

## THE MOUNT EVEREST EXPEDITION: ORGANIZATION AND EQUIPMENT

By Members of the Expedition and of the Committee

*Addresses delivered at the Meeting of the Society, 7 March 1921.*

### The Object of the Expedition.

Lieut.-Colonel Sir FRANCIS YOUNGHUSBAND, President of the Committee.

WIDESPREAD interest has been aroused by the announcement that the Alpine Club and this Society are organizing an expedition with the object of ascending Mount Everest. From many different countries came applications to take part in it. But yet I am also being continually asked, What is our object in climbing the mountain? What shall we do when we get to the top? What do we expect to get there? Who will be a penny the better for our having reached the summit? I was even asked on the telephone by an enterprising journalist to tell him for the benefit of his paper "what good there would be to the general mass of humanity in the ascent of Mount Everest."

I had better once again answer such questions, for it is important that people should have no doubt or misgivings in their minds as to the good which will accrue, even to the general mass of humanity, from the ascent of Mount Everest.

A porter on an underground railway may be considered as about as representative as any we can find of the general mass of humanity. The other day I heard of one who laid it down as an absolute certainty that we could never reach the top. He had been with us in Tibet and had seen these Himalayan peaks. And "they might take it from him that the top of Mount Everest would never be reached."

Now if the human race had always acted in the spirit of the general mass it would never have emerged from the primeval forest. We should be still timid uncultured people hiding in caves and the forest depths. Fortunately, however, there were always daring leaders who struck out ahead of the general mass. They ventured out into the open plains, on to the rivers, on to the sea, even up into the air. And it was an uncommonly good thing for the general mass that they did. The leaders with spirit and imagination showed the way. The herd were glad enough to follow after and pick up all the benefits. But the mass would never have had those benefits if there had not been leaders to give the lead. Very often these leaders did not survive. The fittest to survive were those who stayed at home. But they led the way, which is a good deal better than surviving. And men must always look for leaders who will venture as they did.

Now the human race does not like to leave any spot in this little planet of ours unvisited. And for thirty years, at least, that is since General

Bruce first put forward the idea, men have had the ambition to ascend the highest point on the Earth. It is a very natural and praiseworthy ambition ; General Rawling and many of the Alpine Club have entertained it. Lord Curzon also intended to further this ambition and suggested, when he was Viceroy of India, that this Society and the Alpine Club should take the matter up together. And the advantage that will come from ascending Mount Everest is this—that once the highest peak has been climbed men will pluck up courage to ascend all manner of other mountains. Even to the obtuse mass of humanity it will then be evident that men are capable of higher achievement than they had ever imagined.

As to the advantages of mountain climbing in general a Frenchman a few days ago bore striking testimony. Speaking here in London at the Institut Français, M. Léon Bérard, Minister of Public Instruction, told how his countrymen had shared with Chateaubriand a dislike of mountains, but that the example of the English cured them of their prejudice and revealed to them in a new way the beauty of their country. M. Bérard was referring more particularly to his own part of France at the foot of the Pyrenees.

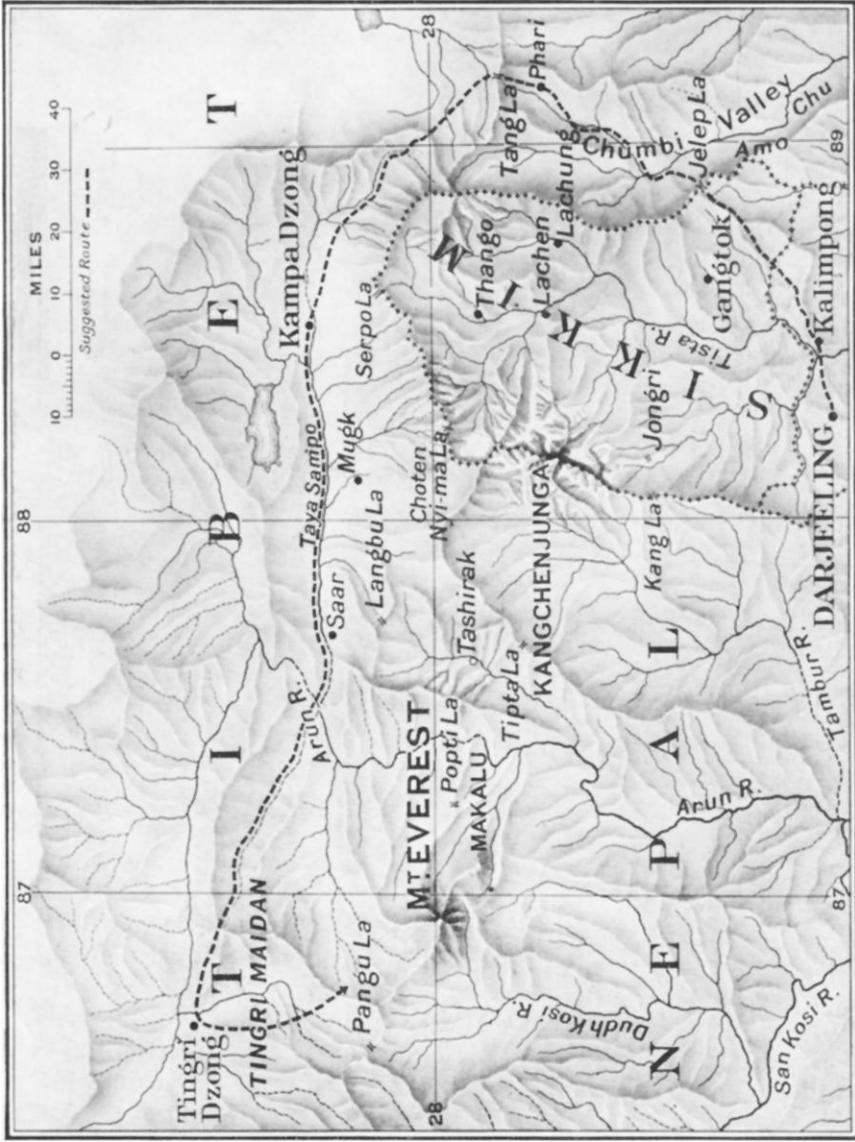
We acknowledge with gratitude the graceful compliment of the Frenchman. But we shall not be so immodest as to appropriate to ourselves alone the credit of discovering beauty in mountains. For others besides ourselves—and those others include many a Frenchman—have made the discovery that by going in among great mountains, climbing them, getting to know them thoroughly, entering into their spirit, there are beauties to be found in mountains of which the plainsman never dreams.

So the ascent of Mount Everest, by stimulating mountain-climbing in general, will bring more beauty to light. And beauty is one of the world's richest riches. We cannot expect that on the instant the general mass of humanity will suddenly derive good from the ascent. But we can be perfectly sure that in the long run even porters on underground railways will find their blood stirring more quickly with the sense of high achievement, and will feel life richer for the new beauties which have come into it.

#### **The Approach to the Mountain.**

Prof. NORMAN COLLIE, President of the Alpine Club.

Before I say anything about the reconnaissance I should like to supplement what the President has said about the uses of this expedition. The expedition will have to explore new country of the highest importance, not only high because it is high above the sea-level, but because it holds the finest mountain range in the world. Geologically, it is necessary to know how the rocks and the strata are lying round this great peak Everest. Then, botanically, there is no doubt that a number of Alpine plants that grow at very high altitudes—18,000 to 20,000 feet—will be brought back. The authorities at the Natural History Museum have assured us that if the expedition will only catch all the small mice,



SKETCH-MAP OF THE MOUNT EVEREST REGION SHOWING REVISED ROUTE OF THE EXPEDITION

Makalu

Everest

N53 C

A

B



MOUNT EVEREST AND THE MOUNTAINS TO THE NORTH, PHOTOGRAPHED BY DR. KELLAS IN DECEMBER 1920 FROM A HEIGHT OF 16,350 FEET NEAR THE KANG LA

Note: the peak B has been retouched by the engraver and made much too prominent.

rats, and other rodents that they find on these high plateaux, at least sixty per cent., and possibly more, will be new to science. I do not think a more interesting expedition could possibly be made, and it is to be carried out at a cost much smaller than that of any big expedition I know; therefore I think the public should recognize this and support it. It does not matter how much they give, in one way, as long as they give something. Five thousand pounds is easily made up by ten shillings each from those interested.

Proceeding now to the reconnaissance of Mount Everest; I thought first it would be moderately easy. At the meeting when General Bruce addressed you in November, Captain Longstaff said you have to find Everest first, and I thought it rather an unnecessary remark: a mountain of 29,000 feet could not be mistaken. But from information that has been sent by Dr. Kellas, I am beginning to think there is more in what Captain Longstaff said than at first appeared. The expedition will start from Darjeeling into the Chumbi valley, and over the passes thence into Tibet. Between Kangchenjunga and the great mass of Everest and Makalu is the great valley of the Arun river, draining all the country at the back of the mountain. Undoubtedly there is a route up the Arun valley over to Tibet, and the higher up you join the main route the better.

*Prof. Collie then discussed some telephotographic pictures of Mount Everest and the mountains to the north taken by Dr. Kellas in December 1920 from the neighbourhood of the Kang La on the ridge running north from Darjeeling, with an approximate identification and location of the various peaks attempted by Dr. Kellas. These photographs were taken from the point to which Mr. Freshfield directed attention in his account of his Kangchenjunga expedition, as a point from which the Survey of India should photograph the country. From this material Prof. Collie concluded that there are two principal valleys running up to Mount Everest, one on the north, and one on the north-east, and that the approach must be by one of these, the western side being apparently very steep.*

#### The Plans of the Expedition.

Colonel HOWARD BURY, Chief of the Expedition.

The expedition is to start shortly, and during the last few weeks we have been busy in making preparations and trying to collect stores and equipment. Part of the expedition may have to live at great heights for a considerable time, and one has been experimenting with small details such as primus stoves to burn at over 20,000 feet. You cannot keep fit unless you have good and hot food. It is of the very greatest importance to have food easily digestible, which can be easily warmed up at very great heights. The expedition has been organized by Sir Francis Younghusband, and to him has been practically due the fact

that it has been brought into being. His energy here and his work with the various authorities have brought the expedition into being. The main object of the expedition is the ascent of Everest. But besides that, as Prof. Norman Collie has said, there are some very important subsidiary objects to be attained. The whole country to the north of Everest is completely unknown. The maps we have are all very problematical, and where you see a range of mountains marked in the map you may find it is a valley or lake, and as we go along we shall have to map our way. The Government of India have very kindly given us the loan of two officers of the Survey of India, both accustomed to mountain survey, and with them we shall have to work and map the whole of that country to the north of Everest, as well as the Mount Everest group; this alone would furnish a full summer's work. With these officers will be assistant surveyors, and a great deal of work has to be done. The Arun valley is probably quite wrongly mapped, and we are very doubtful as to the exact position of those ranges of mountains marked to the north of Everest. The draughtsman who compiled the map told me they were put in to fill up! Now Mount Everest is becoming known, like many other places at one time unfamiliar, as the island of Yap came into prominence a few days ago. I heard two ladies discussing the expedition recently, and at last one said to the other, "And where is Mount Everest?" "Oh, somewhere in Iceland"! Another remarked to me, "Oh, how very interesting your going to Everest! I hope you may get to the top, and then you may bring back a piece of wood from the Ark." We have a good botanist and naturalist, and there is every probability of our discovering many new flowers; but that very much depends on how far the monsoon currents penetrate up the Arun valley. It is extraordinary on those dry plains, which look so barren in the photographs, what beautiful flowers there are—most lovely rock plants, blue poppies, primulas, and all kinds of delightful flowers. There is also the geological work. We are probably getting either an officer or assistants from the Government of India for making a geological collection. We know there are a large number of animals up there. You get *Ovis Ammon*, one of the largest sheep in the world; possibly an antelope, certainly a gazelle, and partridges, and there is a great field for a naturalist. Some of the members of the expedition are leaving very soon, and we all hope to collect in Darjeeling in the middle of May, and to leave by the 14th. The Government of India is kindly giving us the loan of 100 mules for the expedition. This will be of the very greatest assistance to us, and we know now we shall have no difficulties with the transport. Lord Ronaldshay, the Governor of Bengal, is extremely interested in the expedition, and we are lucky in having him there. Colonel O'Connor is Political Agent in Sikkim, and his duties carry him right up into Tibet. He was with Sir Francis Younghusband in the expedition of 1904. It is, therefore, a specially favourable time for us to make this expedition, with so many

friends who will be quite ready to help us. There is a very elaborate photographic equipment going out with the expedition, so that we hope to bring back many records. Unfortunately the camera cannot reproduce the extraordinary beauties of colour there are in Tibet—greens, and reds, and orange, under a brilliant blue clear sky. It is a wonderful expedition, full of interest of all kinds, and when we come back I hope we shall have a very interesting tale to tell you.

#### The Mountaineering.

Mr. HAROLD RÆBURN, Leader of the Mountain Party.

Seeing that the political difficulties in connection with this expedition have been so happily overcome, we shall hope that difficulties of approach, that Prof. Norman Collie has described as very great, will also be successfully overcome owing to the careful organization of the transport, which is really the secret of getting a large party up there. There remain the mountaineering difficulties, and these will undoubtedly be extremely great. No one has ever seen the real approaches to Everest, because its lower slopes have been always concealed by the shoulders and slopes of its mighty neighbours. I do not think the northern ridge will prove at all possible, because I do not think anybody can live at such enormous elevations for such a long time as would be necessary. I was privileged last year, by very kind permission of the authorities of India and Nepal, to make a reconnaissance of Kangchenjunga, and I think in studying passages and probable conditions, we can, to a large extent, depend upon analogy. Great snow mountains are great snow mountains all the world over. These two great constellations of peaks, Everest and Kangchenjunga, at no great distance apart, are separated by an enormous river valley, the Arun, but probably conditions are very much the same. I think it very unfortunate indeed that for political reasons alone we are precluded from taking the easiest route from the south. We must find some sheltered face route, and I believe that the north east will be the most favourable, for this reason, that the north-west is probably much steeper, and it has the cold aspect. Now altitude and cold are the two great things we have to struggle against. If we can get on the north-eastern side we shall be much more likely to have sun early in the morning. As regards the actual mountaineering, everything will depend upon the training of the coolies, for I do not believe that Europeans can carry at these heights. Above 21,000 feet one has to have really well-trained and young active men, and support them in every way. We may take it that this year will be reconnaissance first of all, but there is no doubt we shall try to get as high as we can, for Italians and Norwegians are ahead of us at present in altitude records. We intend anyway to do our very utmost to explore this great mountain so far as may be possible, and to justify Sir Francis Younghusband's keen interest and able generalship which has rendered it possible.

*Mr. Raeburn then showed and described some pictures taken on his reconnaissance of Kanchenjunga in 1920.*

#### The Scientific Equipment.

Colonel E. M. JACK, Member of the Committee.

After all the interesting news you have heard I shall not bore you with a long list of scientific instruments that are being taken, but just tell you shortly what is being provided, with one or two points of interest in connection with the apparatus. We have taken, and are taking, every possible precaution to ensure that the best possible apparatus is obtained. Every precaution that critical examination and report by competent authorities can give is being taken.

We are sending one George mercurial barometer, with spare tubes. The only special point is that as it will not come into action until the expedition gets to high altitudes, we are having it made in a special form, with a much shorter column than usual. The aneroid barometers have, of course, to read to a great altitude. It is not convenient for an aneroid to read for more than 8000 feet in one revolution of the hand. Therefore they are being made in pairs, one to read from 15,000 to 23,000, and the other from 22,000 to 30,000. Small pocket aneroids are being provided for the climbers, and a larger pair as a reserve. The ordinary equipment of maximum and minimum thermometers and of boiling-point apparatus is being taken. Another instrument is a black bulb solar radiation barometer. We asked the views of the Meteorological Office about this black bulb thermometer, how high it should be graduated. The Meteorological Office gave it as their considered opinion that it ought to be graduated up to 220°. Later on Mr. Hinks met an official of the Meteorological Office, and was rather taken back by being told that in his opinion nobody but a fool would take a black bulb thermometer at all; so you see expert advice sometimes has its drawbacks. The optical instruments are one good telescope of new form, the micro-telescope, a good equipment of binoculars, and one or two monoculars. The photographic equipment consists of three stand cameras—one  $7\frac{1}{2} \times 5$  and quarter plates—provided with tele-photographic attachments. The National Physical Laboratory, I should say, are giving every possible assistance in the selection. They have been very good in advising us and making a critical examination of the lenses we are sending them, and we shall be guided by their advice. A certain number of hand cameras are being provided: a quarter-plate hand camera, and a panorama camera, and small vest-pocket cameras. The vest-pocket cameras are for the high climbers. We are providing dark room equipment and the usual outfit in that way. I should mention that the plates for the expedition are being given very generously by the Imperial Plate Company. One word about survey. We are not providing any survey equipment at all, because the Survey of India have made

themselves responsible for all survey. It seems a peculiarly favourable opportunity for employing photographic methods. There are three principal ways in which they can be used to supplement the ordinary survey processes. The first is by photographs from the air: that method we shall not be able to use on this expedition, because it would have entailed the formation by the expedition of a special aerodrome, and the funds could not run to it. The second method is by the taking of individual photographs from fixed points on known bearings. That means the employment of a rather special form of camera. This has been used a good deal in Canada, and as Captain Wheeler, who is one of the survey officers, is a Canadian and we have heard he is getting apparatus in Canada and is an expert in photographic methods of survey, there is no doubt that that method will be employed on this expedition, mainly as a supplement to the ordinary method of survey. The third method is that of stereoscopic survey. Photographs are taken in pairs, on parallel lines at the ends of a measured base. The objects represented are slightly displaced in relation to each other, and by measuring the amount of displacement, and with your knowledge of the length of the base and the direction from which the photographs are taken, you can obtain the position and heights of the objects photographed. That is a very suitable method. Whether the Indian Survey will employ this method I do not know at present. An Indian Survey officer has employed the method in India, but he is not to be on the expedition.

#### Stores and Equipment.

Mr. C. F. MEADE, Member of the Committee.

The most natural thing to do in discussing the equipment is to compare this with a Polar expedition, and there are one or two important differences. First of all, perhaps the most important enemy we have to contend with is the sun, and the sun at high altitudes is a very formidable enemy indeed. To cope with this we are having sunproof material to put over the tents, and we are using Whympers tents, with a double fly, which have been proved to be the best tent for high altitudes. Another great difficulty is that at the same time you are suffering, as it were, from chronic sunstroke you are undergoing danger of frostbite, and the boots, therefore, are by no means the least important item in the equipment. The pattern of ski boot is the best, as it gives plenty of room for the feet and for circulation. Covers are used over the boots to prevent them from coming into direct contact with the snow. One of the most encouraging pieces of news I have had is the account of Captain Morshead and Dr. Kellas, who reached the saddle of 23,500 feet on Kamet this year without any suffering whatever, and with normal appetites and pulses, which I think is a very exceptional performance indeed, and is most encouraging. The Bhotias are certainly some of the finest climbing material in the

world. Unfortunately they are not Buddhists, but very strict Hindus, and are limited by their religious prejudices about diet, which makes them difficult to cater for on the mountain. The question of food for the coolies is very important. Invalid diet is the best way to feed them : a diet suitable for convalescence, nourishing and appetizing.

*Mr. Meade illustrated his remarks by pictures taken on his ascent to the saddle of Kamet in 1913.*

#### The Natural History.

Dr. A. F. R. WOLLASTON, Surgeon and Naturalist to the Expedition.

It would be more easy to talk about the natural history of this expedition after we come back. It would have been much more easy to talk about it earlier in the evening. Prof. Collie has killed all my rats ; Col. Bury cut most of the flowers ; and Mr. Raeburn dug up the rhubarb ; so there does not remain much for me. Both Mr. Raeburn and Col. Bury know the Himalayas very well, so that they are not so excited at the prospect of seeing the flowers as I am. Some of the most stolid of travellers have become quite lyrical in their descriptions of the flowers we are going to see—those fields of all sorts of beautiful things. I think, as a matter of fact, some of the most interesting natural history observations we shall bring back will be about the members of the expedition themselves—about their minds and bodies : their minds particularly. I have been told when you get above 16,000 feet the temper becomes very short. What it will be like when they have been to 29,000 feet remains to be seen. In a medical capacity I hope I shall have very little to do, so far as the members of the expedition themselves are concerned. They are a very sturdy, tough lot. In the matter of the natives of the country one may be permitted to hope that they may occasionally be in need of my professional assistance. Often it happens in these escapades that a few grains of calomel, a dose of castor-oil, or some quinine, will make you good friends who will provide natural history specimens, or even more welcome things such as mutton and goats. I ought to have begun by saying that the Director and others of the Natural History Museum are taking a great interest in this expedition, and through their help we hope to engage one or two native collectors and skinnners from the north of India. The specimens will mostly, I suppose, go to the Natural History Museum, and such plants and seeds as we bring home are going to other people in consideration of subscriptions to the funds of the expedition.

#### The High Climbing.

Mr. GEORGE FINCH, Member of the Climbing Party.

Those of us who have been selected by Sir Francis Younghusband to make, under the leadership of Mr. Raeburn, the attempt to climb the highest mountain in the world, do not conceal from ourselves the fact

that we may expect to have to face great difficulties and dangers. I have heard a comparison drawn between this expedition and Polar expeditions. Such a comparison I have not found easy to draw. The Polar expedition is a long drawn-out struggle of several months. On this expedition remarkable difficulties are not likely to be met with below 20,000 feet. The ascent, however, of the remaining 9000 feet to the summit of Everest will, if at all, be carried out in ten days or even less, and it seems to me those days will be replete with concentrated effort and strain such as no other expedition has ever demanded. I do not fear our inability to piece out an ultimate route up the mountain. By possible route I mean a route which is not only climbable, but where we are more or less safe from the danger of snow, ice or rocks falling upon us. The risk of our falling ourselves I hope may be eliminated. The question is whether the conditions will allow us to follow the route selected to the summit. On a mountain of such an enormous scale we shall be able to avoid difficult rock climbing. But I think every one of us will have to call up all he ever knew about snow conditions. These, to my mind, will prove one of our main difficulties. I do not mean we need fear avalanches coming down on us, for no good mountaineer recklessly ventures in their path. The great danger will be that at altitudes such as we hope to reach, we may meet with conditions of snow such as none of us have ever seen, of such a dry and powdery nature that all our previous experience of the angle at which snow may be ascended, still less crossed diagonally, may go for nothing. As to the question of altitude, Mr. Meade actually camped at 23,600. Dr. Kellas and Captain Morshead reached the same place last year without feeling any inconvenience. Indeed, Captain Morshead goes so far as to say he could have gone several thousand feet higher. I earnestly hope it may be my good fortune to be one of Captain Morshead's companions in overcoming the 6000 feet still to be made. Dr. Kellas has recently carried out a valuable series of temperature observations at altitudes varying from 15,000 to 22,000 feet. By a process of extrapolation one can calculate from these data that temperatures of  $-60^{\circ}$  F. are quite likely, indeed highly probable, on the summit of Mount Everest. In other words, the cold on this expedition will in all probability be Arctic in its intensity. That in itself may not at first be considered a very serious matter, but it must be borne in mind that at high altitudes which must be attained the rate of evaporation of moisture and the loss of heat from the human body will be far greater than at sea-level. One other question, and one which, as far as I am aware, was first recognized by Mr. Meade, is of great importance, and that is the effect of the exposure of the body to ultraviolet light. At high altitudes there are large quantities of ultraviolet light not kept back by the atmosphere. At low sea-level we are protected. Ultraviolet rays impinging upon the skin literally burn it, and the burning is followed by a feverish condition which hardly seems to me to be conducive to health and well-being.

**Mountain Photography.**

Captain NOEL.

I think that all the people who go out to the mountains can be divided into two classes, the real climbers we have heard talking to-night, and the others. I am only a mountain traveller. My journeys were prompted only by the love of the mountains in order to see and photograph them—to see their grandeur, and to bring back a photographic record. Now the real success of the mountain photographer depends largely upon his equipment. The portability of his instruments is a very important consideration. I myself favour the quarter-plate size camera, because with the modern lenses you can get the same definition as with the large old-fashioned cameras. Another point you have to consider is the provision of various lenses, so that you can get a photograph large or small without altering your view point. The problem in photography of snow mountains is this, that you have very large contrasts of light to cater for: the very bright blue sky, the white snow, and the clouds. You must use a yellow filter, to reduce the ultraviolet light, a slow plate of very great latitude, and give a long exposure. Then you have to use a developer which will give you a slow building up of the image. The last point the mountain photographer must consider is his position. A photograph may show correctly the sky, snow, and foreground, but lack atmosphere. The photographer has to turn the ordinary photograph into something more—a picture—and that is left to his individuality to try and accomplish. But on this point of composition I think you come against the limits of photography. I recognize that photography has its limitations, and in order to do full justice to the beautiful mountains in the Himalayas, and bring back a record of the wonderful colours and scenery, you really need an artist and his palette.

The PRESIDENT.

That brings our interesting discussion to a close. Before I close the meeting altogether I should like, in the first place, to disclaim the credit which has been so very generously given to me as regards the organization. All I have done myself is to crystallize an idea which has been in the minds of both the Alpine Club and this Society for many years past—this great idea of ascending Everest. We have heard a number of men of great experience and expert knowledge this evening, and I think you will have gathered that they are thoroughly aware of the enormous difficulties and dangers which they will have to encounter, but I hope you will see that we are making every possible preparation to discount all we possibly can by forethought, arrangement, and organization beforehand; and I hope you have also gathered that there is in the members of the expedition the grit, courage, and determination upon which success will ultimately depend. I do not altogether share these doubts about their being able to find Everest. I think they will find it

easily enough. Colonel Ryder at the close of our mission to Tibet went up to the north, and both he and Major Rawling described it as rising up by itself, and well away from its neighbours, 9000 feet above anything near it. On the one side was Makalu, about 14 miles off, but Everest stood up clear, and from it they described how lesser mountains gradually came away towards Tingri. I do not think personally they will have much difficulty in finding Everest. I agree with Prof. Collie about the extraordinary intricate nature of the actual approaches to the mountain when they get near to it. That is where the mountain party this year will find their difficulties, and where we depend upon them for making a thorough reconnaissance. You can depend upon these younger men to ascend as far as they can. I know you would all like me to thank Prof. Collie and the members of the expedition for the very interesting account they have given us this evening.

**Note on the photograph taken by Dr. Kellas from a point about 16,350 feet near the Kang La.**

In 1883 Graham climbed a peak in the neighbourhood of Kabru, from which he had somewhat the same view as that shown in the photograph. He described a snow peak and a rock peak as clearly seen "towering far above the second and more distant range," and "showing over the northern slope of Everest." These may have been two of the cluster of lofty peaks north-west of Everest numbered T 45, T 57, B 782, T 42, and B 783, which have been located by the Survey of India but are not visible in the photograph. On the other hand Graham may have meant that the peaks appeared over the northern ridge connected with Everest, and his peaks may be the two shown in the photograph and lettered A and B.

The snow peak A is perhaps over 25,000 feet, and the splendid rock peak B rising behind the further range may be even higher than A, as it is considerably further off. Through the telescope it appeared as a magnificent wedge of light-coloured rock flecked with snow.

The photograph also shows a snow ridge connecting the south-eastern arête of Mount Everest with Makalu through a great rock peak lying between the two. This peak is not in Burrard's List of Summits, though it is about 25,000 feet and is clearly seen from Sandakphu. An unknown snow peak about 24,000 feet with a peculiar crater facing north-east, is seen on the ridge connecting Makalu with the peak N 53. It seems that the whole eastern face of Mount Everest must drain to the Arun through a glacier passing north of N 53.

From other photographs taken on the summit of a peak of 17,400 feet a considerable prolongation of the nearer range is shown, and the cessation of high peaks immediately north of this seems to indicate that most of the unsurveyed lofty mountains lie north-west and north of Mount Everest. Behind the magnificent rock peak lettered C, north-west of peak

N 53, there appears a prolongation of the Mount Everest ridge running to the range that leads to A, which peak seems to be less than 25 miles north of Mount Everest. It may be that this is the "rounded dome" seen by Sarat Chandra Das from about the Semo La and mistaken for Mount Everest. The black rock peak C is the peak seen by Mr. Freshfield and photographed by Signor Sella from the Chunjerma La, but it seems to be east of Mount Everest and not north-west as they supposed. Immediately to the right of this peak the photographs show a fairly low col in the ridge leading to A (the lowest for a long distance), and beyond the col is a precipitous very lofty ridge which must be connected with the cluster of great peaks north-west of Mount Everest mentioned above. The snowy peaks of moderate elevation to the right of the photograph reproduced appear easy to climb and readily accessible from the north; they cannot be far from Tingri.

Dr. Kellas does not name the valleys. That in the immediate foreground would seem to be one of the eastern affluents of the Tambor, the deep valley in the middle distance the main valley of that river. The gorge of the Arun lies beyond the next range of peaks close under Makalu and N 53. In examining this photograph one must remember that it was taken in December, and that the country between Mount Everest and Tingri through which the Mount Everest expedition must advance will probably not carry so much snow in June or appear so formidable as in this photograph.

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## SIR RICHARD FRANCIS BURTON

*Born 19 March 1821.*

IT is difficult for me to realize that more than thirty years have passed since the death of my old friend Sir Richard Burton; his powerful personality and aggressive vitality seem but a thing of yesterday. Nature, in fact, had intended for him a much longer span of life; but even his iron constitution was not proof against the hardships of exploratory travel and reckless disregard of his own health. I remember his telling me that when, after parting from Speke, he arrived, wounded, starving, and deserted, at the first depôt which had been provided for the explorers, he found there nothing but a few bottles of spirits of wine for a lamp, and in his desperation he swallowed the whole of the contents of one of them.

He was one of the most learned men I have ever come across. Naturally it was more especially in the Oriental field that he was a sort of living encyclopædia. Here there were few questions to which he could not give more or less of an answer. But anthropology, archæology, even Etruscan inscriptions all alike interested him. It was not only