quickly a fortnight on the North Col or a week at Camp V is merely looking for trouble. If the weather is bad, bring them down for a change of air.

The 'times' given on the final attempt are rather alarming. It will be remembered that in 1924 Norton and Somervell left their Camp VI (26,700 ft.: 8179 m.) at 06.40, and that Norton turned back at 13.00. He had had to retrace his steps twice and must have crossed the couloir at 12.30 or earlier.[7] It was a long traverse, but with a rise of only 1300 ft., done in under 6 hours. We all know what the spearhead of that party had gone through. The whole expedition had been driven out of Camp III, as doubtless would that of 1933 have been had it not possessed better tentage. This year Smythe and Shipton left their Camp VI (27,400 ft.: 8351 m.) at 07.00,[8] and Smythe reached the couloir at 10.00. This was also a long traverse, but considerably shorter than Norton's and

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[7] Norton, *A.J.* **37,** 12.

[8] Smythe, *Daily Telegraph* despatches, August 22, 23, 1933.

with a rise of only 600 ft., taking 3 hours. Between Camp VI and the couloir a little snow more or less would not affect pace. There does not seem to be any improvement in these 1933 figures. Can it be (superiority complex again) that I was right in prophesying [9] that the successful climbers of Everest would have to climb faster than 250 ft. an hour? It should be possible to put Camp VI below the First Step; but the alternative of a Camp VII somewhere under the Second Step is going to involve serious technical difficulties of transport and supply. In the final assault I am for rush tactics every time. Even Mt. Everest cannot be an exception to the rule that 'times' become faster as a mountain gets better known.

Hugh Ruttledge's method of advance in mass up to the East Rongbuk Glacier to Camps I, II and III appears to me wholly admirable. But *not more* than three consecutive nights need be spent at any one camp even by slow acclimatizers. I would make the advance in échelons and not send more than one-third of the party up to the North Col at a time. Individuals or parties could 'leap-frog' one another at Camp III, which should be a physiologically safe place of waiting so long as the relatively comfortable Arctic tents are available for all. There are arguments for the slowest acclimatizers starting up first; but risk of overcrowding at the North Col might be obviated by sending up first those already acclimatized by previous Himalayan climbing, or by more 'leap-frog' work.

The chances are so great against any particular party on any particular day meeting with suitable conditions for final success that, from the commencement, our strategy must be governed by the objective of placing the greatest possible number of assault parties in position one after the other on different days. Above all, the season being so short, the first party must be placed at the highest camp on the first possible day, and I believe it is far better to try to rush the peak with men who are 'under-acclimatized' than to lose perhaps the only chance of good weather in the hope that deterioration will not supervene on the admitted benefits of physiological acclimatization. For the same reasons I am dead against any slowing-down on the journey between Darjeeling and the Base Camp. The actual conditions of travel are really very easy, given riding ponies, together with ample transport and European food supplies.

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[9] Longstaff, *A.J.* **37,** 21, 423.

There are three practical points I would raise as to organization. First, that the leader's headquarters would best be at Camp III, and the second-in-command's on the North Col. Secondly, that a leader for each party leaving the North Col should be appointed by the commandant at the North Col with the full authority of the leader of the expedition ; but it would be futile to appoint a leader for any final-assault party : the event will discover him : the old-fashioned belief that comradeship and unity of purpose are vital in a crisis is apt to be forgotten in these days of dictatorships. Thirdly, I would advocate that new members of an Everest expedition should be selected always in consultation with the members already chosen : the success of such an expedition depends in an exceptional degree on the creation of a homogeneous team, all concentrating on the one objective of putting someone on the top, with complete suppression of individual ambition to score the goal for themselves.

I hope that nothing in the foregoing remarks will be taken as a disparagement of the last expedition : nothing is further from my intention, which is solely to extract and get recorded everything which will help us next time. It was weather conditions which made success impossible in 1933. We mountaineers know perfectly well that the difficulties really were insuperable. Harris, Wager, Smythe and Shipton on their final attempts obviously persevered up to the limits of justifiable risk. For both parties to have equalled Norton's record of 1924 under such conditions was a very notable achievement. An immense contribution to future success was the handling of porters so that a carry to 27,400 ft. will in future be taken as a matter of course ; and the same men volunteered to go again and to go higher. The gruelling work of establishing Camps V and VI higher than ever before was accomplished in foul weather, and yet without any casualties. Crawford and Brocklebank each took porters six times up the North Col. The ideal of making Camp III the real Base was achieved. The strategic layout on the mountain was better than ever before : this might have meant victory in a season like 1922, and perhaps even in 1924.

Finally, may I be allowed to congratulate the leader on the way he has handled his theme in our JOURNAL, on the restraint and modesty with which he has told a great story, in that style so completely in accord with the most cherished traditions of our Club ?

Comments on Dr. Longstaff's Article.

'I SEND my paper. Go for it. Castigate it,' wrote Dr. Longstaff with customary virility.

But in spite of this invitation, I find attack difficult. With most of what Dr. Longstaff has written I find myself regretfully in agreement.

I shall confine myself to medical aspects of his paper, leaving to other members of the Everest Expedition of 1933 the task of criticizing his criticisms of tactics. No one, of course, has suggested that 'the last expedition were the discoverers of the benefits of acclimatization.' We did, however, carry acclimatization further than did previous expeditions. In my opinion our decision to do so was entirely justified in its results. It is unnecessary to recapitulate here what I have written in the book of the Expedition, where these results are discussed at length. I am, nevertheless, in agreement with Dr. Longstaff that we 'allowed deterioration to overcome those benefits through remaining for unnecessarily long periods at the high camps.' Let me plead in mitigation of sentence that there has been something like a conspiracy of silence about deterioration, varied in some mountaineers by a desire to throw bricks at anyone who broke the silence. We did not know how long it was safe to go on acclimatizing; how long we had in hand before deterioration set in; how bad that deterioration would be. We would never have found out if the weather had not forced us to overstep our plans of acclimatization. We have learned our lesson and, lest we be too old to go to Everest again, we must advertise our new knowledge. The problem, as I pointed out first in 1931 [10] and have repeated *ad nauseam* ever since, is one of balance between acclimatization and deterioration. We have a rather better knowledge now of the centre of gravity of the problem.

Dr. Longstaff is too dogmatic when he says that '*not more* than three consecutive nights need be spent at any one camp even by slow acclimatizers.' There can be no rule such as this. Only careful observation of climbers on the spot can determine the period they require. Some of our men at some heights required a much longer period. I am doubtful if anyone could have done with a shorter.

I am not quite sure of the exact meaning of the words 'physiologically safe' applied to Camp III. If, as I suppose, Dr. Longstaff means a place at which deterioration cannot occur, he is wrong. It occurred rapidly at this camp in most members of the party which made the last abortive attack on the mountain.

I would like to support strongly Dr. Longstaff's opinion on the choice of *personnel*. I would go even farther. I think that new members should be chosen not merely in consultation with members already chosen, but *by* them.

RAYMOND GREENE.

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[10] *Nature*, Nov. 23, 1931.

THE difficulty in criticizing 'Lessons from the Mount Everest Expedition of 1933' is that there is so little with which one can disagree. But there is perhaps one point inviting comment.

Acclimatization.—I remain a confirmed believer in the benefits of acclimatization, but there is no doubt that some members of the party were compelled to stay at great altitudes for much longer periods than the maximum contemplated by Ruttledge. This was owing to the terrible weather conditions. On the way out Ruttledge had never proposed that anyone should stay for more than a week at the N. Col. Another difficulty that the leader will always have to contend with is that the individual must invariably be the final judge of his own state of acclimatization. For those members of the party who have not had previous experience of high altitude mountaineering, to arrive at a correct estimate must be a matter of the greatest difficulty, even of guesswork. 'Leap-frogging' certainly appears to provide a solution to the problem presented by the varying rates of acclimatization. In my opinion there is no room for doubt that the route to the N. Col should be opened by the slow acclimatizers, leaving those known as fast acclimatizers, such as Shipton and Smythe, to follow as rapidly as their condition dictates.

The difficulty will be increased enormously if, as unfortunately seems probable, a long delay before the next expedition occurs, when members of former attempts are no longer available.

Two more slight points for criticism occur: Dr. Longstaff writes, '. . . not more than three consecutive nights need be spent at any one camp . . .' but he does not explain how the figure of three nights is arrived at. Again, 'for the same reasons [fear of deterioration] I am dead against any slowing-down on the journey between Darjeeling and the Base Camp.' The following sentence, 'the actual conditions of travel are really very easy . . .' seems to minimize the likelihood of deterioration. It is not altitude or travel which is dangerous to the Everest climber, but the winds and dust of Tibet; and it seems likely that an efficient form of respirator for the journey to the Base Camp might result in the party arriving there free from the various throat and chest affections which have harassed previous expeditions.[11]

It may not be out of place to put on record a few of the conclusions derived from the experiences of the 1933 expedition for the benefit of future attempts, since, according to Colonel Etherton in the *Daily Telegraph* report, there will be no more Everest expeditions for the next *eighteen* [sic] years![12]

Porters.—These have improved so enormously owing to their experience with the various Himalayan expeditions, notably with the Bavarian attempts on Kangchenjunga, that at the present moment

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[11] I cannot recollect any trouble of this sort in 1922.—*E. L. S.*

[12] This, it seems probable, is more a matter concerning the Tibetan and Indian Governments than the said Colonel Etherton. See, however, p. 218.—*Editor.*

linguists in the party are less essential than formerly. I would add that our three Gurkha N.C.O.'s (of the 3rd Gurkha Rifles) were quite admirable, Lachhman Sing Chettri being especially a very tower of strength. Camp VI was established by three Europeans who had not been in India previously. But it would be a mistake to jump too far to the opposite conclusion, *i.e.* that no knowledge of language or natives is necessary, since Wyn Harris had had considerable experience with primitive tribes in Africa, Wager with Eskimos in Greenland, while Longland had acquired more knowledge of Nepali than any other member of the expedition without previous Indian experience.

Wireless.—As at present constituted, a transmitting apparatus is not to my mind worth the expense. Its use may be insisted upon by newspapers for financial reasons, but that is another question. A receiving apparatus, which is infinitely lighter and not requiring a highly skilled personnel, is the utmost that is required.

On the other hand, a telephone-wire running from the Base Camp to the N. Col, with instruments at each camp, would be invaluable.

Equipment.—The Arctic tents were splendid. It might be possible to design an improved and greatly lightened form for use at Camp V. A device for locking the butterfly screws should also be provided.

The texture of the Meade tent-cloth should be improved. The material used in 1933 appeared pervious to snow. Clothing as supplied to the members of the party was fully adequate, although I have yet to see the perfect high-altitude glove. Rubber mattresses seem to have definitely proved their value on the Kangchenjunga and Kamet expeditions. The Minya Konka party spoke highly of the pneumatic rubber mattresses used.

Food.—It is difficult to exaggerate the importance of obtaining fresh food at high altitudes ; at present there are grave difficulties in getting fresh food above the Base Camp. Vegetables, perhaps the most important item, are pilfered, and moreover are very hard to cook. The few I obtained personally were invariably half raw. Apples seem to keep well, so a few barrels might meet the case.

There were good grounds for complaint against some of the tinned stores brought out from England in 1933. Given more time for preparation—Ruttledge was worked to death in the autumn of 1932—it should be possible to arrange for some system of sampling as well as supervision of packing by a prospective member of the expedition.

Lastly comes my third point. The party should be picked in consultation with the members already chosen. This appears as abundantly proved. The Bavarian expeditions to Kangchenjunga—possibly the strongest combinations that have as yet attacked the Himalaya—relied above all on this factor of homogeneity.

All the above are questions of organization: yet, on such, an expedition of the future may succeed or fail.

C. G. Crawford.

[Mr. Ruttledge's views will be found fully explained in the forthcoming 'Everest' book.—*Editor.*]