

TO THE THIRD POLE

The History of the High Himalaya

by

G. O. DYHRENFURTH

with contributions by Erwin Schneider

Translated from the German by Hugh Merrick

WERNER LAURIE: LONDON

*First published in this edition 1955
by T. Werner Laurie Limited
1 Doughty Street London WC1
Text printed in Great Britain by
Surrey Fine Art Press Ltd
London and Redhill
Plates printed by James Upton Ltd
Birmingham and London
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*Published by Nymphenburger Verlagshandlung Munich
under the title 'Zum Dritten Pol'*

(R 8067)

TO MY CHILDREN

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TRANSLATOR'S NOTE

WHEN 'Zum Dritten Pol' first appeared in 1952, Everest, K², Cho Oyu and Nanga Parbat were still unclimbed and the great efforts in 1953 and 1954 on half-a-dozen other Himalayan giants by parties from many nations were still dreams or in the planning stage. The author has perforce dealt with the more recent of these events in a comprehensive Supplement, to be found at the end of the book. Before that, however, an immense amount of additional writing and revision, including a complete renumbering of the Bibliography and the references to it throughout the text, had already fallen upon Professor Dyhrenfurth during the preparation of the English book. I am most grateful to him for his patient assistance in dealing with the numerous queries which necessarily arose and had to be dealt with by correspondence between this country and Switzerland.

My thanks are due to T. S. Blakeney, Assistant Secretary of the Alpine Club, not only for allowing me to come and look up essential passages in various publications, but for his charming habit of hunting them up for me first and placing them before me ready-marked. Finally, my acknowledgments are also due to Martin Rudwick for his assistance with the geological notes. I should like to acknowledge the valuable help of my wife, who read the final text through with a critical eye and to whose alert judgment in both literary and mountaineering matters I am indebted for the elimination of some minor errors and the suggestion of a great many improvements.

The only intentional deviation from the Author's completely revised text has been the omission of a few short passages, mainly from the Introduction, which dealt with the German transliteration and pronunciation of Himalayan names and seemed superfluous in an English version. Some height references have also been omitted when they have received sufficiently recent mention in the text. A few explanatory notes have been added on points which seemed of special significance to British readers; it is hoped that their usefulness will be judged to be their justification.

HUGH MERRICK

PREFACE

THE Third Pole? Are there really three Poles in Mathematical Geography? Indeed there are many more: the Poles of the Equatorial System (the Equators of Earth and Sky), of the Horizontal System (Zenith and Nadir), of the Ecliptic and the Milky Way, the Magnetic Poles of the Earth and so on. 'The Third Pole', in its strictest sense, is therefore a phrase open to controversy and varied interpretation; but this is not what I am setting out to discuss.

I propose to use the expression in relation to a simple and obvious metaphorical conception, which Marcel Kurz, that great and worthy explorer of high mountains used—to the best of my knowledge before anyone else—as long ago as 1933, when (Bib. 113; see 'Bibliography', p. 224) he spoke of the 'Globe's Third Pole' and applied the phrase he thus coined to Mount Everest, the highest point of the Earth's firm crust.

Broadening the conception somewhat, I propose to include all the highest mountains in the world—the 'Eight Thousanders' of the Himalaya and the Karakorum. I have already written elsewhere: 'The veil of mystery which shrouded the North and South Poles has been lifted; ocean flights have become a commonplace of daily modern traffic; Africa, once the dark Continent, has been thoroughly illuminated by knowledge; even the interior of the gigantic tropical island of New Guinea has now been opened up. It followed that the struggle for the Himalaya had gradually to outgrow the narrow circle of experts and climbers. This battle for the World's Greatest Peaks has become a matter of universal human endeavour, a cause from which there is no withdrawal, whatever losses it may demand.'

Men of various nations have given their lives in this struggle. Many brave climbers have found their last rest on Everest (29,160 feet), Chogori (K², 28,253 feet), Kangchenjunga (28,145 feet), and Nanga Parbat (26,658 feet), the four most famous Eight Thousand Metre peaks. The great mountains of upper Asia have witnessed much true courage, and the spirit of true sacrifice on the part of mountaineering friends and comrades: but these deeds of valour have also been obscured by many myths, by many pathetic attempts to conceal,

condone without criticism or hush up altogether past errors, by many national and personal vanities. The purpose of this book is, in all sincerity, to dissipate those misty veils with the strong beams of truth: 'nothing but the truth' is my solemn aim, without regard to diverse sensibilities. I base my pursuit of that truth on a fairly rich personal experience of such expeditions, on a thorough study of the relevant literature covering some decades and on my close personal contact with a great many Men of the Himalaya.

The task of sifting the factual material and presenting a synoptic record has often been extremely laborious, as has the collection of the illustrations. My sincerest thanks are due to the following:—

The Alpine Club, London, of which I have long had the honour to be a member, and particularly to T. S. Blakeney, the Assistant Secretary.

Vittorio Sella, the master of high mountain photography, still unsurpassed to this day; and to his successors.

The Swiss Foundation for Alpine Exploration, Zürich, especially to Ernst Feuz and Othmar Gurtner.

The German Himalaya Foundation, Munich, and Notary Paul Bauer. Ernst Grob, of Zürich.

Dr Toni Hagen, of Rapperswil, and Fritz H. Wiessner, of Burlington (Vermont, U.S.A.).

Unfortunately, in spite of all my efforts, I was unable to obtain in time to use them any pictures from the French Himalaya Expedition of 1950. For Annapurna, I have therefore relied on an excellent drawing by H. Burggasser, taken from the well-known and frequently published photograph by M. Ichac.

In this way, I have ultimately succeeded in collecting good pictures of every 'Eight Thousander'. This collection of the most important and finest photographs of the Eight Thousand Metre peaks, among which will be found several previously unknown pictures, is a completely new and up-to-date feature.

Essential to a complete understanding of the subject are the geographical sketch-maps, outlining the ridge formations of almost every known 'Eight Thousander' (excepting Manaslu) to the best of the knowledge available today. In compiling these as well as the Index I have had the skilful and sympathetic help of my wife, Irene. I am equally deeply indebted to my old friend and climbing companion in the Himalaya, Dipl.-Ing. Erwin Schneider (of Hall, in the Tyrol), who, in spite of his very heavy commitments elsewhere, has provided highly important additions to Chaps. 4 (Kangchenjunga) and 8 (Nanga Parbat). These have been marked with his name at the outset of each passage.

The temptation, ever-present along the compiler's road, to produce one of those monumental works which invite respectful notice rather than careful reading, has been avoided to the best of my ability. I have striven my utmost to achieve brevity and have not scorned the presentation of material in table form. The Bibliography, too, reference to which is made throughout the book simply by the entry Bib., followed by the relevant number, has been kept down to what I regard as the minimum essential content. Finally, the 'Future possibilities and climbing hints', while perhaps a somewhat dangerous and thankless venture, may after all be of some use to those who follow in our footsteps.

G. O. DYHRENFURTH

INTRODUCTION

THE classification of mountains into 'Seven or Eight Thousanders' may strike many as sheer pedantry. They may find it ludicrous to adhere to the very notion of a 'Seven Thousander' or an 'Eight Thousander', arguing that it matters little whether a peak lies a few metres on either side of the seven or eight thousand metre level. Moreover, the greater part of the English-speaking world still reckons in feet (one foot=0.304797 metre); for them a dead-line of 27,000 and 23,000 feet respectively would be both natural and convenient.

But while these arguments have a convincing ring about them, most boundary marks of this kind are, in the last resort, more or less artificial and largely a matter of convention. While this is a truism in the practice of everyday life, it is equally true in the sporting, technical and scientific fields. Rational thought simply cannot do without such boundaries nor without a definite practice in such matters. Moreover, the practice of categorising mountains by thousand metre levels is not so far-fetched as it might appear at first sight.

The three thousand metre category in the Eastern, four thousand in the Western Alps; five thousand in the Caucasus; six thousand in the South American Cordilleras; seven thousand in upper Asia; and eight thousand in the Himalaya, pin-point distinct types not only of mountains but also of mountain sizes and mountain rankings—so that it is not merely conjuring with figures or a gross over-simplification to canalise our admitted interest into these categories, more especially into the two highest, which typify a definitely super-alpine character. There is a sound basis for it.

And if we look at it closely, the argument between metres and feet loses a good deal of its significance. Without going into the general practical and theoretical advantages which the metric system may have over English and American methods of measurement, there is at hand a very simple compromise, by treating the few known peaks between 26,000 feet and 8000 metres (26,248 feet) as an appendage to the genuine 'Eight Thousanders'. On the other hand the 22,967 feet (7000 metres) and 23,000 feet levels lie so close to one another that we can practically treat them as equivalent, especially as there is at present

only one known peak which falls between the two.¹ We therefore hope that this suggested downward extension of the 'Eight Thousanders' and the equation of the Seven Thousand metre and 23,000 feet level will reconcile our English and American friends to this classification.

It has been asked whether the 'Eight Thousanders' are really the top bracket, or are there 'Nine Thousanders' in existence. To express the question in another form: is Everest, 29,160 feet (8888 metres), still the highest mountain—the unchallenged Summit of the World? Or is there some truth in the famous report originating from the American Army Air Force in 1944 that there is a giant peak, some hundreds of metres higher than Everest in the ranges on the Chinese-Tibetan border?

As long ago as 1922, from the great bend of the upper Hoang Ho, in about latitude 34° North, longitude 100° East, an Englishman, General George Pereira, had sighted a peak he thought might possibly be higher than Everest. In 1926 the American botanist Dr Jos. F. Rock approached this culmination of the Amnyi Machin range more closely from the east and, from a distance of some sixty miles, estimated this considerable peak as about 29,529 feet (9000 metres) high. Soon afterwards another massif on the Chinese-Tibetan frontier attracted universal attention. This was Minya Konka near Tatsienlu, reconnoitred in 1930 by the Arn.Heim-Ed.Imhof Expedition (Bib. 80), and climbed in 1932 by the young American climbers Terris Moore and R. L. Burdsall (see Table on p. 202 and Bib. 20, 21). At first this mountain too was estimated as a 'Nine Thousander', but exact measurement later reduced it to a 'mere' 24,891 feet (7887 metres). This, China's highest mountain, is therefore a grand 'Seven Thousander', but still 1300 metres, or more than 4,000 feet lower, than Everest.

The last remaining candidate for the much-desired post of the great Nine Thousand Metre Peak was therefore the Amnyi Machin range, south of Tibet's largest lake, the Koko Nor: and during the second world war an exciting report in the spring of 1944 from an American pilot engaged on the Burma airlift to Chungking gave new impetus to this mysterious legend. He reported having climbed above a cloud-level to 30,500 feet (9300 metres) where he suddenly became aware of a snowy precipice, the summit of which towered some hundreds of metres above the level of his aircraft. The altimeter was said to be working perfectly. This statement, published by the *News Chronicle*, found its way to the ends of the earth, in spite of war-time conditions; since when the 'abdication of Mount Everest' has cropped up in various places from time to time—the vaguer and less authoritative the better!

¹ The eastern peak of the Twins 7005 metres (22,983 feet) in the Kangchenjunga Group.

As long ago as 1945, in my book 'The Eight Thousanders' (Biq. 49), I took leave to cast serious doubt on the existence of the putative 'Nine Thousander' and I then gave an exact reckoning of the great distance from which so high a peak must be visible. Still, it was impossible to deny with absolute certainty the possibility of its existence and I wrote at the time: 'Let us hope that, a couple of years after the end of the war, aerial survey will give us a clear answer to these whispered rumours'.

The present position is as follows: in March and April 1948 the Amnyi Machin Range, and the whole neighbouring tract as far as Minya Konka was flown over repeatedly by Reynolds and Moon Chin as well as by an unnamed civilian pilot (Bib. 12c, pp. 167-9). The result was a confirmation that the highest point in the Amnyi Machin Group does not even touch 19,686 feet (6000 metres) though in the neighbouring Ugutu and Bayan-Kara Ranges there are peaks measuring from 20,000 to 21,000 feet (6100 to 6400 metres).

In spite of this, in the spring of 1949 an American, Leonard Francis Clark, on behalf of the magazine *Life*, organised a massive expedition to measure the Amnyi Machin Group and establish its exact altitude (Bib. 12d, pp. 238-9 and Bib. 12e, pp. 257-8). It is clear that where the 'World's Highest' is at stake, money is always available, even where the return is problematic. For the famous German explorer of Asia, Wilhelm Filchner, had crossed and re-crossed this region long ago, during his Expeditions of 1903-5, and makes no mention of any huge snow-peak, towering above everything else in the neighbourhood (Bib. 62).

The composition of the Clark Expedition was impressive enough. There was a staff of topographical, philological, radiological and medical experts, 150 pack animals (yaks, ponies, mules and camels) and a mounted escort fifty strong with twenty Tibetan 'Scouts'.

They reached the north-west side of the Amnyi Machin Mountains by way of the southern shore of the 'Blue Lake', the Koko Nor, thence through the steppe-like territory of the marauding Ngoloks to the Lake of Tossun, long ago described by Filchner. On 7th May the party, still mounted, reached a Plateau (about 15,300 feet up) where a 1000 metre base line was marked out in rather a sketchy way. Clark took his sights of the peak from the ends of this base line, the height of which above sea level was, oddly enough, only *estimated* from the Chinese map. With bad weather threatening, there was little time for the actual measuring process. The readings were precise to degrees and minutes. The *Life* article, which is otherwise very readable, devotes only a few lines to the process of measurement. Clark's resulting elevation—29,661 feet (9040 metres)—need, there-

fore, not be taken too seriously. American experts generally—including Professor Bradford Washburn of Boston, the well-known geographer, climber and explorer—adopt an extremely sceptical attitude towards this ‘Voyage of Measurement’. Certainly in the photograph which, needless to say, shows Clark in the foreground at the theodolite, his Amnyi Machin wears the very harmless aspect of a crest in an average mountain range with some spring snow still lying on it. There is no further need for abdication rumours: Chomo Lungma, the ‘Goddess Mother of the Land’, better known as Mount Everest, remains the ‘Third Pole’, the highest point above sea level in the firm upper crust of the earth.

There are, and long have been, fourteen known Eight Thousand Metre peaks; by which we mean individual peaks of over this height, not separate summits of one and the same mountain. The order I gave them in my 1939 tabulation is probably the right one (Bib. 45). This list which, in a slightly improved form, constitutes the next chapter of this book, numbers a minimum which can be built on in the future not only through new discoveries but also as the result of new measurement and computation. Of these fourteen colossal mountains, ten are in the Himalaya proper, four in the Karakorum. If we include in our reckoning the peaks of 26,000 feet (that is those between 7925 and 8000 metres) we arrive at a total of seventeen—eleven in the Himalaya, six in the Karakorum.

While the all-out attack on the ‘Seven Thousanders’ has gradually yielded numerous successes, the ‘Eight Thousanders’ till quite recently resisted every attempt to overcome them. Heights of over 26,248 feet (8000 metres) had, it is true, been reached on Everest and K²: but their summits remained inviolate. For a long time it almost looked as if these mighty ‘Thrones of the Gods’ were invested with magic defences. Time and again, as will be seen in the many stories of misfortune unfolded throughout this book, insurmountable obstacles were encountered. Their interpretation is a matter for divergent international points of view; but the facts are irrefutable, even under the keenest scientific and sceptical examination.

It was not until June 1950 that a new generation of French climbers succeeded in breaking the barrier, with the conquest of Annapurna I 26,504 feet (8078 metres) by the French Himalaya Expedition. Then came 1953, the Great Himalayan Year, with the successful ascent of Everest by the British Expedition on 29th May and of Nanga Parbat 26,658 feet (8125 metres) by the German-Austrian Expedition on 3rd July. These achievements are of course outstanding in the Annals of Mountaineering, and of equal importance to the first successful penetrations of the North and South Poles.

A survey of the 'Seven Thousanders' presents far greater difficulties: the chief danger being that of losing oneself in the wastes of the wide sphere under review. There are so many of them; exactly how many is not even established. To go into the immense number involved, I was able to count a round two hundred in 1941 (Bib. 46), a figure which was a conservative 'estimate': the true total might well be nearer three or even four hundred. With the single exception of Aconcagua 23,036 feet (7021 metres) the highest mountain in the two Americas and the Western Hemisphere, they are all in upper Asia.

They fall into four clearly distinguishable classes:

- 1 Those already climbed.
- 2 Those unsuccessfully attempted.
- 3 Those geographically more or less known, but so far unapproached.
- 4 A large number still unknown.

At first I had hoped to deal in detail with the first three categories, but it soon became clear that such a complete encyclopædia of the known peaks of over seven thousand metres would prove beyond the scope of a book of this kind. I therefore decided on a presentation in table form of those climbed (Table, p. 202) and those attempted (Table, p. 208), concentrating on as detailed and comprehensive information as possible in each table.

There has been a good deal of controversy about the transcription of local names. In the last resort existing maps are surely the yardstick. The Survey of India has hitherto used on its maps and other publications neither Sanskrit nor Hindustani, but the English variant of the names. The best policy seems to be to adhere to the locally accepted form, merely adding where necessary a short note about the correct pronunciation.

Himalaya is an immemorial geographical name, consisting of a Sanskrit compound word Hima-Alaya, meaning 'Snow-Abode'. The final 'a' of the first word merges with the leading 'a' of the second and consequently carries the accent. The word should therefore be stressed on its second syllable (Himālaya), though an approximate fluctuation of the accent is admissible. Curiously enough the most usual accentuation—on the third syllable—is, as it happens, the wrong one.

In my view the attempt to Germanise the word into Himalaja (with a 'j') is not only sacrilege, but extremely unpractical. For Himalaya is an Indian word, written with a 'y' by the Indians themselves, by writers throughout the English-speaking world and in fact in all other languages as well. While Himalaja would have to be pronounced

according to the widely differing value of 'j' in Indian, English, French and Spanish, Himalaya offers no such difficulties.

'*Andrée's Universal Atlas*' (8th edition), Baedeker's '*India*' and the '*Swiss Secondary School Atlas*' (Dr Ed. Imhof's edition) all use the form Himalaya. So do the following Annuals: '*Berge der Welt*' (The Swiss Foundation for Alpine Research, Chief Editor, Marcel Kurz) which nowadays holds a key position in German Himalayan literature; '*Die Alpen*', the monthly journal of the Swiss Alpine Club; '*Der Bergsteiger*', '*Atlantis*' (Martin Hurlimann), '*Orbis Terrarum*' and the majority of Swiss, German and Austrian Himalayan Bibliography.

Himalaya should therefore be left in peace. The only references in this book where the spelling with a 'j' is adopted are to cases, as for instance in the Bibliography, where the original used that form.

TABLE OF 'EIGHT THOUSANDERS'

TABLE OF 'EIGHT THOUSANDERS' AND

No.	Name or Survey Symbol	Height	Climbed to a height of	Geographical	
				Latitude (N)	Longitude (E)
1	Mount Everest or Chomo Lungma	29,160 ft. (8888 m.) formerly given as 29,002 ft. (8840 m.)	29,160 ft. (8888 m.) (The Summit)	27° 59' 16"	86° 55' 40"
2	K ² or Chogori	28,253 ft. (8611 m.)	28,253 ft. (8611 m.) (The Summit)	32° 52' 55"	76° 30' 51"
3	Kangchenjunga (5 Summits, 3 over 26,000 ft.) Main Summit (No. 3) South Summit (No. 2) West Summit (No. 4)	28,168 ft. (8585 m.) 27,803 ft. (8473 m.) c. 27,887 ft. (8500 m.)	25,263 ft. (7700 m.)	27° 42' 09" 27° 41' 30"	88° 09' 00" 88° 09' 24"
4	Lhotse or E ¹ Main Summit (No. 1) South-East Summit (No. 2)	c. 28,028 ft. (8545 m.) formerly given as 27,890 ft. (8501 m.) 27,560 ft. (8400 m.)	26,248 ft. (8000 m.)	27° 57' 43"	86° 56' 10"
5	Makalu	c. 27,937 ft. (8515 m.)	25,600 ft. (7800 m.)	27° 53' 23"	87° 05' 29"
6	Dhaulagiri	26,811 ft. (8172 m.)	26,100 ft. (7950 m.)	28° 41' 48"	83° 29' 42"

PEAKS OVER 26,000 FEET (7925 METRES)

Situation	Remarks
Eastern Himalaya Frontier of Tibet and Nepal	E. F. Norton on 4.6.1924; P. Wyn Harris and L. R. Wager on 30.5.1933; F. S. Smythe on 1.6.1933; all reached about 28,150 feet (8572 metres), at about the same place, on the northern (Tibetan) side. On 28.5.1952 R. Lambert and Tensing Norkay reached about 28,050 feet (8550 metres) on the South-East Ridge, by the southern (Nepalese) route. On 26.5.1953 T. D. Bourdillon and R. C. Evans reached the South Summit 28,722 feet (8754 metres). On 29.5.1953 E. P. Hillary and Tensing Norkay reached the Summit. Everest was thus the second 8000 metre peak to be climbed.
Karakorum (Baltoro)	27,500 feet (8382 metres) reached by Fr. H. Wiessner and Pasang Dawa Lama on 19.7.1939. Climbed by A. Compagnoni and L. Lacedelli of Prof. Ardito Desio's Italian Alpine Club Expedition, 31.7.1954.
Eastern Himalaya Frontier of Sikkim and Nepal	Kangchenjunga, with its several summits, is only one mountain and has therefore been allotted only one number. Bauer's 1931 Expedition reached the 25,263 feet (7700 metres) Summit of the Eastern Spur.
Everest Group	Everest's 'South Peak', but in fact a separate mountain with several summits. No attempt has yet been made on the mountain, but in 1952 and 1953 the 26,248 feet (8000 metres) crest above the South Col was crossed on numerous occasions.
Everest Group	One of the most magnificent of the 'Eight Thousanders'. J. Couzy and L. Terray reached the highest point yet on 30.10.1954, after climbing Makalu II, 25,120 feet (7656 metres).
Central Nepal Himalaya	Reconnoitred 1950 French Expedition and by AACZ when R. Schatz and P. Braun reached 25,263 feet (7700 metres) on 29.5.1953. G. Watzl and Pasang Dawa Lama; A. C. Magnoni with Ang Nyima II, of Argentine Expedition reached 26,100 feet (7950 metres) on 20.6.1954.

7	Cho Oyu or M ¹ (formerly T ⁴⁵)	c. 26,904 ft. (8200 m.) formerly given as 26,750 ft. (8153 m.)	c. 26,904 ft. (8200 m.) (The Summit)	28° 05' 32"	86° 39' 51"
8	Manaslu or Kutang I. (Peak XXX)	26,658 ft. (8125 m.)	25,425 ft. (7750 m.)	28° 33' 00"	84° 33' 43"
9	Nanga Parbat or Diamir	26,658 ft. (8125 m.)	26,658 ft. (8125 m.) (The Summit)	35° 14' 21"	74° 35' 24"
10	Annapurna I (Peak XXXIX, formerly also known as Morshiadi?)	26,504 ft. (8078 m.)	26,504 ft. (8078 m.) (The Summit)	28° 35' 44"	83° 49' 19"
11	Hidden Peak or Gasherbrum I (K ⁵)	26,470 ft. (8068 m.)	22,639 ft. (6900 m.)	35° 43' 30"	76° 41' 48"
12	Broad Peak (3 summits) Main Summit Central Summit	26,400 ft. (8047 m.) c. 26,248 ft. (8000 m.)	23,300 ft. (7100 m.)	35° 48' 35"	76° 34' 23"
13	Gasherbrum II	26,360 ft. (8035 m.)	20,506 ft. (6250 m.)	35° 45' 31"	76° 39' 15"
14	Gosainthan or Shisha Pangma (Peak XXIII)	26,291 ft. (8013 m.)	20,178 ft. (6150 m.)	28° 21' 07"	85° 46' 55"

PEAKS OVER 26,000 FEET

15	Gasherbrum IV	26,180 ft. (7980 m.)		35° 45' 38"	76° 37' 02"
16	Gasherbrum III	26,090 ft. (7952 m.)		35° 45' 36"	76° 38' 33"
17	Annapurna II	26,041 ft. (7937 m.)	24,000 ft. (7315 m.)	28° 32' 05"	84° 07' 26"

Everest Group	The mountain has been placed after Dhaulagiri, in view of the official figure. Reconnoitred by the 1952 Shipton Expedition. H. Tichy, Pasang Dawa Lama and S. Jöchler reached the Summit on 19.10.1954.
Western Nepal Himalaya	First reconnoitred by the 1950 Tilman Expedition. Second reconnaissance by the Japanese Alpine Club, 1952. First attempted by a Japanese Expedition under Yukio Mita in 1953, which reached a height of about 25,425 feet.
Kashmir	E. Schneider and P. Aschenbrenner reached 25,755 feet (7850 metres) on 6.7.1934. H. Buhl (climbing alone) reached the Main Summit on 3.7.1953. Nanga Parbat was thus the third 'Eight Thousander' to be climbed.
Western Nepal Himalaya	Climbed by M. Herzog and L. Lachenal of the 1950 French Himalaya Expedition, 3.6.1950. The first 'Eight Thousander' to be climbed.
Karakorum (Baltoro)	French Karakorum Expedition of 1936.
Karakorum (Baltoro)	The old figure of 27,134 feet (8270 metres) was about 730 feet (220 metres) too high. First actual attempt by K. N. Herrligkoffer, who reached 23,300 feet, on 6.11.1954.
Karakorum (Baltoro)	Not yet attempted, but reconnoitred by the I.H.E. (International Himalayan Expedition) of 1934.
Western Nepal Himalaya near the frontier of Tibet and Nepal.	Reconnoitred by T. Hagen, October 1952.

BUT UNDER 8000 METRES

Karakorum (Baltoro)	
Karakorum (Baltoro)	
Western Nepal Himalaya	The 1950 Tilman Expedition reached 24,000 feet (7315 metres) on Annapurna IV 24,686 feet (7524 metres) which is linked to Annapurna II by a ridge.

TO THE THIRD POLE

CHAPTER ONE

MOUNT EVEREST

The Northern Side

THERE are subjects which attract printer's ink as it were magnetically and it is easy to understand that for decades past the world's highest mountain has over and over again set the presses going. It is less easy to understand why most articles about Everest—in so many books, periodicals and leading newspapers—are full of inexactitudes, exaggerations and indeed serious errors, a fact about which the *Alpine Journal* and the *Geographical Journal* have frequently had reason to utter satirical comments. The fact is that many, who have attached themselves as camp-followers in the 'Battle for the World's Summit', have never taken the trouble to have a good look at the fairly comprehensive literature from the pen of the protagonists themselves.

For anyone really familiar with Himalayan literature generally, and with the Everest documentation in particular, it would not be difficult to compile a well-informed unbiassed work on Everest, but such a compendium would burst the covers of this book. Here we must confine ourselves to essentials.

Even a partly representative Everest bibliography would include several hundred numbers and would almost entail a separate work. So we propose to content ourselves with a small selection, in the forefront of which the original works are briefly mentioned. It is not proposed to sub-divide even this abridged selection, because any attempt to produce a distinct bibliography for each mountain region and for each 'Eight Thousander' would entail a tremendous amount of overlapping in each list. The most important Everest literature is therefore being included in the comprehensive Bibliography, arranged alphabetically and, in the case of each author, chronologically; reference to single titles in it being made at intervals throughout the text by the appropriate number, preceded by the abbreviation 'Bib'.

(a) NOMENCLATURE

From 1714 to 1845 Chimborazo, an extinct volcano in the Cordilleras of the Ecuador Andes ranked as the world's highest peak, with a height of 20,703 feet (6310 metres). Later the title was transferred to Dhaulagiri 26,811 feet (8172 metres), an enormous 'Eight Thousander' in the heart of Nepal. Later still it was Kangchenjunga 28,168 feet (8585 metres) which came to be regarded as the culminating point of Asia's great mountain system, and this view was held till the middle of the nineteenth century. The discovery of the true 'Highest Peak in the World' was the work of the Survey of India (Bib. 22) and was achieved by gradual stages and as a result of meticulous detailed work. Between 1845 and 1850 a triangulation of the plains to the south of the Himalaya was undertaken, and the surveyors were instructed to log any of the Himalayan Peaks visible from their stations. Certain prominent peaks, such as Nanda Devi, Dhaulagiri and Kangchenjunga were easily recognisable from the plains; others were simply indicated by a survey symbol, among them the somewhat retiring 'Peak XV', which lay unostentatiously in the background. When the work in the field was completed, the business of calculation and evaluation was begun in the Computing Offices at Dehra Dun and Calcutta, and in 1852 the head of the Calculating Office¹ advised the Surveyor General, Sir Andrew Waugh, that Peak XV was higher than any other summit so far observed. So in 1856 this mountain was given the name—in time to become world-famous—of Mount Everest, in honour of the distinguished Head of the Indian Measurement Service between 1823 and 1843, Sir George Everest, though he had actually nothing to do with the discovery, having retired to England a long while before.

The world did not take kindly to the designation of the highest mountain on earth simply by an English surname and set out in search of an older (and more beautiful) local appellation. The British Resident in Nepal, Brian Hodgson, a noted linguist, put forward Devadhunga as the local name, but this was obviously a misunderstanding and after considerable controversy this name, insufficiently grounded as it was geographically, was allowed to drop.

Another name, Gaurisankar, which gradually became famous, met with more success. This rich-sounding word won a firm place and, for half a century, passed for the historic local 'proper' name of the mountain which had arbitrarily been christened Everest. Hermann von Schlagintweit, the celebrated German explorer of Asia and pioneer in the Himalaya, was responsible for this error. He had arrived in India in 1855 and attempted to obtain exact information, at least from

a distance, about this mountain which calculations had only recently elevated to such high dignity and which wrapped itself in so much mystery. In his researches, as we know today, he suffered a double misfortune.

When he tried to observe Everest's south-eastern aspect from Sikkim, he was misled into thinking that Makalu, the huge 'Eight Thousander' which masks it almost entirely from that direction with its enormous and magnificently-shaped mass, visibly dominating everything near it, was Everest. (The old estimation of Makalu's height is 27,790 feet or 8470 metres: but it should be 147 feet or 45 metres higher.)

Then he went to Nepal, and from Kaulia, a station to the north-west of the capital, Katmandu, drew a beautiful panorama supposedly representing the Everest Group from the west. The outstanding peak in the direction of Everest, which appears from this point to dominate everything else and which Schlagintweit assumed to be Everest, is a mountain known in Nepal as Gaurisankar. In this way Schlagintweit arrived at the false equation: Gaurisankar=Mount Everest=Peak XV 29,002 feet (8840 metres). True, the cautious Survey of India never adopted this error, based on two false premises, and destined to have endless repercussions; but many people attributed this position to British narrow-mindedness. The Survey, they said, were merely insisting that the English name must be maintained, come what may, against the beautiful historic name Gaurisankar. So it came about that this error, for which Schlagintweit was responsible, was copied by many atlases and taught in many schools. Even today this Gaurisankar legend is ghosting about in many heads: for nails hammered in when one is young have a habit of sticking.

The truth of the matter was finally established in 1905.

On the instructions of Lord Curzon, the reigning Viceroy of India, a Captain Wood visited Kaulia, Schlagintweit's one-time observation post, surveyed the controversial peaks and established unshakably that Gaurisankar and Mount Everest were definitely different mountains—Gaurisankar being one and the same as 'Peak XX' of the Survey, about forty miles to the west of Everest and only 23,440 feet high, compared with the Monarch's 29,002 feet.

Another local name for Mount Everest appeared on the scene in 1902 in Sarat Chandra Das's famous *Tibetan Lexicon*: this was Chomo Kangkar, the literal translation of which is 'Mother-Queen-Snow-White', or 'The White Snow of the Mother Queen'. This lovely old Tibetan name, however, seems only to have been used occasionally and never found its way far afield. After a time it disappeared from all European maps.

But since the first Everest Expedition of 1921, the name Chomo Lungma, also written Chomo Lungmo, has found an established place. As long ago as 1910 C. G. Bruce (Bib. 16) had insisted emphatically on this local name, quoting as sponsors the topographer Natha Singh and his own Bhutia porters, that is to say people who came from the Dudh Kosi Valley, on the south side of Everest.

In a lecture, too, before the Royal Geographical Society on 8th November 1920, General Bruce, according to a report of Sven Hedin's (Bib. 79) said 'Whenever I asked them, they gave the Everest Group the name of Chomo Lungmo. At first I thought it meant the Peak itself, but now I believe it belongs to the whole group'.

In the official permit issued to the first British Expedition, bearing the seal of the Tibetan Prime Minister, there is no reference—though it has often been erroneously reported so (see also Bib. 97a, p. 22)—to Chomo Lungma, but to 'Chama Lung'. This is neither the same in sound nor in meaning. It probably describes the whole of the Kama Valley, which drains the waters of the eastern side of Everest and Lhotse and the north-eastern side of the whole Makalu-Chomo Lönzo Massif. But in his lecture at the Queen's Hall, London, on 20th December 1921, Colonel C. K. Howard Bury, the leader of the 1921 Reconnaissance stated (according to Bib. 79, p. 65): 'Everest is known to the Tibetans and is called by them Chomo-Lungma, "Goddess Mother of the Land".'

There has also been great controversy about the meaning of this name, Chomo Lungma. Sir Francis Younghusband's translation (Bib. 97a, p. 11) of 'Goddess Mother of the Mountains' is perhaps somewhat loose. Cho is a common Tibetan word and means 'Deity' or 'Daemon'. Experts in Tibetan render Chomo sometimes as 'Goddess Mother', sometimes as 'Mother Queen'. Lung means Land, Landscape, even Range or Valley: Ma or Mo is a feminine ending. It would, therefore, seem that 'Goddess Mother of the Land' is the best rendering.

A well-known German expert in Tibetan, Dr Schubert of Leipzig, has suggested that the correct transliteration is Jo-mo-lun-ma (Lun = Air or Wind). The meaning 'Goddess of the Wind' would also make good sense; but this alteration of the meaning definitely suppressed the g or k sound which follows the syllable. This consonant can plainly be heard when the natives pronounce it today and is indeed as old as the word itself.

Sven Hedin has put forward, with great emphasis, the theory that Everest is not an English discovery at all, but a French one (Bib. 79). The facts adduced are that 'Mount Everest appears under its rightful name of Chomo Lungma, only slightly distorted, on maps which were

drawn by French Jesuits in Peking in 1717 with the help of local material, and that these maps were printed in Paris and published there in 1733.' If one studies d'Anville's Tibetan map of 1733, large portions of which Sven Hedin reproduced in facsimile in 1917 and 1923, without biased preconceptions, one establishes that a big mountain range is marked on it under the name 'M. Tchoumou Lancma'. Even Gaurisankar, whose Tibetan name is Chomo-Tsering, appears to be marked, under the name of 'M. Dsarinpon': Dsarin and Tsering are obviously the same, and 'M. Dsarinpon' is shown half a degree to the west of 'M. Tchoumou Lancma'.

Is Sven Hedin right, then? Were the French missionaries at the start of the eighteenth century the true discoverers of the world's highest Peak? This conclusion appears to me very debatable. Important as it is to know that Jesuits and Capuchins were working in South Tibet and were already familiar with the name in its Tchoumou Lancma form, there is no ground for ignoring the fact that, at the time, no one was in the least degree interested in the height of snow-mountains. It was sufficient to know that, in places, inhospitable and high mountains barred the way across to India. No one had the faintest idea that 'Tchoumou' was the highest mountain the world. There is not the slightest indication in either Chinese or Tibetan writings at the time that these particular mountains are exceptionally high. So I think the controversy about priority, heated as it was at the time, can best be settled like this: the ancient local name and the approximate position were first known in Europe through French agencies. If this had been remembered, there would have been no necessity for the mountain to be christened Everest at all. The discovery that the Peak (under whatever name) is the highest in the world, and its exact measurement, are the work of the Survey of India, that is of Britons and Indians working in unison. Exploration of the Chomo Lungma group was the achievement of the British, supported by their brave and willing Sherpa—and Bhutia—porters.

It is idle to try to substitute the ancient Tibetan name for that of Mount Everest, which has been universally accepted for a century. Perhaps the double name 'Mount Everest or Chomo Lungma' is the best solution.

(b) THE QUESTION OF ALTITUDE

Everest has been plotted from eleven different Indian stations and is therefore among the most precisely measured of Himalayan Peaks. Why then is there an altitude-question? In Bib. 22 Sir Sidney Burrard has grouped the various errors in the measurement and computation of distant mountain peaks as follows:

Sources of Error	Extent of possible Error
1 Variation of the snow-level from average (evaporation before the Monsoon, snow-blanket after the Monsoon, years of heavy or light snow-fall)	Unknown. Estimated at 10-15 feet.
2 Observational error in the theodolite reading	Maximum 10 feet.
3 Error in the height of the observation level	10 feet.
4 Gravity Deviation. (The mass attraction of the Himalaya lifts all fluids towards the mountains. In Darjeeling this deviation from the tangential level is, for instance, 35°. So that the theodolites cannot, owing to the fluidity of the bubbles, be correctly adjusted)	60 feet too little.
5 Refraction of light	150 feet too little.

Refraction is by far the most important factor in possible error. The light-beam from the Summit of Mount Everest does not reach the observer's eye in a straight line, but concavely towards the earth. He therefore sees the Summit in the direction of the imaginary tangent to this curve. That means one is aiming too high and must therefore make compensatory calculations, which are made more difficult by the fact that variations of several hundred feet can be produced according to the time of day and the season of the year. Dhaulagiri, for instance, when plotted from the Indian plain, appears to become some 500 feet lower between sunrise and early afternoon, and then to grow again by about 200 feet till sunset. Even in the early afternoon, that is when a direct reading produces the lowest value, the mountain still appears about 700 feet too high. The correction of these sources of error is of great significance.

Nowadays it is considered that in earlier days too great a deduction was the practice. Six estimates in 1849 and 1850 produce a mean result for Everest of 29,002 feet (8839.8 metres); six between 1881 and 1902 give a mean of 29,143 feet (8882.2 metres). Moreover, the earlier ones are based on observations taken from the Plains at about 220-250 feet (66-76 metres) above sea-level, whereas the observation points for the later ones were in the Foothills, at a level of from 8,000 to 12,000 feet (2450-3650 metres) where the disturbance caused

by refraction is far less. The 29,143 foot (8882 metres) evaluation is therefore the more valuable assessment, and it is surprising that the Survey of India have till now—at least officially—adhered to the old figure of 29,002 feet (8840 metres), which is certainly too low. In our table, we have adopted the now generally-accepted figure of 29,160 feet (8888 metres), which is probably nearer to the truth and has, moreover, the advantage of being very easily memorised (in metres).

All the other peaks of the Chomo Lungma Group are dependent on the Everest computation. It is therefore illogical to elevate Everest to 29,160 feet and leave Makalu, for instance, at 27,790. We have, therefore, tried to deal with the neighbouring 'Eight Thousanders' in our table by giving both the new, adjusted value and the old figure.

In the Summer of 1950 the eastern Himalaya with their outliers were visited by the Assam Earthquake, apparently one of the most serious seismic catastrophes India has known since time immemorial. It was a tectonic upheaval of great size and certainly closely correlated with the continuing rising of the Himalaya. Since the last ice-age, that is to say since about 20,000 years ago, this rising is to be reckoned at from 5,000 to 7,000 feet (Bib. 45, p. 56), in other words three to four inches a year. But such a movement must not be imagined as being quiet and uniform. It can stop for years or decades, and then give a shrug, slight in terms of crustal movement, experienced by mankind as a tremendous earthquake.

According to reports from India, Everest is said to have added about 200 feet to its stature owing to the Assam Earthquake. It is not clear whether this means 29,002 plus 200 or 29,160 plus 200. Nor is it stated from what base-line or what stations this 'elevated' Everest has been measured anew. There might have been such great movements in the whole earthquake-area that the level demands a thorough check and correction before the high peaks of the Himalaya are remeasured from the Indian plains. So long as these basic factors remain obscure and so long as only daily papers and not the Trigonometrical Survey of India publish these reports, we prefer to adhere cautiously to our 29,160 feet or 8888 metres. All the same, it is by no means impossible that the Summit of Everest now rises 29,200 feet (8900 metres) or even more, above the mean sea-level of the Indian Ocean.

(c) HISTORY OF EXPEDITIONS ON THE TIBETAN SIDE

As long ago as 1893 C. G. Bruce was planning an ascent of Everest, but was unable in those days to find a definite opportunity even for a reconnaissance. Later, Lord Curzon, when Viceroy of India, suggested

to D. W. Freshfield a combined operation on the part of the Royal Geographical Society and the Alpine Club, provided permission could be obtained from the Government of Nepal for the passage of an expedition. This was not forthcoming at that time, so that the Nepal side of the Everest Group remained unknown till 1950. In 1904 Ryder and Rawling had been able to observe the mountain from some sixty miles to the north in Tibet; and Rawling was actually equipping a reconnaissance through Tibet when the first world war, during which he fell while serving as a Brigadier, broke out. In the Spring of 1919, J. B. L. Noel, who had undertaken his first journey to reconnoitre Everest six years earlier, suggested carrying on with Rawling's interrupted plan, in a paper read before the Royal Geographical Society.

Freshfield, Dr A. M. Kellas and J. P. Farrar, at that time President of the Alpine Club took the idea up and Sir Francis Younghusband, whose opinion carried great weight, supported it enthusiastically. The Everest Committee was founded under his chairmanship and the project was properly launched.

The first three Everest expeditions of 1921, 1922 and 1924 evoked such a spate of writings that it is almost impossible to cover them extensively; the facts are consequently so familiar that we propose to deal with them quite briefly. Nevertheless, many of the later commentaries and reconstructions contain serious errors. A careful study of the original sources is therefore recommended as essential (Bib. 17, 17a, 65, 97, 97a, 152, 153, 153a and 154).

THE 1921 EXPEDITION

The first Everest expedition, led by Colonel C. K. Howard Bury, was charged with the reconnaissance and geographical survey of the whole group, a task it carried out exceedingly well. Two officers of the Indian Land Measurement Department, Major H. T. Morshead and O. E. Wheeler, with their Survey team, covered an area of about 25,000 square miles, about the size of the Swiss plains. It could, of course, only be a question of producing a survey-map, but the result was an encouragingly clear picture of the region.

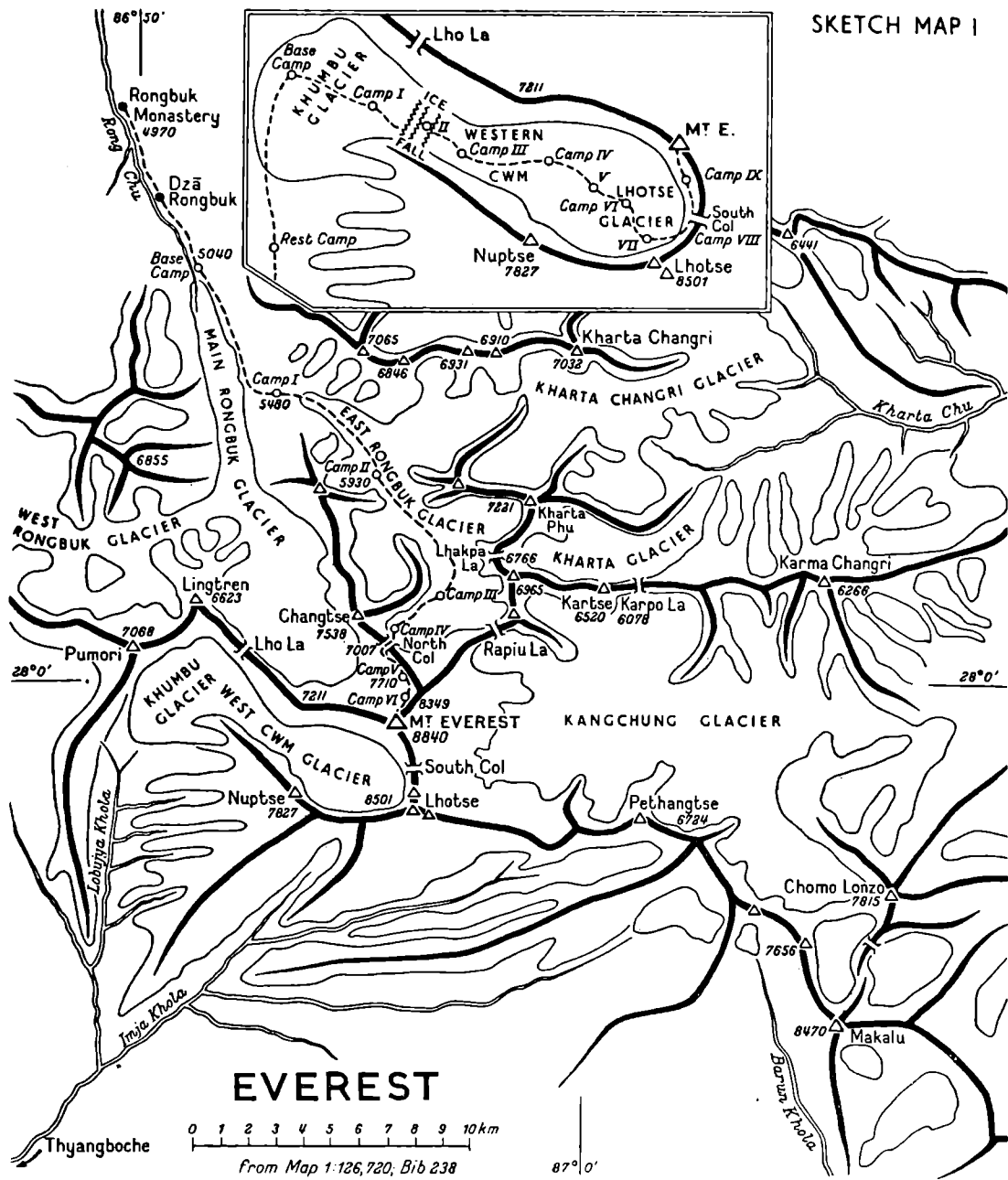
The bulk of the expedition left Darjeeling unusually late, on 18th and 19th May. There were further serious organisational difficulties. For instance, 100 mules, provided from Army sources and drawn from the Plains, failed to stand up to the rigours of the march up to the Hills and had to be replaced by local horses and mules.

The march from Darjeeling led them by the immemorial Lhasa Trade Route past Kalimpong, over the Jelep La (14,386 feet) into the Tibetan Chumbi Valley; thence past Phari Dzong and over the Tang

La (15,200 feet)—which crosses the main watershed at the western base of Chomolhari (24,000 feet), at that time still unclimbed—on to the high Plateau of Tibet and on to Kampa Dzong. Doctor Kellas died on the way from heart failure, the result of over-exertion during the previous few months. He had seen the Promised Land from afar, but it had not been his to set foot upon. Now he rests near Kampa Dzong, in full sight of Pahunri (23,384 feet) Chomiomo (22,432 feet) and Kangchenjhou (22,705 feet), all of which he had climbed alone (Bib. 3). More than a hundred miles to the west, high above all other peaks, soars Chomo Lungma, the Goddess-Mother. It is a fitting grave for the great, solitary pioneer of the Himalaya.

Past Tinki Dzong and Shekar Dzong, with its famous rock-Monastery, they journeyed to Tingri Dzong, already to the north-west of Everest. For a short time they used Tingri as a centre, from which various small working-parties branched outwards; towards the end of July they moved their Main Base to the beautiful Kharta country to the east of the Everest Group. No expedition since has covered so much ground in the whole mountain area as did the sections of the 1921 reconnaissance. The exploratory work then carried out holds its high value to this day: lack of space unfortunately forbids a detailed review of it here.

Harold Raeburn, the experienced climber who had originally been picked to lead the climbing party, had been forced through sickness to return to Darjeeling and only rejoined the expedition in September. So, for more than two months the heavy responsibility of the mountaineering reconnaissance fell entirely on the shoulders of two young Alpine climbers, G. H. Leigh Mallory and C. H. Bullock. With a small body of porters, under an unreliable and deceitful Sirdar, Gyalgen, they made straight for Everest. They went first of all into the Rongbuk Valley, where they established a base camp close to the famous Monastery and seemed straight away to have found the route which was till lately held to be the best; but it was to turn out quite otherwise. They had only noticed the outflow of the East Rongbuk Glacier in passing without exploring it, and followed the main Rongbuk Glacier right up to the pass on the Nepal frontier, now known as the Khumbu La, from which point Everest looked somewhat uninviting. The approach moreover, from the Main Glacier to the Saddle which was later to be known as the North Col (Chang La) looked most forbidding. So they went down again and rather surprisingly turned their attention to the West Rongbuk Glacier, though this took them farther away from Everest. After that they turned their back on the Rongbuk Valley, without the slightest idea that the East Rongbuk Glacier, which does not flow properly down into the main glacier, offers the



most natural and easiest approach to the North Col and so to Everest (Plate 5).

This oversight cost three months of precious time: but three months of very positive performance, for to them we owe the exploration of Everest's eastern side, particularly of the Kharta Valley and the marvellous Kama Valley, whose western and southern bounds are framed by Everest, Lhotse (28,028 feet), Makalu (27,937 feet) and Chomo Lönzo (old figure 25,640: now 25,788 feet). The Kama or

Karma Chu (Chu=River) is the glacier-torrent of the Kangshung, probably more correctly Kangchung (Kang=snow, ice; chung=small), Glacier. Unfortunately they did not manage to explore the important crossing from the Kangchung to the East Rongbuk Glacier, by the Rapiu La (about 20,850 feet) which is really a notch at the foot of Everest's North-East Ridge. From the Kharta Valley they did, however, succeed in crossing the Kharta Glacier and reaching the high, but almost tourist-standard, Lhakpa La (22,200 feet) and from it at last they saw the East Rongbuk Glacier and its natural approach to the North Col; but by then it was already 20th September. Even if the possibility of aircraft reconnaissance was out of the question in the Spring of 1921, closer liaison between the climbers and the survey-party would have been most useful, for Wheeler had already mapped the lower part of the East Rongbuk Glacier.

On 23rd September Mallory, Bullock and Wheeler, with a small number of porters, climbed down from the Lhakpa-La Camp on to the upper part of the East Rongbuk Glacier about a quarter of a mile to the west of the saddle and established a new camp there under the shadow of the North Col. The next day, ploughing exhaustedly through heavy snow but encountering no other great difficulties, they reached the Chang La (22,990 feet) which, as the North Col, has since become famous throughout the world as the starting-point for every attempt on the Summit of Everest up till 1947. But in 1921 there was no question of such an assault. The base of operations lay much too far back for that, over in the Kharta Valley and on the other side of the climb to the Lhakpa La. Mallory, who was the life and soul of the undertaking, was the only one in a fit state to get even a few hundred feet higher. Bullock and Wheeler were by this time pretty worn out, the porters seriously so. To make matters worse a great gale raged across the shelterless Col. To quote from Bib. 97a:

And higher was a more fearful sight. The powdery fresh snow on the great face of Everest was being swept along in unbroken spindrift and the very ridge where our route lay was marked out to receive its unmitigated fury. We could see the blown snow deflected upwards for a moment where the wind met the ridge, only to rush violently down in a frightful blizzard on the leeward side. To see was, in fact, enough: the wind had settled the question; it would have been folly to go on.

It would, therefore, have been necessary to bring up everything for a well-equipped camp—in effect a forward Base Camp—on the North Col and wait for better weather. This was obviously beyond their powers of organisation.

The mission of the 1921 Reconnaissance had been fulfilled, every doubt removed. The Spur which rises from the North Col to the Shoulder of Everest's South-East Ridge was nothing but easy slabs and moderate snow-slopes. The expedition could withdraw with a clear conscience.

THE 1922 EXPEDITION

The second Everest expedition launched the first resolute attacks on the Summit itself. Preparations began the moment the first expedition got home and there was need for haste, for the new undertaking was to be very carefully organised on extensive lines. This time the leadership was assumed by Brigadier-General C. G. Bruce, the man who knew the Himalaya better than anyone else, who had served in Ghurka Regiments for thirty years, was familiar with the local languages and dialects and was outstanding in handling Ghurkas, Sherpas, Bhutias and Tibetans, who loved and respected him.

In order to take the fullest advantage of the fine weather period before the Monsoon, the departure from Darjeeling was this time as early as 26th March; reaching the large Tibetan town of Shekar Dzong on 24th April they turned south-west from there, across the Pang La ('Grass Pass') 17,200 feet high, to the famous Rongbuk Monastery, from which all Everest expeditions on the Tibetan side have started. Base Camp was established near the tongue of the Rongbuk Glacier at about 16,500 feet on 1st May. Thence they simply followed the East Rongbuk Glacier, successively placing Camps 1, 2 and 3 at 18,000, 19,450 and 21,000 feet respectively along it, the latter being a well-equipped Advance Base Camp at the foot of the North Col. Then they had to master the uncomfortable slopes to the Col by painfully hard work, finally siting Camp 4 at 22,967 feet on a narrow snow-shelf just below the crest of the saddle.

The plan for the assault on the Summit entailed only one intermediate camp, and that consisting only of two tents (Camp 5), at 25,920 feet: though eventually they had to content themselves with a point a thousand feet lower, and this proved to be the deciding factor. For, as is now well known, it is quite outside the realm of practical politics to attempt a difference in altitude from 25,000 to 29,160 feet—nearly 4,200 feet—in the space of a single day.

The first assault party consisted of George Leigh Mallory, E. F. Norton, T. Howard Somervell and H. T. Morshead: the last named was already not going well and soon had to return to Camp 5. On 21st May 1922 they climbed towards the Shoulder of the North-East Ridge (27,390 feet) and after six and a half hours of endeavour—at

about 2.30 p.m.—reached a more gently inclined resting-place, for which the aneroid gave a height of 26,800 feet (8168 metres). A later trigonometrical measurement raised this to 26,986 feet (8225 metres) (cf. Bib. 48). On this attempt, made without oxygen, it took six and a half hours to climb about 2,100 feet, almost exactly 330 feet an hour, and that on slabby-ground without any notable difficulties. In spite of the slow rate of progress, this performance roused widespread admiration, and rightly so: for it had outdistanced the previous 24,600 feet record, which the Duke of the Abruzzi's 1909 Expedition had established on Bride Peak (Chogolisa) in the Karakorum, by some 2,400 feet. And for the first time the 26,000 feet line had been crossed by a climbing party—moreover without the assistance of oxygen-apparatus!

There could be no question of attempting the Summit. It would have been risky even to press on to the prominent North-East Shoulder (27,390 feet): it was high time to turn back, if they were to reach Camp 4 on the North Col safely that day. Everything went smoothly down to Camp 5, the descent taking only an hour and a half; but just below it they narrowly escaped disaster. They had rejoined Morshead and, as a rope of four, had to traverse from the camp, which had been sited to leeward on the eastern side, in order to reach the crest of the Ridge, above a fairly steep snow-slope. New snow, which had fallen overnight, exhaustion and a degree of carelessness may all have contributed to what happened. At all events, the third man slipped, pulling off the last man, who was on the move; and the second man, trying to arrest their fall, was also torn from his steps. The three men went sliding at increasing speed down a slope, the foot of which lies 3,000 feet lower down in the basin of the East Rongbuk Glacier. Mallory, in the lead, had for some minutes had a feeling of impending disaster and was in a high state of preparedness. Hearing alarming noises behind him, he planted himself firmly, dug his axe deep into the snow, slung a coil of rope around it and braced himself for the imminent strain. There was no time for more in those horrid seconds before the decisive jerk. The rope went taut and strained with a tug of many hundredweights on the jammed axe. It gave a little, like a ship's tow-rope on the bollard, but the axe and the rope both held; and so did Mallory. Anyone who has read the original account (Bib. 20), knows what a narrow escape this was—and that on the so-called easy route to Everest. The rest of the descent, too, was a bitter struggle. Only by summoning the last reserves of will and strength did four utterly spent men succeed in reaching Camp 4 at 11.30 that night and continuing down to Camp 3 next day.

On the way down from the Col they met Finch's party who were going up to it on a training climb to test the oxygen apparatus.

George Ingle Finch is personally well known to many of the older Swiss mountaineers from his years as a student in Switzerland and also as a senior member of the Academic A.C. of Zürich. He was one of the best and most experienced of the English guideless climbers and, as a University Lecturer in Chemistry, his views must command respect. It is very interesting that this outstanding scientist, climber and member of an Everest expedition should have come out with emphasis, even with enthusiasm, on the side of oxygen (Bib. 65 and 132). It is remarkable for how long a time armchair theorists of the physiology of altitude, working on tests in pressure-chambers (Bib. 93, 94) and aircraft, refused to take any notice of our proved Himalayan experience (see also Bib. 41 and 48) and continued to resist the use of oxygen, even on the highest 'Eight Thousanders'.² This is a matter of the greatest importance and we shall return to the oxygen question later (pp. 66-7).

The 1922 Expedition suffered under a severe handicap—all the climbers available, except Finch, had been thrown into the first attack and were by now either 'finished' or at least out of action for a time. Finch, whose health had been somewhat below par at the outset, now had not a single companion of a standard even approaching his own. He had to fall back on two men who would otherwise have been quite a suitable pair, but who had not the slightest knowledge of mountaineering proper. They were Captain Geoffrey Bruce, a nephew of General Bruce's, who had till then been acting as transport-officer and had now been promoted to the second line of attack, and a Ghurka N.C.O., Tejbir Bura. It was even necessary for both of them to be instructed in the very elements of alpine technique and introduced to the use of the ice-axe and crampons! (Bib. 5, p. 118). It is almost in the sphere of tragi-comedy that two complete beginners had to be enlisted in the world's highest climbing venture—the ambition and dream of so many good climbers.

A further misfortune was that the ten oxygen outfits which they had brought along had all suffered heavy damage during the long transport through Tibet and could not be made serviceable without further attention. With the greatest of difficulty they managed to effect emergency repairs to four of the outfits. On 24th May things had reached a stage when Finch's party was able to move up to Camp 4 with all available high-camp porters; Captain J. B. Noel, the expedition's tireless film-man, accompanied them as far as the North Col.

On the next day Finch wanted to set up a high camp at about 26,575 feet, for which he had already seen a place that looked suitable. Unfortunately at this critical moment the weather broke, so that at only 25,500 feet they had hastily to put up a tent on a tiny ledge on the

edge of the Ridge, without the slightest shelter from the wind, above a wall that fell sheer to the East Rongbuk Glacier, 4,000 feet below. The 'Tigers' hurried down to the North Col; only Finch, Geoffrey Bruce and Tejbir remained up there. There followed a wicked night of storm and an almost worse day, with gusts working up to hurricane strength and continually threatening to whirl the tent and its inmates away, on to the glacier down below. The second night, too, was bad, if a little quieter: to cap everything, their provisions ran out. Finch is convinced that only the oxygen saved their lives (Bib. 65, pp. 147-8). It is quite remarkable that, in spite of everything, he started off for the Summit on 27th May.

The result is well known. Tejbir, who was carrying nearly 50 lb on his back, collapsed at about 26,000 feet and had to go down to Camp 5. But Finch and Bruce continued to climb up the crest of the Ridge towards the North-East Shoulder till a little above 27,300 feet and were then forced by the increasing strength of the wind to diverge westwards on to the face and—in spite of the dreadful weather conditions, with fresh-fallen snow on the slabs—reached a height of 26,318 feet. A breakdown in Bruce's oxygen equipment, which was only repaired with terrible difficulty and at the last desperate moment, and the obviously dangerous state of exhaustion of this courageous but inexperienced young climber, which was making itself progressively felt, compelled Finch to decide on a retreat. They descended safely past Camp 5 to the North Col and thence the same evening down to Camp 3, a descent of nearly 7,000 feet on top of all their previous exertions. It was a tremendous achievement, but now Finch and Bruce, too, were, for the purposes of this expedition, completely spent.

A third attack on the Summit was planned at the beginning of June, but the first heavy snow-falls of the Monsoon had arrived, though there were still some brilliantly fine days between them. Finch, who had not had sufficient time to recuperate, had to withdraw, reluctantly, from Camp 1 to the Base Camp. Mallory and Somervell were to be the assault party; Wakefield, the expedition's doctor who was also a climber, and C. G. Crawford were to occupy the North Col as support and reserve. The intention was to use oxygen above Camp 5, Mallory having been converted by Finch's satisfactory experiences with it.

It was not to be. While they were repairing the route to the North Col on 7th June, a sizeable snow-slab avalanche carried the roped climbers away and hurled them down an ice cliff below. Seven of the gallant Sherpas lost their lives in that white ruin. It was the tragic knell of the second Everest expedition.

The third expedition set out two years later after thorough preparations. General Bruce succumbed to a heavy attack of malaria on the march through Tibet and had to be carried back to Sikkim, his deputy, Colonel E. F. Norton, taking charge of the expedition. They reached Rongbuk Monastery by the long-familiar route through Shekar Dzong, and Base Camp was established as early as 29th April. The weather had so far been most favourable and hopes ran high. The first three camps were pushed ahead according to a carefully-laid plan and the first attack on the Summit was to have taken place on 17th May.

Then, during the night of 4th-5th May it began to snow and gradually worked up to a heavy blizzard. On 7th May the thermometer in Camp 3 (21,000 feet) fell to 30° below zero and the following days proved disastrous. On the 11th they were forced to retreat to Base Camp, an operation during which two porters died and many others became casualties from frost-bite, broken limbs, pneumonia and other causes. So the first attempt was thrown back without even reaching the North Col, and the strength of the porters was decimated. It was a sad blow to the whole organisation, so carefully planned and launched at the cost of so much effort.

Everyone knows what that delightful military phrase—'The troops can still be said to be in good heart'—means. Now, too, the morale of the porters left much to be desired. In order to hearten them, it was arranged that the holy Lama of the Rongbuk Monastery, who is revered throughout Tibet, should give them his ceremonial blessing. This certainly raised the level of their spirits: the weather, too, seemed to be calmer; and Norton prepared a second assault.

Camps 1, 2 and 3 were reoccupied by 19th May and the battle for the North Col was on. The approach to this key-point had deteriorated markedly since 1921; for a huge transverse crevasse, half a mile long, had opened up, and barred the way. It was necessary to climb down into this chasm and climb up again through a kind of ice-chimney to the upper rim of the Icefall—a pretty ticklish passage, which was safeguarded at first with fixed ropes and later even provided with a rope-ladder. On 20th May Mallory and Norton managed to reach the old site of Camp 4 for the first time, on the narrow ice-ledge close under the Col. On the following day three Sahibs and twelve porters went up to establish and furnish it with the bare essentials. They succeeded, but on 22nd May it once more began to snow heavily. Taking this to be the premature onset of the Monsoon, they decided to withdraw again. Owing to a misunderstanding, four porters were left behind in Camp 4 and had to be fetched down in a very risky rescue-

operation, under serious threat of an avalanche disaster. Camps 3 and 2 were also evacuated and once again a handful of casualties—mostly suffering from frost-bite—struggled down towards Base Camp in the valley.

Eventually it turned out that they had shot their bolt too soon and struggled to the point of exhaustion with weather vagaries that had in fact nothing to do with the Monsoon proper. When, during the last days of May, gloriously fine weather at last set in, the fighting strength of the expedition was already seriously diminished.

Camps 3 and 4 were reoccupied, with N. E. Odell and A. Irvine at first only in support, acting as reserves in the North Col Camp. The first assault consisted of Mallory and Geoffrey Bruce, who were to establish Camp 5 at 25,300 feet on 1st June with eight porters. But only four of the porters got there; the others grounded their loads at 24,900 feet and sat down. So Bruce and the now famous Sirdar Lobsang had to do two 'shuttle-lifts' to drag the abandoned loads up to the camp-site; Bruce, who was unaccustomed to carrying heavy weights at such an altitude, straining his heart in the process.

The plan had been to pitch a sixth camp about 1,600 feet higher up next day, but the 'Tigers'—with only one exception—declared themselves unfit for such a task, and Bruce himself had not had a chance to recover. So the whole party climbed down to the North Col on 2nd June, meeting Norton and Somervell on their way up to Camp 5. Early in the afternoon this second assault party, with four Sherpas, took over the attack in Camp 5.

June 3rd was the day for Camp 6. Norton, who speaks Nepali fluently and understands the mentality of the 'Tigers' thoroughly, established that three of the Sherpas were ready to do one more carry upwards, but only with about 20 lb load. The weather was fine and the wind less than on the previous days. Towards noon they passed the highest point reached by Norton, Mallory and Somervell in 1922, which had been estimated at 27,000 feet. By 1.30 p.m. one of the plucky Sherpas had reached his limit. A small rock-niche open to the north offered a niggardly camp-site. The porters cleared the corner out and built the much-needed shelter wall. There is not a single flat place on the whole North Face of Everest which offers room for a six-foot-long tent without such building operations. The Sherpas then descended to the North Col, leaving Norton and Somervell up there alone.

The estimated height of the 1924 Camp 6 has been given as 26,715 feet. There is plainly a slight discrepancy here: either Camp 6 was more than 27,000 feet, or—more probably—the highest point reached in 1922 below the North-East Shoulder was only about three hundred

feet less (26,700 feet). In any case, Camp 6 was by far the highest camp in which anyone had till then passed the night, or most of the experts had believed it possible to do so. The fact is made more interesting by Norton's entry in his diary: 'The best night since Camp 1.'

On 4th June Norton and Somervell started at about twenty minutes to seven. It was sunny and almost windless—an ideal day, the sort that is hardly ever met with high up on Everest. An hour above Camp they got on to the 'Yellow Slabs', yellowish limestone and sandy strata which cut straight across the North Face of the mountain—forming long bands and shelves, which make the going much easier. All the same, progress was slow, owing to oxygen insufficiency.

Norton (Bib. 153a, p. 111) writes:

Our pace was wretched. My ambition was to do twenty consecutive paces uphill without a pause to rest and pant, elbow on bent knee; yet I never remember achieving it—thirteen was the nearest mark. The process of breathing in the intensely cold dry air, which caught the back of the larynx, had a disastrous effect on poor Somervell's already very bad sore throat and he had constantly to stop and cough. Every five or ten minutes we had to sit down for a minute or two, and we must have looked a sorry couple. . . .

The view from this great height was disappointing. At 25,000 feet it was imposing to a degree . . . but we were now high above even the highest summit in sight and everything below us was so flattened out that much of the beauty of outline was lost.

At the upper rim of the Yellow Band they approached the Great Couloir which separates the North-East Ridge from the actual Summit Pyramid: it was about noon. Somervell, whose throat was in a very bad state, had to give in and wait for Norton here. Only personal experience of a fight against this hideous, spastic 'altitude cough' and the attacks of suffocation it brings on can give any real understanding of Somervell's condition. Norton went on alone for an hour, during which he only moved forward 300 yards and 100 feet upwards—a striking indication of the incredibly slow pace at which even a practised and acclimatised climber can proceed at such an altitude *without oxygen*.

Moreover, here in the neighbourhood of the Great Couloir, the ground becomes distinctly more difficult. For on top of the yellow limestone there are two grey flakes, which form a strikingly steep 'tread' and cut across the whole North Face, starting from the first two indentations in the North-East Ridge, known as the First and

Second 'Steps'. In order to reach the Great Couloir Norton had to circumvent two buttresses. At this point the face affords only slight footholds, covered in powder-snow, and consists of slabs overlying each other like tiles on a roof. He had to go back twice and find another level along which to move forward again. The Great Couloir itself was deep with powder-snow, in which he sank up to his knees or even at times to his thighs: for a solitary climber the crossing of the Couloir was attended by considerable risks. Beyond the Couloir things got even worse. As he stepped from tile to tile he felt uncomfortably near the limit of adhesion between the sole of a climbing boot and smooth limestone slabs and knew that he could certainly not hold a slip. This nervous tension soon produced rapidly increasing exhaustion; in addition he began to suffer from a serious disturbance of his visual powers through oxygen-insufficiency. About one o'clock the solitary climber realised that the Summit was still at least 1,000 feet overhead and that any attempt to go farther must end in his being benighted; so he decided to go back. This point to the west of the Great Couloir marked the highest point any climber had reached till that time: and it was reached without the assistance of oxygen. A theodolite reading made afterwards gave a height of 28,124 feet (8572 metres). It was truly a tremendous achievement.

The descent was accomplished without more than a minor mishap. Somervell's axe escaped his numbed fingers, went cartwheeling towards the abyss and was retrieved with difficulty by the use of a tent-pole from Camp 6. By the evening they had reached the North Col, where Odell and Irvine were keeping watch for them in Camp 4.

Mallory was there too, for he had made a quick recovery and had by now decided to profit by the fine weather by making a further attempt on the Summit—this time with oxygen. He had picked for his companion, not Odell, a first-class climber at the top of his form, but young Andrew Irvine who, although very strong and an excellent technician, was a novice at mountaineering. Norton—quite rightly—had serious misgivings; unfortunately he did not choose to exercise his authority as leader of the expedition, not wishing to upset Mallory's arrangements at the last moment.

On 6th June Mallory and Irvine led eight Sherpas up to Camp 5, sending four of the porters down again. They moved into Camp 6 next day and sent the remaining four 'Tigers' back from there. The same day (7th June) Odell wandered effortlessly up to Camp 5, where he spent the night.

On 8th June Mallory and Irvine, wearing oxygen equipment, started off up by the Ridge route on the assault from which they were not destined to return. On that very day Odell, who could stand

altitude far better than anyone else, promenaded almost leisurely, all by himself, to Camp 6. He did not use oxygen, yet climbed at a rapid pace and was able to undertake geological research on the way. There were isolated mist-patches moving across the face, but it remained fairly windless, not particularly cold, and overhead the sky was clear. At about ten minutes to one, through a gap in the clouds, he thought he saw two small dots moving upwards on a patch of snow just below a step in the Ridge. Odell could not be certain whether this was the First or Second Step, for the curtains closed again almost immediately. After this somewhat unclear observation of Odell's, nothing more is known of Mallory and Irvine.

Since then almost too much has been surmised and written about this tragic mystery, ranging from the critical to the romantic (Bib. 126), from the expert to the uninformed, from the sensible to the less-than-sensible. It has often been claimed that they quite definitely reached the Summit, were then overtaken by night on the way down and frozen to death in a bivouac in the open. I think this is highly improbable, for the following main reasons:

1 Mallory's chosen route over the crest of the North-East Ridge is hardly a practical proposition. For the famous 'Second Step' is a sheer bastion, fully 150 feet high, at an altitude of 28,140 feet which, as we know today, would be a serious obstacle even at far lower levels and would, in any circumstances, call for an unusually severe climbing effort (even with artificial aids). This 'Second Step' bars the whole width of the North-East Ridge and cannot be turned on either side.

2 It is common mountaineering usage to build a cairn, if humanly possible, on any peak climbed for the first time. The Summit of Everest is stony, and in Summer there are loose blocks and boulders on its crest. Who can seriously believe that Mallory, an experienced climber, could have failed to have left a cairn or some other sign of his success—the Union Jack, for instance—on the world's highest Summit? Yet the Summit of Everest has been meticulously searched over and over again through telescopes and even flown over several times since then and photographed, on occasion from very close range (Plate 4) without revealing any signs of human endeavour. Nor were any signs found when the Summit was finally reached, in 1953.

3 Mallory and Irvine had lanterns and magnesium flares and in the event of an emergency bivouac they would certainly have flashed light-signals, as arranged. Watch was kept continuously, but not a single light-signal was observed.

4 No climber would willingly abandon his ice-axe on Everest, either on the ascent or the descent. For, most of the way, there is no rock-climbing to be done; it is rather a question of steep going—snow, rubble, debris-covered ledges and slabs—in other words, ground on which an axe is essential. The ice-axe found in 1933 at about 27,225 feet, and sixty feet below the crest of the Ridge is strong evidence for an accident.

Mallory's 'tragic triumph' is an attractive legend—but only a legend!

My own suggestion is that Mallory and his young companion pressed on along the ridge-route to the 'Second Step', which they found to be unclimbable. It was too late in the day to climb down to the ledges of the 'Norton Traverse' on the North North-West Face and then to continue to the attack on the Summit; nor was the weather by any means perfect. So, I think, they decided to return to Camp 6, and the accident happened on the way down. It may be that the oxygen equipment failed, or the cause may have been the fairly heavily driven snow reported by Odell. Perhaps Irvine slipped on the tile-like slabs; he was, after all, a novice and not an experienced climber like Mallory—or Odell.

I believe that when it happened Mallory promptly dropped his axe in order to have both hands free for the rope; but on those sloping slabs, offering little possibility of a belay, he was torn from his steps and fell to his death. The Valais ice-axe (by Willisch of Taesch) which Wyn Harris and Wager found 200 yards to the east of the 'First Step' on 30th May 1933, surely marks the spot where the disaster occurred. It is beyond probability that the axe was carried to that place from elsewhere on the mountain and neatly deposited there by the wind.

Of course, my theory is only an interpretation of the evidence, though a fairly documented one. There can never be any certainty: for Chomo Lungma, the Goddess-Mother, guards her secret.

THE 1933 EXPEDITION

Nine years—a long trial of patience for British climbers—were to pass before all the diplomatic difficulties could be again cleared up and the Dalai Lama gave his consent for a new expedition to Everest. But in 1933 there were two Everest undertakings.

(1) The Fourth Everest Expedition was led by Hugh Ruttledge. Base Camp and Camps 1 to 5 were established in the usual places, but this time they managed to pitch Camp 6 even higher, at 27,400 feet. Two attempts were made from this camp. On 30th May Wyn Harris and L. R. Wager first made a reconnaissance of the route over

the North-East Ridge, in the course of which they found, as already related, an ice-axe belonging to one or other of the party which came to grief in 1924—Mallory and Irvine. Eventually they were forced to the same conclusion as Norton, that the Ridge offered no practicable route, mainly on account of the 'Second Step'. But this reconnaissance had cost them three precious hours of a fine and windless day: none the less they tried to press home another attack on the Summit along the Bands of the North-West Face. They crossed the Great Couloir somewhat higher than Norton, but the traverse there was more difficult and clearly less favourable in its outcome. About fifty yards beyond the Main Couloir they reached a steep groove full of powder-snow, obviously too dangerous to enter. The snow in it was dusty stuff, in no way cohesive, and lay on smooth slabs: there was no such thing as a natural belay in sight. Moreover, it was already 12.30 p.m. and both men were very exhausted. They were at practically the same spot that Norton had reached in 1924 at about 28,125 feet, and immediately began their return by the 'Norton Traverse'. They reached Camp 6 (27,400 feet) at about 4 o'clock and there they found F. S. Smythe and E. E. Shipton who had come up as a second assault party: so they climbed down the same evening to Camp 5 (25,515 feet) (Bib. 168) (Plate 2).

May 31st was a day of bad weather, with fairly heavy snow. But the following day Smythe and Shipton were able to move off to the attack. Unfortunately the latter had to give up owing to serious stomach-trouble and turn back to Camp 6. Smythe went on alone and by about 10 o'clock (very early) reached the same place roughly as Wyn Harris and Wager and, nine years before, Norton. Conditions were worse than on the previous day because of the fresh snow which had fallen. On this occasion there was plenty of time and Smythe was going well: but he was alone and there was powdery snow on those roof-tiles. The dangerous exposure at such an altitude, lack of oxygen and probably poverty of blood supplies to the brain all seem to have been factors in affecting his nervous system, up there alone, and even to have induced hallucinations. In Bib. 168 and 188 he relates two unusual experiences.

He reports that all the time he was climbing alone he felt quite clearly that he was linked to a second on the rope, and was certain that if he slipped this 'other one' would hold his fall. After reaching his highest point he wanted to eat a piece of cake and carefully divided it into two pieces; when he turned and found no one there to whom to offer a share it came upon him as something of a shock. Not till he was nearly back in Camp 6 did this close link with 'another' give way and suddenly he knew he was alone.

The second experience was more curious still. Near the North-East Ridge he saw two strange, ill-definable apparitions, something like kites. One seemed to have flat, faintly defined curves, the other carried a projection something like a beak. They hung motionless in mid-air but seemed to pulsate in slow rhythms, much slower than Smythe's heart-beat, which seems to him to refute the idea of an optical illusion. Both objects were dark and clean-cut against the background of sky or cloud:

My brain appeared to be working normally, and I deliberately put myself through a series of tests. First I glanced away. The objects did not follow my vision, but they were still there when I looked back again. Then I looked away again, and this time identified by name a number of peaks, valleys and glaciers, by way of a mental test. But when I looked back again, the objects still confronted me. At this I gave them up as a bad job, but just as I was starting to move again a mist suddenly drifted across. Gradually they disappeared behind it, and when a minute or two later it had drifted clear, exposing the whole of the North Ridge once more, they had vanished as mysteriously as they came. It may be of interest to state that their position was roughly midway between the position of the 1924 Camp 4 and the North-East Shoulder. Thus, they were at a height of about 27,200 feet, and as I was at about 27,600 feet when I saw them, a line connecting them with my position would not bring them against a background of sky, but against lower and distant mountains. It is conceivable, therefore, that it was some strange effect of mist and mountain magnified by the imagination. On the other hand, it may have been a mirage, and when I put forward this hypothesis I have in mind an extraordinary mirage of ships observed by Colonel Philip Neame and myself from the Finsteraarhorn.

I can only reply: what a pity that Frank Smythe, that great photographer and swift, instinctive camera-reporter did not take a portrait of these Everest-Daemons—for he had his camera with him!

Smythe was back in Camp 6 by 1.30 p.m. and found Shipton waiting there for him. So there was plenty of time to go down at least as far as Camp 5: Shipton starting down at 2.30 p.m. did so. But Smythe elected to spend another night in Camp 6, not so much because he was tired as from a wish to savour the experience of occupying the highest camp ever overnight all by himself. (Bib. 188.) On 2nd June he then descended through a heavy storm to the camp on the North Col. Shortly afterwards the Monsoon set in and the expedition had to be abandoned.

(2) The Houston Mount Everest Expedition (Flight). The real achievement of this simultaneous 1933 venture was in flying twice, on 3rd and 9th April, over the Summit of Everest—the first time this had been done, of course—and bringing back a rich photographic record both ‘still’ and in motion. This was obviously, at that date, a great triumph for the British aircraft industry and a notable achievement in organisation as well as in actual flying prowess on the part of all those engaged.

To what a severe test the aircraft—by modern standards slow and weak—were put is best illustrated by an extract or two from L. V. Stewart Blacker’s report (Bib. 66):

Suddenly I became aware of a sensation of dropping through space. The floor of the machine was falling away below us. I grasped a fuselage strut and peered at the altimeter needle. It crept, almost swung, visibly as I looked at it in astonishment, down through a couple of thousand feet. The aeroplane swooped downwards over a mighty peak of jagged triangular buttresses, which was the South Peak (Lhotse). . . .

We had suddenly lost two thousand feet in this great draught of the winds, and it seemed as though we should never clear the South Peak on the way to Everest, now towering in front of us. However, the alarm was short-lived, for our splendid engine took us up through the great overfall. Again we climbed; slowly, yet too quickly for one who wants to make use of every moment, our aeroplane came to the curved chisel-like Summit of Everest, crossing it, so it seemed to me, just a hair’s breadth over its menacing summit. The crest came up to meet me and I almost wondered whether the tail skid would strike the summit. . . .

Thus we swooped over the summit and a period of savage toil began. The pilot swung the machine skilfully again towards the westward into the huge wind force sweeping downwards over the crest; so great was its strength that as the machine battled with it and struggled to climb upwards against the downfall, we seemed scarcely to make headway in spite of our 120 mile an hour air-speed. I crammed plate-holder after plate-holder into the camera, releasing the shutter as fast as I could, to line it on one wonderful scene after another. We were now for a few moments in the very plume itself, and as we swung round fragments of ice rattled violently into the cockpit. (Plates 4, 6 and 7.)

But anyone who labels this as a ‘Conquest of Everest’ or a ‘Himalayan Victory’, as the Press did at the time, can have not the slightest

conception of the weighty human, mountaineering and scientific implications of this whole problem.

A few months later, on 15th January 1934, the terrific Bihar-Nepal earthquake caused enormous material damage and loss of human lives. Thousands of houses including the palace of the Maharajah of Nepal collapsed; and only the temples escaped almost unscathed. The informed occidental view is that this was a great tectonic upheaval, closely linked with the continuing 'lift' of the Himalaya; and temples are notoriously more strongly built than ordinary habitations. But we need not be surprised that the majority of Nepalese and Tibetans interpreted this catastrophe as the vengeance of the Gods for the sacrilegious flight over Everest.

THE 1934 EXPEDITION

Maurice Wilson's romantic attempt to climb Everest solo stands out in stark contrast with the Everest Flight, heavily backed as it was with every financial and technical facility.

This ex-Captain in the British Army had arrived in India in his light aircraft with the odd intention of landing it, if possible, high up on Everest and then doing the last part on foot. Naturally all support was withheld and he was expressly warned not to cross the Tibetan frontier. Undismayed, he sold his machine, spent the Winter of 1933-4 in Darjeeling and lived very frugally in native fashion. He set out at the end of March 1934, in Tibetan dress, with three Sherpas and a single pony, carrying all his equipment, and found his way by forced marches to the Rongbuk Monastery, where he arrived, in amazingly short time, on 18th April. He then proceeded to Camp 3 (21,000 feet). The weather was quite good, but the porters, who had never taken the intentions of their Sahib seriously, now refused—understandably—to climb to the North Col. So he attempted it several times alone without success, as his diary records. He died of cold and exhaustion, and his body was found in 1935 not far from Camp 3.

The Press has until recently kept up a whispering campaign that Wilson might well have reached the Summit. That is nothing but idle gossip: in truth he never even got up to 23,000 feet. Perhaps he was a fanatical record-bagger; he was certainly a dreamer and an optimist, far removed from the hard world of reality. Whatever his motive, he gave his life in a plucky and determined pursuit of his Ideal.

THE 1935 EXPEDITION

This year the Dalai Lama's permit arrived so late that there was no time to organise a full-scale expedition; but in order to make every

possible use of the authorisation—available for only a year—now that it was at hand, a small mobile reconnaissance party was improvised, under Eric Shipton.

Its six members included H. W. Tilman and the promising young topographer, Michael Spender, to whom the photogrammetric survey was entrusted.

It was 24th May before they left Darjeeling with fifteen Sherpas. Instead of proceeding straight to Everest, Shipton wasted several weeks of the best weather on Tashirak, a district half way between Everest and Kangchenjunga, about forty miles east of Everest and not particularly interesting from the mountaineering angle, since it contains only minor peaks up to about 20,000 feet. They consequently did not reach Rongbuk till 4th July and there saw, to their amazement, that the whole North Face of Everest was clear of snow: the days were calm and warm, the nights clear and cold—in fact, conditions were

Plate 1: The whole length of Everest's North-East Ridge; Changtse (24,730 feet) in front to the right, with its long crescent-shaped North-East Comb, and the East Rongbuk Glacier in the middle depths. *Photo: Everest Expedition 1924.*

Plate 2: Mount Everest, with the routes of the 1933 Expedition's routes marked, seen from the Base Camp: in front and below is Changtse.

Telephoto: J. B. L. Noel 1924.

Plate 3: Changtse, Everest above its western buttress and the base of Nuptse from west-south-west. The bottom of the great Icefall which falls from the Western Cwm to feed the Khumbu Glacier is visible in the centre.

Photo: H. W. Tilman 1950.

Plate 4: It is owing to the banking of the aircraft, just before it dived close over Everest's Summit, that Makalu appears in this aerial photograph to be the higher.

Photo: Houston Everest Flight 1933.

Plate 5: Everest's North Face is covered in Monsoon snow; in the foreground the pinnacles of the Main Rongbuk Glacier. *Photo: Everest Expedition 1921.*

Plate 6: The two aircraft are rapidly approaching the Lhotse Comb, to the south-west of which rises Everest's rocky Summit-pyramid.

Plate 7: After flying over the Summit: to the left, the snowy South-South-East Ridge is lightly veiled in the 'Plume' of snow- and ice-particles torn away by the north-west gale. The sharp North-East Ridge with its 'steps' runs down towards the beholder, with the dark, slabby North-West Face to its right.

Photo: Houston Everest Flight 1933.

Plate 8: The 'roof-tile' structure of the 'Norton Traverse's' calcareous, sandy slabs, lightly powdered with snow. The highest point reached on the northern side (28,160 feet) lies under the steep prolongation of the 'Second Step'.

Photo: F. S. Smythe 1933.

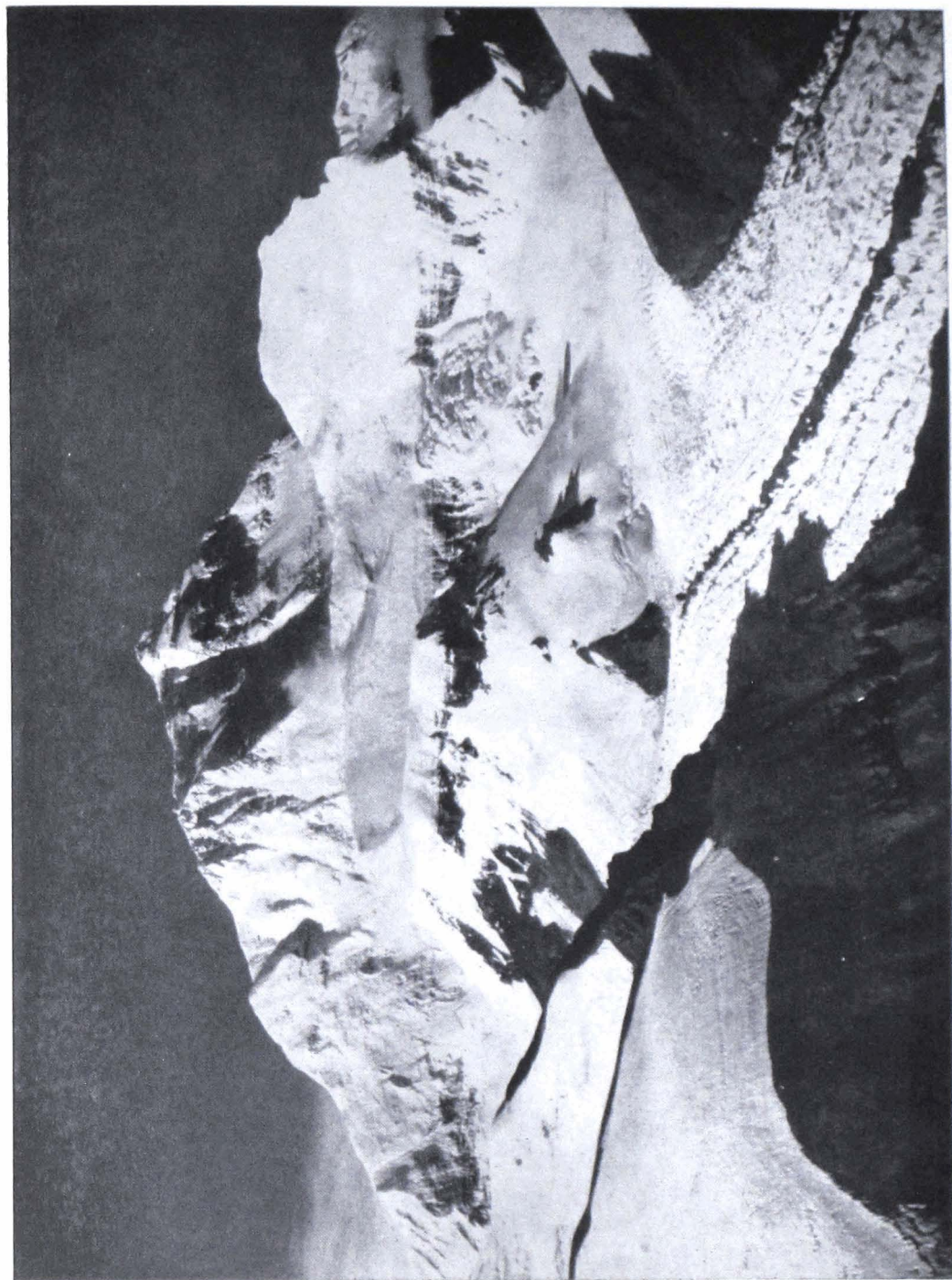


Plate 1 Mount Everest, with Changtse in the foreground, from N.

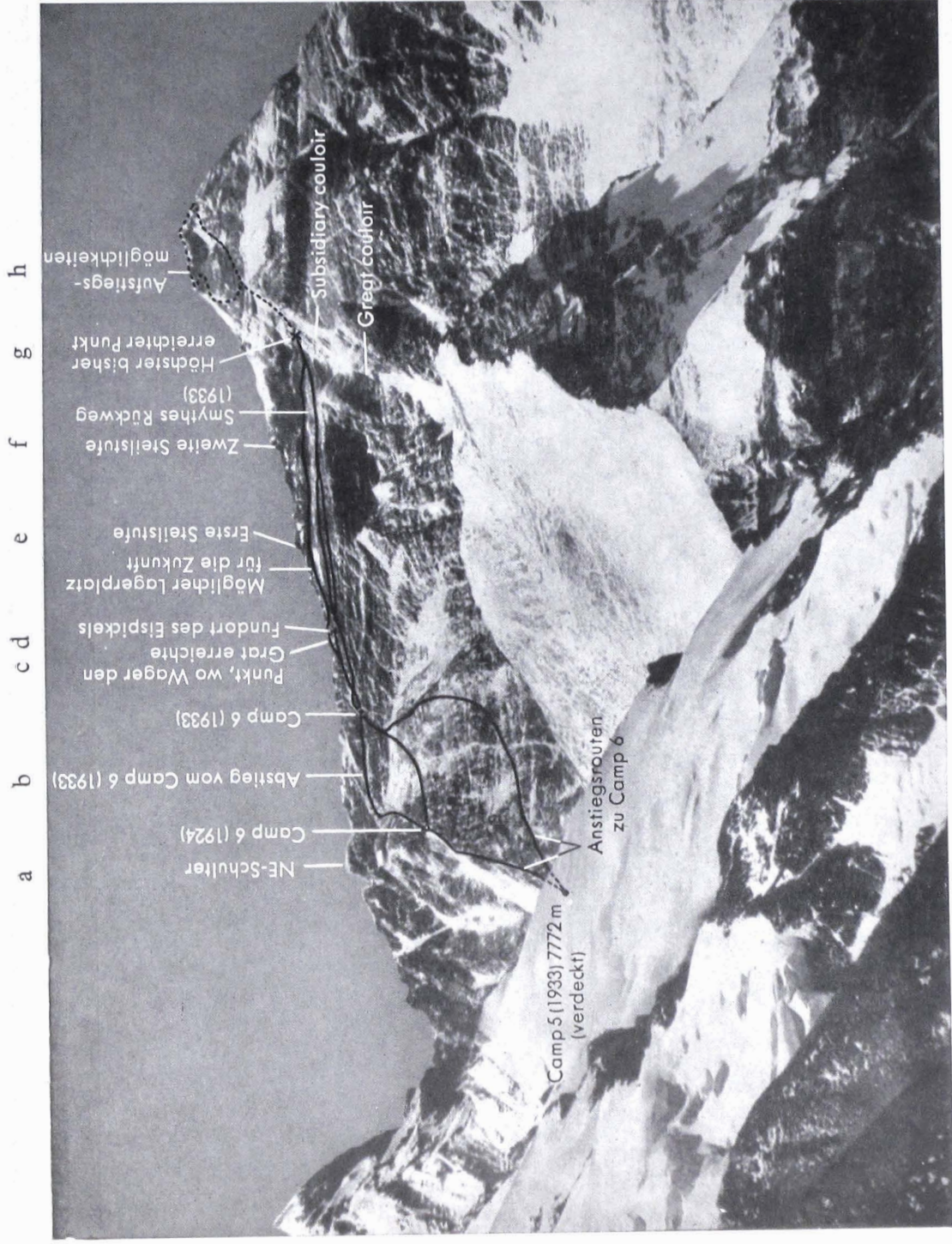


Plate 2 Mount Everest, with Changtse below, from NNW.

a NE. Shoulder b 1933 Descent c Wager reached the Ridge here d Ice Axe found here
 e 1st Step f 2nd Step g Highest point reached h Possible Routes



Plate 3 Changtse and Mount Everest, with the Khumbu Glacier in the foreground, from WSW.

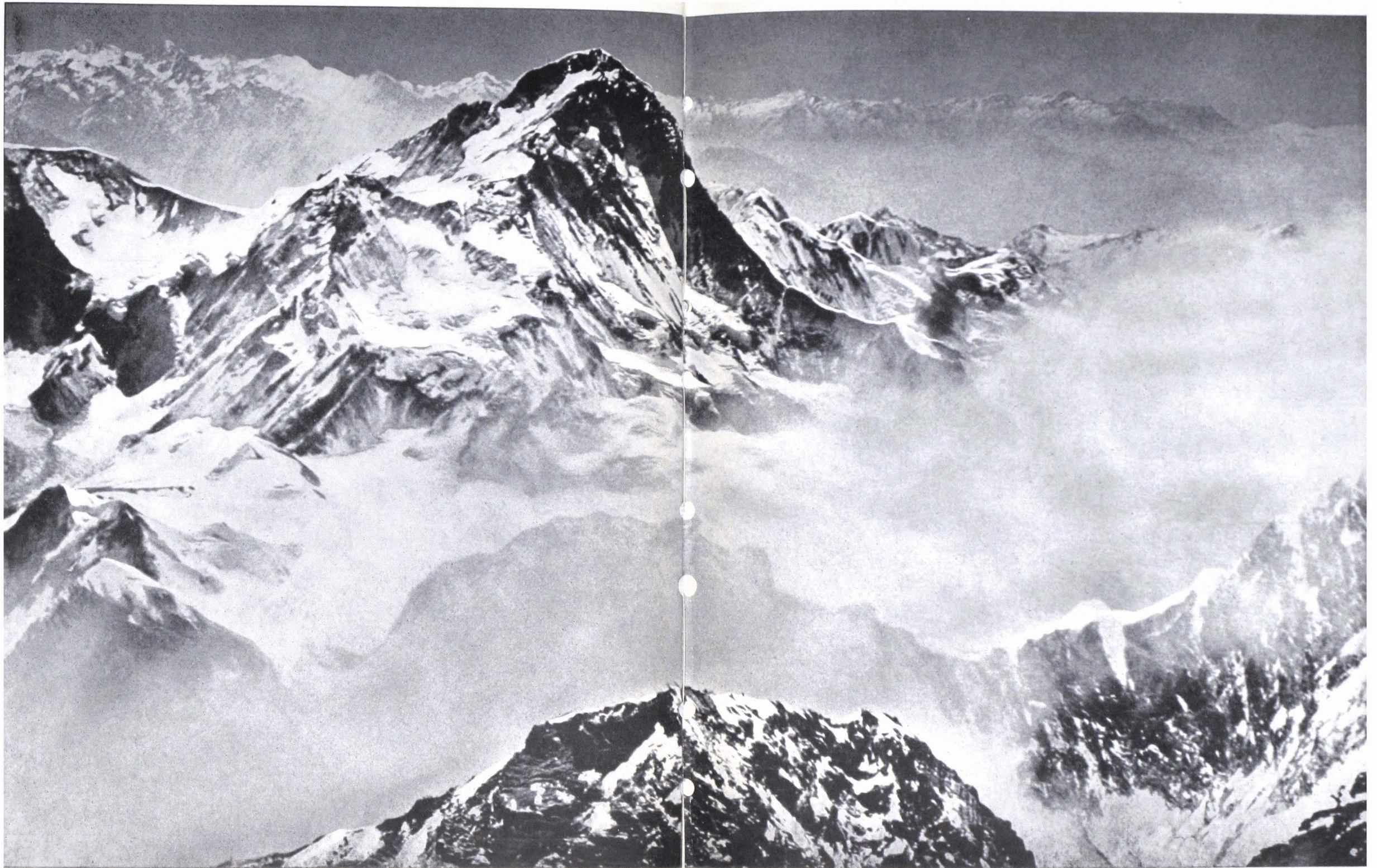


Plate 4 The Summit of Everest in the foreground of the picture. Aerial photograph from NW.

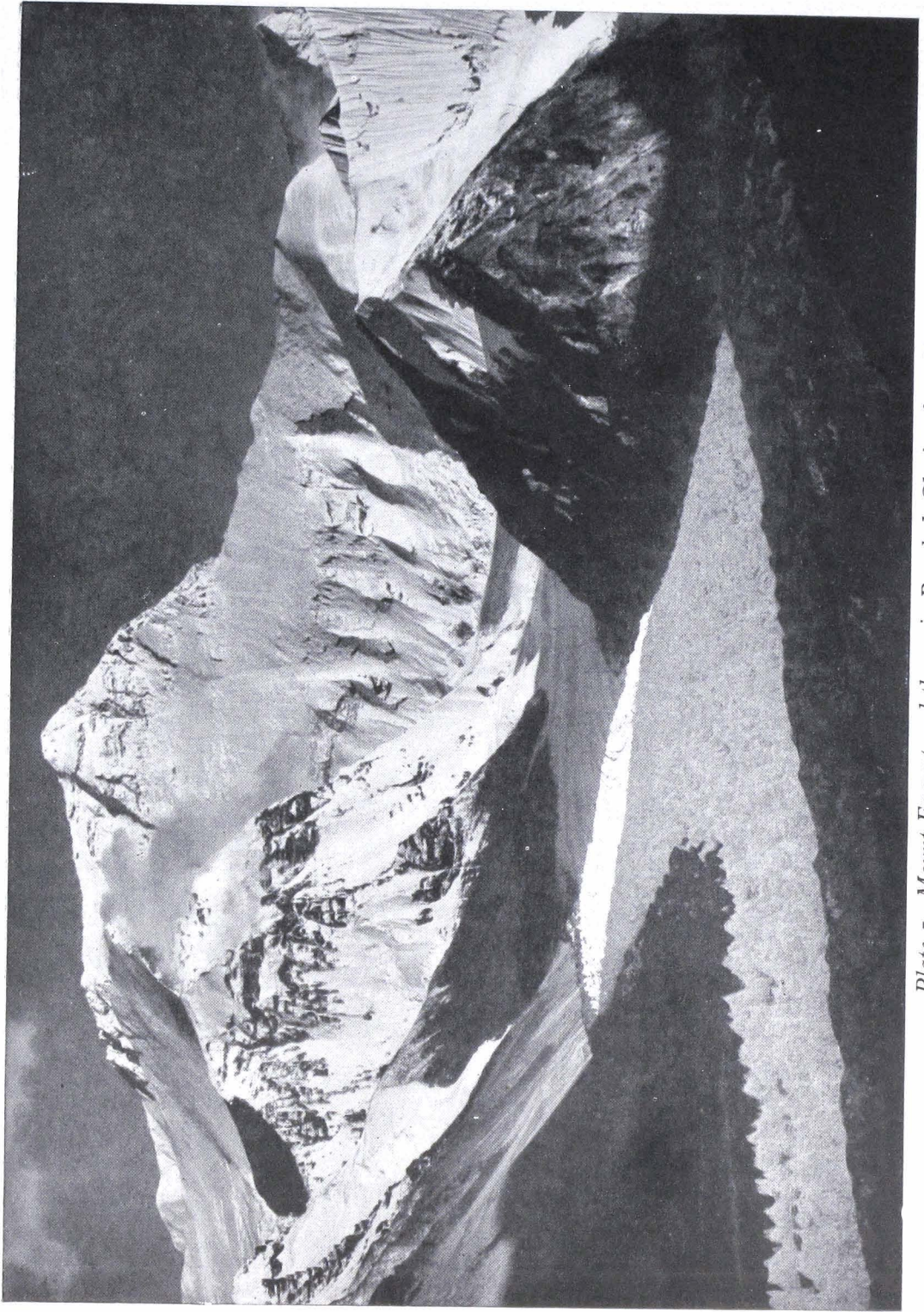


Plate 5 Mount Everest and the main Rongbuk Glacier, from NW.

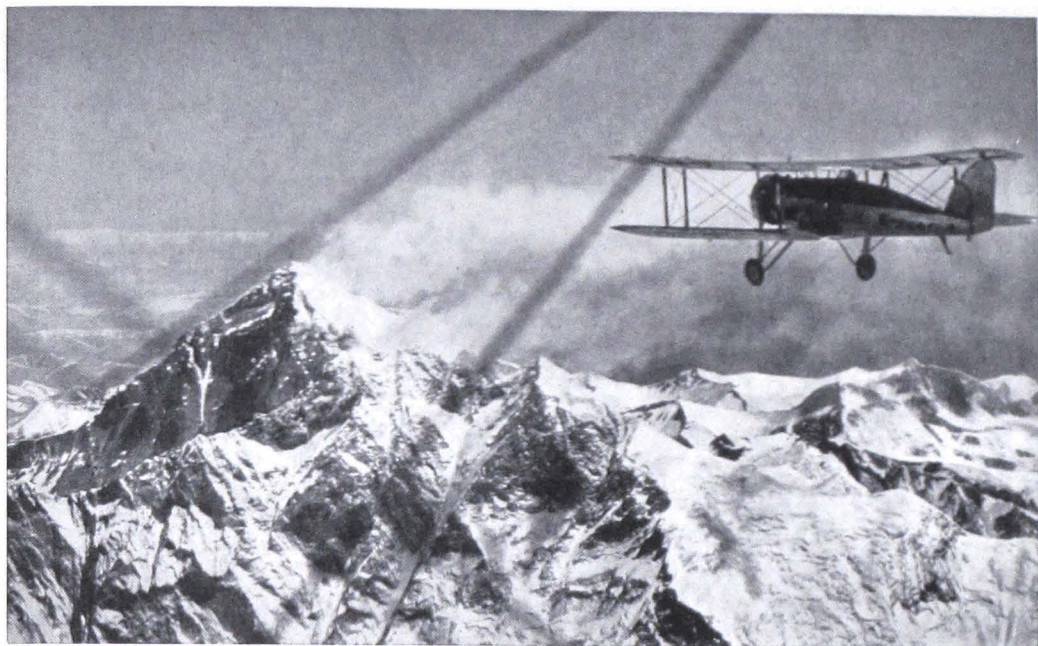


Plate 6 Mount Everest, with the Lhotse Comb in front, from S.

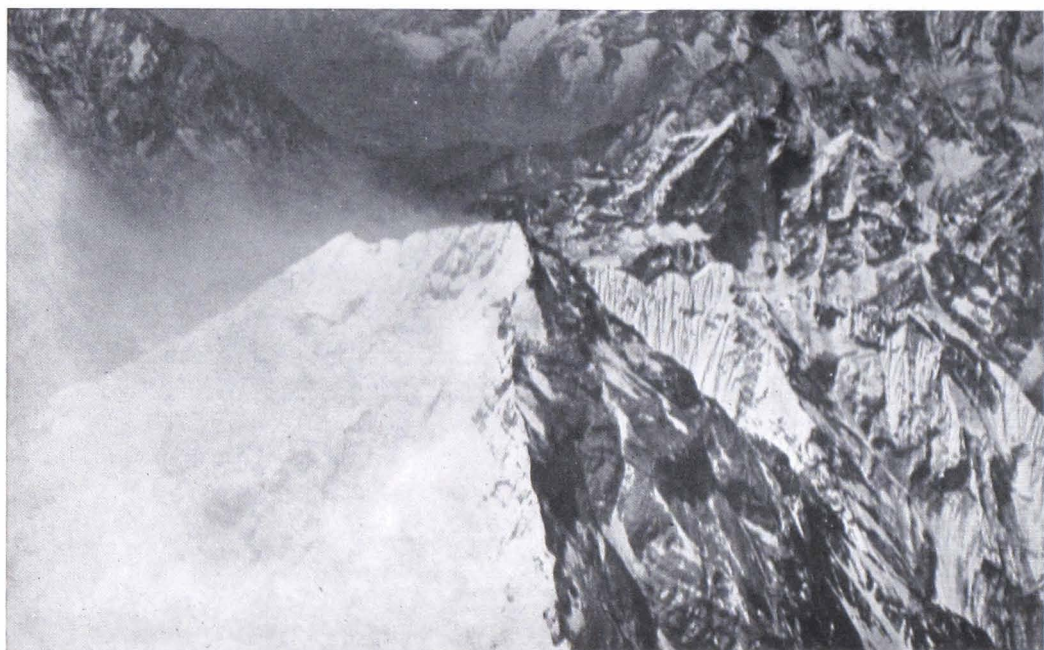


Plate 7 Summit of Mount Everest, aerial photograph from NE.

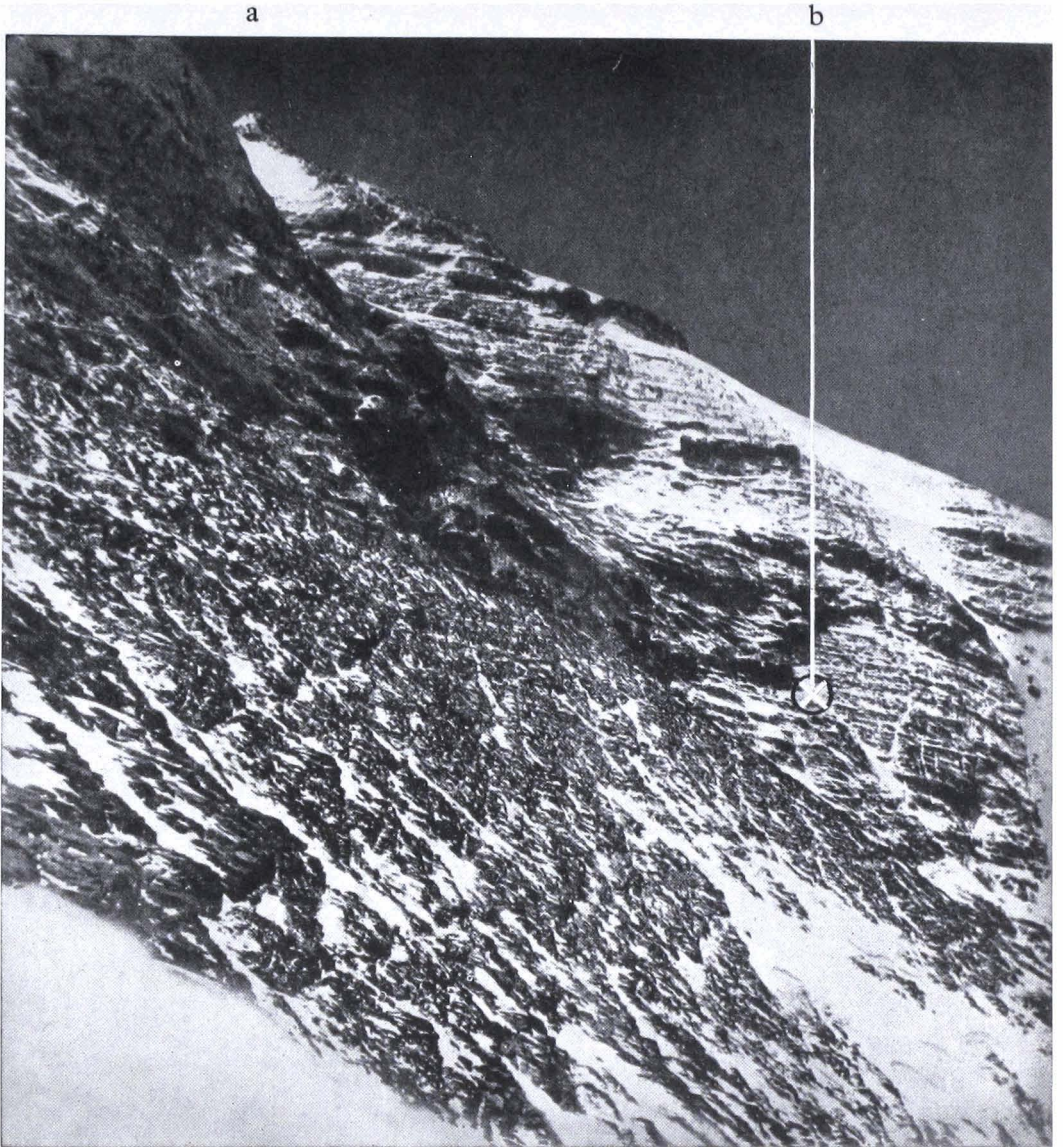


Plate 8 The last 1000 feet and the highest point reached on the north side of Mount Everest, beyond the Great Couloir, which is hidden by the steep slabs in the foreground. To the left, above, the Summit

a 29,160 feet

b 28,150 feet

perfect. It took less than a week to reach the North Col (22,990 feet), but it was now too late.

The Monsoon, which was almost a month late, set in at full blast on 9th July. So the expedition had to abandon Everest and content itself with a whole host of minor peaks. Three Summits of over 23,000 feet (see Table, pp. 204-6); more than twenty of 20,000 feet; numerous Cols; a rich photographic haul and Spender's photogrammetric maps were their consolation prizes. It is primarily to the reconnaissances of 1921 and 1935 that we owe our knowledge of the Tibetan side of Everest (Bib. 179).

THE 1936 EXPEDITION

The Sixth Everest Expedition was a complete failure. In 1935, when events prevented anyone from being on the scene in time, the Monsoon had arrived much later than is normal. If only they could have been at Rongbuk by the end of April, they would have had ten weeks of almost continuously fine weather, during which the North-West Face of Everest was snow-free till as late as 8th July. A strong expedition in that year of years might very probably have reached the Summit, but in 1936 things were very different. The party reached the Rongbuk Valley on 25th April. It was led by the experienced Hugh Ruttledge, the organisation was good and the team a carefully-chosen one:³ every promise of success was present. On 7th and 8th May they established Camp 3; on 13th May Camp 4 on the North Col. But light falls of snow had begun as early as 30th April, the conditions of the rocks became worse and worse: on 18th May there were already two feet of newly-fallen snow on the North Col and by the 20th the full force of the Monsoon had set in at one stroke—three to four weeks too early. The expedition was repulsed, without ever having had a chance of coming to grips with the mountain. Even the least superstitious observer might well have felt that there was a curse on all Everest undertakings and that the 'Goddess Mother of the Land' was defended by superhuman forces.

The only new departure during the 1936 Expedition was the first serious effort to reach the North Col from its western side. Bad weather and shocking snow conditions defeated the attempt, but the route appeared to offer certain advantages, the chief being its apparent greater safety from avalanches than the normal approach from the East Rongbuk Glacier (Bib. 169, 170).

The Seventh Expedition was a small but very capable climbing party with vast Himalayan experience. It consisted of E. Shipton, F. S. Smythe, N. E. Odell, C. B. Warren, Peter Lloyd and P. R. Oliver, under the leadership of H. W. Tilman. By denying the expedition the very minimum of comfort, the expenses were kept down to about £4,000 or about £600 per head. Tilman was just the right leader for a Spartan organisation of that kind. He swears by his 'Pemmican' and will have nothing to do with tinned foods or, in fact, most of the tastier means of subsistence. Be that as it may—members of this expedition have told me they have never been so hungry nor had to eat such ghastly fare in their lives, and they would never like to go through such an experience again (Bib. 202, 203).

The expedition was at Rongbuk by 8th April, earlier than any of its predecessors. The North-West Face was completely clear of snow and the conditions appeared to be perfect; but it was bitterly cold and so stormy that Tilman felt it necessary to wait before attempting any serious climbing. In this way the whole of the time-advantage was lost in a great deal of to-and-fro movements, minor undertakings and withdrawals to a Rest-Camp in the Kharta Valley. That would not have mattered so much if this month had been used for scientific work; but the 'notoriously anti-scientific leader' (Sic.!) (cf. Bib. 203, p. 149) only made scathing jibes at all such activities, put difficulties in the way of scientific research, or forbade them outright!⁴

Then, suddenly, it was too late . . . snow began to fall as early as 5th May. The period of fine weather during May and June, which is theoretically to be expected before the Monsoon starts, and which actually existed in 1929 and 1935, never arrived in 1938. None the less a hopeless attempt was made. With great difficulty a camp was established on 8th June at 27,300 feet on a small patch of rubble. The attack was made on the 9th and 11th, but was soon blotted out in deep snow.

The only success of this modern 'light' expedition—the ascent and traverse of the North Col from the west side—was very little to show for an undertaking which began so auspiciously. Moreover, the ascent from the Main Rongbuk Glacier turned out to be just as dangerous from avalanches as the normal route from the East Rongbuk and somewhat longer too. So it is unlikely that the Western approach to the North Col will often be repeated.

The resolute British struggle against that huge adversary, Chomo Lungma, was interrupted by the second World War.

Only one or two war-time flights over Everest are worthy of mention though even then without any geographical significance!

Whereas the 1933 Houston Everest flight was thoroughly organised, the adventure of the American airman, Colonel Robert L. Scott, was entirely a matter of improvisation (Bib. 216, 12d, pp. 156-7). Starting out on a test-flight with a new fighter aircraft from an aerodrome in Assam, he circled Kangchenjunga, almost scraped the Summit of Makalu, flew over Lhotse and took photographs of the Summit of Everest from very close range. Then he roared across the earth's highest point and climbed over Tibet to 37,500 feet. On the return flight he again crossed Everest, this time 10,000 feet above the Summit, and finally landed on the aerodrome of Cooch Behar, where he received a fearful 'rocket' from his superiors for having violated the frontiers of Nepal and Tibet without any kind of a permit and also for having stayed in the air far longer than the regulations allowed.

It is impossible to say exactly by what route he flew, for he talks—among other hopeless inaccuracies—about a non-existent mountain, 'Chamo Lhani': perhaps meaning Chomolhari (24,000 feet) but, if he does, it is not, as Scott states, between Makalu and Everest, but many miles away in quite another place. Elsewhere he claims to recognise Badrinath and gives it a height of nearly 28,000 feet (8534 metres) although, in fact, Badrinath, or Chaukhamba, is only 23,420 feet high and is situated in Garhwal. At another point he elevates 'Badrinath' to 28,240 feet: probably through some confusion with K², 28,253 feet (8611 metres) in the Karakorum. In other words, these are the observations of a 'clueless' youngster stooing about over the Himalaya for fun, without any clear idea where he was or what he saw, and untroubled by the faintest glimmer of the scientific or mountaineering problems of Asia.⁵ It is impossible not to feel somewhat bitter about it, when one thinks what a wealth of information a qualified and knowledgeable pilot could have brought back from such a flight.

THE 1947 EXPEDITION

This year produced yet another single-handed adventure. Earl L. Denman, a Canadian resident in South Africa, disguised himself as a Tibetan and hurried, with Tensing Bhutia and Ang Dawa, in a series of forced marches, by way of Gangtok and the Sebu or Kongra La to Rongbuk and then on towards the North Col. He admits that he had few provisions, no protection against cold and not even a sleeping-bag. His claim is that, although he did *not* reach the North Col (22,990 feet) he did reach an altitude of 23,500 feet, which obviously does not tally. After an absence of exactly five weeks he was back in Darjeeling—

undeniably a speed-record. Everest expeditions of this kind, undertaken by unrealistic amateurs—can, of course, not be taken seriously.

Finally some mention must be made of the report (of which no confirmation is obtainable) that a Soviet Everest Expedition attempted the peak from the north in the Autumn of 1952. The leaders named were Wladimir Kaschinski, Dr Pawel Datschnolian, Alexandrowitsch Metzdarow, Iwan Lenitzow, the geologist Prof. Antonij Jindomnow and the altitude physiologist Dr Josef Dengumarow. Thirty-six 'specialists' were to accompany them to about 21,000 feet. They are said to have started from Lhasa, where they arrived in five aircraft. The Summit assault party, numbering six, reported twice daily by radio and are said to have reached a height of 27,000 feet without undue difficulty. After that all was silence. Subsequent searches on the mountain and from the air produced no results. The Union of Soviets has never subscribed to this report. The story of the disaster has its source in two Tibetans who came to Katmandu, and should therefore be treated with some reserve.

Since Tibet became a 'People's Republic', in other words a mere province of Communist China, the classic route to Everest, by way of Rongbuk and the North Col, has been closed to the 'Capitalist World' and lies hidden behind the Iron Curtain. The history of Everest was then transferred to the Nepalese side of the Mountain.

NOTES TO CHAPTER ONE

¹ It is not possible to establish in spite of all researches whether the sensational computation was made by the Indian Radhanath Sikhdar, to whom it has generally been attributed, or by the Anglo-Indian Hennessey, or one of the junior assistants. G.D.

² For instance, as late as 1949 a so-called Authority in this field wrote that it was no use taking oxygen along under pressure, since the breathing organs become clogged with mucous if it is breathed direct and after that the lungs are only able to take in less oxygen. It is often claimed, too, that if you once start breathing oxygen, you become utterly dependent on it and a collapse must follow immediately the supply is interrupted. And yet as long ago as 1931 (Bib. 39, 41) and again in 1942 (Bib. 48) I have described in detail how my pace at about 23,000 feet had fallen to 400 feet an hour and as soon as I began to breathe oxygen immediately rose again to more than 800 feet an hour. The two bottles I had along lasted to the Summit of Jonsong Peak (24,510 feet). After they were used up, I not only did not suffer the collapse predicted by these knowledgeable gentlemen, but was still sufficiently full of enterprise and stamina to traverse alone from the Main Summit to the East Peak or Domo (24,416 feet); return to the Summit; and, with my Sherpa Lewa, to complete the long descent to our Camp 4 (21,300 feet) in fairly bad conditions, for it was dark and snowing hard. G.D.

³ True the best man of all was absent—that great climber and geologist Dr N. E. Odell, who in 1924 had been only a reserve in Camp 4 and was never thrown into the assault on the Summit, though he could stand altitude better than anyone. As set out on p. 27, that omission was a cause of bitter regret. For some reason unknown to me he was absent in 1933: in 1936 he was written off as 'too old'. His answer was as effective as it was splendid for, with H. W. Tilman, he climbed Nanda Devi, the difficult 25,645 foot peak which dominates the Garwhal Himalaya and the highest peak to be climbed until 1950—a truly magnificent effort (Bib. 200).
G.D.

⁴ It is useless to suppress or condone excessively failures, omissions and oddities of this sort. I consider it my duty as a historian to call a spade a spade—even when recording these Everest expeditions, with their halo of sanctity—in spite of the risk of making myself highly unpopular in various quarters.
G.D.

⁵ At least this is the unavoidable impression left on reading Bib. 216. Recently, however, I had an opportunity of studying an exchange of letters between my son Norman G. Dyhrenfurth (Santa Monica, California) and Colonel Robert L. Scott. According to this he is an experienced and enthusiastic Himalayan-pilot, well-informed about Himalayan literature in general and particularly about Everest. I am not yet clear about this matter. It may be that the real fault does not lie with Col. L. Scott, but with James Ramsay Ullman, an author whose Mountain Books are full of inexactitudes.
G.D.

Note.—It should, however, be made quite clear that the highly coloured passage in Bib. 216 (*Everest, Kingdom of Adventure*, by James Ramsay Ullman) is a quotation from Col. Scott's book *God is my Co-Pilot*.
H.M.

CHAPTER TWO

MOUNT EVEREST

The Southern Side

(a) THE APPROACH THROUGH NEPAL (1949-51)

CHOMO Lungma's Nepalese slopes had long remained a tantalising mystery—the greatest secret in the world for mountaineers to delve into. It was not till 1949 that the gate was opened, when Nepal began to unveil itself to western eyes and to permit the entry of white explorers and climbers.

The first Anglo-Saxon reconnaissances into Nepal only penetrated the Langtang-, Ganesh- and Jugal-Himalaya, north of Katmandu.

In the Autumn of 1950, however, H. W. Tilman, that experienced wanderer through the length and breadth of the Himalaya, had the first opportunity ever offered of undertaking even a short reconnaissance of Everest's southern flanks. He had just returned to Katmandu from the Annapurna Range (cf. p. 145) when the American, Dr. Oscar R. Houston, invited him to join his party on a visit to Sola Khumbu, the far-famed but still unknown home of the Sherpas, at the end of October (Bib. 209). The other members of the party were Houston's son, Dr Charles S. Houston, who had taken part in the 1936 success on Nanda Devi, and later led the first American attack on K² in 1938, another young American, Anderson Bakewell, s.j., from the Jesuit College at Kurseong, near Darjeeling, and Mrs Elizabeth S. Cowles, a well-known American climber.

On 29th October they met at Jogbani, the Indian rail-head, near the Nepalese frontier.

A lorry took them along forty miles of poor roads through the Terai to Dharan at the base of the foothills, where the loads had to be transferred to coolies. Thence they crossed a 4,000-foot pass into the valley of the Tamar, flowing down from the Kangchenjunga Range. Crossing this river in full spate by a suspension bridge, they ascended to Dhankuta, the prettily-situated capital of the district of that name. The Governor, a member of the ruling Rana family, was most helpful,

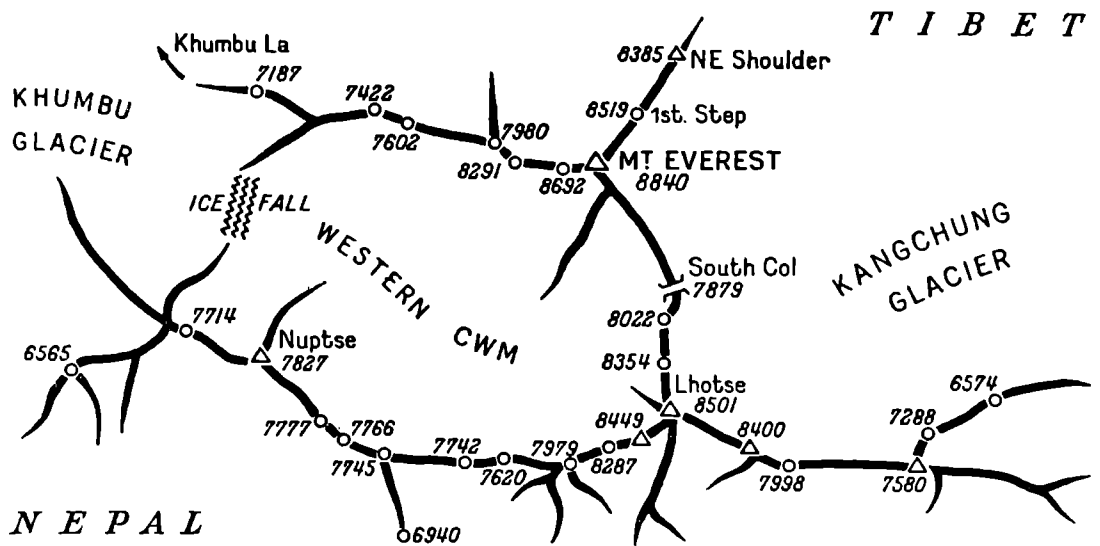
placing a military escort at their disposal. Then followed a three days' march down into the hot Arun Valley, carved deep into the hills to a level of only 1,000 feet. Turning westwards and crossing three passes, the highest of which is the Salpa La (11,800 feet) they reached the Dudh Kosi river, three days' march below Namche Bazar. They were now in Khumbu, the part of Sola lying to the east of the river, and had now left the Hindu regions behind them, as was evidenced by the many Chortens and Mani-walls—true signs of Lamaism. Broadly speaking, the Ghurkas live below 8,000 feet and the Sherpas, like other races of Tibetan culture, above that level.

They had to cross the Dudh Kosi several times. Considering that it drains both the Everest and Cho Oyu Groups, it is a comparatively small river: the wooden plank-bridges spanning it being normally not more than about twenty to twenty-five yards long. Namche Bazar, about 11,000 feet above sea level, is a small place of about thirty houses and there is little cultivated ground near it. The inhabitants live fundamentally by salt-and-rice barter-trade with Tibet; the Nangpa La, although over 19,000 feet high, affords an easy passage to Kyetrak and Tingri Dzong and during the Summer months the traffic across it is fairly heavy.

Six miles above Namche, along a good track, stands Thyangboche, the smaller counterpart of the Rongbuk Monastery on the other side of Everest. The monks there call the whole mountain mass Chomo Lungma, making no distinction between Everest itself, Lhotse and Nuptse. These two, the 'South Peak' and the 'West Peak', form the back-cloth to the valley. The Monastery stands on a grassy spur at about 13,000 feet, surrounded by birch-trees and pines, and is a far more attractive spot than Rongbuk.

From this hospitable, kindly Sanctuary, Tilman and Charles Houston proceeded up the valley towards the north-east, then northwards up the Lobujya Khola towards the Khumbu Glacier,¹ where they camped at about 15,100 feet, still some four miles short of the Lho La (now known as the Khumbu La). This glacier draws its main nourishment from the 'Western Cwm',² but is also fed by the slopes of Pumori (23,190 feet) and Lingtren (21,730 feet). It is a relatively small glacier and its surface, like that of the Rongbuk, consists of ice-pinnacles; for the tremendous south-west wall of Everest and the long Nuptse-Lhotse Comb are too steep to harbour much glacier snow. The warmth of the southern slopes and the great depth of the valley-levels do the rest, so that the glaciation of the Nepalese side of Chomo Lungma is kept down to reasonable proportions.

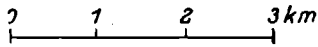
Tilman and Houston did not set foot on the 'Western Cwm' Glacier, which lies in a gorge-like trench between sky-raking walls, and forms



SKETCH MAP 2

MOUNT EVEREST

From E Shipton 1951; Bib. 184



an icefall not far from the old Lho La (now Khumbu La, *c.* 20,000 feet). Even from an observation-point at about 18,000 feet, above the western side of the Khumbu Glacier, they could see neither the far end of this Western Corridor nor the famous South Col between Lhotse and Everest above it.

But between this Col and the floor of the Cwm there is a tremendous height-differential in a very short horizontal distance. Tilman was extremely sceptical, and gave his experienced view that there was no practicable route up Everest from the Nepalese side. In his opinion it was a waste of time to sing the praises of the shorter march through Nepal, the political advantages and the warmer conditions on the south side, if the mountain itself gave an uncompromising 'No!' for answer (Bib. 208 and 209). 'If the best climbers in the world had failed on the Tibetan route, who was likely to succeed on an even more difficult route?' Houston, also an experienced climber and well-versed in the Himalaya, was much more optimistic (Bib. 95) but he, too, had not had any opportunity of looking at the key-points of the Nepalese climb. So the 'Lightning Reconnaissance' closed on a big question-mark, and exactly thirty-four days after its start the expedition was back in Biratnagar. Their consolation was a fine set of photographs, particularly Bakewell's from near Thyangboche.

In the Spring of 1951 yet another solo performer came to light. He was a Dane, R. B. Larsen, who left Darjeeling on 31st March and

hurried to Namche Bazar in twenty-three days with four Sherpas, by way of Sandakphu, Taplejung, Chainpur and Dingla. An advance beyond Thyangboche into the Lobujya Kola was soon abandoned without any attempt to reach the Rongbuk Glacier over the Khumbu La (20,000 feet). Instead, this 'light expedition' went up the Bhote Kosi valley and over the easy Nangpa La (19,050 feet)—without an entry permit—into Tibet and, avoiding Tingri Dzong, reached the Rongbuk Monastery in a six days' forced march from Namche. The attack on Everest ended, as usual in such cases, on the North Col (22,990 feet). At this point the porters struck, seeing that Larsen had no proper equipment—not even a primus stove!—and at once climbed down again. So back the party came, by the same way: the marches achieved by the Dane and his poor, suffering Sherpas were quite remarkable. But the only really interesting thing about it all, though certainly not to be recommended in future, was the combination of an approach through Nepal and a climbing attempt on the forbidden Tibetan side.

In the Autumn of 1951, the Himalayan Committee of the Alpine Club and the Royal Geographical Society organised another small expedition under the leadership of Eric Shipton, with the object of exploring the still unknown area of the Western Basin and to establish once and for all the possibilities of climbing Everest from Nepal. The other members were M. T. Bourdillon, W. H. Murray and Dr M. P. Ward, who were later joined by two young New Zealanders, H. E. Riddiford and E. P. Hillary. They left London on 17th August, 1951.

In an article he wrote for *The Times* shortly before his departure, Shipton wrote of the disadvantages of the great shadowed slopes of the old classical North Route. The whole of it above the North Col is exposed to the pitiless and almost incessant blast of the north-west wind. The calcareous and sandy schists of the upper sections of the face dip outwards like tiles on a roof and are so steeply tilted that there is not a single good camp-site. This slabby track is not really difficult, but offers few facilities for belaying and becomes dangerous the moment snow lies on it. Owing to the high angle of the sun after the beginning of June, the 'Yellow Band' lies in deep shadow till nine o'clock in the morning. If one starts early, there is the risk of frostbite before really getting going: if late, precious hours are wasted which are desperately regretted later. But the worst feature of the route is that serious technical difficulties begin above an altitude of 28,000 feet. Shipton's considered opinion, based on all previous experience, is that the chances of reaching the Summit by the historic route are very slight. All the favourable factors would have to coincide, which is only likely to

happen on very rare occasions. In the Spring the north-west gales are so strong and uninterrupted, the cold so intense, that the North Face of Everest cannot be approached. These gales are only neutralised by the forerunners of the Monsoon towards the end of May in a normal year; but the first waves of the Monsoon usually scatter so much powdery snow on the slabs that a new barrier to climbing is immediately introduced by rendering them, if not unclimbable, at least highly dangerous. At great heights snow does not melt any more on the northern side, nor does it cohere. Only the north wind can sweep the rocks clear. This dilemma was not clearly recognised at the outset. At first they reckoned confidently on a short period of fine weather just before the Monsoon began: but the sunny and comparatively calm days at the beginning of June appear to be only a rare exception. Mostly there is no breathing space between the north-west gales and the first Monsoon snows. So, after the grim experiences of 1936 and 1938, a first attempt was made to weigh up two other possibilities—the first being post-Monsoon attacks, in October and November, the second a completely new route on the mountain's warmer and less wind-tormented southern side. To Shipton's expedition was entrusted the highly important mission of testing both these possibilities. The Communist domination of Tibet had forced a decision; the political upheaval in Nepal made it possible to implement it.

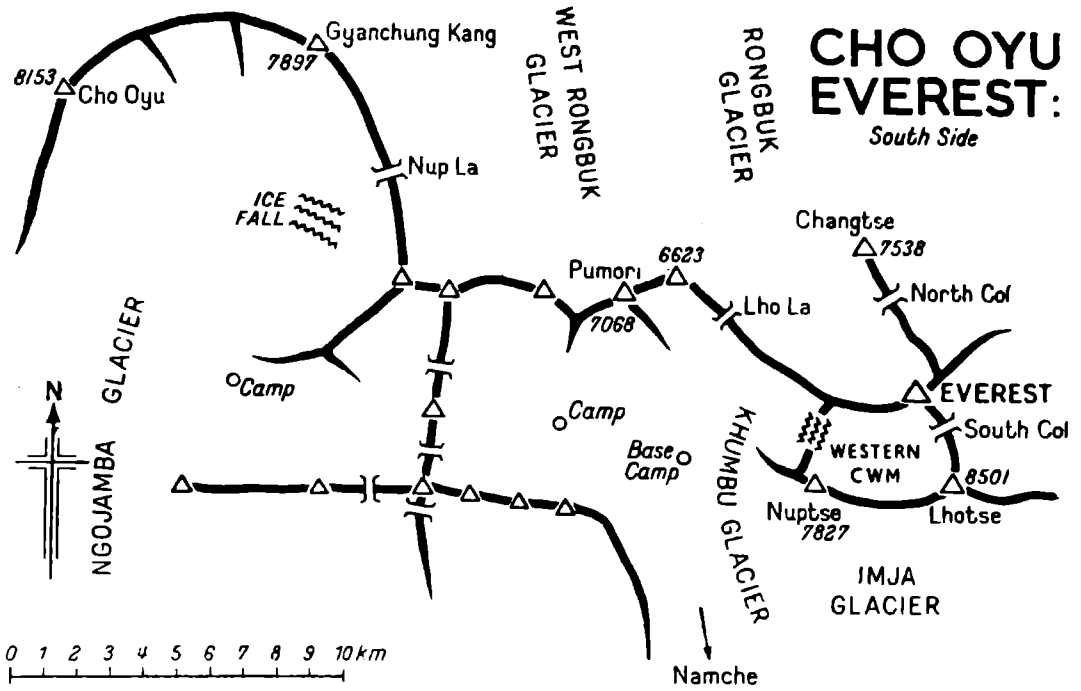
Now Shipton had already tried hard in 1935 to solve the interesting secret of the 'Western Cwm Icefall' (Bib. 179, p. 7). He and his companions had then penetrated to the Khumbu La (20,000 feet) and up on to the watershed between Lingtrentse (21,730 feet) and Pumori (23,190 feet) but had only been able to see the jaws of the ravine and the savage 2,000-foot Icefall, in which the glacier pours down from the Cwm to the Khumbu Glacier below. A sight of the inner basin was still denied them, just as it was to Tilman and Houston in 1950.

The burning questions were still whether an entrance could be forced into the Western Cwm and whether access from it to the new Lho La or South Col (25,850 feet), between Everest and Lhotse, was really possible.

The expedition arrived at Jombang on 27th August 1951, two months earlier than Tilman's party in 1950, and consequently still had to suffer heavily from the effects of the Monsoon. The crossing of swollen rivers and torrents was sometimes positively dramatic, and it took almost a month to reach Namche. They left this Sherpa village on 25th September and continued the march to Thyangboche, where the monks received them kindly and they found the view next morning, in glorious weather, positively overwhelming. For the approach from

SKETCH MAP 3

**CHO OYU
EVEREST:**
South Side



Rough plan of the main ridges: Reconnaissance October 1951; Bib. 184 and 54.

Nepal and the south is as beautiful, satisfying to the eye, and varied, as that over the bare Tibetan plateau and up the hideous Rongbuk Valley is bleak and unattractive.

Base Camp was established in the upper Khumbu Valley on 29th September and on the very next day Bourdillon, Riddiford and Ward with two Sherpas, Nima and Pasang, crossed the level glacier and started up the famous glacier-cascade which bars the entrance to the mysterious Cwm. Riddiford and Pasang had to work hard to force a passage through the lower half of the Icefall, for the Monsoon snow was bottomless.

Meanwhile, Shipton and Hillary climbed a ridge of Pumori to about 20,000 feet in order to look at the Icefall from above and assess the danger of avalanches. To their surprise and joy, from there they gained their first view into the Western Corridor leading to Lhotse's western face and the South Col, between it and Everest. The most important discovery was that the floor of this trench lies not, as had been computed, at from 20,000 to 21,000 feet, but slopes up to a level of almost 22,650: so that the strategically vital South Col (25,850 feet) was only about 3,300 feet above the glacier level.

Moreover it looked as if there were a route straight up the Lhotse Face to about 25,000 feet and thence apparently a long traverse

leftwards and diagonally up to the Col. Of course this was, at the time, only a distant reconnaissance and needed substantiation later at close quarters. All the same, there was no longer any feeling of hopelessness; an assault on Everest from the Nepal side was no longer an idle pipe-dream.

From their observatory on Pumori they could also see the old northern route, North Col, Shoulder, Yellow Band, the two Steps and all; they found it most interesting to study those familiar landmarks from a new angle. The whole North face of Everest was plastered with snow. But when they turned again to the task in hand, it was immediately clear that the great Icefall below the Cwm was the 'Great Imponderable'. Through its upper half they detected a technically easy route on the true right (northern) bank, but it was swept by avalanches which fall from the West Ridge of Everest: farther to the south, in the middle of the glacier, they could see nothing but a wild criss-cross of crevasses and *séracs*. Shipton took another sample-look from a rib below the Khumbu La and decided on an energetic exploration of the Icefall itself.

He set off on 2nd October with Bourdillon, Hillary, Riddiford and three Sherpas, this time taking along light camp-equipment. The next day they were held up by a snow-fall, but it was fine again by the following morning. A drawback was the late arrival of the sun at this season of the year: it was so bitterly cold till ten o'clock that there was serious danger of frostbite, and energetic massage was frequently necessary to bring frozen feet back to life. But when the sun did come, it was soon as hot as in an oven, and a tremendous effort of will-power was needed to overcome the dreaded 'Glacier Lassitude'.

Thanks to the track made earlier by Riddiford, they got through the lower half of the Icefall fairly quickly, but then the going became tough. The climbers fought their way upwards through a veritable labyrinth, often sinking to their waists in the snow. Occasionally they were forced to retrace their tracks and this cost much time; all the same they at last drew near to the upper limits of the Icefall, the aneroid showing 20,670 feet. Before them lay a deep hollow with a horizontal ice-wall beyond it, precisely at the place where the floor of the Cwm dips to form a first wave and then breaks downwards into the Icefall. The heavily-crevassed hollow gave them a lot of bother, but just before four o'clock they were at the foot of the slope below the ice-cliff. The snow was very deep and unreliable, but the cliff was not a high one, and Shipton decided, with some misgivings, to go ahead.

The party were halfway up, only about twenty-five feet below the crest, when an avalanche broke from it. Shipton and Pasang, on either

side of the breach, were able to fight their way clear and to hold Riddiford between them, while the snow-slab slid away under him in great blocks into the abyss. So this unpleasant experience had a happy ending; but, if only because of the late hour, it was now essential to turn back—disappointing as it was to have reached the very threshold of the famous Cwm, only to have to withdraw. It was a very exhausted party that reached camp without further mishap as darkness fell.

The next day it was decided to give the great Icefall a miss for a fortnight, to let the snow conditions improve. The party divided into two groups, in order to make the best use of the intervening time. Shipton and Hillary strolled down to Namche, to improve the organisation of the supply-line up to the Base Camp, and then set out from Pangboche on their reconnaissance of the upper Imja glacier-area. This basin is contained on its northern side by the immense Nuptse-Lhotse-Comb; on the east by unnamed peaks of 20,000 to 23,000 feet; and on the south by Ama Dablam (about 22,600 feet). In spite of the height at which it lies, this great basin contains relatively small ice-masses and the various tongues never combine in a glacier of the first magnitude.

Shipton's original intention was to cross the watershed eastwards to the upper Barun Glacier and from there to reach the Kangchung Glacier on the east side of Everest and so to complete the mapping done in 1921 by the First Everest Reconnaissance; but he found no way of crossing the intervening ridges. So they turned south and reached a saddle at about 20,000 feet between the Imja and Hongu Glaciers, the ascent of which was so difficult that with the three Sherpas they were only able to take a light camp and food for three days with them. From the Hongu Basin they climbed to a 20,350 feet saddle between the Hongu and the Barun Glaciers, and, at a distance of more than five miles, obtained a marvellous view of the incredibly sheer south-western face of Makalu (27,937 feet), which shoots up like a gigantic flame above everything in the vicinity. But now, unfortunately, both time and provisions had run short, forbidding any progress towards the Barun-Kangchung Watershed: there was nothing for it but to go back, in spite of the glorious weather. For the return journey they chose an entirely new route, climbing on 16th October to a 20,000-foot saddle to the south of the magnificent peak of Ama Dablam, from which the descent proved difficult and at times sensational, across a fluted slope and down through a horrid icefall, so that they did not find a camp-site till after dark. On the following day they proceeded down to the Imja Khola and on to Dingboche, where they found the whole population of Pangboche busily engaged in threshing

the barley. Barley is, of course, the grain that grows at a higher altitude than any other and ripens hereabouts at about 12,500 feet.

On 18th October they went up again: from a saddle in the Comb south-west of Nuptse, they enjoyed a wonderful prospect, eastwards towards Makalu and Chomo-Lönzo (25,788 feet) westwards towards Gaurisankar (23,443 feet), the famous peak long ago confused with Everest, and towards Cho Oyu (26,753 feet). This pass led over to the Khumbu Glacier and so back to the Base Camp.

While Shipton and Hillary were thus engaged in sketching in the broad lines of the Everest Group's southern side, Bourdillon, Riddiford, Ward and Murray had turned their attention to the area west of the Khumbu. They set up their first camp on a grassy island in one of the western tributaries of that Glacier. They then explored and crossed a saddle behind and to the north of this ice-stream, ferrying their loads over it in a tedious shuttle-service. Beyond it lay, not the Chola Glacier as expected, but the Guanara Glacier, a tributary of the unknown Ngojamba Glacier, which they now crossed in the direction of the Nup La (19,407 feet). In its huge icefall they worked a whole day to achieve a gain of only 350 feet in height and in the end had to admit defeat: they would have needed another three days to reach the Nup La.

They also had to admit after a meticulous survey that the Eastern Face of Cho Oyu, which soars above the upper Ngojamba Basin, looked equally impossible. All the same, they successfully threw new light on the topography of this area and were able to correct errors in the existing maps. After exploring another Col above the Chola Glacier, they descended the Ngojamba Valley to Namche and from there re-ascended to Base Camp on the Khumbu Glacier by the ordinary way.

Shipton and Hillary returned to camp on 19th October. On the two following days a camp was established at the foot of the great Western Cwm Icefall and everything was set for the struggle.

Taking the Sherpas Angharkay and Utsering along, they made a splendid 'staircase' up the first thousand feet on 22nd October and returned to camp highly satisfied with their day's work. But next day they found that just above their steps tremendous changes had occurred during the night, as if the Icefall had been shaken by an earthquake. For a considerable upward distance and for the whole width of the glacier the ice-walls and *séracs* had been crumbled into great blocks. While they were crossing this debris belt, with the utmost caution and a hundred feet apart on the rope, they heard a long-drawn out thunderous cracking noise and the whole surface of the ice on which they were standing began to tremble. Countless

new cracks and crevasses appeared, to the accompaniment of these very nerve-racking noises. Seeing themselves threatened with disaster, they could not avoid an immediate withdrawal on to a relatively quiescent part of the glacier. Still unwilling to admit defeat, they tried a new route farther to the right; but here they came upon an even wider belt of destruction, over-hung by *séracs*, ready to topple at any moment. So they finally withdrew to the camp at the foot of the Icefall.

Next day they climbed a ridge to the left of the Khumbu La, to get a comprehensive view of the whole Icefall: nowhere could they see a way to avoid the debris-zone. It now seemed clear, at all events, that even if the British climbers decided on a desperate attempt to break through it, there was no possible justification, in existing ice-conditions, for taking heavily-laden porters or a week's provisions for the expedition into such fearful danger.

On 26th October the other party arrived in the Base Camp, so that the whole expedition was re-united. On the following day they all climbed the ridge of Pumori, from which, on 30th September, Shipton and Hillary had gained the first view ever into the Western Cwm. The north-west gales seemed to have swept some of the heavy Monsoon snow from Everest's North Face, but the slabs on the upper part of the face were still in an impossible condition: in the direction of the Cwm, the Lhotse face and the South Col, there was no change to be seen in the snow-conditions. That evening they re-occupied the camp at the foot of the Icefall.

On 28th October, the six climbers, with Angharkay, Pasang and Nima, embarked on a new 'reconnaissance in force', in an effort to clinch matters. They reached the destruction belt just as the sun came up and, seeing that there had been little change in the last five days, decided to push forward with extreme caution past the tottering *séracs*. The upper part of the Icefall appeared to be fairly stable, and by one o'clock they were at the foot of the last cliff, where they had on the previous occasion suffered their ordeal by avalanche. The snow slope was still just as dangerous as at the beginning of the month, but a small rib of ice had hardened out so that Bourdillon, who was leading here, was able to get up it by a tough piece of step-cutting.

Now at least they were above the fearsome Icefall, on the very sill of the longed-for Cwm, and could see the glacier corridor rising gently between the ridges of Everest and Nuptse. But they were very soon convinced that their difficulties were by no means left behind them and that they had failed to win an entry into that unique Sanctuary. For immediately they found an enormous transverse crevasse barring their way: what is more, it cut across the glacier from edge to edge and

there was no way of getting round it. Behind it towered other gulfs of no less awesome proportions. In spite of the protests of some of the younger climbers against this bitter disappointment, it was decided to climb down to camp again.

Next morning Bourdillon and Ward went up towards the Khumbu La to have one more general look at the Icefall from a distance, while Shipton and Hillary made another vain attempt to find a better way through its lower half. It was all useless. There was no longer any point in delaying the admission of defeat—an admission made all the more painful by Shipton's very strong conviction that there was a possible route, in reasonable snow-conditions, from the Cwm to Everest's Summit by way of the South Col.

An icefall of this kind is subject to great seasonal fluctuations. Its movement is greatest in the Autumn and might then measure a yard or two. In the later Spring—after the Winter and before the Monsoon—there might be complete stability, where now everything was in a state of utter tumult. It is a Sanctuary which can only be entered when the Guardian of the Gate falls a-nodding.

After their hard struggle with the Western Cwm the expedition was back by 31st October in Namche, where they met with the friendliest of receptions from the hospitable inhabitants. In the Land of the Sherpas 1st November marks the start of the festive season, when enormous quantities of Chang (the local beer) and Arak (rice-spirit) are consumed, and dancing goes on all through the night without a halt. The British party took part in two of these functions, thus causing a sensation throughout the neighbourhood. In such circumstances it was a little difficult to get the expedition moving again, for even the most devoted Sherpas found it difficult to tear themselves away from such junketings.

The plan for the final phase of this important undertaking was to push a thorough reconnaissance of the Gaurisankar Range westwards as far as the Rongshar Valley. The two New Zealanders, Hillary and Riddiford, crossed a not very easy but locally used pass, the Tesi Lapcha (about 20,000 feet), in order to reach the Rolwaling Gorges, on the south side of the main chain. On this enterprise they were joined by Mr Dutt of the Geological Survey of India, who had already carried out geological research in the Khumbu area. The main expedition followed the Bhote Kosi up to the alpine hamlet of Chhule, from which Murray and Bourdillon pushed on with four days' provisions to the Nangpa La, a Pass affording an important trade-route from Sola Khumbu to Tibet. In spite of its altitude (19,050 feet), and its considerable glacier-fields, it attracts a busy flow of traffic; even Yak caravans manage to cross it in Summer.

Meanwhile Shipton and Ward were making a reconnaissance towards the Pangbuk Valley and first climbed a modest 18,700 foot peak, which provided a glorious view and afforded a definite opportunity to establish their bearings. In an attempt to extend their exploration westwards they succeeded in crossing a high pass afterwards given the name of the Menlung La. They reached its crest early in the afternoon of 7th November and from it obtained a view into a broad valley, above which soared the highest peak in the Gaurisankar Range, Point 23,560 (7181 metres), which was later christened Menlungtse. Gaurisankar itself, only about 100 feet lower, stands some six miles farther to the west. Having established that a great glacier flows southwards and can be reached without difficulty from the snow-plateau of the Menlung La, they returned to their Pangbuk Camp as darkness was falling on a long but valuable day's work.

Next day, accompanied by the Sherpa Sen Tensing, and carrying a tent and provisions for a week, they again crossed the Menlung La, while the Sirdar, Angharkay, and the other Sherpas remained below to await the return of Bourdillon and Murray, on their way down from the Nangpa La. The glacier on the far side of the Pass was reached at 3.30 p.m. and the party continued down it in a south-westerly direction.

At four o'clock they came upon some curious tracks in the snow. Sen Tensing immediately declared them to be the tracks of 'Yetis'—the dreaded 'Abominable Snowmen'. At least two of the tribe had passed that way. The tracks, which had mostly been enlarged by the melting of the snow, were a little longer and a good deal broader than the imprint of a broad climbing-boot. Here and there, when there was only a thin covering of snow on the ice, the modelling was well-preserved. It plainly showed only four toes, the two outer ones being of normal size, the inner ones abnormally broad, the 'thumb' on the inside being shorter and broader still.

The tracks were particularly interesting where they crossed a crevasse. The Yeti had obviously jumped and anchored itself on the farther side of the chasm by digging its toes into the snow. The party were able to follow these strange tracks for quite a mile, till the trail was lost on debris-covered ice.

Shipton—and likewise Tilman—reports that on his various journeys in the Himalaya and Karakorum he has often encountered similar tracks, but Shipton adds that he had never seen them in such a good state of preservation. On this occasion Sen Tensing immediately related how, two years before, he and a number of other Sherpas had seen a Yeti only twenty-five yards away, not far from Thyangboche. He described it as: 'half man, half beast, about five feet six inches

high, with a covering of reddish brown hair, but a hairless face'. Shipton is convinced of the reliability of this story.

Night had fallen before they could reach the grassy lateral moraine and they had to camp on the ice. When they were turning in, Sen Tensing remarked: 'No human being has ever been here before: the Yetis will be very worried to-night because of our arrival.'

They continued their march at first light and after nearly two more miles reached the tongue of the glacier, where the valley makes a sharp turn westwards. Instead of the expected gorge, they found themselves in a broad basin with shingle and sandbanks, between Menlungtse and the main chain. Under Gaurisankar this big valley again bends northwards. On 10th November they contoured the west side of Menlungtse and climbed a viewpoint which gave them a wider prospect over this totally unknown region. Lower down, the valley along which they were moving became a deep gorge, which joined even more savage gorges. They were by then on the banks of the Menlung Chu (Chu=River), only the upper course of which had yet been visited, on the 1921 Reconnaissance. The more distant gorges really belong to the catchment of the Rongshar.

Menlungtse (23,560 feet) is an almost completely isolated mountain standing in the middle of a glacier-filled basin, rather as Nanda Devi (25,560 feet) stands alone in its famous 'Sanctuary'.

That is why the peak, actually higher and more impressive than the famed Gaurisankar, has hitherto remained unidentified. According to descriptions it is the most splendid mountain of them all; with light-coloured granite walls, so that, from a distance, it is almost impossible to distinguish between rock and hanging-glacier on them.

On 11th November they ascended a glacier which falls from the southern containing rim of the basin, on which, owing to its northerly aspect, the snow conditions were very bad and in two places produced treacherous snow-slabs. In the end, they succeeded in reaching the watershed at a Col about 19,350 feet high: from it they looked 7,000 feet down into the Rolwaling Gorge, but in spite of the unusual height and steepness of this tremendous wall they saw a possible way down it.

When Shipton returned to camp that evening, he met Bourdillon and Murray, who had rejoined the rest of the Sherpas and crossed the Menlung La with them. Next day, the whole expedition moved on down the Menlung Chu towards the valley levels and by the 14th were safely down at the foot of the great gorge, at Lamobagar. From there they continued the march, through Charikot to Katmandu, the Nepalese capital, which they reached a week later.

It is really remarkable that, after the incredible difficulties with

which the post-Monsoon conditions had defied all their efforts in the Western Cwm area, Shipton and his team should have had the heart to see this really important reconnaissance through. The area they explored had never been trodden before by human feet: the geographical and mountaineering results were of the first importance.

(b) THE QUESTION OF THE SNOWMEN

In 1921 Colonel Howard-Bury, the leader of the first Everest expedition, found tracks in the snow, very like those of a human being, as high up as the Lhakpa La (22,000 feet), north-east of Everest.

Since then a whole Literature of the Snowmen has grown up and H. W. Tilman collected the most important dates in *The Listener* (10.2.49) and in Bib. 203.

Howard-Bury in his cabled despatch had declared that the porters had explained these extraordinary tracks as those of the 'Wild Snowmen' and this, in spite of his careful wording, started a world-wide excitement. In Darjeeling a Mr Henry Newman questioned the porters and obtained an exact description of these 'wild folk'. Their feet turn in, so as to be a greater help in climbing and their hair is so long that it falls over their eyes when they go downhill. Their name was 'Metch Kangmi'. Kang-mi means 'snow-men' and 'Metch' in Tibetan signifies anyone who is beyond all measure filthy, and stinks. Hence the English version, 'The Abominable Snowman'. Newman's own view was that they were human tracks left either by Outcasts or by Ascetics, who desired to create for themselves magic powers by sundering themselves from all human intercourse and never washed any more.

In 1937, Ronald Kaulback, who had journeyed through the upper Salween area in the previous year, reported having seen, above 16,000 feet, sets of tracks which looked exactly like those of a bare-footed human being. There are no bears in this region. Wing-Commander E. B. Beauman reported similar tracks in the Central Himalaya. Experts at the Natural History Museum were sure that these must have been the tracks of a Panda (*Ailurus Fulgens*) or of large Langur monkeys: although the presence of these herbivores above the snow-line seemed a little puzzling.

Again, in 1937, Tilman came upon the tracks of an 'Abominable Snowman' on the upper Biafo Glacier about 19,000 feet up: he not only described them exactly but photographed them. 'It was certainly not the trail of any kind of bear . . . there were no wild creatures of any kind in the neighbourhood, no grass within fifteen miles, and the nearest village was forty miles distant. A few days later bear-trails

were fairly plentiful lower down: I recognised them as such, and so did the Sherpas, immediately' (Bib. 181, pp. 202-3).

In the same year the late Frank Smythe, in Garwhal, found tracks at about 16,500 feet, which were beyond doubt bear-tracks. Tilman writes: 'He was able to prove to everyone's satisfaction, with the support of eminent Zoologists, that they really were bear-tracks.' It would however be premature to argue that this puts an end once for all to a Himalayan superstition and that *all* Snowman-tracks found on the high snows of Asia can be written off as being only bear-tracks.³

Immediately after this, in November of the same year, Colonel John Hunt (Bib. 100) discovered a double line of tracks near the Zemu Gap (19,230 feet) on the eastern side of Kangchenjunga: these looked just like those of a human being, though no climber had been in the neighbourhood for a very long time. Tilman had the same experience in 1938 (Bib. 201): and let us not forget that the Zemu Gap is a difficult crossing, suitable only for experienced climbers. In the same range A. N. Tombazi, during his 1925 Sikkim Expedition, had a most unusual experience. Called from his tent by the cries of his porters, he reports in Bib. 213:

The blinding light prevented my seeing anything for the first moment or two, but I soon saw the Object about two or three hundred yards down the slope. Certainly the outline of the figure was exactly like a human being's: it walked upright and bent down occasionally to uproot a few Rhododendrons. It looked dark against the snow and wore no clothes. Within a minute it had moved on, to disappear in the undergrowth. I examined the footprints, which were in shape like those of a man, but only about six inches long. The five toes and the arch were distinctly recognisable, and the imprints were certainly those of a biped. I made enquiries later, and ascertained that no one had been in the neighbourhood since the beginning of the year.

All the same Tombazi dismisses the 'fantastic legend of the Snowmen', though he adds: 'I am not in a position to express a positive view on this subject. I can only repeat in all certainty that the outlines of this mysterious creature corresponded with the silhouette of a human being.' He is a witness in spite of himself and resembles—according to Tilman—the old lady at the Zoo who, on being shown the giraffe, could only say that she didn't believe it!

We have now the observations of the 1951 Everest Reconnaissance (see p. 43). Eric Shipton's and Sen Tensing's reports and above all the enlargement of the fresh, well-modelled footprint which appeared in *The Times* of 7th December and *Le Figaro* of 8th December that

year, to add to the dossier. Particularly marked in this instance is the fusion of digit finger and middle-finger and clearly-marked 'thumb'. The so-called Yeti has apparently no claws, but nails. The explanation of bear-tracks is therefore obviously not tenable in this case and, according to a Reuter Report of 13th December 1951, the experts of the Natural History Museum in London have fallen back on their original hypothesis that we are dealing with the Great Langur monkey, probably *Presbytis entellus achilles*. Although its tracks should be smaller, they correspond in form exactly with those of the mysterious Yeti.

It would be strange enough if jungle denizens and climbing animals actually appeared at altitudes of from 16,500 to 19,500 feet, and there are many unsolved questions. Why is the Yeti track considerably bigger than that of any Langur so far known? How does this gigantic monkey manage to go about glaciers and snowfields on two legs? What does he live on? And then, he is supposed to have a great, long, black tail: if he has, why doesn't it leave any marks in the snow? Why do neither Tibetans or Sherpas know anything about it? The long tail of a mountaineering monkey is, after all, quite a striking phenomenon. And then, why all this talk about Yeti or Kangmi, or Mirka or Mi-Go, instead of about monkeys? Monkeys have long been familiar in India. How can we explain the sharp differences between the track photographed by Shipton and that described by Tombazi? Are there different kinds of Yeti, then? Quite a crop of highly significant questions!

On the quarter-inch Customs Map of Nepal (one inch to four miles, or 1:253,440) the Nuptse Lhotse Range has long borne a very remarkable designation: 'Mahalangur Himal—the Great Langur Snow Abode', or in other words, the Snow Range of the Great Langur Monkeys. This gives rise to serious thought.

While, in 1952, Dr Ed. Wyss-Dunant, the leader of the first Swiss Everest expedition, still clung to his old theory that the tracks he had seen in the Lobujya Khola were bear-tracks, it has recently become known that as long ago as 1948 two other Europeans met two Yetis in the Kangchenjunga Range (Bib. 198). Those concerned were Aage Thorberg and Jan Frostis, Doctors of Engineering at Oslo University, who were charged with a survey of the Zemu Glacier for the presence of uranium pitchblende, on behalf of the Indian Government in New Delhi. Two Hindus, Brahputra Biharo and Trimab Gelum, as well as two Sherpas and ten coolies were with them, and they were establishing a camp near the Green Lake (16,190 feet). On the morning of 6th June there were two fresh Yeti-tracks encircling the camp in the snow which had fallen overnight. Each footmark was about ten inches long and five broad, the strides about eighteen inches: one trail

was less deeply imprinted in the snow, and probably that of the smaller female. The two Norwegians decided to hunt these mysterious beings at the first opportunity, though the Indians had misgivings, in spite of their western education, and the otherwise courageous Sherpas were very disturbed about it.

When, after three days of snow, the weather cleared, there were fresh tracks. Thorberg and Frostis set out as quickly as possible, followed by Biharo and the two Sherpas, both being on skis and armed with an automatic carbine. The trail which they followed led south-westwards towards the Zemu Gap (19,230 feet) between Kangchenjunga and Simvoo (22,347 feet). Through glasses they could see the old trail high up under the saddle, enabling them to make a short cut and gain an hour on the Yetis they were pursuing.

At last the creatures themselves became visible. Seeing that the Sherpas were too frightened to go on any farther, Thorberg gave them his binoculars so that they might see for themselves. 'But those are monkeys!' they cried.

They hurried on up to the ridge. The small caravan had split into two parties and Jan Frostis with his Sherpas succeeded in cutting off the animals, which stopped and stood upright. This is his description of them:

Their whole body is covered in long, dark hair and only their face is bare: their eyes are half covered with bushy, overhanging brows. They are about the size of an average human-being; and their long hairy tail is obviously designed for balancing and steering purposes.

Frostis and his Sherpa closed in from one side, Thorberg, Biharo and their Sherpa from the other. The Yetis made no attempt to escape: on the contrary they prepared to give fight, baring their yellow teeth, growling on a deep note and pressing close to one another—now on all fours. Frostis raised his carbine to his shoulder, but Thorberg signalled to him to wait before shooting. He wanted to catch the animals or at least one of them alive; and with this intention he got the rope out of his pack, made a lasso and tried to throw it over the head of one of the Langurs. The beast seized the rope with lightning speed, while its companion made a leap on Frostis with such suddenness that he had no time to shoot and was sent sprawling in the snow by the force of the attack; nor could he get to his feet again at once, encumbered as he was with ski. His attacker, leaping on him, tore his wind-jacket with its nails and bit deep into his shoulder. Thorberg who had let go of the rope, was on the point of shooting, but did not dare to fire for fear of wounding his friend; so he preferred to keep

'his own' Yeti in the sights and at a propitious moment pressed the trigger. As the shot rang out and echoed back from the mountain walls, his attacker abandoned Frostis and followed its companion, at which Thorberg had fired, and which was now escaping, leaving a blood-trail behind it. Both big monkeys quickly disappeared behind a fold in the snow.

Nobody thought of pursuing them farther, for Frostis lay groaning in the snow; he had suffered a serious bite and was bleeding freely. Fortunately Biharo had an emergency medical pack with him: the wound was disinfected and dressed, and then Frostis was carried down on an improvised stretcher. The journey down to camp was not completed till nightfall. A serious infection of the wound yielded to penicillin; even so, the transport of the sick man to Lachen, the uppermost village in the Teesta Valley, and thence to hospital in Darjeeling proved an extremely difficult and laborious process.

It is a great pity that the Norwegians, in the heat of the chase and of the subsequent fight, missed the opportunity of photographing these giant Langur monkeys, which would have been the most important evidence of all. If necessary, one of the beasts should have been shot, as Jan Frostis wanted. One of the things which is not quite clear is how Aage Thorberg expected to capture so big and strong a monkey with an improvised lasso; and how was the transport from the Zemu Gap, at 19,200 feet, to the nearest Zoo going to be effected? Relevant as are these criticisms, the facts are vouched for by five people, two of them university-trained Europeans. So it may be taken as quite certain that there are monkeys of the size of human beings, which go up into the high levels of the Himalaya, nor can this fact any longer be sidetracked by mere denials, scornful references to laughable superstitions or by the war-cry of 'bear'.

It is becoming more and more likely that the trails of several different creatures are being lumped together as 'snowman tracks':

- 1 A species of Langur as large as a man, not exactly identified yet.
- 2 Bears, particularly brown bears, which reach a considerable size.
- 3 The Panda (*Ailurus Fulgens*) a herbivore belonging to the Raccoon family.
- 4 People, especially Tibetan hermits.
- 5 An intermediate type, partly animal, partly human, a kind of 'Ape-Man', or in other words a modern *Pithecanthropus Erectus*. This would, of course, be a scientific sensation of the first magnitude; but though frequently claimed or suggested this is highly improbable.

So it is surely high time to send out an expedition to enquire into the

problem of the Snowman, probably to the Gaurisankar Range in Nepal. Such a research party should include without any doubt, a zoologist, an anthropologist, and one or two big-game hunters who are at the same time good climbers and photographers (preferably with high-power telephoto-lenses).⁴

(c) THE SWISS EXPEDITIONS OF 1952

‘Alas, two spirits dwell within my breast!’ My inmost heart has always rejoiced in the inviolate defiance of the highest peaks in the world. All the same, I wrote in Bib. 49: ‘So they remain as the great tasks for all mountaineers who come after us. My effort was to help to prepare their way!’ And that has always been my pride and pleasure.

Everest had always been a British mountain; but at last the way was clear for climbers of another nation. Dr Edouard Wyss-Dunant of Geneva, doctor and naturalist, climber and traveller, was determined to make the attempt. Even in the Summer of 1950, before the Houston-Tilman Reconnaissance, he had frequently discussed the possibilities of the Nepalese side with me, both in Geneva and St Gallen, and I had recommended him to make his effort by way of the Khumbu Glacier, the Western Cwm, the South Col and the South East Ridge, with Cho Oyu as a reserve objective. The next problem was to make the necessary financial arrangements and obtain the Nepalese permit. Wyss-Dunant achieved this in co-operation with the City and Canton of Geneva, the Geneva Mountaineering Club, *L’Androsace*, and the Swiss Foundation for Alpine Research (S.S.A.F.) in Zürich, whose President Karl Weber and Secretary Ernst Feuz worked wholeheartedly in pursuit of this lofty aim. The Nepalese Government’s sanction for 1952 was obtained in November 1951, and at the same time the necessary funds for a large-scale expedition were available.

Wyss-Dunant himself led the first expedition in the Spring of 1952; René Dittert, the well-known Himalayan climber, was in charge of the climbing-party: André Roch was the photographer and film-camera specialist. The others from Geneva were Jean Jacques Asper, René Aubert, Léon Flory, Ernst Hofstetter, Raymond Lambert, and the expedition doctor was Dr Gabriel Chevalley of Bex. Apart from Dr Wyss-Dunant and Dr Chevalley, the scientific group consisted of a geologist, Dr Augustin Lombard, a botanist Albert Zimmermann, and an ethnologist, Frau Marguerite Lobsiger Dellenbach.

Wyss-Dunant and Feuz had, in the name of the S.S.A.F., proposed a joint Swiss-British Everest Expedition for 1952, but the British view—a not unjustifiable one—was that such an undertaking would become too large and cumbersome, and further that it was not advisable to

sacrifice unity of organisation and leadership. So in the most friendly spirit the British gave way to the Swiss for the 1952 attempt on Everest and contented themselves with an expedition to Cho Oyu (see p. 121): reserving for themselves a further attack, if necessary, in 1953.

On 20th March the first Swiss Everest Expedition left the airport at Geneva-Cointrin, with twelve members and five tons of baggage to be transported by air to Delhi and thence to Katmandu. The expedition started its march from Katmandu on the 29th of the month, with 165 coolies and twenty Sherpas under the famous Sirdar, Tensing Norkay Bhutia.

Their way for the first thirteen days lay eastwards, up and down, through the bumpy foothill-country, over passes 19,000 feet high, across deeply-riven valleys, and later northwards along the Dudh Kosi to Namche Bazar, where they exchanged the Katmandu coolies for high-carrying porters. On 23rd April they established their Base Camp close to the tongue of the Khumbu Glacier and by the 25th they had already pitched camp 1 at 17,225 feet on a debris-island at the foot of the Icefall. To climb straight through it in one day would have been far too long a stage for heavily-laden porters. They had to place a second camp in a dramatic but most uncomfortable spot, on a tiny ledge at about 18,375 feet, half way up the fall, between crevasses which were continually altering. By far the greatest difficulty was caused by the huge transverse crevasse which had repulsed Shipton's reconnaissance the previous year. Asper was the hero of the moment. After two risky pendulum-swings on the rope he obtained a foothold about fifty feet down in the chasm, where he managed to reach the opposite wall by a tottering ice-bridge. Then by a most difficult and exhausting piece of work, he cut a way up it and so made it possible to engineer an airy rope-bridge for men and loads. Camp 3 (about 19,350 feet) was sited a little above the great crevasse at the entrance to the Western Cwm proper. To have overcome this appalling Icefall was in itself an outstanding achievement. But now they had to face an almost worse ordeal; for this technically difficult and dangerously exposed route had now to be used as the supply-line along which heavily-laden men had to go every day for weeks. Day after day a column brought their burdens from Camp 1 to Camp 2, then went down again, while another party ferried the stuff between 2 and 3. These transport operations had to be carried out during the 'quiet' hours between seven in the morning and eleven o'clock, after which ice-avalanches began to thunder down the slopes, and kept up their cannonades right through the night and mostly till five o'clock in the morning. An outstanding feature in this great achievement was the

courage and quiet fatalism of the Sherpas, whose attitude was: 'If I am destined to die on Everest, I shall die there, if that is not my destiny, nothing will happen to me. So without any further ado, let me get on with the job.'

This Western Cwm, till then such a mystery, is a glacier basin about three miles long, framed between the West Ridge of Everest and the South West Wall of the South Col and the Lhotse-Nuptse Comb. This 'Valley of Silence' is probably unparalleled anywhere else in the world. Along it they pushed forward to establish Camp 4 at about 21,160 feet, and on 12th May Camp 5 was erected on the lower part of the Lhotse Glacier at 22,639 feet. They were now at the foot of the steep end-wall of the long corridor and the fight to reach the South Col (25,850 feet) began. Close to its true right-hand edge rises a rocky spur, which was at first given the name of the 'Eperon des Genevois' (Geneva Spur) and is now called the Saddle Rib. It is flanked on either side by two steep Couloirs, which after fresh falls of snow become dangerously exposed to avalanches, but after dry spells turn to grooves of bare ice. They explored both Couloirs as well as the *séracs* of the Lhotse Glacier and chose the right-hand or southern Couloir for their line of attack. After protecting the most uncomfortable part of it (about 500 feet long) with fixed ropes, they were able to establish an equipment dump as high as 24,600 feet. But now three valuable days were lost owing to gales and snowfalls, and it was not till 25th May that a rope consisting of Aubert, Flory, Lambert and Tensing with six Sherpas was able to set out on the first serious attempt to climb to the South Col.

Unfortunately Ajiba, a most reliable Sherpa, was taken sick after an hour and had to go back to Camp 5, his load being distributed among the others. A second vital mishap occurred soon afterwards, two of the loads being lost down the face of the great precipice, with sleeping-bags and camp-equipment for two people in them. Slowly they climbed out of the Couloir on to the first rocky step of the Geneva Spur, at the point where the supply dump had been established. There they had to pick up loads of provisions and tents intended for a sixth camp. So it was half-past-twelve by the time the nine heavily-loaded men continued upwards over the Yellow Slabs, the broad band which, geologically, probably corresponds to the 'Norton-Traversal' on Everest's North Face.

By four o'clock the goal was not yet in sight. Mingma Dorji and Ang Norbu, who were not intended to spend the night at the Col, had now to be sent down, and that meant more weight for the Sahibs and the four remaining Sherpas, Tensing, Da Namgyal, Pasang Phutar and Phutarkay, to carry. The wind began to freshen and threw

waves of snow and ice-particles in their faces. The situation began to look grim. At a height of about 25,600 feet an emergency bivouac became essential; but where on the whole of this vast face could they find a level place? It was 7.30 p.m. before these terribly exhausted men at last succeeded in scratching two scores in the hard, wind-packed snow and somehow or other putting up two tents on them. With two small tents as shelter for seven people, far too few sleeping-bags, intense cold and a raging wind, it was a ghastly night.

At noon on 26th May they at last reached the South Col, by climbing over Point 26,248 (8000 metres) which overlooks it, and stood on what must be the highest true Col in the world, at 25,850 feet. The Sherpas went down again to fetch up material left at the bivouac place, and by nightfall Camp 3, consisting of three tents, had been established in the broad saddle between Lhotse and Everest. All that night too the storm-winds tore at the guy-ropes and on the morning of 27th May only the three Sahibs and Tensing were fit for action.

Two ropes of two plodded slowly across the dip of the South Col to the foot of Everest's South-East Ridge soaring above; they first attempted to reach it on the right by the eastern side, but found the going so steep that they turned leftwards and tried the southern slope. Here they found a broad Couloir, and by ascending it and rocky steps above it, they reached the ridge and found a good place for a tent at about 27,230 feet. This Camp 7 consisted of a single tent, without a sleeping-bag, without so much as a cooker—to all intents nothing but an emergency bivouac. In spite of which Tensing proposed that a rope of two should spend the night there and make an attempt on the Summit in the morning. Aubert and Flory agreed to this and went down to Camp 6 in the Col, leaving Lambert and Tensing in occupation.

This was the eve of the final decision. There in Camp 7 the two men sat shivering with cold on the bare floor of the tent, melting some snow with a candle, which was also their heating apparatus. They were racked with thirst as the slow hours limped on. At long last the dawn of 28th May began to glimmer and the two lonely climbers made their last preparations.

The ascent of the South-East Ridge is technically easy, but every step demanded three breaths and they kept on having to stop in order to take a couple of whiffs from the ineffective oxygen apparatus. The highest of Lhotse's three crests now lay below them, but the weather began to deteriorate. Veils of mist began to envelop the ridge and it started to snow. Tensing was suffering from severe attacks of vertigo—the direct effect of lack of oxygen. Even so they managed to press forward for another rope's length or two. They had reached a point

at about 28,050 feet, roughly 650 feet below the South Summit (28,722 feet).⁵

In the last hour they had improved their height by only a hundred and fifty feet. It was now 11.30 and they would have needed eight hours to reach the True Summit. They had reached the limit of human endeavour and it was now imperative to turn back. They left the little tent where it was and climbed down the Couloir to the South Col. Both men were utterly 'done': a tiny rise in the hollow of the Saddle proved too much for them and Aubert and Flory had to bring them in to the tents at Camp 6. The effort had truly been pushed to the very limits of possibility: had Lambert and Tensing gone any farther, or tried to reach the South Summit, they would never have come down alive. At such altitudes even the descent is a terrific exertion.

On 29th May the whole party descended from the Col to Camp 5. At about 24,600 feet they met the second party coming up, consisting of Dittert, Chevalley, Asper, Hofstetter, Roch and five Sherpas. This was the second line of assault, the very last effort (which actually succeeded) to reach the South Col Camp in a single stage, with no intermediate Camp. But three of the Sherpas, unable to stand the altitude, had to go down at once and the two who stayed were completely out of action. Even then they might have achieved something, if the weather had not decided to put paid to the whole enterprise. For on the night of 30th-31st May a terrific gale swept Everest's high ridges and roared through the South Col, clutching at the tents and numbing all human powers of resistance to such an extent that a decision was taken on 1st June to retreat. After three dreadful nights they were barely able to reach the little crest of the Saddle Rib above the Col (Point 26,248: 8000 metres) where the descent proper begins, and some of the party even had to bivouac on the narrow ledge where the supply dump had been, at 24,600 feet. Luckily it was a comparatively quiet night.

On 5th June the whole climbing party was back at Base Camp; and four days later, when the whole expedition including the Scientific Section re-assembled at Namche Bazar, it was to the accompaniment of the Monsoon's first heavy downpours.

The Swiss Everest Expedition was however not abandoned, but only interrupted and continued after the Monsoon. The team had to be altered to some extent. The over-all leadership was this time assumed by the Vaudois, Dr Gabriel Chevalley of Bex, who was qualified to act at the same time as the party's doctor. The Genevese Guide, Raymond Lambert, was placed in charge of the actual climbers, in the

unavoidable absence of Dittert. The other members were Ernst Reiss from Davos, Arthur Spöhel of Bern, Gustave Gross from the Valais, Jean Buzio of Geneva; and these were joined by my son Norman G. Dyhrenfurth, who is the professor in charge of the film section of the University of California at Los Angeles, as photographer and film-cameraman.

Six of them flew to India on 28th August 1952. Norman followed them on 2nd September and caught them up at Delhi, but had to stay behind there and wait while he too went through the formalities of obtaining a Nepalese visa. Meanwhile the main body left Katmandu on 10th September with two hundred and fifty coolies and fourteen Sherpas. The approach route was now in a very bad state owing to the heavy Monsoon rains, and the expedition got into serious difficulties on a 14,000 foot Pass between Ringmo and the Dudh Kosi Valley. Owing to heavy snow two coolies died of cold and exhaustion; innumerable loads were abandoned up there and could only be retrieved when the weather improved a little. Local porters from Sola Khumbu, used to mountain conditions, leaped into the breach and eventually the whole machinery was got going again. They reached Namche Bazar on 29th September and there enjoyed two well-earned days of rest.

On 2nd October they moved off again, with about 300 porters both men and women, and among them twenty-two Sherpas and twenty special porters carrying long tree-trunks with which to bridge crevasses.

They did not waste any time at the site of the old base camp, as it had been decided in the Spring that it was too far from the foot of the Icefall. The new base was fused with Camp 1 on the debris patch at the bend of the glacier close to the Icefall. The work was started on the very next day.

Meanwhile Norman Dyhrenfurth had flown from Delhi to Patna, travelled by train to Jogbani and was continuing on foot with his splendid Sherpa Ang Dawa by way of Biratnagar, Dharan, Dhankuta and Dingla. As he was bringing up quite a quantity of baggage for the expedition, he needed for his adventurous 'private' journey through south-east Nepal about fifteen coolies, who were not easy to come by in these parts. But on the sixteenth day from Dharan, 14th October, he reached Namche Bazar and was at Base Camp four days later.

On 10th October Camp 2, in the middle of the Icefall, was occupied: four days later they were at Camp 3 on the threshold of the Cwm. This time they built an airy log-bridge across the famous crevasse and this saved a great deal of time. On the 20th, Camp 4 was in being at 21,162 feet on the glacier-floor of the Cwm and this was gradually

reinforced till it became a strong support-base, where further acclimatisation could take place. Now everything was ready for the battle for the Col. Which route should they follow this time: the direct ascent over the Geneva Spur, or the easier but longer route, farther southwards to the right, up the Lhotse Glacier? In the Spring snow-conditions on the Geneva Spur had been fairly favourable, but now the greater part of the 'Lhotse Funnel' was sheet-ice. All the same, Lambert chose the direct route. Camp 5 was sited at about 22,310 feet, on a small terrace a little lower than in the Spring. The intention was to cross the *bergschrand* from this camp and then to make a carefully prepared staircase, safeguarded by a rope handrail fixed to ice-pitons, to facilitate a rapid climb up this ice-face to the rocks of the Geneva Spur.

After several days' hard work a considerable part of the sector had been prepared, when on 31st October a heavy fall of ice swept down on several ropes engaged in climbing on the face. The whirling ice-fragments, hurtling down from a great height in the Lhotse Funnel fatally injured Mingma Dorji, one of the pluckiest of the 'Tigers', and hurt a number of the others less seriously. Obviously unnerved by this accident, a rope of three Sherpas climbing on easy ground close below the *bergschrand* slipped and went flying down some 700 feet into a hollow and only stopped on its opposite slope.

This 'Black Friday' was a heavy blow to the expedition. On 1st November, All Souls' Day, they laid Mingma Dorji to rest in the moraine near Camp 4, at the foot of Everest's stupendous South Wall. Chomo Lungma, the 'Goddess Mother of the World' had summoned one of her most faithful sons. Three other Sherpas were seriously though not fatally injured and the remainder deeply impressed, and for a time somewhat demoralised. The whole supply-organisation had to be built up anew.

But the Swiss climbers were not yet going to admit themselves beaten, although a new route had now to be taken; new Camps 6 (23,300 feet) and 7 (24,250 feet) were promptly established on the Lhotse Glacier. The mountain was defending itself with its most punishing weapon—the fierce winter cold and terrible gales which, particularly at Camps 5, 6 and 7, tore at the tents and quenched the little glimmer of human strength still alight. It was not till 19th November that Lambert, Reiss and Tensing, with seven Sherpas, reached the South Col and managed to set up Camp 8 of the Autumn-attack on the spot where Camp 6 had stood in May (25,850 feet).

It was a tremendous effort of determination, but there could be no serious thought of climbing to the Summit. When, on 20th November, the three climbers moved upwards towards the South-East Ridge,

they were met at about 26,600 feet by a hurricane of polar temperature and intensity which set a barrier it would have been sheer suicide to cross.

Only by calling up their last reserves did they surmount the little rise to Crest 26,248 on the way back. After that they descended on a good track across the Traverse and down the Couloir to Camp 7 on the upper Lhotse Glacier, arriving there late in the afternoon, ten utterly exhausted men, who had done their best and now had nothing left to give.

On 21st November they got down to Camp 4 and on the 22nd reached Base Camp safely, though 'even down there' a terrible storm was raging. The march back to Katmandu went according to plan and the seven Swiss climbers arrived back in Geneva by the Air India regular service on the morning of 31st December 1952, in time for New Year's Eve.

The struggle for Everest—that Sisyphean mountain—had already been on for more than three decades. Yet, in the end, just as human perseverance had defeated the North and South Poles, so one day it was fated to triumph over the Earth's Third Pole—Mount Everest!

(d) THE DECISIVE YEAR 1953

It was intended from the outset that the new British Everest Expedition should succeed, if humanly possible, and it was preceded by the most meticulous preparations. Colonel John Hunt is a splendid climber, particularly experienced in the Himalaya, and himself accustomed as a staff officer, to plan precision operations and to get them carried out by his subordinates. The other members were George Band, T. D. Bourdillon, Dr R. C. Evans, A. Gregory, Edmund P. Hillary and W. G. Lowe (New Zealand), C. W. F. Noyce, Griffith Pugh as physiologist, R. F. Stobart as photographer, Dr M. P. Ward, M. H. Westmacott and C. G. Wylie; with Tensing Norkay as a member of the climbing party as well as Sirdar of the Sherpas. This was a team as strong in climbing skill and experience as it was in numbers (Bib. 60 and 101).

In providing the equipment, great attention was given to the experience of previous expeditions. They even took along a thirty-foot extensible aluminium ladder to assist in crossing the huge crevasses, rope ladders and pulley-tackle for the transport of loads, a light mortar to bring down avalanches, radio-sets, highly developed cold-resisting clothes, a new and very efficient model of primus stove and two different types of oxygen apparatus. In the first or 'Open Circuit' type which has been given many trials over the years, the cylinder is

worn on one's back and air mixed with oxygen is drawn in through a mask, through which it is again exhaled into the open air outside. Since the body has only absorbed part of the oxygen a great deal of life-supporting gas is lost in the process. In the second or 'Closed Circuit' type, there is no contact with the outside air and the oxygen content of the exhaled breath is used again. This system is more economical, but drawbacks had always been the great resistance to breathing⁶ and the all-too-short experience of its operation in climbing at great heights. All the oxygen apparatus were a vast improvement over earlier models. An open-circuit apparatus with two cylinders weighed 30 lb and, if economically used by a climber, lasted at least five hours: and it was calculated that in the last stages of the climb 500 feet an hour would be possible instead of 100 to 130.

In order to allow enough time for basic training, acclimatisation and practice with the oxygen gear, the main bodies left Katmandu on 10th and 11th March.

The last detachment, which still had 111 cylinders of oxygen to deliver, set out under the command of Major Roberts⁷ at the end of the month. Meanwhile, on 26th March, the first party had reached Thyangboche, where Wylie, the transport officer, paid off the Katmandu coolies. A well-planned period of acclimatisation followed, during which everyone was familiarised with the special equipment down to the last

Plate 9: The Lhotse Comb from a point in the Kharta Valley at about 19,700 feet; the valley is separated from the Kangchung Glacier by the low ridges in the centre. To the right at the top edge, the South Col (25,850 feet), then Lhotse's three Summits, the first (northern) of which measures 27,891 feet, the third 27,560 feet. The long East-South-East Ridge carries two considerable but nameless subsidiary Summits. *Photo: Everest Expedition 1921.*

Plate 10: Taken from near Thyangboche. The tip of Everest's Summit-pyramid is just seen over the long Nuptse Ridge. Lhotse is here seen as a great rock massif. *Photo: H. W. Tilman 1950.*

Plate 11: The shadows of Makalu's South-South-West Ridge, running down towards the beholder, fall across the mountain's terrific West Face: nor is the South-East Face any more inviting. *Photo: Houston Everest Flight 1933.*

Plate 12: It is problematic whether the saddle between Chomo-Lönzo and Makalu can be reached from the west (right). *Photo: K. Howard-Bury 1921.*

Plate 13: The moraines of the upper Glacier-fields appear like great sweeping currents in this birdseye view, taken from the foot of the Great Gendarme at the top of the Abruzzi Rib of K². *Photo: Fr. Wiessner 1939.*

Plate 14: K²'s steep Summit cone rises above the Shoulder-Terrace, with the South-East Ridge to the left, the North-East Ridge to the right and the great Ice-bulge below the Summit. *Photo: H.R.H. the Duke of the Abruzzi 1909.*

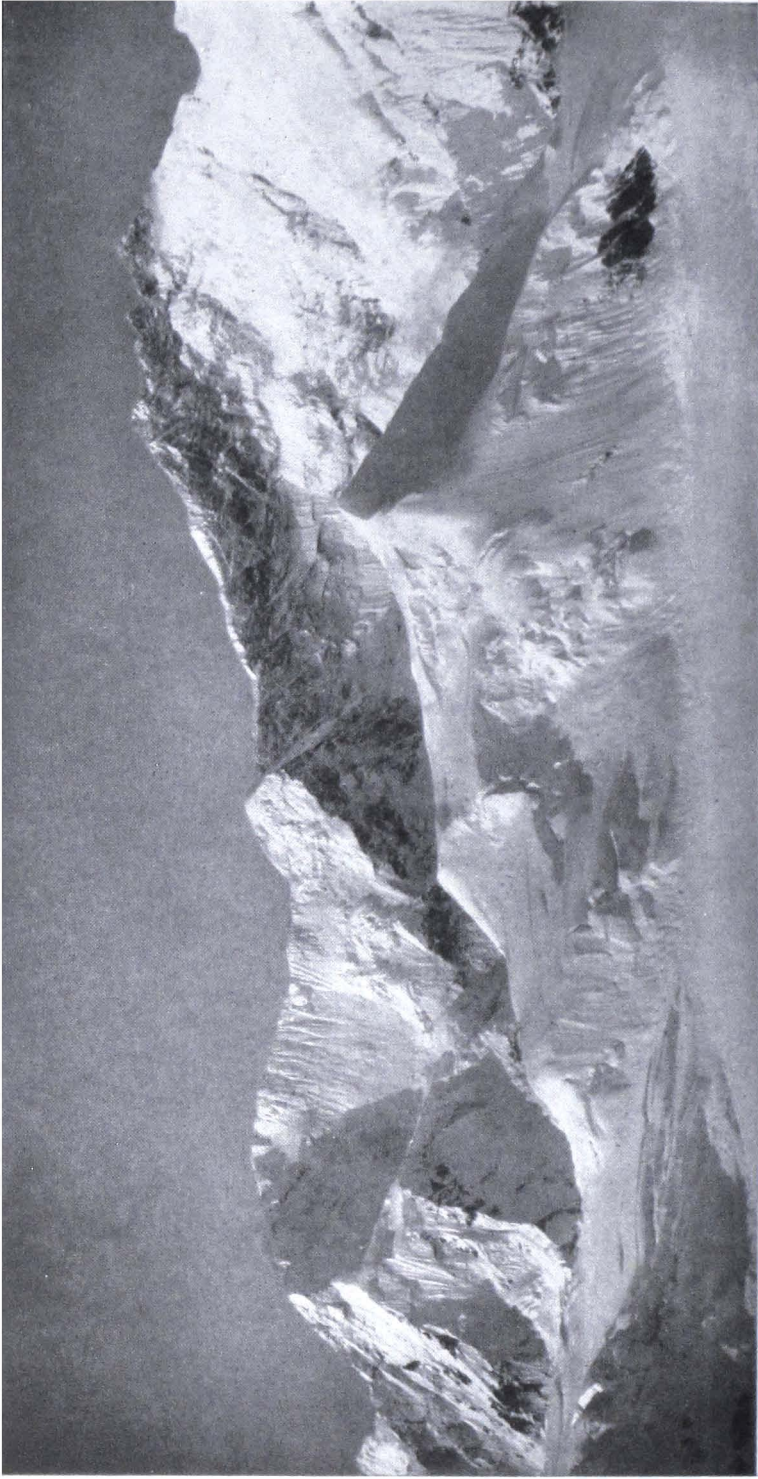


Plate 9 The Lhotse Comb

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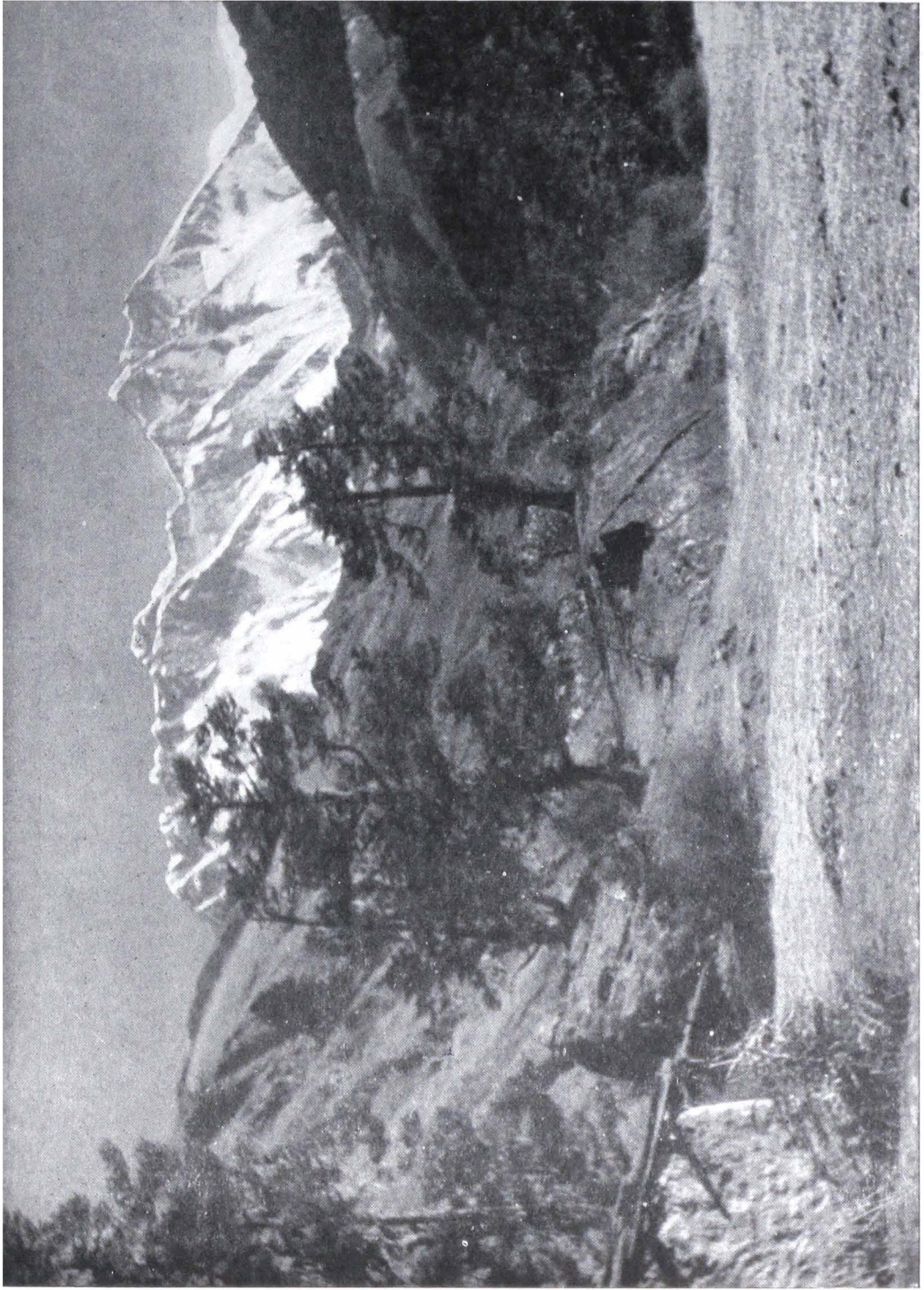


Plate 10 Nuptse-Everest-Lhoitse from SW.



Plate 11 Makalu (27,937 feet) from SW., from an aircraft at over 30,000 feet, above the Barun Valley

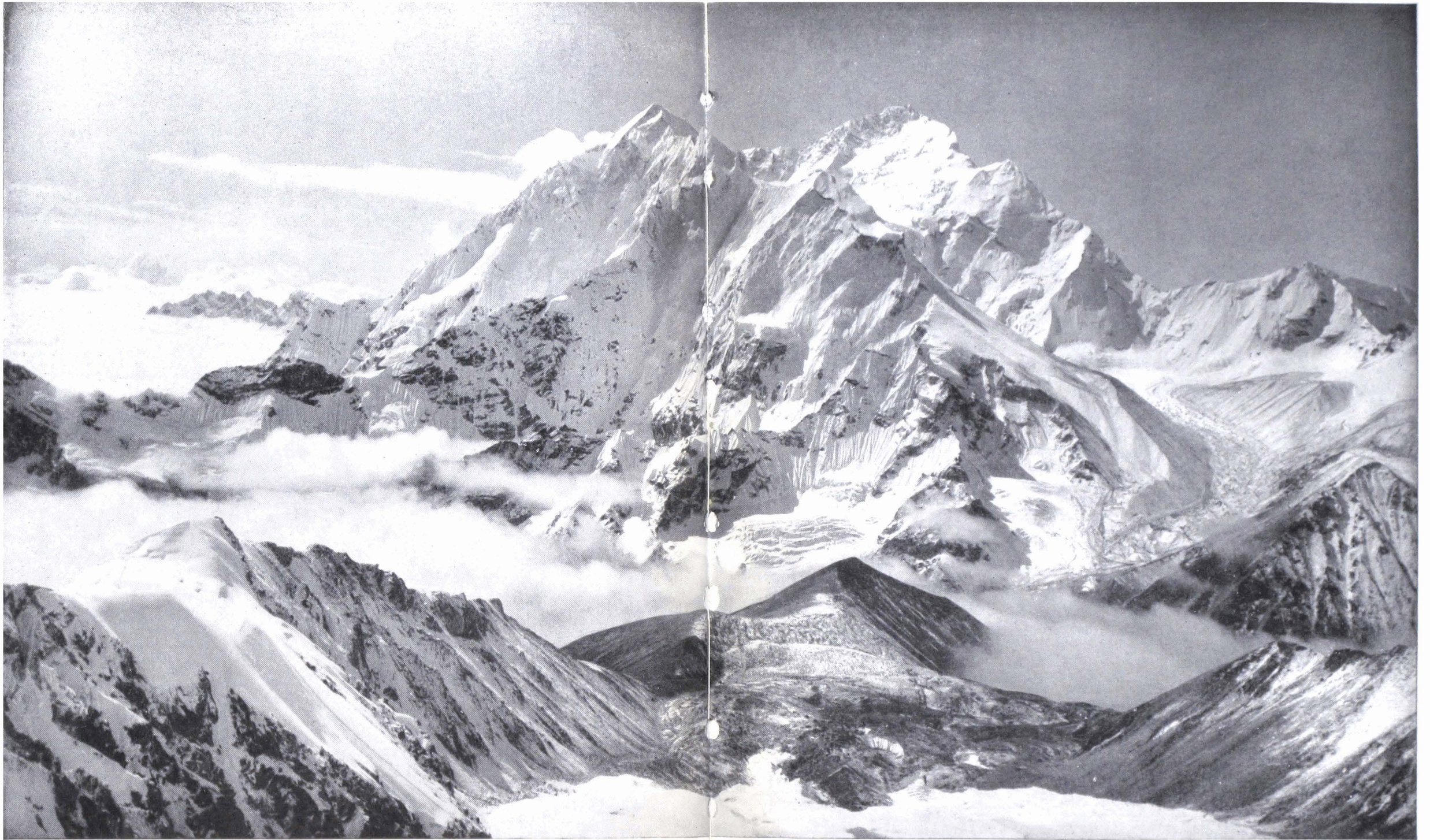


Plate 12 Chomo-Lönzo's steep walls (25,640 feet) tower above the cloud-filled depths of the Kama Valley: to the right Makalu (27,931 feet). From the NNW.



Plate 13 Looking down, from Camp 6 (23,300 feet) on ^{to}, on to the Godwin Austen Glacier, Concordia, the middle Baltoro and Vigne Glacier. At the left of the picture the huge trapeze of Chogolisa (25,112 feet)

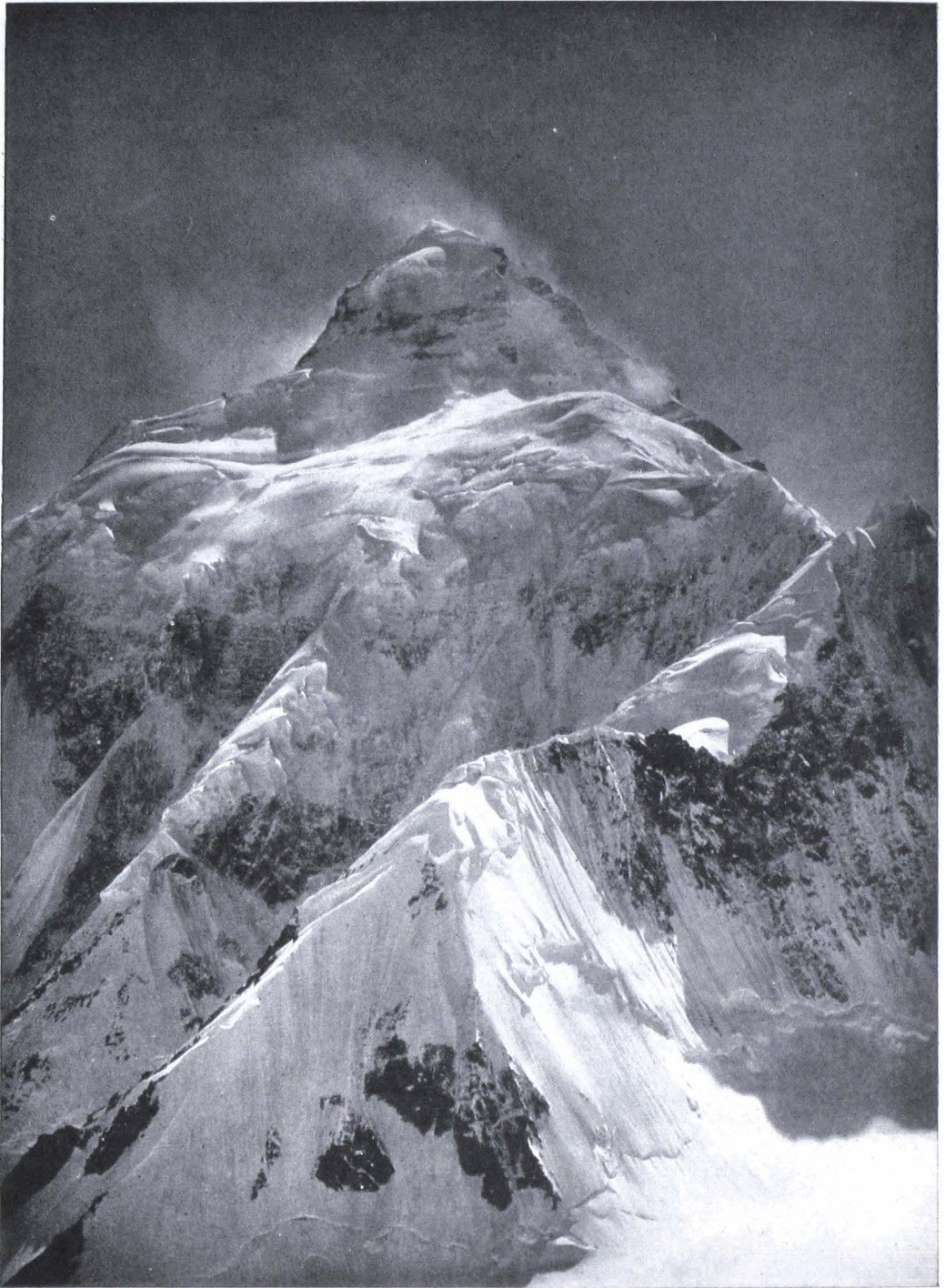


Plate 14 K², the 'Mountain of Mountains', from NE., at about 21,650 feet. In the foreground the SE. Ridge of Subsidiary Pt. 6821 (23,380 feet)

detail, and worked up to a high pitch of efficiency and form by a two-stage training programme. Even the best of the Sherpas were made familiar with the use of the oxygen, which has never been done before: they were all enthusiastic about it. In the course of all this a number of peaks between sixteen- and twenty-thousand feet were climbed and the lower part of the Khumbu Glacier reconnoitred.

With the arrival of Roberts' party in Thyangboche on 17th April, bringing up the big reserves of oxygen, the team and equipment of this large expedition were complete. The next move was to strike the training camp and, with the help of about 300 porters, effect the migration into Base Camp (17,225 feet), a considerable undertaking. Thirty-four of the best Sherpas were retained for the work on the actual mountain. Camp 2 was sited half way up the Icefall, in about the same area as the Swiss Camp 2, although the heights given do not tally. This time Camp 3 was established just below the huge lateral crevasse, which it proved possible to bridge with three sections of the portable ladder. That was the key to the Western Cwm, which now lay open; and Camp 4, at 21,160 feet, was then equipped as an advanced Base Camp. Considerable quantities of Swiss provisions were found there, a welcome addition to the British bill of fare: this suggested a search on the site of the Swiss Camp 3—above the great crevasse and rather higher than their own Camp 3—and further supplies left behind by the Swiss in the previous Autumn were duly garnered.

For the next weeks Camps 2 and 3 were the turn-round points for the relays of transport between Camp 1 and Advance Base Camp 4: the normal load carried being forty pounds.

In spite of the dangers on the Icefall, which was continually in motion, this shuttle-service went off absolutely according to plan. Meanwhile the preparation of the Lhotse Face had already begun, using the route followed by the Swiss in the Autumn. A tremendous piece of work in the preparation of this 'high-road' to Camp 2 was done by the New Zealander Lowe, with his Sherpa Ang Nyima. The pegs used by the Swiss were renewed, fixed ropes provided and a few more safety-rails of rope introduced on the steeper ice-slopes.

It took days of tremendous hard work to establish a new Camp 7 at 25,853 feet and equip it with every necessity for the attack on the Summit: then a track had to be made for the great Traverse, diagonally upwards to the left, through the scoop high on the Lhotse Face, to the 26,350-foot crest above the South Col. Of the eleven climbers in the party, no fewer than nine climbed from the advanced Base Camp to the Col, three of them twice. Of twenty-five Sherpas, nineteen carried loads of from thirty to forty pounds up to the Col, six of them on two occasions. These magnificent performances were the direct result of

the training-period at Thyangboche and the provision of oxygen. Without these carefully planned aids it would have been impossible to equip Camp 8 amply with protective material against the cold, or with adequate food, fuel, oxygen supplies and all the other essentials, to such effect that the men were able to endure the rigours of that inhospitable place for periods up to four days and nights.

By 24th May Colonel Hunt was ready for the attack: he himself, with two Sherpas, accompanied Bourdillon and Evans, the pair on whom his choice had fallen for the first assault, to the South Col. On 26th May he started from there at about seven o'clock with the mission of establishing a 'highest ever' Camp 9 on Everest's South-East Ridge. He and his Sherpa were using open circuit oxygen and both were carrying heavy loads of nearly fifty pounds.

Bourdillon and Evans, starting half an hour later and using closed circuit oxygen, were therefore soon able to overtake them. This strong pair pushed on, to reach the South Summit (28,722 feet) in just six hours—a magnificent performance, giving a height-gain of almost exactly 500 feet an hour. This, of course, was by far the highest point yet reached by any climbers anywhere: they were also in a position to see for the first time at close quarters the half mile or so of the final ridge to the actual Summit of Everest. On the Kangchung side it was heavily draped with enormous cornices and looked fairly daunting: there was not the slightest hope of tackling it within the space of that day. It will thus be seen that any suggestion of failure on the part of Bourdillon and Evans is quite wrong: they had completely fulfilled their mission when they turned back for the South Col.

Meanwhile Hunt and Da Namgyal had fought their way up on to the South-East Ridge, reaching it at about 27,230 feet, at a point where they found the remains of the tent which had housed Lambert and Tensing in the spring of 1952. Calling on their last reserves of energy, they struggled up another hundred and fifty feet, dumped their loads there and—in order to spare the small supply available up there—returned slowly to the Col without using oxygen. Hunt's performance had been truly remarkable for a man in his forties.

On the same day, 26th May, the second assault party, consisting of Hillary and Tensing, came up to the Col from Camp 7 on the Lhotse Face. Supporting them were Lowe and Gregory, with three Sherpas, Ang Nyima, Ang Temba and Pemba, whose job it was to establish Camp 9, and five more Sherpas entrusted with the carry of loads as far as Camp 8, returning from that point. After the dreaded climb to the Col, Hillary was still so fresh that he was able to go out and meet the exhausted Hunt and Da Namgyal coming down from the Ridge, and two hours later, when Evans and Bourdillon emerged from the clouds

and slowly began to move down through the broad steep Couloir, he went out again to meet them with hot drinks and to help them in to camp.

There was a terrible gale in the night and the cold was bitter: when 27th May dawned, conditions allowed no thought of an attempt on the Summit. However, when they improved slightly for a time, Hunt, Evans and Bourdillon snatched the opportunity to start their withdrawal to Camp 7, taking the sick Sherpa, Ang Temba, with them. It was a very exhausted party of four which dragged itself up over the little crest (26,350 feet) and then slowly descended the long Lhotse Traverse. Up at the Col things remained very uncomfortable throughout the day, and the men had to endure another bad night. But just before dawn on 29th May the wind dropped and a start became possible, though Pemba had, unfortunately, gone sick in the meantime, leaving only Ang Nyima of the three Sherpas intended for the job of establishing Camp 9. The loads had to be redistributed and reduced to the very minimum: in spite of which Lowe, Gregory and Ang Nyima, who started off at a quarter to nine using oxygen at a rate of four litres to the minute, had each to carry more than forty pounds. Indeed, Hillary and Tensing, following at ten o'clock, each carried nearly fifty. When, at noon, they caught the other rope up, they all rested together at the suitable spot near the remains of the Swiss tent, before moving on again.

They did not consider even Hunt's dump at 27,400 feet sufficiently high for a last camp before the dash for the top; so they divided the extra load among them till Ang Nyima had 'only' forty-five pounds, the other four about sixty pounds on their backs. To have been able to hump loads of this magnitude at such extreme heights is of course unheard of, nor could the British team have managed it without the oxygen equipment. The rocks of the South-East Ridge are comfortably inclined, but the steepness of the climb under such fearful burdens was a terrible strain; and presently it became time to look about for a spot on which to camp. Nothing could be found on the crest of the Ridge, but Tensing remembered having seen something moderately passable on its left side, during his attempt with Lambert the year before. A little below the highest point reached on that occasion they actually came to a less abruptly sloping place below a small cliff. The three 'Porters', Gregory, Lowe and Ang Nyima, dumped their loads with a deep sigh of relief and began their descent to the South Col—wearing but satisfied with the height they had achieved. They had indeed contributed measurably to the final success.

Hillary and Tensing took off their oxygen apparatus, in order to save the precious gas, and started getting a camp-site ready. With

great difficulty they prepared two small shelves, at an angle of 30° , six feet long and eighteen inches wide, about six inches above each other. Then they had to get the tent up, stretch it and anchor it, so far as possible, over these sloping staircase-treads. Camp 9 (27,900 feet) was therefore not exactly comfortable; but by way of compensation it was by far the highest ever.

Hillary now checked the oxygen, only to find that each of them had one and two-thirds bottles less left than they had reckoned on. One light metal cylinder, weighing eleven pounds when full, has a capacity of 800 litres of compressed oxygen. At a flow of four litres to the minute, or 240 to the hour, this would be insufficient to last out over the attempt on the Summit. So he had to decrease the rate of flow to three litres a minute. Fortunately Bourdillon and Evans had left two bottles still containing 250 to 300 litres just below the South Summit three days before: Hillary was now able to count on these as a last reserve for the descent to the South Col.

They dined on plenty of sweets and great quantities of liquids, then settled down for the night. Tensing had spread his air-mattress on the lower shelf; Hillary, who is six feet tall, arranged his great length in a half-sitting position on the upper ledge, bracing his feet and shoulders against the tent every time a sudden gust of evening wind tore at it. The night gradually became still and cold (minus 27°C), and they felt well, and were even able to sleep at times, so long as they continued to breathe oxygen at the reduced rate of one litre a minute. But as soon as they put aside even this weak supply of gas, they began to freeze and felt wretched.

Day began to dawn, the weather was gloriously fine. Abysmally far down in the depths they could recognise the friendly Monastery at Thyangboche; all around them the peaks flashed to the early morning light. They got the cooker going and breakfasted on plenty of fruit-juice and sugary water, so as to compensate the weakness which comes of loss of body-moisture. At six-thirty they were ready to start. Hanging their thirty pound weight of oxygen apparatus on their shoulders, they took a few deep breaths and moved onwards and up. . . .

A long traverse upwards to the right took them on to the Ridge, which they reached at a snow-crest, at about 28,000 feet. A sharp arête of loose snow curved leftwards up on to the face: it was steep and crumbling, and not very comfortable going. But the ridge suddenly eased off and there, lying in a flat depression, were the oxygen bottles left by Bourdillon and Evans. A steep snow-slope rose up to the South Summit above them—in dangerous condition, but there was no alternative: above it the snow became firmer and their crampons could

bite on it. About nine o'clock they stood on the South Summit (28,722 feet).

Here they jettisoned the first two oxygen bottles, which had only been two-thirds full when they started and were now empty. Each had now one full bottle left, giving 800 litres for four and a half hours at a flow of three litres to a minute: the apparatus now weighed only twenty pounds. Both men felt in very good form as they climbed down from the South Peak to attack the Ridge which links it with the Main Summit. Here the snow conditions could not have been better: hard snow, in which two or three blows from the axe were enough to cut a good step, even for their outsize high-altitude boots. The axe-shaft, too, could be driven with a good push to about half its length so that, exchanging the lead, they were able to give each other full protection as they moved forward.

The huge cornices on the Kangchung side mostly constrained them to keep over to the left, close to the rocks, or even on them. At a difficult spot, Hillary, who was almost constantly in the lead, noticed that Tensing was struggling to get his breath. A rapid check of the oxygen apparatus showed that his two-inch breathing tube was almost completely iced-up. Hillary cleared it out, attended to his own as well and everything was soon in order again.

The weather remained as good as it ever can be on Everest's Summit Ridge. Both men were amply protected against the cold by their special clothing, and the wind which drove the fine snow-dust up there had for once no venom in it. After an hour they stood at the foot of the critical spot, a precipitous rock-step about forty feet high, which had already aroused misgivings when studied from Thyangboche through field-glasses. At such a height, what would have been, in the Alps, an interesting and difficult piece of climbing could prove a decisive barrier. Luckily Hillary found a narrow crack close to the eastern side of the rock, between it and a giant cornice; it looked somewhat risky, but it had to be tried. He wriggled into this chimney, dug his crampons into the frozen snow at the back, making use of every irregularity in the rock-wall with hands, shoulders and knees, and slowly worked his way upwards, till he was able to get a grip over the top edge of the rock and pull himself up on to a broad shelf. As soon as he had recovered sufficiently, he brought Tensing up on a taut rope; he too collapsed breathless on emerging from the top of the chimney.

So they went on, with huge cornices on the right, steep slopes on the left, while Hillary hacked step after step up the curve of the crescent-shaped ridge, higher and higher all the time. The ridge swung slightly to the right—and still it went on and up . . . crampons alone were insufficient and it was a case of steps all the way: the slope

was too steep, and at that altitude one's sense of balance is not absolutely reliable. Even Hillary, for all his toughness, was gradually getting tired and Tensing, second on the rope, was beginning to move very slowly. Then suddenly the ridge fell away steeply before them; there, far below, was the East Rongbuk Glacier, and a few more nicks with the axe brought them out on to the Summit.

Handshakes and shoulder-thumpings followed: Tensing's radiant grin could be seen through his goggles and oxygen mask. It was eleven-thirty; the ridge from the South Summit had taken two and a half hours and had left them with only two hours of 'oxygen time'. Hillary took his mask off, set the camera and began to take photographs all the way round: Tensing was taken with the flag of Nepal, the Union Jack, the Indian and United Nations colours stretched on a line: then, in succession, all Everest's ridges, down to the glaciers below, and shots towards Makalu and the Kangchenjunga Group—a priceless documentation of 'One crowded hour of glorious life'.

After ten minutes Hillary felt his fingers growing stiff and difficult to move, in spite of layers of protection against the cold; so he quickly put his oxygen mask on again and a couple of deep breaths brought relief. Meanwhile Tensing had buried some sweets, biscuits and a piece of chocolate in the snow, the tribute of a devoted Lamaist to Chomo Lungma, the Goddess Mother. They looked in vain for traces of Mallory and Irvine. Then, after one more glance over the whole world, stretching like a giant relief map far away into distant Tibet, they started on their downward way.

They moved down quickly in their well-made tracks; and soon the awkward spot at the precipitous rock-step lay behind them. They made their way with great care across the rock traverses, and on the untrustworthy snow-slopes they moved one at a time, alternating in protecting each other. From the Summit to the South Peak, including the slight climb, took only an hour. Here, with a bare hour's 'oxygen time' left, they swallowed some strongly sugared lemonade; then followed the dangerous descent of the great snow-wall. Down it Hillary cut every step with extreme care, and when they at last got off the slope on to the firm crest of the Ridge, they exchanged glances—words were unnecessary. Two very tired men plodded on down to the two oxygen bottles left by Bourdillon and Evans; buckling them to their apparatus, they continued on their weary downward way and by two o'clock—at long last—they were safely back in Camp 9, the little tent on the built-up platform which receives pretty rough handling from the afternoon winds. Tensing got the primus stove going and brewed more sugary lemonade. Hillary switched the oxygen apparatus on to the two last partially-filled bottles and reduced the flow to two

litres a minute. Then they packed up the sleeping bags and air-mattresses, strapped them to the carriers on their backs and so downwards again, moving with the utmost caution, even if the Ridge is not very difficult.

At the old Swiss camp they turned down into the broad Couloir, but here they met with an unpleasant surprise. The fierce wind blowing through the Col had obliterated all their yesterday's tracks and for five rope's lengths Hillary had to start hacking steps all over again. Then Tensing took over for the next 100 feet, till the snow became softer and they could kick steps again. Slowly, very slowly, they crossed the slopes above the Col. Here Lowe and Noyce met them with hot soup and fresh oxygen, and received with acclamation the joyful tidings of victory.

But the successful climbers were too tired to respond. They could only drag themselves with their last remaining strength to the Camp on the Col and crawl into their tent and then into their sleeping bags. Let the unfailing wind which sweeps that fearsome place howl as loud as it could, they were safe home at last, in the good care of their friends.

Such was the Epic of the Conquest of Everest. But it would be very wrong to award the laurels to Hillary and Tensing alone; for this was a triumph of perfect team-work, beyond praise. From the competent, clear-headed, determined leader, down to the last porter, the whole British team had given of its best. Moreover this expedition climbed on the shoulders of the two Swiss Expeditions in 1952; they, again, stood upon the shoulders of many predecessors. Every Himalayan pioneer, climber or scientist, topographer, photographer, and purveyor of equipment had a hand in this. Theirs, universally, is the triumph over Mount Everest, the Peak of the World.

CONCLUSION

Everybody knows that the news of the conquest of Everest arrived in London on 2nd June 1953 just in time for Queen Elizabeth II's Coronation Day. The synchronisation could not have been better if there had been a conductor. Colonel Sir John Hunt and Sir Edmund P. Hillary received knighthoods, and Tensing Norkay, too, received high honours from Nepal, India and Britain.

The Everest drama was followed by a short satirical *scena*, in the form of a Press feud—not of course between members of the expedition, but between a number of newspapers, during which certain reporters somewhat naughtily poured fuel on the fire. The row turned on the question whether Hillary or Tensing had stepped first on to the

Summit. Neither of these partners on a single rope separated by a few yards said a word about it. The ascent of Everest is not, after all, a hurdle race, the result of which can be measured in split seconds. Anyone who has not grasped that fact has failed to grasp the most elementary aspects of mountaineering.

THE OXYGEN APPARATUS

The final model of the Open Circuit Type, which was the result of many experiments, comprises three light metal cylinders, with a capacity of 800 litres each, thus giving in all 2,400 litres of oxygen under pressure. The weight of the complete apparatus when full is about forty pounds: if two bottles are used, it still weighs thirty pounds: with one bottle, a little less than twenty. The pressure of about 3,300 pounds to the square inch can be reduced to about fifty pounds by the reduction valve. The oxygen flows through a tube sheathed in P.V.C.—Polyvinylchloride—to a distributor which has dual functions. It delivers a continuous weak supply of oxygen, but also serves to provide stronger quantities when necessary. The rates of flow are marked in litres per minute and can be adjusted as required. This dual distributor is connected with the breathing mask by a reservoir.

The light metal carriers are fastened on to the climbers' backs by two adjustable girths, like a ruck-sack. Other straps hold the pressure bottles firm, and they are easy to replace. The adjustment of the apparatus is extremely simple: all you have to do is connect the rubber tube to the face-mask by a bayonet connection, place the regulator on the 'open' mark, and the oxygen immediately flows into the mask. If pressure falls sufficiently, the next bottle is brought into the circuit.

It is ingeniously and reliably constructed but, in spite of every effort, it is still somewhat heavy. A reduction in weight, with similar duration, can probably only be achieved with a fully-automatic apparatus, which cuts the user off entirely from the outer air. It is most encouraging to know that Bourdillon and Evans, using such apparatus, embodying a closed circuit, were able to reach the South Summit (28,722 feet) from the South Col (25,850 feet) and return within the space of seven and a half hours.

Improvements will perhaps result in a rate of progress, in the region of the 'Eight Thousanders', hardly slower than that usual among the 'Four Thousanders' of our own Alps. This would basically revolutionise climbing among the great Himalayan Peaks. To reject the use of oxygen-apparatus as 'unsporting' is as illogical as to scorn special protection against cold, modern crampons, light-weight rope and all the rest of it. Truly, in spite of all technical progress, which there is

no need to despise, the struggle still remains hard enough—and the protagonist is not the machine, but Man himself.

(e) OBSERVATIONS ON THE GEOLOGY

Three geologists have worked so far on the Tibetan side of Everest, namely A. M. Heron in 1921 (Bib. 84), N. E. Odell in 1924 (Bib. 153a, 156) and 1938 (Bib. 203), and L. R. Wager in 1933 (Bib. 168, pp. 312-336). Briefly, their observations give the following picture. Mount Everest does not consist of granite or orthogneiss (i.e. granitic gneiss) as one might have expected. The lowest member of the succession is the Lower Everest Limestone, exposed only between Base Camp and Camp 1. This is a hard greenish limestone, highly metamorphosed (altered and reconstituted), completely recrystallised (i.e. converted into a marble) and rich in epidote. The metamorphism is evidently caused by a tourmaline granite which has injected apophyses (veins) into the limestone. The thickness of the Lower Everest Limestone seems to be only about thirty metres; it is attributed to the Lower Palaeozoic, though of course strictly speaking this cannot be shown to be true. Next in the succession is the complex of rocks which forms the main mass of Everest itself: the Mount Everest Pelitic Series. This is a very thick series of metamorphic rocks, including sericite schists, phyllites, quartzites, mica schists and biotite gneisses, with pegmatitic intrusions. Its age cannot be determined with any certainty, but it is likely to be pre-Carboniferous. The dykes, veins and apophyses of granite are very much more recent, presumably Tertiary. The Pelitic Series extends up to about 27,550 feet on the North East Ridge and on the North and North West Faces and is overlain there by the Mount Everest Limestone Series.

At the base of these limestones are the Yellow Slabs, mentioned above. They are predominantly yellowish calc-schists—occasionally marble-like—and calcareous phyllites and sandstones. They form a zone, the Norton Traverse, from 27,500 feet to 28,000 feet and they dip northwards to 30°. The base of the Yellow Slabs seems to be discordant on the schists of the Pelitic Series. It remains uncertain whether this is a stratigraphical or a tectonic discordance. I have given my own opinion on this point already.

The zone which includes Everest is continued to the east in Jongsong Peak (24,500 feet according to a recent measurement), which lies to the north of Kangchenjunga, and which I climbed and studied geologically on our Himalaya Expedition of 1930. The similarity between Everest and Jongsong Peak is really astonishing. The Pelitic Series and Everest Limestones appear to extend still farther in the Dodang-

Nyima range (on the border between Sikkim and Tibet), which I came to know also in 1930. Thus I do not have to rely merely on a study of the literature, but can judge up to a point from my own experience. I believe that between the schists of the Pelitic Series and the overlying Everest Limestones (calcareous schists and sandstones) there is a tectonic discordance, that the Limestone Series is a nappe thrust from the north (Cf. Bib. 41).

On the Yellow Slabs there rests a capping of more massive, dark grey siliceous limestone, somewhat shattered and brecciated. Being more resistant than the calcareous and sandy schists it forms an extremely conspicuous wall, which extends from the First and Second Steps across the entire North-West Face of Everest and forms the dreaded obstacle above the Norton Traverse. Wager believes that the whole Summit pyramid from 28,000 feet to 29,000 feet is composed of this grey limestone. Norton is of a different opinion. Though not a geologist, he is a careful observer and he saw the rocks in superb weather when they were free of snow (Bib. 154, p. 287). According to him the uppermost 500 feet, above the 'wall', not only slope more gently but are yellowish in colour just like the Yellow Slabs. To account for this one must postulate either a stratigraphical repetition of that lithology, due to a recurrence of similar conditions of deposition, or else a doubling of the succession as a result of an overfold.

On the question of age, the whole Upper Everest Limestone Series is now generally regarded as Upper Palaeozoic—Carboniferous or perhaps even Permo-Carboniferous. It is true that recognisable fossils are not yet known from the Everest Limestones, and in this respect Jongsong, Lhonak and Dodang Nyima Peak are no more helpful. But in north Sikkim the Everest Limestones are overlain by the Lachi Series which has yielded Permian brachiopods recently (Bib. 168, p. 333). Behind this indirect estimation of the age there lies, of course, the assumption that we have here a straightforward succession unaffected by any local tectonic complications.

Odell is in favour of the view that the entire Everest Series, including the Pelitic Schists, is thrust as a nappe over a basement of gneiss (Bib. 203). A. Lombard's work (Bib. 131a) on the Nepalese side of the Everest massif has advanced our knowledge considerably, for in the Khumbu area the lower tectonic units are splendidly exposed. Everest belongs to the 'Tibetan Slab', the members of which outcrop in succession from north to south, from the younger to the older:

Kampa System. Cretaceous and Eocene.
Jurassic.
Tso Lhamo Series. Triassic in part.

Lachit Series, about 2,000 feet thick, with an Upper Permian horizon.

Everest Limestones, about 2,000 feet thick, probably Carboniferous.

Everest Pelitic Series, about 4,000 feet thick, probably Palaeozoic (Devonian?).

Lower Everest Limestone, about 100 feet thick (Silurian?).

It seems extremely questionable to me whether this succession really extends unbroken and without any discordance from the Tertiary down to the Lower Palaeozoic, and an accurate study of the stratigraphy is therefore desirable.

Lombard attributes the unusual height of Everest to a culmination in the Tibetan Slab, an upwarping along an axis transverse to the general trend, produced by the imbricated 'Nuptse anticline'. The latter, an imbricated zone connected with the Khumbu nappes, would have wedged itself under the Tibetan Slab during the last phase of southward thrusting and so formed an additional obstacle against which Everest and Lhotse are erected. This is an interesting hypothesis, but it needs confirmation and cannot for instance be applied in the case of Kangchenjunga. Personally I believe that the rise of this massif is altogether a recent phenomenon subsequent to the thrusting, and that it is still in progress. In 1931 I called 'the great north-south movement from Tibet towards Bengal, and the recent uplift "the *Leitmotiv* of the Eastern Himalaya"' (Bib. 41, p. 311 cf also Bib. 48).

NOTES TO CHAPTER TWO

¹ Shipton uses the spelling Khombu, but Khumbu is more generally used. H.M.

² This odd word 'cwm' originates in Wales and is of Celtic origin: it is pronounced somewhat like Kūm. It conveys a horse-shoe shaped mountain cauldron carved by ice-action, especially a steep-backed trench resulting from diluvial or recent glaciation. In short, a Combe. G.D.

³ For the full statement of the case, the *Locus classicus* is, of course, Tilman's extremely amusing Appendix B to his book *Everest* 1938 (Bib. 203)—'with particular reference to the Abominable Snowman.' H.M.

⁴ Professor Dyhrenfurth's suggestion has since been put into practice. In the Spring of 1954 the *Daily Mail* organised a heavily weighted and splendidly equipped scientific 'Snowman Expedition', which followed innumerable wild animal tracks into difficult places and those of the local Yak (see p. 42) to the Nangpa La. H.M.

⁵ R. Lambert gives slightly higher estimates: Camp 7, 27,560 feet, the highest point reached 28,200 feet. Following Hillary's precise computations these should be slightly reduced to say 27,230 feet for the Swiss Camp and roughly 28,000 feet for the highest point reached in 1952. In each case, only if the old reading of 29,002 feet for the Summit of Everest is adhered to. G.D.

⁶ I found this very unpleasant when trying it out in the Valais and consequently chose the 'Open Circuit' System for my expeditions in 1930 and 1934, in spite of the great wastage of oxygen. G.D.

⁷ Col. Hunt had asked Major Roberts of the Gurkhas to take charge of this 'oxygen party' from Katmandu to Thyangboche. H.M.

CHAPTER THREE

K² OR CHOGORI

(a) NOMENCLATURE

THE name K² is simply an identification sign of the Survey of India, signifying Karakorum Peak No 2¹; when this symbol was allotted it was not yet known that this was the second highest mountain in the world. It is therefore a pure coincidence that its ranking in the list of the world's peaks and its identification number happen to coincide. Unfortunately there is no universally authoritative local name, and all sorts of names have been suggested, the following among them.

'Mount Waugh', in honour of Sir Anthony Waugh, the Surveyor General: this design to match 'Mount Everest' was fortunately dropped.

'Mount Montgomerie', after Colonel Montgomerie, who in 1856 discovered and plotted the peak from Haramukh and immediately recognised its great stature: this name too has vanished into oblivion.

'Mount Godwin Austen', after Colonel H. H. Godwin Austen, whose expedition five years later carried out the first physical survey of the Baltoro Region and undertook the first exploratory mapping of the district. To him we owe the first description of the Baltoro Glacier (Bib. 45) and its incomparable mountain tract. He certainly had a stronger claim to the title than had Sir George Everest in the case of Chomo Lungma, but—except in the single case of Everest—the Indian Survey has set its face resolutely against the naming of peaks after people. Consequently the name Godwin Austen gradually fell into disuse and is now mostly to be found in out-of-date atlases.

The name 'Dapsang' or 'Mount Dapsang' has not died out completely and cannot be rejected out of hand; but there is only one 'Depsang'-Plateau and it lies about a hundred miles to the south-east of K².

'Mount Akbar' means The Great Mountain, but the appellation is quite unknown locally; nor is the Kashmiri name 'Lamba Pahar',

which carries the same meaning, in common use. But in Baltistan one does occasionally hear the name 'Chogori', also meaning Great Mountain.

Balti, a Tibetan dialect, has the soundest claim to provide a name, seeing that K² rises in Baltistan; nor is there any objection to the meaning or the sound of Chogori (Chogo=Big; Ri=Mountain), pronounced with the accent on the final 'i'. It would have been a splendid name, had it commanded general acceptance; but everyone has gradually become so accustomed to the English designation and its phonetic pronunciation, that even the porters, who have heard the word frequently used by their Sahibs, and the people of Askole (the nearest village) mostly call the mountain 'Ke-Tu'—and it has thus come about that what was originally only a symbol has finally been adopted even in the Tibetan language as a geographical name. Far from offending as prosaic and unromantic, its very brevity has come to appeal as original, trenchant and rugged. The pedant wedded to correct nomenclature will properly cling to Chogori: and perhaps the best solution is to give the second highest peak in the world the double name of 'K² or Chogori'.

(b) ALTITUDE

K² has been measured from nine stations lying between 15,435 and 17,530 feet. The position is therefore much more favourable than in the case of Everest or Dhaulagiri, which had to be plotted from far lower-lying stations: refraction therefore has far less effect on the calculations. There is relatively little difference in the readings obtained from the nine stations which measured K². The mean is 28,253 feet (8611 metres) and has stood unchallenged for several decades. K² is therefore about 907 feet (277 metres) lower than Everest.

(c) HISTORICAL SURVEY

If we ignore expeditions to the Karakorum generally and to the Baltoro Glacier in particular, confining our attention to expeditions to K² itself, we need look no farther back than 1902.

In that year a party of six guideless climbers—at that time a rather unusual feature—went out to the mountain. There were three Britons, Oscar Eckenstein, the leader of the expedition, whose name is best known to all mountaineers because of the crampons and ice-axe he designed, A. E. Crowley² and G. Knowles; two Austrians, H. Pfannl and Dr V. Wessely; and one Swiss, Dr Jules Jacot-Guillarmod. Their

light-hearted objective was to climb K², which they imagined to be a fairly easy mountain. In those days no one had any great idea of what an 'Eight Thousander'—let alone K²—involved. But Eckenstein's party was none the less organised on the lines of a large modern expedition (Bib. 102, 103, 106, 157).

They left Srinagar, the capital of Kashmir, and reached Askole, by the normal route over the Zoji La (11,578 feet) and Skardu, on 25th May. Here they were held up by various difficulties and only reached Paiju, close to the tongue of the Baltoro Glacier, on 7th June, immediately establishing a base camp in this little oasis. The march was continued in four relays, Crowley going on with twenty porters as an advanced party, Pfannl and Wessely with eight carriers following a day later, Jacot-Guillarmod with a third party and Eckenstein with his detachment bringing up the rear. Two days' march above Paiju is Urkodas (13,311 feet), a beautifully situated meadow-site by the lower Baltoro, with a good water supply, turf and the last available wood for fuel. They immediately recognised the advantages of this spot and established their lower advance-camp there, a practice since followed by almost every Baltoro expedition.

From Urkodas they crossed to the north bank of the Glacier and camped successively in Lungka, Gore, Biange and Doksam (cf. map, Bib. 240 and 241). Skirting the foot of 'Marble Peak' towards the north, the expedition marched in its four detachments up the 'Godwin Austen' Glacier. Camp 9 was set up at 17,358 feet at the southern foot of K²; Camp 10, on 20th June, at 18,750 feet above an icefall about half-way between K² and Broad Peak (26,400 feet). The original intention was to attack K² directly by the steep South-East Spur, later christened the 'Abruzzi Rib', but they came to the conclusion that the North-East Ridge offered 'an easier proposition', so Camp 11 was sited at 19,450 feet at the foot of that ridge. The North-East Buttress rises to the unnamed subsidiary Peak (Pt. 22,380, 5821 metres) which had first to be reached.

There were two possible ways of achieving this:

(a) From the north-east over the notch between Skyang Kangri (formerly known as 'Staircase Peak', 24,750 feet) and Pt. 22,380. A reconnaissance by Pfannl and Wessely produced negative results, a continual bombardment of falling stones compelling them to retreat below the ridge.

(b) By the south-east ridge of Pt. 22,380. Jacot-Guillarmod and Wessely pushed a reconnaissance to about 21,655 feet, but this approach too proved impossible, as it was far too stiff a climb for the Balti porters, on whom the expedition was dependent.

The two Austrians next suggested an attack on Skyang Kangri (then unnamed, but obviously climbable) by way of the Skyang La (20,450 feet) earlier known as 'Windy Gap'—they had meanwhile reconnoitred this Col, which they had named 'Grenzsattel' (Frontier Col), and come to the conclusion that Skyang Kangri could easily be climbed from it. Unfortunately this suggestion was not pursued.

Pfannl, who had not fully recovered from a severe attack of bronchitis, and Wessely wanted to make an immediate second attempt on the notch between Skyang Kangri and Pt. 22,380, in order finally to settle the expedition's programme, and established their tent (Camp 12) close under the steep slope leading to the Col. The resulting exertions exacerbated Pfannl's condition into oedema of the lungs and the expedition's doctor had to be urgently called up. On joining them at Camp 12 Doctor Jacot-Guillarmod immediately realised the necessity for getting Pfannl down to the valley levels with all haste. He accompanied the sick man down to Camp 9 and then returned to Camp 11, while Wessely accompanied Pfannl down to Urkodas.

Nor did the remaining climbers at Camp 11 achieve any further serious climbing operations. Shocking weather, heavy snowfalls and a mild outbreak of influenza compelled the party to withdraw. They evacuated Camp 11 on 4th August, and the 19th found them back at Askole.

The results of this Eckenstein Expedition were consequently limited to the reconnaissance of the Upper Godwin Austen Glacier; the ascent of the Skyang La and the assessment of the possibilities of climbing Skyang Kangri and Pt. 22,380 were also of importance. But on the whole the results were disappointing, considering that the expedition was so well-organised and included six competent European climbers. The chief reason is that, through lack of Himalayan experience, it had aimed too high from the outset: the expedition's team-work also left much to be desired.

If the advice of Pfannl and Wessely—at that time in the forefront of the world's climbers—had been accepted and an all-out effort to climb Skyang Kangri been engaged on soon enough, an important success might well have followed. The ascent of a 24,750 foot peak would, in 1902, have caused nothing short of a world-wide sensation. Those were much too early days for K², and it is a pity that Eckenstein held so rigidly to his objective. The weather, which appears to have been exceptionally bad in the Karakorum that season, the impact of various sicknesses and the severe friction between members of the party all contributed to preventing its fruits from maturing (Bib. 157).

The big expedition led by the Duke of the Abruzzi marked 1909 as one of the most important years in the final exploration of the Baltoro and the reconnaissance of K². Those who took part were Luigi Amadeo di Savoia, Duke of the Abruzzi; his adjutant and topographer F. Negrotto; the well-known geographer Filippo de Filippi; the famous mountain photographer Vittorio Sella and his assistant E. Botta; three Courmayeur guides, Guiseppe Pettigax, Alessio and Enrico Brocherel; three porters also from Courmayeur and, lastly, Mr Baines from Kashmir for the *Bandobast*. There were therefore thirteen Europeans and an average of three hundred and sixty porters. This huge undertaking, organised and led with his usual brilliance by the Duke, was worthy of that Prince among explorers and climbers (Bib. 63).

The approach from Srinagar, by the Zoji La-Dras-Skardu-Askole route to Urkodas, went exactly according to plan and with remarkable speed, between 24th April and 25th May. The reconnaissance of the peak began directly an advanced camp (Camp 3: 16,513 feet) had been set up at the southern foot of K². The southern and western flanks were soon rejected as impossible, and an attack on the South-East Rib was immediately decided on, for which a Camp 4 was set up at 18,242 feet. This rocky South-East Rib, however—although to the best of our knowledge it actually provides the only practicable route—proved too much for the Balti porters: it must be remembered that there were then no trained Everest Sherpa ‘Tigers’. So the Duke decided not to push the attack home and withdrew to the Base Camp.

Wishing to carry out the most meticulous and systematic study of K², he pushed on up the middle Savoia Glacier, which lies on the south-western side of the great peak, and on 4th June placed a fifth camp at 18,177 feet. From it he and his guides three days later reached the difficult and somewhat dangerous ‘Savoia-Saddle’ (21,871 feet) at the foot of K²’s North-West Ridge, and so gained a first sight of the peak’s terrific northern precipices. A descent on the Shaksgam side was out of the question. So, with the north-west, western and south-western approaches fully reconnoitred, the whole party withdrew once more to the advanced base camp.

Though the partially-explored buttress of Pt. 22,380 did not look very promising, it was decided to examine and photograph it in more detail. Skyang Kangri, then still known as ‘Staircase Peak’, also offered its attractions. So a Camp 6 was set up on the Upper Godwin Austen Glacier at 18,603 feet; and Camp 7 close under the Skyang La (‘Windy Gap’) at 20,450 feet. Progress was then interrupted by a period of bad

weather, with heavy falls of new snow and great risk of avalanches. It was not till 24th June that Camp 8 ('Shelter Camp') was pushed up above the Skyang La, only to reveal that a huge cleft, cutting straight through the whole slope, without any means of circumventing it, barred all progress.

Every effort of the guides to overcome this unexpected obstacle proved in vain and, at a height of about 21,650 feet, the Duke was compelled to order the retreat. The enrichment of the map and a unique 'bag' of photographs must have been some slight consolation. It was evident that Skyang Kangri was a tougher proposition than Pfannl and Wessely had judged, even if the great transverse crevasse could be by-passed in other seasons, which, in view of the rapid changes in the surface of the snow, is by no means an impossibility.

In this way the huge mass of Chogori—'The Great Mountain'—was reconnoitred in detail from south to north-east and the results rendered permanent in a magnificent collection of photographs, unsurpassed to this day. With a little more luck, the Duke might have earned a complete success on Skyang Kangri and later Chogolisa (25,112 feet), then known as 'Bride Peak'; no one could have deserved it more than this great explorer and climber. As it is, when he reached 24,600 feet in his partial success on Chogolisa, he set up a mountaineering world height-record, which was not surpassed till thirteen years later on Everest. The 1:100,000 map (Bib. 240), photogrammetrically produced by Negrotto, was a tremendous step forward and formed the basis of all later work in the Baltoro. The scientific results were also varied and important: and every mountaineer will be aware just how splendid were Vittorio Sella's photographic captures. De Filippi's immense book on the expedition, together with its map, is one of the true and enduring classics of Himalayan literature (Bib. 63).

THE 1929 EXPEDITION

The 1914-18 War and its consequences caused a long gap: then, once again, it was a big Italian expedition which started the ball rolling in the Baltoro. In charge was Aimone di Savoia-Aosta, Duke of Spoleto, a nephew of Abruzzi's. The original intention was to make an attempt on K² the chief aim, but on careful consideration the Committee dropped this plan and laid the real emphasis on the scientific side, concentrating on a more exact study of the whole Baltoro tract, a new photogrammetric survey and the exploration of Shaksgam. The credit for the varied and important scientific observations must go largely to Professor Ardito Desio,³ the expedition's geographer and geologist. But little was added to the knowledge of K² and the detailed map of

the mountain, in spite of its 1:25,000 scale, is full of imperfections (Bib. 242). The photographic results do not in any way bear comparison with the masterpieces Sella brought back from the Abruzzi expedition: moreover their reproduction in the book is definitely poor (Bib. 171). A regrettable feature is that not a single good shot was taken of K²'s appalling North Face.

THE 1934 EXPEDITION

The objective of G. O. Dyhrenfurth's Expedition in 1934 was likewise not K². Its main aim was rather the exploration of the south-eastern end of the Baltoro and particularly the 'Conway Saddle', with the two great peaks on either side of it, Sia Kangri (formerly 'Queen Mary Peak') about 24,600 feet high, and Baltoro Kangri (formerly the 'Golden Throne') 23,990 feet. In them the first Seven Thousand Metre peaks (say 23,000 feet) in the Karakorum were climbed, and they remain the only ones climbed to this day (see Tables on pp. 202-7). This 'International Himalayan Expedition' of 1934 also brought back a few photographs of K² from the direction of 'Concordia' (Bib. 45).

THE 1936 EXPEDITION

The first 'French Himalaya Expedition' also passed K² by, in order to make a gallant though unsuccessful attempt on 'Hidden Peak', 26,470 feet (cf. Chap. 9, and Bib. 61).

THE 1937 EXPEDITION

E. E. Shipton's 1937 Shaksgam Expedition calls for at least some short recognition here, seeing that its excellent young topographer, Michael Spender, succeeded in mapping the north side of the K² and bringing back plentiful photographs: so that the whole of the surroundings of the Baltoro are now known from external experience (Bib. 181, 193). This avowedly scientific expedition did not accomplish anything of note from the mountaineering angle: for the uncompromising nature of the mountain's fearsome northern wall had long been established.

THE 1938 EXPEDITION

It was in this year that the first all-out attack was made on Chogori the Great. The members of the American Alpine Club Karakoram Expedition which mounted it were: Charles S. Houston, one of the

successful 1936 Nanda Devi Expedition, who led the party; Richard L. Burdsall, who had taken part in the successful ascent of Minya Konka in 1932; Robert H. Bates, William P. House and the German-American Paul K. Petzoldt; a British liaison officer, Captain R. Streatfield, and six first-class Sherpas for carrying to the high camps. It was a light and mobile expedition, able to concentrate its baggage in twenty-five pony-loads or on to the shoulders of seventy-five porters (Bib. 4, 91, 92).

They left Srinagar on 13th May and reached the foot of K¹ as early as 12th June. Practically the same site as the Abruzzi Expedition had used for their Camp 3 (16,515 feet) was chosen for their Base Camp. All the ninety Balti porters were immediately sent back to Askole: only the six Sahibs, six Sherpas and three Kashmiris, specially selected for cookery and camp duties, remaining at the higher level, with provisions for seven weeks.

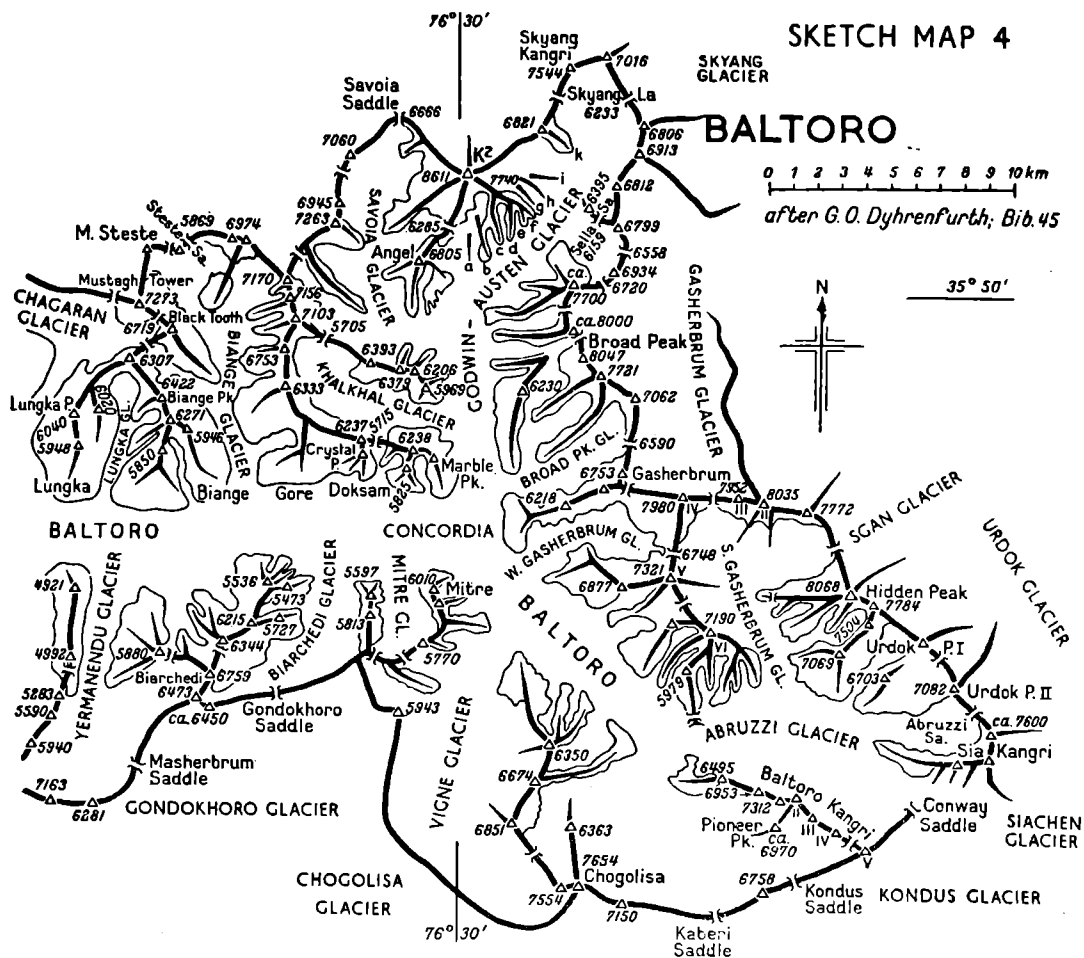
Unfortunately, much valuable time was lost because the Americans, apparently not entirely trusting the facts established by the 1909 Expedition, wanted to see everything for themselves. First they reconnoitred the west side, since the rocky North-West Ridge does not look too difficult. But the steep ice-wall under the 'Savoia Saddle' (21,871 feet) was in such an unfavourable condition that much time was taken up in making a permanently safe route for the porters. Houston and House returned to Base Camp without even reaching the saddle. A reconnaissance of the east side followed, Houston, Bates and Burdsall going off in the direction of the Skyang La: Petzoldt and House up a rock face below the Northern Summit of 'Broad Peak', opposite K²'s South-East Rib.

Both parties agreed that the North-East Rib did not look very promising. They found the almost horizontal section between Pt. 22,380 and the mountain proper a particularly discouraging feature, presenting a sharp, toothy knife-edge surmounted by ice-towers (Plate 14).

It was therefore decided to reconnoitre the Abruzzi Rib in earnest: this being the route which the Duke and his Courmayeur guides had decided to be relatively the best. It is the steep and, for the most part rocky, South-East Rib marked (d) in our sketch of the routes to the Summit (Sketch 4).

This tremendous spur, which leaps to the 25,400 point (7740 metres) on the shoulder of K⁵, had in 1909 proved too stiff a proposition for the Balti porters. But nowadays there are high-level Sherpas available, and the Americans numbered two of the best of them among their little pool of permanent porters. Pasang Kikuli, their Sirdar, for example, had been four times to Kangchenjunga and once each to

SKETCH MAP 4



Everest, Nanda Devi, Chomolhari and Nanga Parbat, where in 1934 he had been one of the few survivors from the disaster in the high camps. Pasang thus had more Himalayan climbing experience than most European or American mountaineers. There is no limit to what you can undertake with that brand of climber-carrier in support; Alpine technique, too, has made considerable forward strides in the last thirty years. It was, therefore, possible to embark in 1939 on a route which a leader and climber of the Duke's standing had to reject in 1909.

A thorough reconnaissance of this South-East Rib was next carried out by Houston and House. They climbed the first 1,300 feet, during which they came upon unmistakable traces of the Abruzzi Expedition and, though the climbing on the lower pitches was not too severe, they did not find a single place on which a camp could be pitched. It was also obvious that the difficulties increased considerably higher up. The information gained was therefore not very encouraging and

it was decided once more to explore, even more conscientiously, the two other possibilities, the North-West and North-East Ridges, before committing the party finally to the 'Abruzzi Rib' line of attack. Once again two parties fanned out, one going up the Savoia Glacier, the other towards Pt. 22,380, (6821 metres): but with negative results in both cases.

Since a direct approach to the Savoia Saddle was extremely uninviting, House and Bates tried to reach the watershed to the right, that is to the south of the Col, at a point where a secondary rock rib falls from it. The approach itself proved exhausting and dangerous; nor could they find any practicable access to the actual rib. A short period of bad weather with heavy snowfalls, moreover, taught the lesson that the whole basin of the Upper Savoia Glacier was open to great danger from avalanches; as a vital supply line, in constant use, it would be out of the question. These considerations once for all ruled out the Savoia Glacier—Savoia Saddle—North-West Ridge route.

Meanwhile the other party had pitched a camp at the foot of the rib marked 'k' in Sketch 4 and from it made a small probing attack in the direction of Pt. 22,380. Conditions were most unfavourable, soft snow lying on the steep ice beneath. Any idea of pushing home of this reconnaissance was the more readily rejected in view of the knowledge that the forbidding nature of the ridge, capped by ice-towers which, as already mentioned, joins Pt. 22,380 to the main mass of the mountain, had already raised severe doubts as to the practicability of this route. Definite confirmation was thus at last obtained that no better line exists than the Abruzzi Rib. '*Hic Rhodus! hic salta!*' But in the meantime the whole of June had been crossed off the calendar (Plate 15).

It was now necessary to shift the whole of the equipment to the foot of the South-East Ridge. In the absence of the Baltis, this was done by the fifteen available members of the party working in a continual shuttle-service. During this operation they met with a damaging setback. A large Glacier-table lost its balance and fell on a load of oil, with the result that a quarter of the expedition's fuel-supply was lost at one blow. Streatfield, with two porters, volunteered to undertake the long and exhausting march to the one-time base camp of the 1936 French Karakorum Expedition, of which he had been transport officer. He therefore knew that a considerable quantity of fuel had been left there on that occasion. This oil-hunt unfortunately proved to be in vain, for the inhabitants of Askole had also known of the dump at this camp and had in the meantime made away with the last can.

Camp 1 (17,717 feet) was set up at the foot of the Abruzzi Ridge on 1st July. While three Sahibs and four Sherpas were bringing up the

last loads from the previous advanced base camp, House and Petzoldt went in search of a suitable place for the first ridge-camp. Climbing on the south-west side of the rib, they discovered at long last, late in the afternoon, a small snow groove above a steep ice-couloir, which offered a good place for Camp 2 (about 19,300 feet). The route from Camp 1 to 2 was only difficult at two points, which were duly safeguarded with fixed ropes.

On 5th July they occupied Camp 2, and House and Petzoldt reconnoitred the next stage, but only found a most uncomfortable spot—small, precipitous and airy—for Camp 3 (at about 20,700 feet). The route from 2 to 3 was severe and exposed from the very start; soon the crest of the ridge became impossible, and they were forced off on to the steep, icy slabs and slopes of its south-western side. Several days had to be spent on 'Roadworks' before this trying sector could be made safe for laden porters; dozens of pitons were hammered in and more than a thousand feet of rope made fast. With the utmost difficulty they built out a small platform to take a camp.

Two days of bad weather intervened, so Camp 3 could not be occupied till 10th July. The concentration of the whole strength of the assault party on this kind of ground was not to be thought of. So only four Sahibs and three Sherpas remained on the ridge, two of the climbers in advance, the other two, with the three 'Tigers', one camp lower down. It was the only feasible arrangement, for one more Sahib and one more Sherpa would have meant two more tents, with all the necessary gear. Burdsall, the fifth American, and Streatfield constituted the Reserve at Camp 1, working on the survey and photography and looking after the supply line for the lower stages.

From Camp 3 the route led up the ridgefall over very steep and broken rock. This section was not only difficult technically: its most unpleasant feature was that the stones, which had to be cleared away as they climbed, fell on the whole route above Camp 2 and straight on to the exposed Camp 3. It was pure luck that no serious accident occurred here, as is clear from the American's forthright report (Bib. 91, 92). The two tents at Camp 3 were riddled with holes by frequent direct hits. Henceforth it could not be occupied while anyone was climbing above, and the tents had to be laid flat and protected by slabs of stone every time anyone went up. On 13th July Camp 4 was established, on top of a seventy-foot gendarme, at about 21,500 feet.

The next stage, led by House and Bates, was extremely exhausting and exceptionally severe. A yellowish 'step' barred access to the whole face and had to be overcome by a frontal assault. The crux was a 150-foot chimney, almost vertical, fairly smooth, broadening outwards to its base and backed by ice. The forcing of 'House's Chimney'

alone took four hours: so that the day's progress was slight and Camp 5 had to be placed at about 22,000 feet. There were now six days' provisions at Camp 2; Camp 3 had been completely evacuated on account of the falling stones, and Camp 4 was stocked with supplies for nearly three weeks. Between 4 and 5, at the Chimney, every load had to be brought up on the rope. But the whole attack was being developed according to plan and on solidly based foundations.

Above Camp 5, Houston and Petzoldt took over the lead again, and by way of a number of rock pitches and three ice-grooves, reached an exiguous perch for Camp 6 at about 23,300 feet. This was at the foot of the enormous dark pillar in which the ridge ends at the Shoulder, capped with a glittering glacier mantle. Bad weather and strong winds dictated a rest day in Camp 5 on 17th July: the 18th was fine again, enabling Houston and Petzoldt to push on beyond the Camp 6 site on reconnaissance, while the others completed the building of the camp, before retiring to Camp 5. Houston and Petzoldt were thus able to occupy Camp 6 that very night, and next day to proceed with their attempt on the great pillar, which looked difficult but possible. At about three in the afternoon they reached the true crest of the Abruzzi-Rib, about 600 feet below the Summit of the Shoulder, Pt. 25,397 (7740 metres). The traverse of a steep ice-slope on the north-east side required another hour of step-cutting and the use of two pitons for a rope balustrade. They were then able to continue without further difficulty, though the last part was in deep snow, to the Summit of the Shoulder. Stopping only for a brief glance across at Broad Peak, the Gasherbrum Group and the distant, ghostly shadow of Nanga Parbat, they hurried down to Camp 6, where the others had meanwhile installed themselves (Plate 13).

Here they held an urgent council of war. There were barely ten days' provisions in Camp 6. True, there were sizeable reserves in Camps 2, 4 and 5; but it was evident that a long and severe route such as the Abruzzi Rib could only be traversed in good weather conditions. Given one of those blizzards in which the Baltoro abounds, it would be imperative to await an improvement before any attempt could be made to descend. The whole route above Camp 2 had been climbed with mutual protection on the rope; the descent would require equally slow and careful progress, so that, in the event of storm and low temperatures, frostbite would be unavoidable.

The great question was, how long would the fine weather hold? The Americans believed it must end soon. Should they, in spite of that, press forward 'regardless of casualties'? Or should they be satisfied with results and retreat? After long discussion, they agreed on a compromise. They would plant a seventh Camp higher up the mountain,

but only for two men and for two days—a proposal tantamount to renouncing an attempt on the Summit. From this Camp 7 a rope of two should push on as high as was possible in one day and then return to it. They considered this the limit of the possibilities, if they were to keep within the accepted bounds of reasoned, safe climbing—the basic ‘rules’.

Bates and House volunteered to prepare Camp 7 for their two partners and return to Camp 6. Owing to the great technical difficulties of this stage, only one of the three Sherpas, Pasang Kikuli, was taken along, a decision which seriously upset and disheartened the other two, and would actually appear to have been an excess of caution; but it certainly proves the real climbing spirit of these ‘Tigers’. Though the loads were light ones of only twenty to twenty-five pounds, the pace of the ascent was so slow that the end of the ridge, where the ice traverse starts, was only reached in mid-afternoon. Bates, House and Pasang left their loads here and hastened down again in order to reach Camp 6 before dark. Houston and Petzoldt ferried everything across and scooped out a respectable platform for their tent at about 24,700 feet. In this, the expedition’s highest camp, they spent a peaceful, comfortable night and seem to have slept so well that they only set out again at eight o’clock on 21st July.

They wore crampons, for though they frequently broke through friable crust, half way up their thighs, the surface was bone-hard in other places. A big *bergschrund* with an overhanging lip was crossed by a somewhat slender and steep snow-bridge.

By noon they were on Pt. 7740 (25,397 feet), which they had already reached for the first time late in the afternoon of 19th July. From this point a broad snow shield, littered with ice-debris, leads to the foot of the Summit pyramid. Hanging masses of ice, close under the peak, obviously sweep a great part of the Shoulder with their avalanches. It is quite unusual to have to cope with the danger of ice avalanches at so great a height. The two Americans hurried through the danger-zone to the cover of the rocks which form the characteristic rock-belt of the Summit pyramid. Among them Petzoldt found an excellent site for a Camp 8 at about 25,900 feet; but it was now unfortunately too late to reach it. To confirm that the rocks were climbable, Petzoldt went up a little way farther; the highest point he reached was about 26,000 feet.

The weather was gloriously fine, warm and windless. The view was clear to the uttermost bounds of distance, south-westwards to Nanga Parbat, in the other direction deep into Eastern Turkestan. Broad Peak, barely above their own level, seemed near enough to touch. Over it all lay the mysterious silence of Eternity.

With heavy hearts they turned their backs on the Summit and returned to Camp 7. During the evening they kept on toying with the possibilities. Could they still perhaps 'make it'? But it was too late now: the decision had been taken, the others were waiting for them in Camp 6. On 22nd July they reached that camp, partook of a mid-day meal with their friends, and afterwards all started down the ridge together. In order to get the dreaded 'House's Chimney' behind them, they even pressed on farther and reached Camp 4 in the evening—that is, a descent from Camp 7 to Camp 4 in a single day! On the 23rd they continued down to Camp 2, another big and exhausting undertaking; for the route had changed considerably, all their steps had of course melted, and now they had heavy loads into the bargain.

Next morning Burdsall came up, with the remaining three Sherpas, to help in bringing the loads down, and by the evening of the 24th everyone and everything was safely back in the Base Camp. Streatfield and Burdsall had, in the party's absence on the mountain, got through a great deal of topographical work and had managed to reach the Skyang La (20,450 feet).

Everyone was proud of the expedition's considerable success and glad that it had been achieved without a single misadventure, but their happiness was tempered by regret that they had failed to reach the Summit of K² and had turned back without being inescapably forced to retreat. As to the weather, though conditions gradually deteriorated, a real Baltoro blizzard never materialised after all.

On the afternoon of the 26th the Askole men arrived, as arranged.

Next morning the whole expedition got under way on the descent, and five days later reached Askole, 'The Zermatt of Baltistan'. Then followed the long march over the Skoro La to Shigar and Skardu, and thence over the high Deosai plateau to Srinagar.

To sum up, it is a great pity that the Americans, owing to their repeated reconnaissance of a mountain that was already reasonably well known, sacrificed so much time, which was in the end to prove the vital factor. After the final choice of the South-East Ridge was definitely settled, there can be nothing but praise for the manner in which they tackled this formidable problem. In pressing forward to the foot of the final pyramid of K² and reaching a height of 26,000 feet, above the Shoulder, they achieved an outstanding success. In this they were assisted by a degree of luck with the weather, a repetition of which one could hardly expect in the Baltoro Region during any given season. In 1938 the early Summer, which is usually the best season in the Karakorum, was by no means good; but by the end of June an unbroken period of some weeks of fine weather had set in, interrupted by only

a few bad days. This not only made the climbing of the South-East Ridge easier; it was what really made it possible.

It is, I think, in the last resort a matter of temperament whether one agrees with the decision of the Americans on 19th July or regards it as a feeble compromise. I myself believe that, where the world's highest peaks are at stake, it is impossible always to observe the Queensberry rules and to operate within strictly limited risks. In 1939 (Bib. 45, p. 45) I wrote—'In such a situation is not the unhesitating approach, sicklied o'er by no pale cast of thought, the vital one? The man who, on such a dangerous enterprise, seeks the assurance of a safe retreat will not deserve to draw near to the Throne of the Gods. It may be a long time before Chogori, the Great Mountain, shows itself so well disposed, before an assault party of climbers in good shape is poised above K²'s Shoulder, in perfect weather and ideal conditions, close under the Summit plinth. The poet's words will not leave my mind:

*"There's no Eternity that can restore
What from the Unforgiving Minute
Was lost before. . . ."*

If they had only built up Camp 7 properly and then pushed forward a small high shelter at 26,000 feet, they might—perhaps—have done it. And what a resounding feat it would have been! Not the mere record involved in climbing the first 'Eight Thousander': but it would also have been the second highest and most beautiful of all mountains—Chogori, the incomparable—which had been climbed.'

THE 1939 EXPEDITION

The very next year brought a second American Expedition to K². It was organised and led by the first-class German-American climber, Fritz H. Wiessner. The others were Chappell Cranmer, Eaton Cromwell, Jack Durrance, George E. Sheldon and Dudley L. Wolfe. Lieutenant G. S. C. Trench acted as Transport Officer, and there were nine Sherpa 'Tigers' under the now famous Sirdar, Pasang Kikuli.

They arrived at the southern foot of K² on 31st May and by 14th June Camps 1 and 2 were in position. The unsatisfactory Camp 3, menaced by falling stones, was this time only used as a depot. The weather was nowhere near as good as in the previous year, the work was frequently interrupted by snow-storms and they were unable to move into Camp 6, under the great pillar, till 5th July (Bib. 230).

Cranmer suffered from serious heart trouble, Durrance acclimatised badly to the altitude and Sheldon had to go down owing to frostbite damage: so three of the Sahibs were out of action. Cromwell and

Trench were fully occupied with supplies up to Camp 2, and only went up to Camp 4 on one exceptional occasion. During the critical days, while Wiessner, with Wolfe and the best of the Sherpa porters, was moving forward to attack the Summit, there was not a single white climber on the Abruzzi Ridge above Camp 2! It is certain, however, that the leader of the expedition, high up on the mountain at the head of the assault party, was not aware of this.

Up there Camp 7, at 24,706 feet, was properly stocked and a new Camp 8 sited on 14th July, but owing to the bad snow conditions it had to be placed lower than had been foreseen the year before, at about 25,300 feet, near the crest of the Shoulder. A further two days' interruption followed because of a light fall of snow. On 17th July they pushed forward, but progress was exceptionally exhausting because of the depth of the snow. Wolfe, a sick man, had to go back to Camp 8: so Wiessner had only one 'Tiger' with him—Pasang Dawa Lama (not to be confused with Pasang Kikuli). They managed to set up a small high Camp 9 (see plate 16) among the lowest rocks of the Summit pyramid, at 26,050 feet.

On the 19th the pair made their attack on the Summit. Very difficult climbing brought them to a prominent, reddish and abrupt 'Step' at about 26,840 feet. Here two possibilities presented themselves: a right-hand traverse to a steep snow-scoop leading upwards under the great Ice-Bulge of the Eastern wall, or a direct attack on the sheer, dark wall of rock to the west. Wiessner, a splendid climber, who had practised as a young man on the towers and walls of the sandstone mountains in 'Saxon Switzerland', chose—unfortunately—this left-hand route. The climbing turned out to be very severe, and this at an altitude of more than 27,200 feet. A wrinkle, cut into the rock behind a huge block, overhung in places and could not be tackled frontally. Wiessner wanted to get a footing on K²'s South-East Ridge just above the great 'Step'. Only the first seventy feet were difficult; after that it eased off somewhat. But it was already 6.30 p.m., and Pasang, who had till then played his part as second on the rope with great courage, faltered and proposed a return to Camp 9 and a second attempt, next day, by the eastern side. After some argument Wiessner reluctantly gave in (he later estimated the highest point they reached as 27,500 feet). During a considerable descent on the doubled rope—at such a height, and by then in the dark!—the rope got caught in the crampons Pasang Lama was carrying tied to his rucksack, tearing them from it. The climbing-irons went clattering into the abyss—a mishap that was to have the direst consequences. They did not reach Camp 9 till 2.30 in the morning.

The 20th was not unnaturally used as a well-earned rest day, in warm

and sunny weather. Next day they moved up to the second attack, this time by the eastern route. Not a single ice avalanche had come down in the last few days: the Ice-Bulge was manifestly in good condition. From the vertical red rock, where the routes diverge, a traverse of about 120 yards over difficult, brittle rock led to an ice-chimney offering a line of approach to the main couloir. In it the snow was icy and, as Lama had no crampons, 400 to 500 feet of hard step-cutting would have been involved, at a height of 27,000 feet or so. It was clearly impossible to accomplish this and, within the compass of the same day, to attempt the opening up of a westward route: it was far too late for that. There was nothing for it but to own themselves defeated and return to Camp 9.

As their supplies were now exhausted, they left almost everything in Camp 9 next morning and returned to Camp 8, in order to reprovision. Wolfe, waiting for them there, greeted them joyfully, but imparted the extraordinary news that all the time they had been away not a soul had come up from the lower camps. Consequently supplies in that camp too had fallen so low that they were forced to go down to Camp 7, where on 14th July they had left a fairly large dump behind them. On the way down there was an unpremeditated glissade, which Wiessner was luckily in a position to hold, but at the cost of Wolfe's sleeping-bag and the miniature film camera. On arrival at Camp 7 in the evening they met with a shattering blow: for some unexplained reason it had been completely evacuated. Reserve sleeping-bags, air cushions, most of the food had mysteriously disappeared. They spent a most uncomfortable night with only one bag and one mattress between them; but they were still hoping to make another attack on the Summit. So Wolfe stayed up in Camp 7, while Wiessner and Pasang climbed down to Camp 6 in order to get the supply line going again from there. It was only then that the full extent of the catastrophe was revealed. Camp 6 was gone, so was 5 and indeed every Camp down to 2. On the 29th they stumbled down into the Base Camp half-alive, frostbitten, broken in body and spirit.

What had happened in between? Every member of the expedition, including the Sherpas, knew that between 19,300 and 24,700 feet Camps 2, 4, 6 and 7 were fully furnished with sleeping-bags, food and cookers: there was a particularly big dump at Camp 7. It will therefore be seen that Wiessner, the leader of the party, had made careful dispositions and taken great care to provide a safe and assured retreat down the Ridge.

Supposing a party to be returning from the Summit or from Camp 9 or 8, after having been held up by utter exhaustion, sickness or bad weather, it should, every two hours or so, come upon a well-supplied

camp in which they could, under compulsion, remain for some days.

I possess a plotted graph of the movements of every member of the expedition from the first of June to August the eighth; also a true copy of the depositions made by Durrance before the American Alpine Club, dealing with the critical time between 11th and 24th July (Bib. 141).

According to these, Wiessner, Wolfe and Durrance with seven Sherpas went from Camp 4 to 6 on the *twelfth* July. On the *thirteenth* Wiessner and Wolfe with the seven porters (Kikuli, Pasang Lama, Kitar, Norbu, Dawa Thondup, Pintso and Tse Thendrup) continued to climb to Camp 7: Durrance had to turn back very soon, at the great gendarme, and remained in Camp 6. Kikuli, Norbu, Dawa Thondup and Pintso, having dumped their loads at 7, went down and joined him in Camp 6 the same day. On the *fourteenth* the movements were: Wiessner and Wolfe, with Pasang Lama, Kitar and Tse Thendrup from 7 to 8. Kitar and Thendrup left their loads and returned to 7. Durrance went down from 6 to 2 with Kikuli and Dawa; Norbu and Pintso from 6 to 4, to fetch loads, and up again to 6.

The movements between Camp 2 and Base Camp need not be recorded. What is most significant is that on the *eighteenth* Durrance sent Kikuli and Dawa up from 2 to 4 with instructions to bring down all the sleeping-bags from there. This was done. On the *nineteenth* Durrance and the two porters climbed down to Base Camp with thirteen sleeping-bags. He had left a note up in Camp 2 for Wiessner that the evacuation of the lower camps had been completed on his (Durrance's) instructions and that from now on there were no sleeping-bags left below Camp 6. At the same time he wished him good luck and said he felt sure that the Summit party must by now have got to the top, seeing the splendid form they were in, how good the weather was and how well supplied the highest camps were.

When Pasang Kikuli and Dawa reached Camp 4 on the *eighteenth* July they found Thendrup and Kitar in occupation. These two had been detailed as 'shuttle' porters between 7 and 8; but with no supervision or authority—there being no Sahib anywhere near, and their Sirdar Kikuli then detained lower down—they had left their post at Camp 7 of their own accord and had climbed down to Camp 4, where they ran into Kikuli. He promptly chased them up again. But during this meeting Thendrup of course learned that, on Durrance's instructions, Kikuli and Dawa were charged with taking all the sleeping-bags down to Base Camp.

On the *nineteenth* Tse Thendrup and Kitar moved up to 6 and next morning on to 7, to resume their role of support for Camp 8. Thendrup, who was recognised as the leader, does not seem to have been particularly enamoured of this duty. Certainly he contented himself with a

very short ascent from Camp 7 during the course of the *twentieth*, at the end of which he merely shouted up to Camp 8. Unfortunately he got no reply. He was probably too far below, or maybe the wind carried his shouts away; or it may just have been that Wolfe in Camp 8 happened to be sleeping at the time.

At all events the porter, suddenly succumbing to superstitious terror, decided firmly that the Gods of Chogori had destroyed the whole Summit party of Wiessner, Wolfe and Pasang Lama, with an ice avalanche. The other porters in Camp 7 were only too susceptible to the panic with which he infected them; not one of them doubted the truth of Thendrup's assertions; not one of them had the courage left to go up to Camp 8 and have a proper look. The one man who would never have allowed himself to be scared, Pasang Kikuli, the thoroughly responsible Sirdar of Sherpas, over whom he had immense influence—a clear-headed climber of great skill and utterly reliable—was during these fatal days down below in the Base Camp, on Jack Durrance's instructions.

The panicky Sherpas in Camp 7 had now only one thought in their heads—to save as much of the expedition's gear as possible, especially the valuable sleeping-bags. As a further incentive, Thendrup of course knew that on an order of Durrance Sahib's all the bags from the lower Camps had been brought down to Base Camp. So they evacuated Camps 6 and 7 and from the *twenty-first* to the *twenty-third* they dragged every single thing they could carry down the mountain.

When the four porters with their heavy loads arrived at the Base Camp and Thendrup made his report, three men there became very worried indeed—a Hindu member of the party, who was a teacher in Srinagar and already appears to have protested against the evacuation of the lower camps on 19th July; the Mahomedan cook; and most of all Pasang Kikuli. All three suggested to the Sahibs (Cromwell, Durrance and Trench) that the sleeping-bags should at once be sent up again. This request, however, met with a decided refusal and they were warned not to say another word about the matter. It would in any case have been too late; for only one day later—on the *twenty-fourth*—Wiessner and Pasang Lama turned up more dead than alive at Base Camp.

Both were now completely out of action. Wolfe was still lying up at Camp 7, all alone. Durrance with three porters set out on a rescue attempt, but only got as far as Camp 4: he was suffering from the altitude and had to return to the Base Camp with Dawa on the *twenty-seventh*, a sick man. The other two Sherpas, Pintso and Kitar, had stayed up there. On the *twenty-eighth* Kikuli and Tsering, equipped with sleeping-bags, made a forced climb from the Base Camp (17,700

feet) to Camp 6 (23,295 feet) in a single day—an almost incredible feat. Tsering now remained in Camp 6 while Kikuli, Pintso and Kitar climbed to Camp 7 on the *twenty-ninth*.

Wolfe had by now fallen into a state of complete apathy and refused to attempt the descent: he was apparently too weak, in spite of the offers of every assistance from the three 'Tigers'. His tent, too, was in a lamentable state. He asked Kikuli to come up again next day, saying he would be ready for them then; so that afternoon the three Sherpas retired to Camp 6. It is noteworthy that this sector between 6 and 7, the last bastion of the Abruzzi Rib, which had been adjudged so difficult in 1938 that Kikuli alone had been allowed on it, safeguarded by two Sahibs, could now be traversed several times in each direction by three Sherpas with no white climbers to supervise them.

Bad weather kept them waiting on the *thirtieth*. But on the next day these faithful lads set off again for Camp 7 to try, if possible, to persuade Wolfe to try the descent, or at the worst to obtain from him a written declaration, absolving them from all responsibility. That is the last that is known of them.

On 2nd August Tsering, who had stayed in Camp 6 to await their return, came down to Base Camp and made his report. Wiessner—weak and sick as he was—thereupon immediately made a last, hopeless rescue attempt. This never got farther than Camp 2, where a heavy snow-storm, which was to last three days, compelled them to withdraw. That was the end. Dudley Wolfe and three of the bravest Sherpas ever to climb—Pasang Kikuli, Pasang Kitar and Pintso—have Chogori for their headstone.

It is understandable that this tragic outcome of the second American K² Expedition should have met with severe criticism in mountaineering circles—especially in the English-speaking Alpine Clubs (Bib. 141). This was naturally directed chiefly against Fritz Wiessner, who at the time was unfortunately in no condition to defend himself. For after his return to the United States he lay in hospital for months, seriously stricken bodily and mentally: it took him a long time and a great effort to recover from the effects of this disaster and to stand erect again.

The purpose of my somewhat laborious reconstruction has been to destroy, in the service of truth—without undue regard to sensitivities—the many legends which came into being during that time. Anyone who studies the facts closely will soon see to what extent human and mountaineering deficiency, how far, at the same time, pure mischance contributed to the disaster. Wiessner is cleared of the charge that he was a 'Summit-bagger' pure and simple, regardless of cost. But there should undoubtedly have been two Sahibs as transport officers and in control of sectors on the Abruzzi Rib. There is no doubt that this was

Wiessner's intention: unfortunately circumstances prevented it from being implemented. For the fact is that Wiessner, the leader of the expedition, was the only genuinely first-class mountaineer among the Sahibs who constituted it. Not one of the others was fit to cope with the difficulties of K², nor even with such great altitudes; not even Wolfe. So we find one outstanding climber accompanied by one Sherpa right at the top of the mountain, and behind them a vast vacuum; from that moment an undertaking, itself of the most fearsome difficulty, was practically transformed into a forlorn hope.⁴ The independent harmonious co-operation of an experienced team of climbers was altogether lacking. Had Wiessner been at the head of the assault party of the previous year, all would have been well, and K² in all human probability would have been successfully climbed then.

What is the explanation of the unfortunate composition of the 1939 party? Perhaps it was the result of the unhappy question of finance, which lies at the core of every private expedition to the Himalaya. There are few really good climbers who can afford the expense of a costly expedition of that kind or even to bear their own share of the cost. Only an organisation like the British Everest Committee or the Swiss Foundation for Alpine Research is basically in a position to

Plate 15: The foot of K² is still seven and a half miles from the camera, the height differential about 13,000 feet. Taken with a Leitz Elmar f=9 cm.

Photo: G. O. Dyhrenfurth 1934.

Plate 16: K²'s Summit cone is actually very steep: it is much foreshortened in this picture. *Photo: Fr. Wiessner 1939.*

Plate 17: All Kangchenjunga's Summits are to be seen in this picture.

Photo: J. Brenner 1931.

Plate 18: The Kangchenjunga Massif: under the broad West Summit is the great 'horseshoe', then the Main Summit, the intermediary and South Summits, with the South-West Ridge and (in profile to the right) the East Ridge.

Telephoto. from 15 miles by Vittorio Sella 1899.

Plate 19: From left to right—Kangchenjunga South Summit; Main Summit; West Summit, with the East Spur rising below and in front of it in the middle-Spur Summit; 'Zuckerhütl'; and, to the right, the snows of the 'Third-Terrace'—taken from the ridge of Tent Peak. *Photo: E. Grob 1939.*

Plate 20: To the left the North-West Ridge of Cho Oyu (26,750 feet), obviously a sedimentary formation. The interesting North Face is not in the picture.

Photo: Everest Expedition 1921.

Plate 21: Kangchenjunga from North-North-West, from the base camp of the 'I.H.E. 1930'. In the foreground the rubble-covered Kangchenjunga Glacier under light new snow. *Photo: G. O. Dyhrenfurth 1930.*

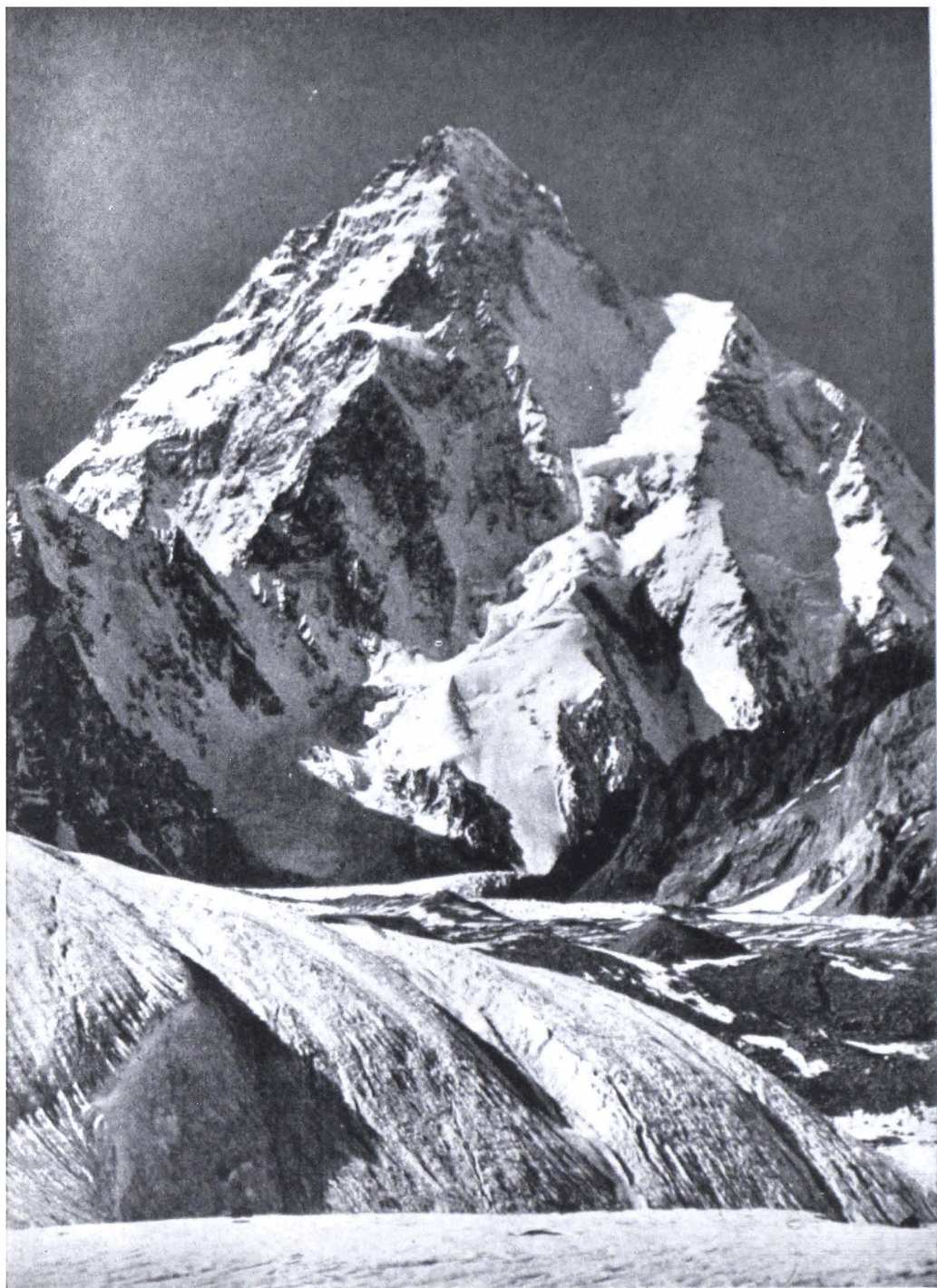


Plate 15 The South Face of K², seen from Concordia, with the East Shoulder and Pt. 7740 (25,394 feet) to the right. The edge of the shadow near the right-hand edge of the picture marks the Abruzzi Rib

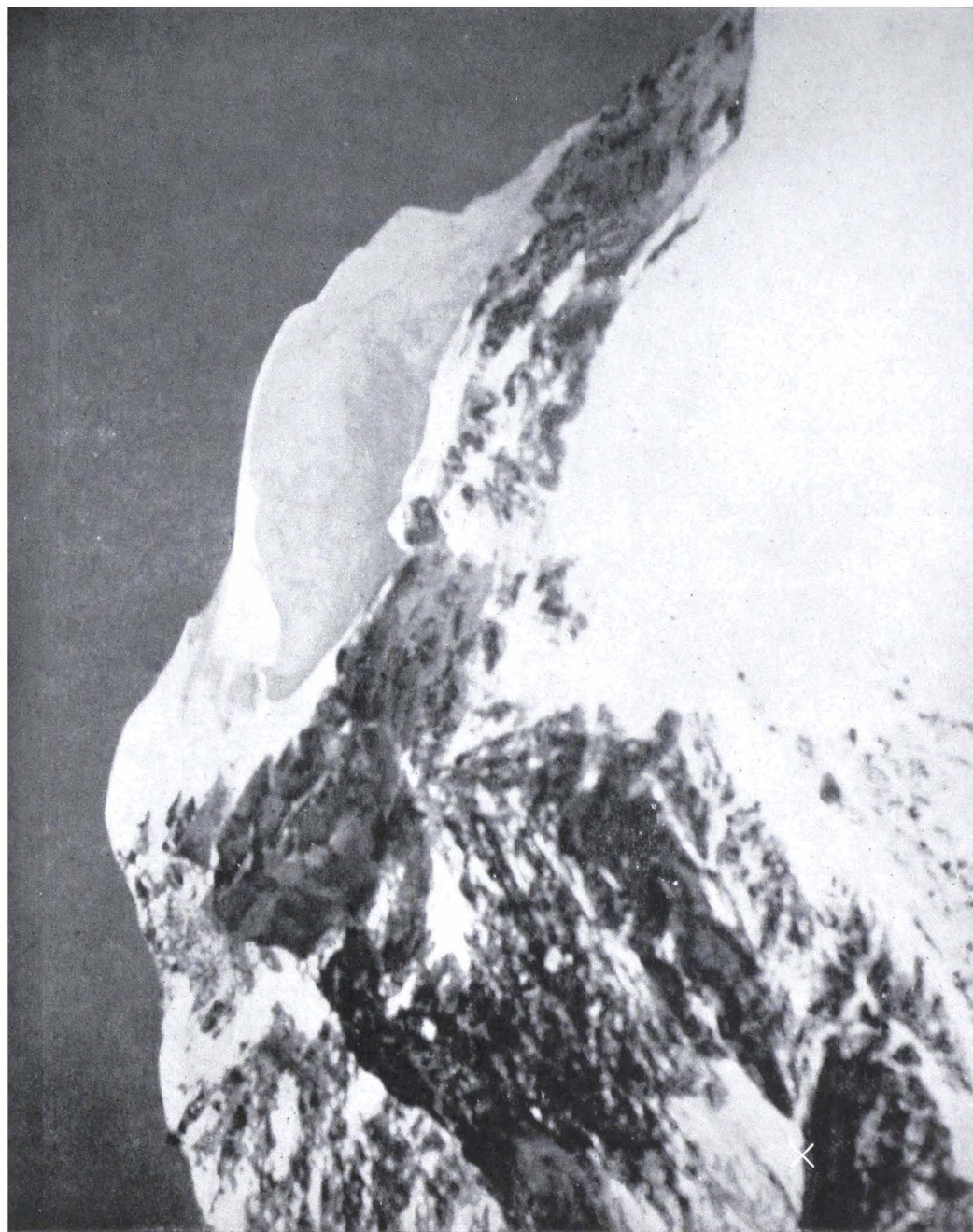


Plate 16 The Summit Pyramid of K³, from the Shoulder. X marks platform for Camp 9 (26,050 feet)

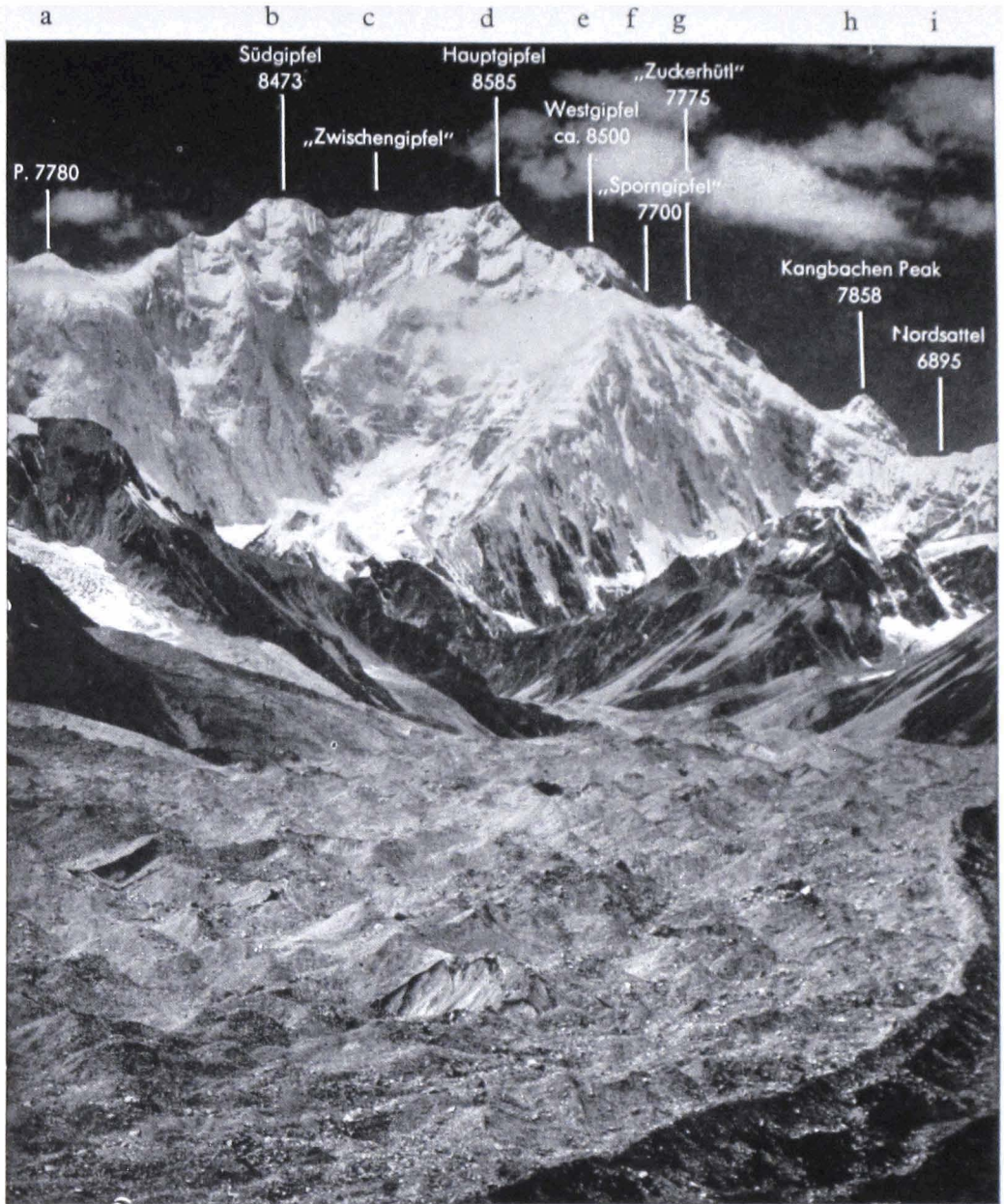


Plate 17 The Kangchenjunga Massif from E., with the Eastern Spur. In the foreground the rubble-covered Zemu Glacier

a Pt. 25,443 feet	b South Summit 27,803 feet	c Intermediary Summit	d Main Summit 28,168 feet	e West Summit 27,887 feet
f 'Spur Summit' 25,263 feet	g 'Zuckerhüt!' 25,427 feet	h Kangbachen Peak 25,781 feet	i North Saddle 22,623 feet	

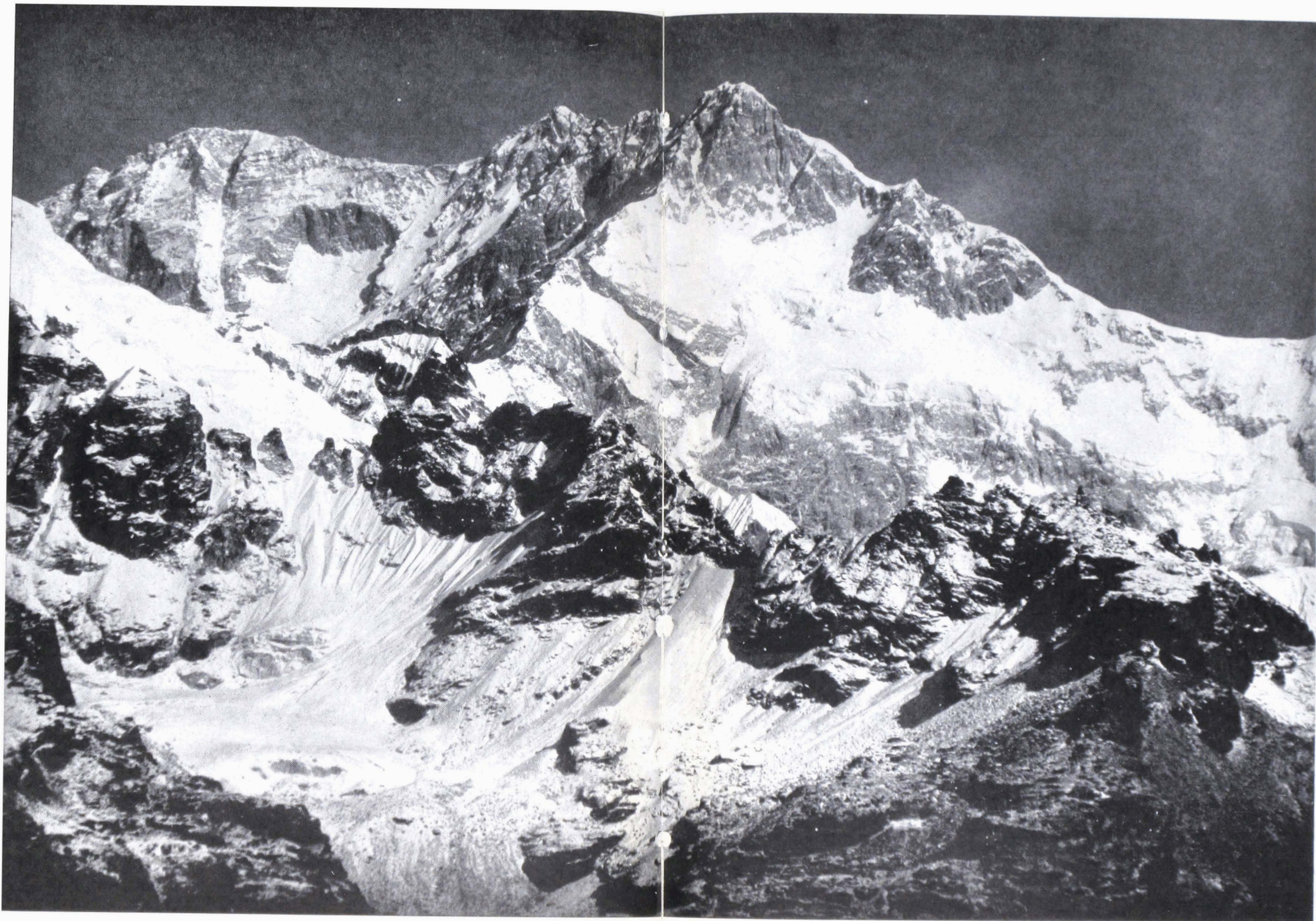


Plate 18 Kangchenjunga from S., in the neighbourhood of Jhongri

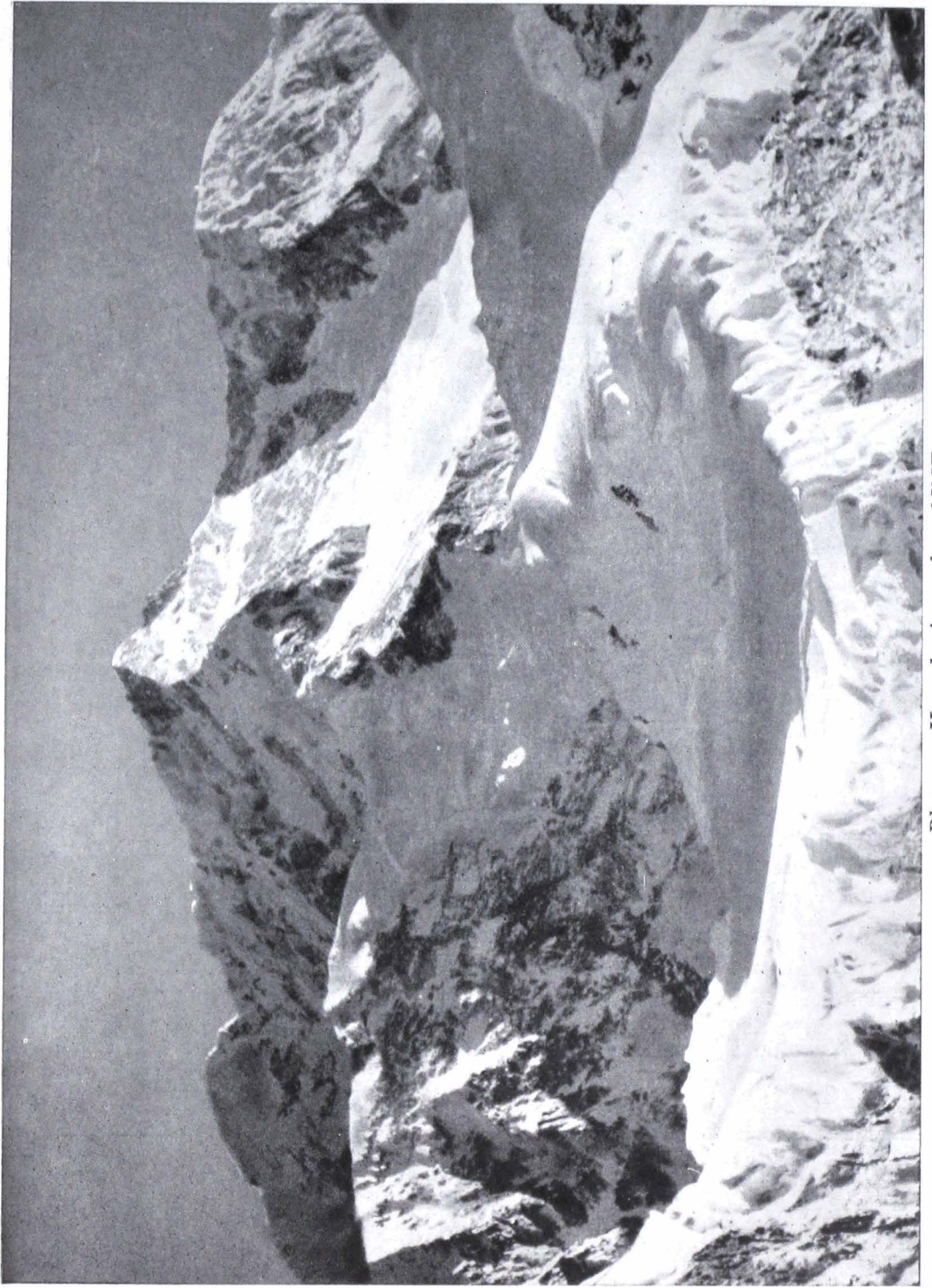


Plate 19 Kangchenjunga from NNE.

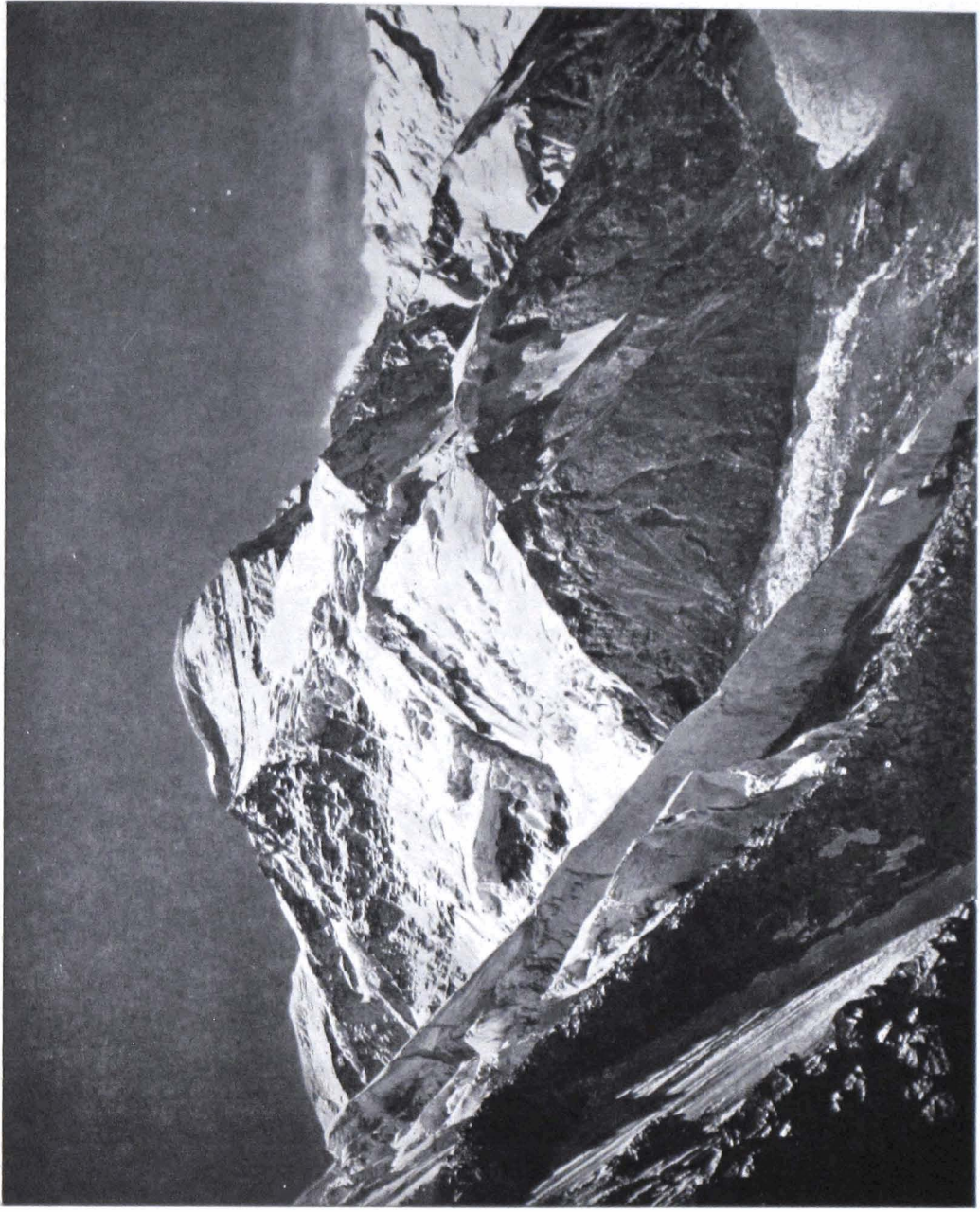


Plate 20 Cho Oyu (26,750 feet), the 'Easy Eight Thousand', from W.: below, to the right, the Kyetrak Glacier

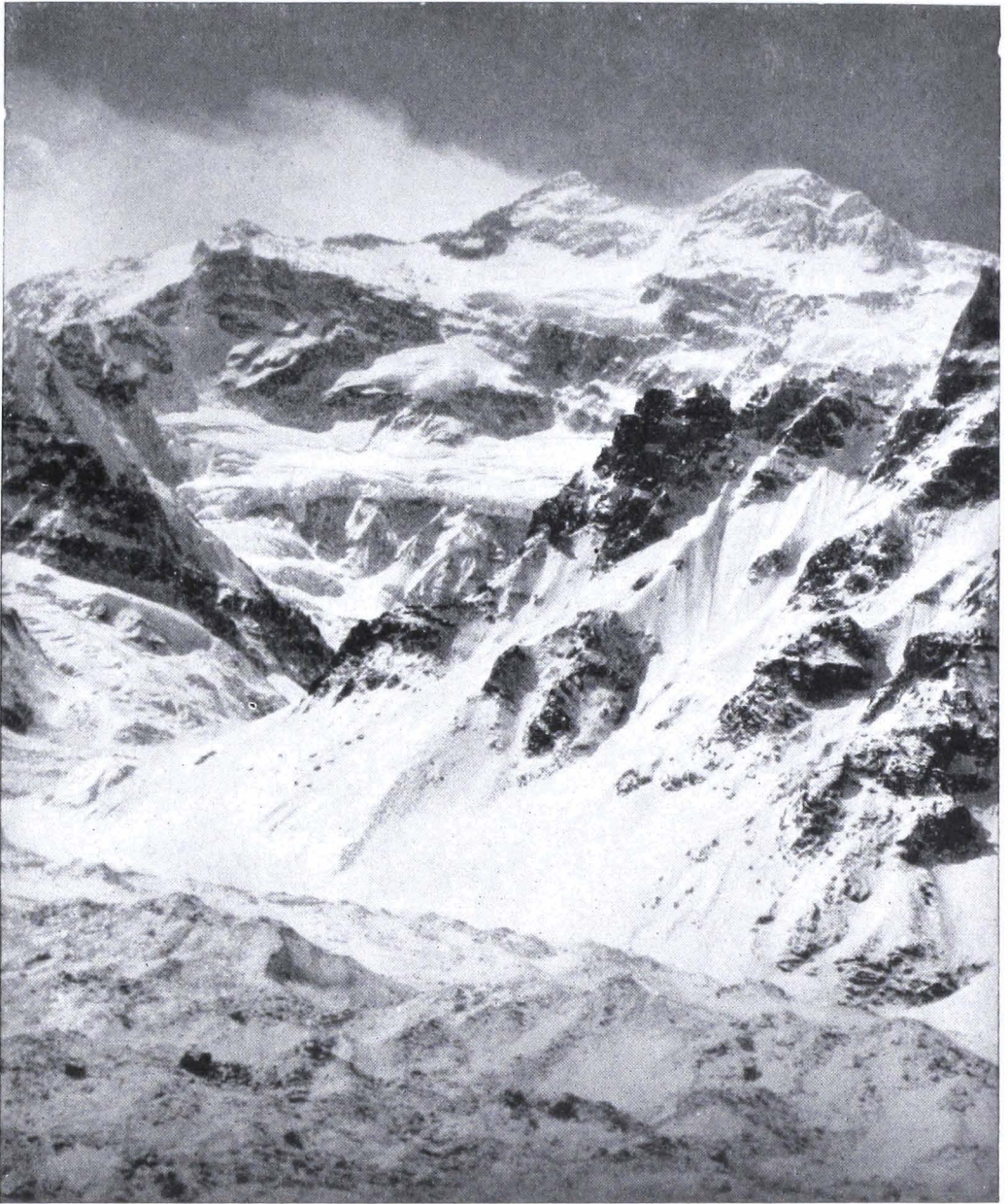


Plate 21 The North Face of Kangchenjunga with the three terraces, the broad Shoulder and the 'Zuckerhüt' at their left end. In the centre the Main Summit, to the right the West Summit

draw up a purely objective list of participants, unaffected by material considerations.

THE 1953 EXPEDITION

It was not till 1953 that the Americans were able to mount the next full-scale assault. The leader was again Dr Charles S. Houston. The others were Robert H. Bates, a member of the 1938 Expedition, George I. Bell, well known for his climbs on Yerupajá and Salkantay, Robert W. Craig, the geologist Arthur K. Gilkey, a professor of Columbia University, Duo Molenaar, Peter K. Schoening and a British member, H. R. A. Streather as transport officer.

Leaving Karachi on 28th May the party made a very quick march and were in their Base Camp at the foot of K² on 19th June. The next three weeks were spent in establishing the high camps on the Abruzzi Ridge at the same places as in 1938 and 1939; the weather remained good throughout this period. Unfortunately a great deterioration set in about the middle of July; but in spite of storms, which became continually more frequent and heavier, the work was carried on and Camp 8 was erected near the top of the 25,400 foot Shoulder on 1st August.

All eight members of the party arrived there in good condition and with high hopes of reaching the Summit; they had supplies and fuel sufficient for twelve days. But a blizzard then set in, which lasted, on and off, sixteen days, putting an end to all thought of progress. To make matters worse, on 4th August, Gilkey developed inflammation of the veins and a thrombosis which spread to both legs and his lungs. On the 10th they decided on a desperate attempt to carry the grievously sick man down the mountain, but only succeeded in covering about 500 feet in the whole of that day. Towards evening somebody slipped and fell: the ropes of three parties of two became entangled, so that all except one, Schoening, were swept down the mountainside. Schoening managed to hold the other five, who luckily suffered only minor damage. Using pitons to secure the stretcher on which Gilkey lay, they put up a bivouac tent; but when they went to bring the sick man in, they found to their horror that an avalanche had meanwhile swept him away into the abyss.

The others fought their way down the Abruzzi Rib through the unrelenting blizzard: it took them five days to reach Base Camp. George Bell's feet were badly frostbitten and he had to be carried all the way to Skardu, nearly 125 miles. The rest were still able to walk.

It is a pity that the American Expedition of 1953 was a little late in reaching the mountain. Once again June proved the best month in the

Baltoro area: heavy snowstorms often set in by July. Another drawback was the absence of Sherpas. Though full credit is given to the men of Hunza for their enthusiasm and spirit, the fact is that these people have not yet acquired sufficient climbing experience; the result was that the Sahibs had to do all their own carrying on the upper part of the climb. All the same, they are convinced that they would have got to the top, but for Gilkey's tragic illness and the appalling weather. As a mountaineering feat the expedition's performance was superb; the safe withdrawal of seven men down so difficult a route in such shocking conditions was in the realm of the miraculous.

(d) FUTURE POSSIBILITIES⁵

K² is now so well known that there can remain no doubt about the best route. The North-West and North-East Ridges, at one time worthy of consideration, no longer come into the realm of practical politics: the only approach today is that by the Abruzzi Rib—Pt. 22,394—and the South-East Ridge of the Summit Pyramid.

In contrast with Everest, K² is a difficult mountain from the very start, with very few and then very short easier passages. The mean steepness of the route is about 45°, a truly astonishing average for such an enormous mountain and an altitude differential of some 11,500 feet. In the event of bad weather or other unpropitious conditions, so frequently encountered in the Baltoro region, there is always the danger of finding one's retreat cut off, at least for a time. This means that the higher camps must be plentifully stocked with food and equipment—in spite of all the very great transport difficulties.

It is common knowledge that a difficult route becomes increasingly 'easier' the more familiar one is with its detail. The Abruzzi Rib is no exception and need no longer be so highly rated as when it was first tackled in 1938; for it has been shown that the best of the Sherpas can operate on it without Sahibs. On the other hand, the ring of precipices defending the Summit Pyramid between 26,600 and 27,700 feet is still a problem. Technically speaking, the ascent on the eastern side—that is, between the rocky South-East Ridge and the Ice-Bulge—is probably the best route. Crampons are, of course, essential for this; and the great Ice-Bulge on the Eastern Face must be in good condition, for there is frequently great danger of ice-avalanches here, and this line can never be taken without some element of risk from this source. The difference in height, too, between Wiessner's Camp 9 (26,050 feet) and the Summit (28,253 feet) is still considerable; at such an altitude and with great difficulties to be faced, 2,200 feet are really too much of an undertaking for a single day. But it is doubtful whether

a suitable place for a tenth camp can be found, and it seems probable that on the final stage of the assault the risk of being benighted on the way down will have to be accepted. However, Wiessner and Pasang Lama have already proved, on the night of 19th and 20th July 1939, that a descent in the dark is practicable. Moreover, if a light down sleeping-bag and a shovel are carried, it should certainly be possible to dig a snow-burrow in the Summit Snow-Cap above the precipice and so pass a bearable night.

Taking everything into consideration K^2 is not only possible: it is ripe for the taking. But the requisites for success are these; a well-organised and well-led expedition, a team commanding an exceptionally high standard of performance, a minimum of four climbers for the higher camps, at least eight first-class high-camp porters and finally—the right weather and a mountain in the right condition.

(e) NOTES ON THE GEOLOGY

At the southern foot there is a rather restricted outcrop of black phyllites, chlorite schists and dark calc-schists; they have not yielded any fossils yet, but are thought to be Lower Palaeozoic (Silurian?) in age. The whole gigantic pyramid of K^2 itself consists of orthogneiss, the 'K² gneiss' which, judging by the material in the moraines, is essentially a grey-green plagioclase quartz hornblende rock. It extends in a North-West to South-West direction and dips to the North-East at about 30° (Bib. 171, 45, 50).

Large-scale thrusts cannot be detected in the Baltoro area. Here we are probably in the 'axial belt' of the whole mountain system, a region of intense folding and high dips, yet without any pronounced tendency for displacement towards either the north or the south. A most striking feature is the enormous uplift of recent date in the area; for the region as a whole this has amounted to at least 5,000 feet since the last Ice Age, and is obviously still greater in the vicinity of K^2 ; and the rise has not ceased even now. The power behind the elevation has won the upper hand from the power of erosion: the height is increasing much more rapidly than erosion can wear it away. In addition, Chogori is composed of a very hard and resistant rock, and therefore it towers far above the surrounding area 'as lonely as a great thought'.

NOTES TO CHAPTER THREE

¹ Karakorum is a Turkish word meaning 'Black Rubble'—a strange name for one of the world's most glittering high ranges, fantastically rich in glaciation. The name comes from the Karakorum Pass, with its dark mountains, over which goes the great caravan route from Leh to Eastern Turkistan (Sinkiang), and has unfortunately been transferred to the Mountain Range. The Pass lies far to the East, between the Ashil Chain and the Depsang Plateau, and consequently not in the Karakorum Mountains at all. There is, however, nothing to be done about it, unfortunate though the misnomer be.

English literature uses the form 'Karakoram', a spelling followed in our earlier German publications by Marcel Kurz and myself. We have, however, learned our error. It is surely more correct to write this name as it is written in the original Turkish, namely, Karakorum, with the accent on the final syllable.

G.D.

² Aleister Crowley, later to become notorious in the practice of oriental cults, 'black magic' and litigation. See also footnote page 116.

H.M.

³ Twenty-five years later Professor Desio organised and led the successful 1954 Italian attempt on K².

H.M.

⁴ Fritz Wiessner is, none the less, absolutely convinced that he would have climbed the mountain, if only his well-equipped high camps (particularly Camp 7) had been left undisturbed. He himself was remarkably little affected by the altitude.

G.D.

⁵ This entire section has been allowed to stand as the author originally wrote it. Professor Dyhrenfurth's good judgment has been confirmed by the success of Professor Ardito Desio's Italian Alpine Club Expedition in 1954; the details of which are to be found in the Supplement on page 213.

H.M.

CHAPTER FOUR

KANGCHENJUNGA

(a) NAME AND ALTITUDE

THERE is a complete literature about the name of the world's third-highest mountain. Attempts have frequently been made to put forward a Sanskrit derivation and English writers mostly use 'Kangchenjunga', roughly meaning 'The Golden Treasury'. 'Kinchinjunga', 'Kuncan-jangha' and the erroneous German version 'Kantschindschanga' all survive to some extent. All the same, linguists have practically agreed for some time that the name is really Tibetan and consists of four words. In the ancient Tibetan transliteration, which differs sharply from modern pronunciation, it looks very peculiar: 'Gans-chhen-mdzod-inga', the version certified by Jaeschke as long ago as 1881 and confirmed by Van Manen fifty years later. But its pronunciation is: 'Kang-chen-dzö-nga', with the four words clearly separated from one another, since Tibetan belongs to the languages which isolate the single syllables. *Kang* means snow, the pronunciation insisting on the marked preservation of the 'g'; *Chen* is big, the 'ch' being pronounced like ch in cherry. *Dzo* indicates treasury or larder, the 'z' being pronounced like a hard 's'; *Nga* means five. The meaning is therefore: snow-great-treasury-five, or 'The five treasuries of the great snows', perhaps from the five principal summits of the mass, but more likely from its application to the five main glaciers. A European, used to an inflecting language, should pronounce the four Tibetan syllables together as a single long word, but with a fluctuating rhythm and a slight emphasis on the third syllable. The German abbreviation 'Kantsch' is partly a joke, partly a matter of convenience: in no circumstances must any linguistic conclusions be drawn from this playful nickname.

Kangchenjunga has five (or even six) summits, counting from east to west, as follows:

- 1 Pt. 25,361 (7730 metres), a crest in the ridge leading from the Zemu gap to the South Peak. One might consider calling it the East Peak, but it is only a secondary excrescence, not a true peak.

2 The South Peak 27,810 feet (8476 metres), in which the East Ridge, the South-South-West Ridge and the Summit Ridge meet. In the last-named ridge lies, half-way between the South Peak and the Main Summit, the intermediate peak, of equal height, but not usually ranked as a summit, which Freshfield ignored in his explorations (Bib. 68).

3 The Main Summit, formerly measured as 28,146 feet (8579 metres) but according to more recent calculations (Bib. 12e, pp. 259-265) 28,168 feet (8585 metres) high. Here the North-North-East Ridge, the Summit Ridge and the West Ridge meet.

4 The West Peak, a considerable feature of about 27,888 feet (8500 metres) in its own right, but not generally ranked.

5 Kangbachen Peak, 25,927 feet (7902 metres), the meeting point of the North-West and South-West Ridges.

The highest point so far reached on Kangchenjunga is the 25,263 feet (7700 metres) Summit of the 'Spur', the culminating point of the Eastern Spur, some 3,000 feet below the Main Summit (see footnote, p. 116). The Massif is the best known in the Himalaya, and has been more frequently visited by climbers, scientists and all sorts of tourists than any other group in the whole Range. It is therefore essential in our short Historical Note to confine our attention to the expeditions which have genuinely attempted to climb the mountain.

(b) HISTORICAL SURVEY

The first expedition to attempt the ascent of Kangchenjunga operated under an unlucky star. The 'Manager' was A. E. Crowley,¹ an Irish journalist who had little knowledge of mountaineering. The other Europeans were an Italian, R. de Righi, and three Swiss, Dr Jacot-Guillarmod, Alexis A. Pache and Charles A. Reymond. The whole organisation was most unsatisfactory, and in no way adequate for its intention to climb Kangchenjunga from the south-western, Yalung side.

It set out from Darjeeling on 8th August 1905 in the middle of the Monsoon, with 230 porters, and travelling by the Singalila Ridge and the Semo La (15,288 feet) the advance party reached the first inhabited place in Nepal, the two lonely huts at Tseram (12,490 feet), in ten days. Counting from Tseram, the following camps were pushed forward, first along the bank of the great Yalung Glacier, then upwards along this huge rubble-covered river of ice: Camp 3 (16,100 feet) on the right (north-west) bank, and Camp 4 under a rock-island at about 17,400 feet (Bib. 104, 105, 106). Up to Camp 5, at about 18,700 feet, progress had been on rock and the porters had been able to march

bare-footed; but now they were faced by steep snow slopes and it immediately became evident that most of the high-camp porters had no boots and that the expedition's equipment was extremely poor in every respect. So it is not surprising that at Camp 6, about 20,000 feet, some of these poor devils tried to desert, one of them falling to his death in the process.

From Camp 7 (20,500 feet) Pache contented himself with a short reconnaissance to an estimated 21,325 feet—probably too high a guess. It was quite clear to every member of the party that any real attempt to climb Kangchenjunga was out of the question. However, while Crowley and Reymond remained in Camp 7, the other three Europeans with three porters set off, in the following order, all on one rope.

Guillarmod led, in order to improve the track, then de Righi, followed by two porters; Pache came fifth and the sixth man on the rope was Guillarmod's servant, who had been lent a pair of climbing boots and some crampons by his master. The two porters in the middle kept on slipping, but so long as the party kept to the direct line of the slope, Pache always managed to hold them: on a traverse, however, the third man pulled the fourth out of his steps and this time the jerk on the rope was too strong. Pache flew headlong, with the last man after him, and the four slid helplessly down the slope. Guillarmod and de Righi were in very good footholds and had a strong chance of holding them, but just at the moment when the full strain came on the rope and they were relying on the snow underfoot to the maximum, it broke off in an avalanche. Guillarmod managed to keep on the surface by swimming motions and soon freed de Righi, who was only lightly covered, but the others lay deep under the snow, and though the rope showed the way to them, it was at first difficult to do anything to help them. Guillarmod and de Righi had lost their axes during the slide and could only dig with their bare hands and shout to Camp 7 for help.

This at least brought Reymond out to their assistance with some axes; but Crowley, the leader of the expedition, stayed calmly in his tent—as he himself admits—drinking tea and writing a long report for his paper, the *Pioneer*, which was later to appear in print on 11th September. He explained that he was not particularly alarmed, but that climbing accidents of this kind belonged to the realm of things he didn't hold with! He did, however, promise to come down to the scene of the accident on the next day and have a look—a promise he kept, remaining there a very short time and then returning to Darjeeling (Bib. 104, 231). Any further comment would be superfluous.

It took three days before the victims could be dug out. The three dead porters were buried by their comrades in a crevasse: Pache was buried on the rock island near Camp 5. A simple monument of stone

was then erected and the spot is marked as Pache's Grave (18,702 feet) on Marcel Kurz's map.

So ended the first attempt to climb Kangchenjunga, and the mighty peak had claimed its first five victims. Locally, it was said that the God of Kangchenjunga will not permit an approach to his throne. But we must remember clearly that the failure of this lamentably organised and ill-led expedition is no true measure and has little importance for us; for the cause of the catastrophe was not a typical Himalayan ice avalanche, but just an ordinary snow-slab avalanche such as can be released on any fairly steep slope, especially during the Monsoon period. Moreover, human fallibility had a great deal to do with the fatal outcome.

THE 1920 EXPEDITION

In September of this year Harold Raeburn and C. G. Crawford were at work on the same south-western side of the mountain. This was rather in the nature of a reconnaissance which, instead of following the 1905 route, took a line some way to the east, towards the Talung Saddle: here the threat of avalanches seems to have been very serious indeed (Bib. 160). The most important achievement was the crossing of the Ratong La, 17,050 feet, to the south-west of the great peak of Kabru (24,076 feet).

THE 1925 EXPEDITION

In 1911 that great Himalayan Pioneer Dr A. M. Kellas had reached the Zemu Gap (19,230 feet), the knife edge at the foot of Kangchenjunga's East Ridge, from the north (Bib. 111). In 1925 an Italian party led by A. N. Tombazi succeeded in setting foot on it by its more difficult southern approach (Bib. 213).

THE 1929 EXPEDITION

In 1929 a young American, E. F. Farmer, without much climbing experience, had the idea of climbing the mountain by its South-West face and alone at that! He had kept his crazy plan a complete secret. Leaving his three porters alone in a camp on the Yalung Glacier, he climbed up unaccompanied to below the Talung Saddle . . . into the vast white silence. No one knows whether he perished in a crevasse or through an avalanche. With all respect to such tenacity of purpose, it must be remarked that such attempts have not the minutest chance of success and in truth are little more than a somewhat ceremonious, romantic form of suicide.

[*ERWIN SCHNEIDER.*] In the same year a strong party of German mountaineers organised and led by Paul Bauer attempted Kangchenjunga. It was the first serious attempt, offering even the possibilities of success, to attack the Main Summit. It was almost by chance that this 1929 German Himalayan Expedition turned to Kangchenjunga as its objective, for on arrival in India it was still uncertain—owing to the absence of the necessary travel permit—whether they would be making for Nanga Parbat, Kamet or Kangchenjunga. The arrival of a permit to enter Sikkim then settled the question (Bib. 5).

Kangchenjunga is the unchallenged masterpiece in the panorama from Darjeeling, that much-visited hill station. Its southern and eastern flanks can be approached by a relatively short march and with the least expense, and finally the mountain was already well known owing to Freshfield's high-level circular tour in 1899 (Bib. 68). In his classic book, superbly illustrated with photographs taken by Vittorio Sella, as well as in a smaller publication (Bib. 69), he had drawn attention to the Eastern Spur and the North-North-West Face as possible routes to the Summit. It is an interesting point that the first three serious attempts, in 1929, 1930 and 1931 were subsequently made from these directions.

Those who took part in Paul Bauer's Expedition were: Eugen Allwein, Peter Aufschnaiter, Julius Brenner, Ernst Beigel, Wilhelm Fendt, Karl von Kraus, Joachim Leupold and Alexander Thoenes, nine men in all. There were also two liaison officers, both British, H. W. Tobin and E. O. Shebbeare, on whom rested the responsibility for the porters. They left Europe at the end of June, the plan being to use the wet Summer season for the approach and the reconnaissance, and only to attack the Summit in the Autumn after the Monsoon. This idea was in contrast with the experience of most earlier expeditions, above all the British attempts on Everest, which had mostly been carried out before the Monsoon broke.

There are naturally advantages and disadvantages to both seasons. Before the Summer Monsoon there is comparatively little snow on the mountains, the snow is usually in excellent condition and just before the Monsoon breaks there should be splendid weather, free from high winds. On the other hand it is necessary to start early in the season—according to the length of the approach march—and so Winter snow is still met with, which is particularly unpleasant if fairly high passes have to be crossed with a big column of porters. But the worst feature is the race with the Monsoon. For it is essential to have reached the Summit and to have as much of the descent as possible behind you, so far as difficult and avalanche-menaced ground goes, by a reasonably established date-line. The start of the Summer rains varies each year

and can, in the Kangchenjunga range, be anywhere between the end of May and the middle of June. The normal time is from the 15th to the 20th June.

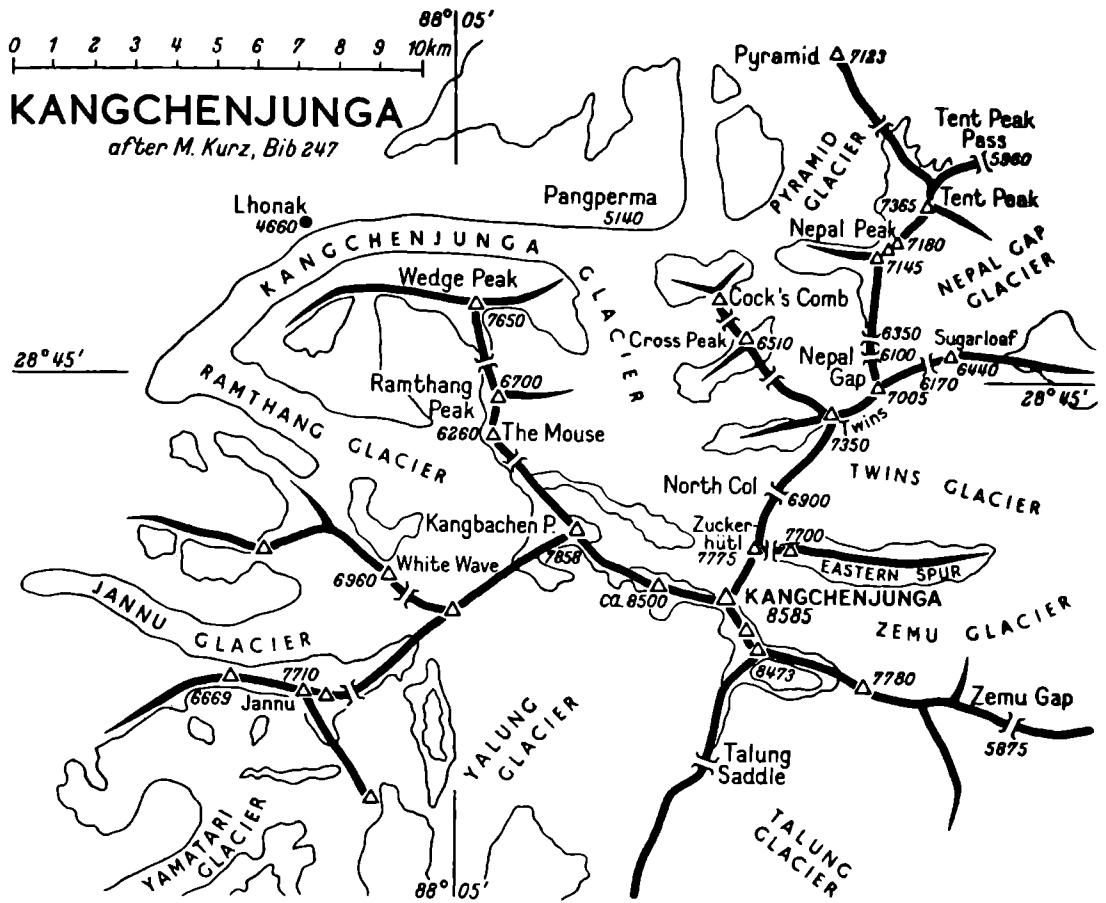
Pros and cons of the Monsoon season are the absence of snow on a Summer approach, but to set against that freedom, the onset of down-pours amounting to cloudbursts and the resulting appalling condition of the tracks. Then, on the mountain itself, the work has to be done, until the fine Autumn weather sets in, under really bad snow- and weather-conditions. The date on which the fine weather begins is also subject to great variations from one season to another. Mostly the weather is very good in November, but the days are very short and temperatures, particularly at night at great altitudes, very low indeed.

The expedition left Darjeeling with eighty porters in two parties, following the usual trade route between Sikkim and Tibet as far as Lachen. At the end of a fortnight they had pitched their Base Camp (the 'Bavarian Camp') on the Zemu Glacier, at a height of 15,420 feet, in the groove behind the left hand side-moraine: reckoning from Lachen it was Camp 3. The advanced Base Camp was set up, after some reconnaissance, at the end of August, on the upper Zemu Glacier, between the Eastern Spur and the East-South-East Ridge of Kangchenjunga. It was the base from which they were to make the actual assault on the mountain.

Till mid-September they tried to find a way on to the lowest part of the Eastern Spur suitable for the porters, without very encouraging results. So a second climbing party moved up in the direction of the Zemu Saddle (19,230 feet) to test the feasibility of a line of approach from it to the South Summit (27,810 feet) by way of the East-South-East Ridge. This group was soon driven down again by deep snow, the dangers of the approach route and the obvious severity of the ridge. Finally, it was decided to attack the Eastern Spur, as the only possible route on this side of the mountain (Plate 17).

On 16th September they at last reached the crest of the Spur, by way of the southern flank of its lower part, which is mostly rocky and split into a number of ribs, at a point behind a subsidiary crest. From that point a way had to be built literally foot by foot through the snow and ice armour of the ridge by the most appalling labours, continually hindered by bad weather and heavy snow-falls. This sector of the Eastern Spur has since become notorious for the exiguous nature of the 'track' near, over and even through the ice-towers and mushrooms of snow and ice, which crown the ridge at this point. Camp 7 was the last 'tent-camp' on the flank of the Spur: Camps 8, 9 and 10, by contrast, were holes in the snow, offering greater safety and protection from

SKETCH MAP 5



the cold. It would have been almost impossible to put up a tent on this kind of ground.

Camp 10, at 23,000 feet, at the end of the most serious difficulties presented by the Eastern Spur, was established on 2nd and 3rd October. Every member of the party took his share in hacking out the route in turns, except Leupold, who had taken on the thankless job of looking after things at the lower Base Camp ('The Bavarian') and was to follow later in the attack on the peak. It was now felt to be time to embark on this mass attack, for in the opinion of the climbing party the worst difficulties on the way to the Summit had been overcome.

On 3rd October Allwein and Kraus pushed forward to 23,623 feet through deep snow—this was the highest point reached on the mountain in 1929—and observed that there was, so far as could be seen, not another serious difficulty on the Eastern Spur. An unusually heavy blizzard, lasting five whole days, then kept the climbers imprisoned in their solitary snow-holes and cut all communications between the Camps along the Spur. The subsequent retreat was carried out with-

out human casualties, but a certain amount of material was sacrificed, as loads had to be jettisoned from the crest of the ridge and some of them were never recovered. By mid-October the party were safely off the Spur on easy and danger-free terrain. The march back to Lachen was carried out in continuously bad weather conditions.

This, the first serious attempt to overcome the immense curtain of precipices of this 'Eight Thousander', though unsuccessful, achieved the following results. The ridge crest of the Eastern Spur was shown to offer the safest line even in hostile conditions; had a retreat in similar circumstances been dictated on a face it would certainly have ended in disaster. At the point where any further advance towards the Summit of Kangchenjunga was prevented by unusual weather conditions, the team were convinced they had found the right approach and believed that there were no really serious difficulties, compared with those they had just overcome, to be encountered. There can be no doubt that this was a very successful effort. Never before and perhaps never to this day has so severe a route been literally hacked out of a 28,000 foot peak. The results were only achieved because the party concerned was a closely-knit team of men who knew each other; and each member was—as is the basic essential from the outset—a technically first-class climber, trained in the hard school of experience.

The kind of work involved on the Eastern Spur is best shown by the following quotation, from Allwein's pen, in Bauer's book (Bib. 5, pp. 99-101):

When, on 23rd September, we reached the base of the fourth tower, we were at first, for a while, at a loss. The edge was either vertical or overhanging, as also both the right and left sides; but a narrow ledge, roofed over by huge overhangs, cut across the left-hand wall and led to a deep niche in the ice, where it petered out under impossible ice-bulges. There was nothing for it but to force a shaft vertically upwards from the niche. Kraus squeezed into the niche and set to work hacking away at the roof with his ice-axe. It was fearfully heavy and exhausting labour, for one had to wedge oneself inch by inch into the shaft as it took shape; as the man at work hacked the snow away, it fell down on to his face and shoulders and, no matter how closely fastened his clothing, the melting water found a way down into it. During the first hour's work on this tunnel, I managed to broaden the ledge, which had at first been terribly narrow and difficult to move on, into a comfortable passage, on which even a heavy rucksack was hardly a hindrance. We called this ledge the 'Hanomag Way'. The work took up the whole of the day and the tunnel was not

finished when at about four o'clock we moved back to camp.

We spent the first part of the next day in improving the route. We beat down the upper cornices of the first and second towers so well that there was quite a comfortable exit. At the third tower I beat down great masses of cornice-snow from above, then Thoenes worked upwards from below; so the Twins-Tower which had been so difficult and dangerous at the outset became the easiest of them all. Then we set to work again on the tunnel, which Beigel managed to complete at last, after another hour's work. He came upon another exiguous ledge under more overhanging snow, but had to come back after trying to work his way along it to the left. After that Thoenes hacked a way up towards the final cornice in a snow groove, which in the end I succeeded in surmounting. At the first attempt, the overhang pushed my body far out into airy space; but after I had managed to beat down a good deal of the cornice from on top, the ascent was accomplished quite easily. By then the working-day was again running out; I was only able to improve two minor 'steps' of fifteen to thirty feet before we were compelled to turn back at the foot of the two hundred foot cliff, which had so long been the object of our fears.

The very next year saw a second attack on the mountain. G. O. Dyhrenfurth had read Freshfield's assessment of the possibilities of either the Eastern Spur or the North-North-East Ridge. Since Bauer had already tried the Spur, he decided to attempt the Ridge. The real incentive to make this his objective lay in the granting of a permit to enter Nepal, which nobody had obtained for years past. This he was able to achieve through the good offices of the Maharajah of Nepal: so that there was now no obstacle in the way beyond the notable difficulties, for a large expedition, of the approach over high passes, among them the Kang La, more than 16,600 feet high. This is of course a much more difficult undertaking than the approach by the Zemu Glacier from the mountain's eastern side.

The 1930 International Himalaya Expedition was led by G. O. Dyhrenfurth. The other Swiss members were his wife, Hettie Dyhrenfurth, Marcel Kurz as topographer and Charles Duvanel as cameraman. The German members were Ulrich Wieland, Herman Hoerlin and Helmuth Richter, the party's doctor. The Britons were Frank Smythe, J. S. Hannah and G. Wood, while H. W. Tobin was in charge of the supply line in the early days, as far as the Kang La. Erwin Schneider, the remaining member of the party, was an Austrian (Bib. 37-41).

All experience on Everest indicated an attempt in the pre-Monsoon period. The party assembled at Darjeeling towards the end of March and moved off towards Nepal, in three large detachments, in the first week of April. This relatively large number is accounted for by the length of the approach marches and the aims of the expedition—which were not confined to the actual climbing aspect (Bib. 41), a documentary film being also part of the programme.

The first stiff fence was the Kang La (16,660 feet), which was still buried deep under Winter snow. An insoluble back-log of loads developed here, because many of the porters deserted and many others fell out through sickness. These supply problems were a very unpleasant feature and kept the management of the expedition at full stretch. The three subsequent passes between the Yalung and Khunza valleys were disposed of by forced marches, in appalling snow conditions, and after that the way to the North-West Face of Kangchenjunga lay open; but before they could embark on it there were difficult negotiations about provisions for the porters to be overcome at Khunza, and had it not been for the assistance of the Nepalese Government, the whole undertaking would have had to be called off. So it was not until 26th April that the Base Camp could be established, at a height of about 16,600 feet, west of Freshfield's Pangperma, on the north side of the Kangchenjunga Glacier.

Freshfield had suggested (Bib. 69) that the innermost corner of the north-north-west side, below the North Saddle, between Kangchenjunga proper and the Twins, might offer the best chance of an approach. It looked quite a harmless proposition on photographs, and even when the climbers were actually on the spot they were quite deceived by its appearance. One tends to under-estimate the steepness of the slopes, owing to the sun's being nineteen degrees higher in the sky and the resulting diminution of the play of shadows. Our mountain experience is gained in northern latitudes and one does not estimate a north slope in the Alps, which is sunlit on June 21st at mid-day, when the sun is at its highest point, as having a steeper angle than 67° . In similar conditions the angle of a Himalayan north slope can be 86° —only 4° short of perpendicular. To add to which not one member of the whole climbing party had yet seen an ice avalanche crash down a distance of from six to ten thousand feet sheer.

The North-West Face of Kangchenjunga is constructed in three gigantic terraces, separated by belts of ice. The Face itself, which had originally come under consideration, had to be ruled out even as a possibility; but an attempt to climb the inner corner across the first terrace, diagonally towards the North Ridge, seemed to offer reasonable chances of success. It would have yielded a north-western route to the

North Saddle, with all the advantages of by-passing, on its eastern side, the bottom part of the rocky buttress of the North Ridge, in no circumstances accessible to laden porters.

Not a single member of the party saw any objection to this proposed route. The ice cliff between the first Terrace and the Glacier-basin below it looked harmless enough from a distance and not particularly difficult. Moreover, it offers the only means of getting above the 21,000 foot level of this face of the Mountain. If one could reach the first Terrace, everyone agreed that there were two possibilities. It might be possible to continue climbing the face to the second smaller and the third big Terrace, which actually abuts on the base of the Summit cone; or, as was at the time judged more feasible, to proceed by a kind of band over a very steep icefall and so reach the North Ridge itself. From there it looked possible to traverse in an upward direction to the top of the Eastern Spur. But it must be recalled that in 1930 every climber engaged agreed, in contrast with the hopeful opinion of their predecessors of the year before, that the Summit Pyramid proper—above the North Shoulder and the third Terrace—would prove a very difficult proposition indeed (Plate 21).

During the first days of May, two high Camps were pushed ahead from the Pangperma Base Camp into the glacier hollow under the ice-cliff. There was still more than a month before the Monsoon should normally break. After the equipment of Camp 2, at about 1,000 feet below the cliff, had been completed, four of the climbers—Hoerlin, Smythe, Wieland and Schneider, cut a passage up the broken ice-wall. Here they met with an unpleasant surprise, for what had not given a particularly steep impression before, was now found to necessitate steps for the porters. The parts that had looked steep were to all intents vertical and those regarded hitherto as vertical were overhanging. It took four days to make the six hundred foot or so of ice-cliff passable: and this was only achieved by the use of yards of rope, numerous pitons and an almost unbroken staircase of ice-steps—
[End of *ERWIN SCHNEIDER'S* comment].

At this point I must interpolate a few words of my own, to recall one of the most dramatic episodes in the whole of my climbing days.

On 8th May we were hard at work on the ice-cliff. Hoerlin and I cut the last steps up to the crest of the cliff, drove pitons into the ice and fastened hanging ropes to them. Our two porters, Kitar and Chettan, worked close below us, hollowing out and improving our steps. As we finished our work, late in the afternoon, we felt quite sure that we would be able to establish Camp 3 on the first Terrace

next day. We were pretty proud of what had been quite a big job.

As we were going down to Camp 2, Chettan stopped me, pointed to the cliff and said: 'Sahib, no good!' Then he tried, mainly by signs, to indicate to me how dangerous he thought the sector. He was fully entitled to do so, for he was one of the best climber-porters and, at the time, far ahead of us in Himalayan experience.

In spite of this, everybody was very happy in Camp that evening. We all felt sure we should get up a good deal higher next day and hoped that, once we were up the ice-cliff, one of the worst obstacles in our way would be left behind us. The porters were given specially large extra rations.

It was a warm night and most of us slept badly. The morning was grey and misty, with light flurries of snow. Smythe had not been fit for a day or two and remained in Camp 2: everybody else got ready to go on up. I happened to be the first away, and left Camp with Chettan before the main party was ready to leave. We had pitons and ropes with us for the improvement of the last bit through the ice-cliff. Chettan's ruck-sack was a good deal heavier than mine, so he was soon a little way behind me.

Before one actually got on to the ice-cliff there was a small level shelf and, at its edge, an enormous crevasse, which could only be crossed at one place by a narrow snow-bridge; this we had safeguarded with a balustrade of rope. Shortly after the bridge, the track, largely obliterated by new snow, took a wide curve to the left. I stopped a moment, to look at the whole lie of the ice-cliff climb, piled up in vertical steps before me.

A high cracking sound was the first thing I heard. Then I saw that at the very top of the cliff—somewhat to my right—an ice-wall perhaps one thousand feet wide was toppling forward quite slowly. It seemed minutes, though I am sure it only lasted a matter of seconds, before the huge face broke and came crashing down in a gigantic avalanche of ice. The impact of the ice-fragments whirled up a dust curtain of snow and ice, which with incredible rapidity broadened out into a solid, perpendicular wall.

I ran towards the left—if running is the right word for moving quickly in deep powder-snow at 20,000 feet—with little hope of escaping. There were, after all, only three possibilities. I could be knocked out by the ice-blocks, suffocated by the snow-dust or swept away by the avalanche and hurled into the great crevasse. It was a ghastly feeling, when the blast knocked me over, but as I fell I still instinctively shielded my face from the dust cloud with my arm. The uproar all round me was fearsome: I lay in the snow and awaited death in one form or another. I was filled with a great resentment at the

prospect of being killed any moment by the mountain, without being able to do the slightest thing to prevent it and without the slightest hope of survival.

Then, suddenly, there was an uncanny silence over everything. My subconscious mind began to marvel at my still being alive. I could see nothing: everything was blotted out by a thick cloud of snow-and ice-dust. Slowly, very slowly, it settled and then I saw, at first dimly, presently with a little more definition, huge blocks of ice only a few paces away from me—the forward edge of the avalanche—and up above, on the ice-face, a few tattered ropes, the sorry relics of our climb. I remember laughing out loud, only to fall back instantly into an agony of fear and then I was engulfed by a feeling of utter isolation and loneliness.

It was only then that the first rational thoughts came to mind. What had happened to Chettan? How had the others fared? And the Camp? How was I to get back? The bridge over the crevasse had been destroyed and the abyss itself widened by some yards. I had the greatest difficulty in getting around it in the extreme corner of the glacier-hollow: then I ran along the lower lip of the crevasse and reached the edge of the avalanche. Moving a few yards down the slope I could already see dark figures a few hundred paces below. I could distinguish Wieland and a porter hurrying up towards the cliff along the edge of the avalanche, to look for me. They hardly dared to hope that they would find me—let alone find me alive.

Chettan had been overwhelmed by the ice-avalanche and borne away by it: the others were only caught in the perimeter zone of the snow-avalanche it pushed out ahead and were thus able to free themselves after a short time. According to Wieland's report (Bib. 41, p. 67) Chettan too was quickly located and dug out. There was little sign of external injury, but an hour's artificial respiration failed to revive life. At the request of his fellow-Sherpas, he was laid to rest up there in the glacier. All honour to the memory of Chettan, one of the best of the 'Tigers', quiet, reliable and full of courage.

[*ERWIN SCHNEIDER* resumes.] It was a matter of blind chance that the others—five Sahibs and twelve porters—who were either still in Camp 2, or already on the way towards the ice-cliff when the catastrophe occurred, were not overwhelmed by it too. It is incredible that such appalling chaos could result from a mere step of seven hundred feet in a wall of more than seven thousand.

Our original plan was of course immediately abandoned, and our next attempt was on the North-West Spur, by way of the Kangchenjunga Glacier's western arm. This Spur leads up to a great Terrace

under the 25,781 foot Western (Kangbachen) Summit of the Mountain. There was also a slight chance of circumventing the Ridge—which already looked difficult from afar—by its southern side and of reaching the Kangbachen Terrace in that way. This hope turned out to be short-lived: for the Terrace broke off into an unclimbable precipice, falling sheer to the Upper Ramthang Glacier.

None the less, we made an attempt on the North-West Spur. It was the only remaining possibility on this side of the mountain, and an additional attraction was its freedom from avalanche threats—a very important consideration indeed, after our dire experience on the other side. First Hoerlin, Smythe and Wieland prepared an approach route up a groove to a deep gash in the Spur. Then Dyhrenfurth, working with Smythe, and Wieland with Schneider, made a reconnaissance in force on the Spur, during which the latter pair pushed forward to the top of the first big rock-tower (21,000 feet). This attempt proved the impossibility of a practicable route up the Spur. The climbing was over extremely difficult, steep and ice-glazed rock; on the descent it proved necessary to rope down almost every pitch. The Spur lies on the weather-side of the mountain and is fully exposed to the force of the wind. Further, it is for the most part boulder-strewn, crowned with ice-mushrooms and the rock is pretty rotten: so that it is impossible to get it into a desirable state for the use of porters, as is the case with a ridge predominantly covered with snow and ice. It would have been a questionable business for the climbers, let alone for porters; moreover, there was a grave risk of being completely cut off if the weather broke.

On 20th May everything was collected safely in the Main Camp, for a switch to secondary objectives among Kangchenjunga's northern outliers.

This 1930 attempt was the first time anyone had tried to scale a great Himalayan precipice. Perhaps it was a piece of luck to have been repulsed at the very bottom of the wall. To have climbed the face up to the third Terrace would, in the light of our knowledge today, have been a very risky undertaking: similarly we should in all probability have failed early in the climb to the North-North-East Ridge, on the ice-wall, which is too high to be made properly safe for porters. The ridge which supervenes has a rocky upward sweep rather like the bow of a ship and here, too, the difficulty is to make rock of such technical difficulty safe for porters over its great length. I think it very questionable whether it is possible to get a lodging on the slope of the Eastern Face and so reach the uppermost sector of the Eastern Spur. On such a steep, narrow ledge, above terrible abysses, what could climbers do with their porters if they were suddenly overtaken by the

Monsoon? And this is the lee-side, too, on which loose drifting snow lies.

The attempt on the North-North-West Face brought us the knowledge that in the Himalaya it may be possible to rush very short sections of ground menaced by avalanches, with a minimum load and maximum speed; but it is impossible to push high camps forward for days or weeks up a 7,000 foot precipice, cutting steps and providing safety devices for the porters—in momentary expectation of being swept down into the depths by an ice-avalanche any day or night. A retreat must be assured, even in the worst possible conditions. Gigantic depths of snow can fall in a very short time in the Himalaya and that means extreme danger on any true face.

THE 1931 EXPEDITION

It is understandable that Bauer, once he had gained Himalayan experience, wanted to tread the path he had discovered to the Summit of Kangchenjunga as soon as possible. And so we see him in 1931 on the Eastern Spur once again with a new team. This time there were eleven climbers in all, as against nine before, engaged in the attempt. There were Allwein, Aufschnaiter, Beigel, Brenner, Fendt and Leupold of the old brigade: the new members were Hans Hartmann, Hans Pircher, Herman Schaller and Karl Wien.

Bauer had once again chosen the Monsoon and post-Monsoon period, in spite of his bad experiences in 1929. His point of view in so doing may well have been that the good weather period before the setting in of the Monsoon would be insufficient for so arduous and long-drawn-out a climb. He also probably felt that in 1929 he had met with conditions quite exceptionally unfavourable for the normally fine weeks of the Autumn period.

Shebbeare made all the arrangements for portorage at Darjeeling, the baggage was sent on in advance, and on 21st June, directly Bauer arrived, Shebbeare set off with a spearhead of seventy-six porters under the Sirdar Sonam Topge. On the 24th Sirdar Norsang moved off with fifty-six men and on the 27th Sirdar Lobsang followed with seventy-eight porters (Bib. 6, pp. 87-8). The number of porters had therefore sensibly increased since 1929, from 89 to 210. On 2nd July Camp 3 was occupied by the first party and on the 13th the first relay reached Camp 6, at the foot of the Eastern Spur, in perfect weather.

But the weather and snow conditions soon showed themselves more inclement than even the year before. This time it took the climbers two whole months of incessant work to make the most difficult part of the ridge passable. They were continually set back by misfortunes.

One porter and the Sirdar Lobsang fell ill and died. Two of the climbers were victims of appendix trouble, one had sciatica, others suffered from serious frost damage. The hardest man, Bauer, the leader of the party, strained his heart seriously through over-exertion and this nearly led to a fatal end in a high camp on the ridge. All this might perhaps have been avoided if oxygen had not been rejected out of hand in advance, not only as a climbing aid, but also as a medicine. The severest blow to the whole team and one which badly shook the morale of some of the porters, was the fatal fall of Herman Schaller with the porter Pasang, while climbing a tower on the ridge below Camp 8. This disaster naturally also set the timing of the expedition back by several days.

Compared with 1929, the actual conditions on the ridge were far worse. An almost uninterrupted chain of difficulties brought the climbers, at the beginning of September, to about the spot where Camp 10 had stood two years before. The route seemed to get easier from there on. They toiled arduously upwards, and on the 17th September Hartmann and Wien were the first to stand on the Summit of the Spur (25,263 feet), only to meet with a crippling disappointment.

The ground here looks easy enough as seen from a distance, for the Spur drops about 200 feet and then lifts about 500 feet again in a convex sweep to join the main North-North-East Ridge. Here the great advantage of the Spur route (second only to its safety from avalanches)—its sheltered position—became a fatal objection after the heavy Monsoon snowfalls. On this lee slope lay drifted snow which had been blown across the main Ridge and dumped here: moreover it already showed fractures in several places. On 18th September, Allwein, Pircher and Wien had a good look at the critical place from the Summit of the Spur and two days later Fendt joined them there. None of them could see any possibility of eliminating the avalanche danger threatened on it, nor any way of avoiding it by a detour. There was nothing left but to retreat, distressing as the decision was. The withdrawal was successfully accomplished according to programme and in good weather, and by the end of September the forward base at Camp 6 had been evacuated (Plate 19).

So a second attack on the Eastern Spur under Bauer's leadership failed, and in spite of the most careful planning it had cost two lives from an accident during the actual climb. As in 1929, the mastering of a ridge, presenting the ultimate standard of difficulty to its very Summit, was due to the unflinching and energetic efforts of a party of climbers equipped with the highest degree of skill and mountaineering experience. The undertaking surely represents one of the finest performances

achieved to this day on a high Himalayan peak of great severity (Bib. 6). [End of *ERWIN SCHNEIDER'S* contribution.]

THE 1933 (AERIAL) EXPEDITION

In 1933 the Houston Mount Everest (Aerial) Expedition also flew over Kangchenjunga. Unfortunately the weather was not clear, so that the photographs were not altogether satisfactory (Bib. 66).

There has been no Kangchenjunga Expedition proper since 1931, though there have been one or two minor visits to the region, which are worthy of a mention, as they have tried to explore certain approach routes to the mountain.

In 1936 a German Expedition to Sikkim, again under Bauer's leadership, attempted the East Summit of the Twins (22,983 feet) by its East Ridge, which is the long comb sweeping up to it from Sugar Loaf (21,178 feet) and dividing the Nepal Gap Glacier from the Twins Glacier. But Wien, Göttner and Hepp were compelled by very deep Monsoon snow, in dangerous avalanche condition, to retreat at a height of about 21,000 feet (Bib. 7).

In 1937 another small party of Munich climbers was in the Zemu Basin. It consisted of a Swiss, Ernst Grob and two Germans, L. Schmaderer and H. Paidar. They attempted to repeat the above route on the East Ridge of the Twins, also in dreadful Monsoon conditions and with the same lack of success: this enterprise failed a little lower, at about 20,830 feet (Bib. 73).

If only there were a safe and not too difficult approach over this eastern Summit Pt. 22,983 (7005 metres) to the main Summit of the Twins, it would yield not only a respectable 'Seven Thousander' prize, but should, theoretically, afford a circuitous route to the North Saddle (22,623 feet) and so to Kangchenjunga's North Ridge. This North Saddle has a definite strategic significance. It is, therefore, of exceptional interest that, in the Autumn of 1937, a small British party consisting of C. R. Cooke, J. Hunt² and Mrs Hunt made the corresponding attempt to scale it from the Zemu side. Cooke, who had previously climbed Kabru (24,075 feet), with two of the best Sherpas, Pasang Kikuli and Dawa Thöndup, carried out a very thorough reconnaissance from the Twins Glacier. The climb turned out to be difficult, indeed at times severe and exposed to falling stones, but—almost against all expectation—not impossible. They appear to have reached a point about 21,650 feet up, that is, only about a thousand feet below the North Saddle (Bib. 100).

In 1939 the three close friends, Grob, Schmaderer and Paidar had reached the Summit of the splendid Tent Peak (24,165 feet). They then wanted to climb the Twins before the onset of the Monsoon, again by the East Ridge, the lower part of which was already so well explored. Unfortunately they never got the chance: for the Monsoon broke with exceptional falls of snow just as they were set for the attempt and once again dictated a retreat with good intentions unfulfilled (Bib. 74). So the problem remains unsolved. It is, however, certain that the ascent of the Twins from the east is a long and difficult undertaking, which could only be brought to a successful conclusion in very favourable circumstances.

In the Autumn of 1951 a young Swiss, Georg Frey, embarked on a tour of the south side of Kangchenjunga (Bib. 12f), by way of the Yalung Glacier—Ratong La—Kabru Glacier—Kabur (15,782 feet) Gocha La (Freshfield's Guicha La 16,206 feet). On 29th October Frey fell to his death on an unnamed 19,000 foot peak south of the East Ratong Glacier. The photographic results of this small expedition, which ended so tragically, were as excellent as they were informative.

(c) FUTURE POSSIBILITIES AND SUMMARY OF CONCLUSIONS

[*ERWIN SCHNEIDER*]*—*A survey of the experiences of past expeditions leads to the following conclusion. Attempts on this mountain by small parties are doomed to failure from their inception. To have every chance of success a party of several well-matched climbers of the first rank must be assembled. Two at least will have to be kept in reserve for the final assault on the Summit, for the last two or three thousand feet of Kangchenjunga's Main Summit present difficult rock-climbing. The wind, too, will be a dangerous enemy on the Summit Ridge. Since Kangchenjunga is the most easterly of the Himalayan 'Eight Thousanders' and it rises in a forward position, closer to the Plains of India, its weather is worse than that of any other of the world's high mountains. It cannot be taken by assault, but will have to be overcome by an arduous siege-operation, demanding much time. The Faces of Kangchenjunga are now known to be too dangerous. There has been no further attempt on them since the solitary example in 1930, and that failed in its very early stages. In 1905 and 1920 attempts on the Yalung side only reached the neighbourhood of the South-West Face, but never got a footing on the precipice proper.³ So we have only the Ridges to consider. What is the present position with regard to them?

1 *The East-South-East Ridge* (usually known simply as the East Ridge).

This ridge rises from the Zemu Gap (19,230 feet) to the South Peak (27,810 feet). The approach to the Zemu Gap is not exceptionally difficult from the Zemu side and a more difficult approach leads up to it from the Tongshyong Glacier to the south (Bib. 201); both sides are open to avalanche threats, particularly during the Monsoon. The Ridge, from the Zemu Gap to the South Summit, is nearly four miles long. It might 'go' all right up to the crest in the ridge marked Pt. 25,526, but this in itself would be no great gain; for it is still a mile and a half to the South Summit and another mile or more of ridge-work at extreme altitudes, over the intermediary crest, to the true Summit (28,163 feet). Both ridges, moreover, look very hostile from a distance. A safe retreat, when the normally all too short fine weather period breaks, would be highly problematical. And this is, during the Summer Monsoon, the weather-side of the mountain.

2 *The South-South-West Ridge from the Talung Saddle to the South Summit.*

Even the approach to the Talung Saddle seems to be seriously menaced by ice-avalanches (Bib. 160). From the Saddle the Ridge piles up in a sequence of rocky steps, of very uninviting aspect, and even if it were successfully climbed, it only leads to the South Summit. This again is on the weather-side of the mountain; it is technically of immense difficulty and there is serious danger of a party being cut off from all retreat.

3 *The South-West Ridge to the Kangbachen Peak* (25,927 feet).

The approach to this Ridge from the Yalung Glacier demands closer reconnaissance. In 1905 the idea was a direct ascent to the Summit, in 1920 the objective was first and foremost the Talung Saddle. It remains to be established whether there is an accessible Rib, free from avalanche threats, leading north—or north-westwards—up to the South-West Ridge of Kangbachen Peak: but this does not seem very likely.³

The route from the Ramthang Glacier by the 'White Wave' was for a time 'a hot tip' as the easiest way. But according to the reports of the 1949 Suter-Lohner Expedition (Bib. 12d, pp. 20-21), Dittert and Pargätzi found the glacier's lower reaches dangerously exposed to avalanches. Higher up, above the 'White Wave' notch, there is a steep nose of ice to be climbed, after which a traverse, across steep slopes rather like a ski-jump, would be necessary for a long time. Once again there is every chance of a party's retreat being cut off. Besides which the distance to the

Summit from this point would be still greater: five miles of ridge on the weather-side of the mountain, during which the Kangbachen Peak and the West Summit would have to be traversed.

4 *The North-West Spur to the Kangbachen Peak.*

As mentioned above, this Spur has been climbed up to 21,000 feet by a porterless climbing-party: it is technically far too difficult for porters. Halfway up, the way is barred by a high rock-tower, with vertical walls and an ice-mushroom on its top. The rest of the way consists of steep and narrow snow ridges, broken by one or two abrupt rocky clefts. It finishes in the Kangbachen Terrace, a long way from the Main Summit. And here too, in the event of a heavy snowfall, there is great danger of being marooned.

5 *The North-North-East Ridge, from the North Saddle.*

The approach to the North Saddle (22,623 feet) from the Nepalese side (either north or north-west) is far too dangerous: this was established by a thorough examination in 1930. Theoretically, it could be reached over the Twins, but the distance would be far too great and the whole way threatened by avalanche danger. The height from the North Saddle to the higher Summit of the Twins is about 1,500 feet. What could a climber, even without porters, do in such a position if he were suffering from exhaustion in bad weather- and snow-conditions?

C. R. Cooke managed to reach a point about 1,000 feet below the Saddle, on its eastern side (see p. 111). The height of the wall is about 2,000 feet and it would be a time-wasting business, under continual fire from stones, to put this predominantly rocky face into a condition fit for porters to use. Even if that were successfully accomplished, the whole problem of the North-North-East Ridge would still lie ahead (see p. 108). There is a difference of nearly 5,400 feet in level between the North Saddle and the Main Summit. In any case the very approach along the Twins Glacier is menaced by ice-avalanches.

6 *The Eastern Spur.*⁴

According to present knowledge, this is the best route and perhaps the only way that offers any possible promise of success. The approach to the foot of the Spur is, even in the worst conditions, free from avalanche danger. The Spur is sheltered from the wind; only its lower part is difficult, and the 1921 Expeditions have proved that the difficulties can be overcome. The dangerous 'avalanche slope' connecting it with the 'Zuckerhüt!' (Sugar Cap) in the Main Ridge (25,509 feet) would in certain circumstances have to be brought down by mortar fire or in others at any rate

tested for stability. At this particular point, the pre-Monsoon period would certainly be more favourable, if—and it is a big ‘if’—it proved possible to get the route over the lower part of the Spur properly made in time, which means by about the end of May.

There still remains the difficult problem of the Summit mass above. The choice would lie between following the upper part of the North-North-East Ridge, or traversing along the third Terrace and from it gaining a footing on the notch between the Main and West Summits. From a distance the rocks look smooth and they are certainly very steep. From this notch the West Ridge—comparatively short in relation to the other measurements of this immense mountain—should lead to the Summit.

This route offers a bare possibility; but let there be no doubt that Kangchenjunga besides being one of the most tempting of the world’s high peaks is also one of the most difficult.—[End of *ERWIN SCHNEIDER’S* comment].

(d) NOTES ON THE GEOLOGY

Kangchenjunga consists for the most part of a pale orthogneiss with weakly developed augen structure. With the naked eye large flattened crystals of orthoclase (potash felspar) can be seen embedded in a banded and folded matrix. This groundmass consists mainly of quartz, plagioclase (soda-lime felspar) and biotite (black mica). Accessory minerals are especially prominent in the pegmatitic veins which swarm profusely through the main body of rock. Alternating with the gneiss, and forming brown bands which are persistent over wide areas, there is a biotite paragneiss, a schistose rock rich in felspar. The banding is generally fairly uniform and sometimes almost horizontal, and from a distance the rocks often look like a true sediment. This is due partly to the pegmatitic banding and sometimes merely to the foliation; but above all it is the result of the rapid alternation of pale bands of orthogneiss with dark bands of fine-grained biotite gneiss and hornblende schists. I believe that this is a case of a granitic magma injected into an older series of paragneisses and schists; and this contention is supported by the fact that the alternation of para- and orthogneisses remains very prominent right into the marginal area of the Kangchenjunga massif. The intrusion probably dates from the Tertiary.

In the south the Kangchenjunga gneiss rests on the metamorphic Daling Series, which includes sericite schists, chlorite-mica schists, calc-mica schists, crystalline limestones, siliceous schists and quartzites. Possibly the southward thrusting of the ‘Central Gneisses’ over

the Daling Series was connected with the intrusion; but it is also possible that the original sediments were subjected first to *lit-par-lit* injection by igneous material, and that the resulting body of rock was thrust subsequently (Bib. 41).

Like the Everest group, Kangchenjunga towers as an island above the level of the peaks all round, the difference in height being some 5,000 or 7,000 feet. I feel it is impossible to explain this striking fact merely in terms of the slope away from the axis of folding, or in terms of differential erosion. In this case too it is more likely to be due to an elevation of recent date, continuing even to the present day, acting along a ring of powerful faults. In this way we can account for the girdle of vertical walls, some 5,000 feet high, which surrounds the massif, and exhibits a much more youthful topography than the peaks above.

NOTES TO CHAPTER FOUR

¹ See footnote page 94. Crowley's behaviour on this occasion, here described, is in keeping with the later developments of his dubious and flamboyant career. H.M.

² Now Colonel Sir John Hunt, who led the successful Everest Expedition of 1953. H.M.

³ See the Author's additional Note in the Supplement at page 214. It is now known that Kempe discovered a possible route by an icefall descending from the great ice terrace cutting the South Face at about 24,000 feet. This may afford a pushing-off point for the ascent of the long and steep snow-slopes above it to the newly-named West Col, between the West Summit, marked *ca.* 8500 on Sketch Map 5, and the Main Summit. It is this route which Charles Evans' strong 1955 Kangchenjunga Expedition, including several other Everest men, has gone out to explore and pursue. H.M.

⁴ The Spur runs almost due East to West. It is consequently best described as the Eastern—not the North-Eastern—Spur. It is, of course, situated north-east of the Main Summit, but runs up to the Sugar Cap ('Zuckerhütl), in the North-North-East Ridge, not to the Summit itself. G.D.

(Translator's Note)—Professor Dyhrenfurth's preference for 'Eastern Spur' has therefore been honoured throughout the translation, although 'North-East Spur' has previously found general acceptance. H.M.

CHAPTER FIVE

THE OTHER 'EIGHT THOUSANDERS' IN THE EVEREST GROUP

LHOTSE, Makalu¹ and Cho Oyu², ranking fourth, fifth and seventh in the list, are all magnificent peaks, but they stand, as it were, overshadowed by Everest and had till lately so little history of their own that it has been felt possible to deal with them together in one chapter.

(a) LHOTSE

This mountain's Indian Survey symbol is E¹. Lhotse is a Tibetan, but not an old-established, local name. British map-makers bestowed it on a nameless peak to the south of Everest. Since Lhotse means South Peak, the name is apt; and it found immediate acceptance.

Lhotse has three summits of over 26,000 feet, forming a sharp ridge running from north-west to south-east, which is actually the frontier between Nepal and Tibet, into which the comb sweeps in a wide crescent northwards. The North-West Summit, the nearest to Everest, is the highest—27,890 feet (8501 metres). The Central Summit, not quoted in the ranking list, looks about 200 feet lower; while the South-East Summit, according to the Shipton sketch-map (see p. 34) is now given as 27,560 feet. But if Everest's height is elevated by 140 to 160 feet, Lhotse must be pushed up too (see p. 6). So the real height of Lhotse would seem to be 28,036 feet.

Lhotse remains a virgin peak: no one has even attempted to climb it. Our knowledge of it springs from the first Everest Reconnaissance in 1921; the Houston Flight in 1933, which twice flew over Lhotse on its Everest missions; the Fifth Everest Expedition (1935); the 1950 and 1951 Reconnaissances; the Swiss Expeditions of 1952, and the successful British Everest Expedition of 1953. Lhotse has no literature of its own; reference to Everest publications is sufficient.

The recommended route is the North Ridge, which can be easily reached from the snow-crest which crowns the Saddle Rib just above the South Col at 26,000 feet. The middle sector of this Ridge is barred by three huge rock-towers which will have to be turned; below them

there is a prominent snow shelf on the western face, offering a traverse and leading to a pretty steep couloir, which cuts through the whole rock-structure and debouches on the Summit Ridge, quite close to the Main Summit. If there is firm snow in this funnel, Lhotse is perhaps not so difficult as it appears at first sight. But it is by no means certain whether it would be possible to reach the Main Summit and get back in one day to the 26,000 foot snow-crest or to a camp in the South Col just below it.

Lhotse's other ridges hardly come into the picture. The West or West-South-West Ridge, leading up from Nuptse, is not only difficult of access, but is interrupted by enormous rock 'steps' and would present climbing of the most difficult standard. The foot of the East-South-East Ridge could possibly be reached from the Kangchung Glacier; but from there to the Summit of Lhotse is a distance of four miles! Long sectors of it look extremely formidable, and the finish over the crenellated ridge, with its three distinct crests, would certainly take a very long time.

The only practicable approach remains the west side of the North Ridge: and, now that Everest has been climbed, it may not be very long before the fourth highest mountain in the world is attacked by this route. For Lhotse is by no means a mere southern subsidiary peak of Everest, but a considerable many-crested mountain mass, of great size, in its own right. Ever since the route to the South Col was opened and frequently traversed in 1952 and 1953 Lhotse has been 'ripe for picking'.

GEOLOGICAL NOTE

As N. E. Odell surmised, it belongs geologically to the Pelitic Series, the same series of schists as that forming the main mass of Everest. Lhotse forms the southern edge of the great Tibetan Slab, of which the base and section are visible here. 'This Slab includes the whole series of Palaeozoic, Mesozoic and Cainozoic formations of the Tibetan side of the Himalaya. Towards the north the members of this thick uninverted series crop out in succession from the oldest to the most recent and are well exposed. The Tibetan Slab rises from north to south and overlaps the two following tectonic units' (Quote from A. Lombard, Bib. 218, pp. 124-5). These units, which emerge below Lhotse, are the imbricated 'Nuptse anticline' and the Khombu nappes (see also p. 68). Odell reports that on the Everest Expedition of 1938 he saw from Rapiu La (at the foot of the north-east ridge of Everest) a very conspicuous thrust plane in the base of Lhotse. Thus the thrust below the Tibetan Slab is also clearly visible on the south

side of the Kangchung Glacier. This problem can be recommended to the geologist who next penetrates into the upper Kama valley.

(b) MAKĀLU

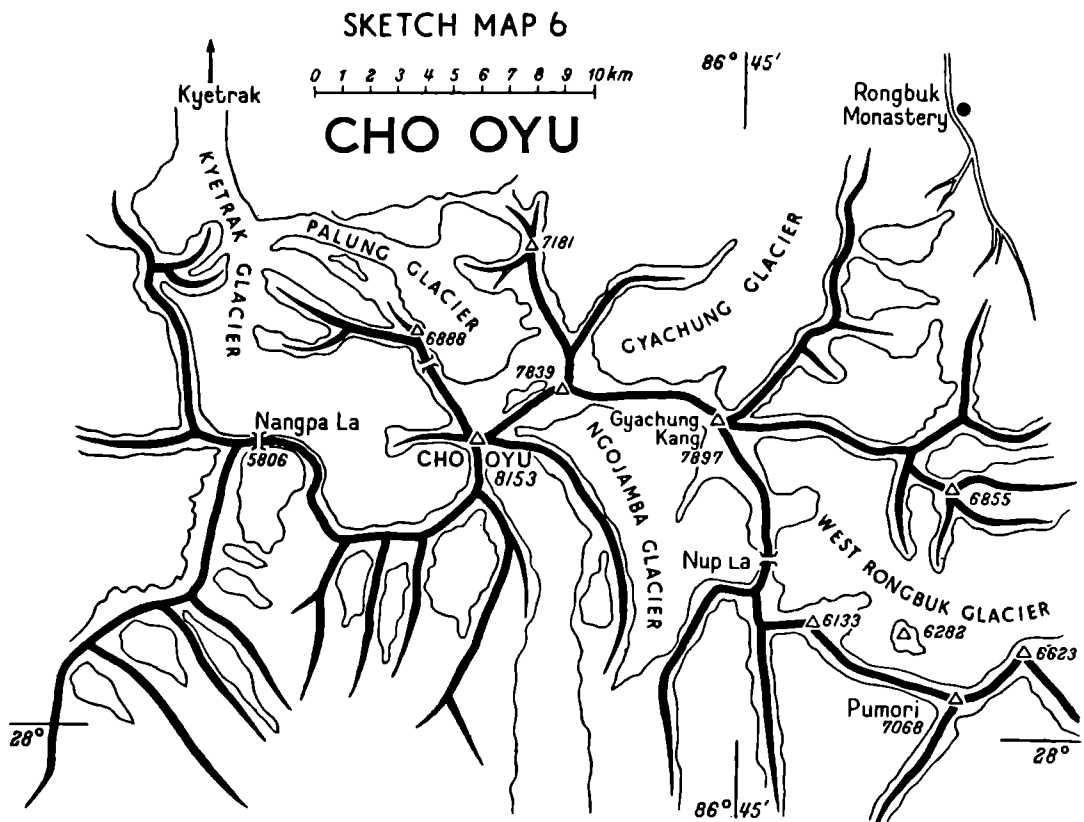
This is a Tibetan name, pronounced with the accent on the second syllable, Makālu, and appears to be a reversal of Kamalu, or more correctly in Tibetan, Kamalung (Lung=area, valley, landscape, the -ng at the end being almost silent). Kamalung therefore means Kama Valley. Kama or Karma Chu (Chu=stream or river) is the big stream bordering the Chomo Lönzo-Makalu range to the north-east and originates as the glacier-torrent of the Kangchung Glacier; so it seems that the right name for the world's fifth highest peak should be Kama-Tse (Kama Mountain) or at all events Kama-Lung-Tse (Kama Valley Peak). However Makalu has now been generally accepted and has stood on all maps for so many decades that any alteration would be pointless (Bib. 22).

The mountain's official height is 27,790 feet (8470 metres measured from six stations), but what has already been said about Lhotse applies; about 150 feet should be added and Makalu is probably about 27,940 feet (8515 metres). Seen from the south-east, the huge bulk of Makalu completely overshadows Everest, lying farther back and heavily screened by Lhotse; so that to this day the uninformed still mistake it for the highest mountain in the world.

There has so far been no attempt to climb the peak or, for that matter, a serious reconnaissance; its flanks remain untrodden. But we have splendid photographs of all its aspects. The obvious thing would be to try to reach the Saddle between Makalu and Chomo Lönzo (25,640 feet); this could best be attempted from the east, from the Lower Kama Valley, for the north-western approach, from a tributary to the right of the Kangchung Glacier, looks very risky (see p. 10). From this broad Col at about 24,000 feet Chomo Lönzo could well be climbed. Makalu is obviously much more difficult, but the west side of the North-East Ridge, where snowfields reach high up to within 500 feet of the rocky Summit-pyramid, looks hopeful (Plates 4 and 12).

Two large expeditions visited the Makalu area in 1954—one American and one New Zealand. The mountain is one of the most glorious of all the giant peaks—and it is not as hopeless a proposition as was originally thought.¹

Geologically it is almost certain that Makalu consists of Central Gneiss, i.e. Granite: it has typical orthogneiss formations. For obvious reasons it has not yet been surveyed. Odell's suggestion is



This sketch is based on the Map 1:126,720; Bib.238. Its Nepalese sector has been revised by the 1951 Reconnaissance.

that—like the peaks of the Bergell in the Alps—the Summit pyramid consists of neo-Tertiary granite.

(c) CHO OYU

The Survey of India first allotted the symbol T⁴⁶, later M¹, to this peak, which lies a little less than twenty miles to the north-west of Everest. The 1921 Everest Expedition was the first to discover its old Tibetan name. Cho (pronounced Tscho) is a fairly usual word meaning Deity or Daemon, which often appears as the first syllable preceding the actual name of a mountain; Yu means Turquoise. Only the introduction of the O is not quite clear. It may, however, be a question of the name having been incorrectly heard. Perhaps it should be properly written 'Chomo Yu', which would give the meaning 'Goddess of the Turquoise'.³

The officially accepted height of the mountain is 26,750 feet (8153 metres) but here again we should of course add about 150 feet for reasons already given (see p. 6). The corrected height may well be about 26,900 feet (c. 8200 metres) and it remains an open question

whether Cho Oyu takes precedence or not over Dhaulagiri, 26,811 feet (8172 metres) in the list of rankings.

The first Everest Expedition in 1921 twice approached the peak, once from the south-east, once from the west, without, however, reconnoitring it more closely (Bib. 97a). The object then in hand was, first and foremost, to find the way to Everest, and other questions were of subsidiary interest. All the same they brought back a most valuable photograph (Plate 20). The pictures taken by the Houston Everest Flight in 1933 (Bib. 66) also show Cho Oyu and its mighty neighbour to the east, Gyachung Kang 25,910 feet (7897 metres) very clearly. The 1951 Reconnaissance explored the basin of the Ngojamba Glacier, which lies at the foot of Cho Oyu's steep South Face.

THE 1952 EXPEDITION

The first Cho Oyu Expedition took place in 1952, with the joint objects of exploring this massif in greater detail, of serving as training and preparation for the British Everest Expedition planned for the following year, and trying out various articles of its proposed equipment. It was led by Eric E. Shipton: the other members of the party were T. D. Bourdillon, R. L. B. Colledge, Dr R. C. Evans, A. Gregory, Campbell H. Secord, the three New Zealanders E. P. Hillary, W. G. Lowe and H. E. Riddiford, with Griffith Pugh as physiologist.

Namche Bazar was reached on 16th April after a march of seventeen days from Jainagar and the main body then devoted its attention to a penetration of the Bhote Kosi Valley, by Chhule (16,000 feet) and Lunak (17,000 feet) to the region of the Nangpa La. Observations from the north-western part of the Ngojamba basin revealed that the whole comb from Gyachung Kang (25,910 feet) through Cho Oyu to Pt. 23,820 (7260 metres), an exceedingly steep, sharp snow-peak, offers no possible line of attack from the south. On the other hand Hillary and Lowe reported that the West Face looked possible, if the Icefall halfway up could be climbed. The approach, however, leads over ground easily accessible only from the Tibetan side (Kyetrak Glacier); and even if this is 'No-Man's-Land', a retreat could be menaced by 'Red' Chinese patrols.

All the same, they crossed the Nangpa La (19,050 feet) from Jasamba (18,000 feet) and pushed forward a camp to 19,500 feet, at the foot of a snow- and rock-ridge: on 7th May the highest camp was sited at about 21,500 feet. However, on the ice-walls at about 22,500 feet Hillary and Lowe had to admit that this obstacle could not be overcome with the slender means at their disposal (Bib. 58).

Several members of the party were suffering from high altitude

coughs and inflammation of the larynx and the reconnaissance was not equipped for so serious an attack on such difficult ground.

While the invalids were recuperating at Lunak, the two New Zealanders climbed two big 'Six Thousanders', to the north of the Nangpa La, on one of which (about 22,800 feet) they experienced a severe blizzard.

The expedition then divided into three parties. Bourdillon, Colledge, Pugh and Secord went to the Menlung La to undertake oxygen experiments, in the course of which they climbed a peak of about 22,000 feet. Hillary and Lowe reprovisioned at Namche and made the first crossing of the Nup La (19,400 feet), which demands severe ice-work on its Ngojamba side. Evans, Gregory and Shipton devoted their attention to the Pangbuk-basin, the Langmoche Khola, the Thami Khola, the Tesi Lapcha (20,000 feet) and the Tolam Bau.⁴

The expedition was rounded-off by a reconnaissance undertaken by Evans into the Barun area, west and south of Makalu. This brought him through the Imja Khola to the huts of Chukhung, over the Ambu Lapcha to the Hongu Lake (about 18,250 feet), the biggest of the five 'Panch Pokri' lakes, and thence on to the Barun Pass. There

Plate 22: To the left, the Subsidiary Summit of Manaslu (about 25,000 feet), in the centre the broad Summit-plateau on which the Main Summit is set (26,688 feet, hidden in the small cloud). *Photo: H. W. Tilman 1950.*

Plate 23: Dhaulagiri (26,811 feet) from south-east at about 14,800 feet.
Aerial photo: Arn. Heim 1949.

Plate 24: Dhaulagiri from north, with high camps 1-5, the 'Pear', and the highest point reached. On the extreme left the North-East Col; deep down to the right the Mayangdi Khola. *Photo: AACZ 1953.*

Plate 25: Himalchuli (25,801 feet) and to the right behind it (centre) Manaslu, from south-east. *Aerial photo: T. Hagen 1950.*

Plate 26: Gosainthan (Shisha Pangma) (26,291 feet) seen from a height to the south-west above the Tangu Pu Glacier, at a distance of about seven miles. This photograph, taken by T. Hagen in 1952, is the first close-up of this mighty mountain's southern aspect.

Plate 27: Nanga Parbat (26,658 feet) from south. *Photo: M. Kurz 1932.*

Plate 28: Nanga Parbat from the lower Rupal Nullah. *By courtesy of W. J. Kydd.*

Plate 29: The North Face of Nanga Parbat. HL=Base Camp. RP=Rakhiot Peak. SZ/EG=Northern 'Silberzacken' or East Peak. VG=Subsidiary Summit. NG=North Peak. *Aerial photo: German Himalaya Expedition 1938.*

Plate 30: Nanga Parbat. The great moraine of the Rakhiot Glacier, the southern 'Silberzacken' (24,704 feet), East Peak (24,926 feet) and the precipitous edge of the high snow-plateau. *Photo: E. Schneider 1934.*



Plate 22 Manaslu (26,660 feet) from N., from the upper Dudh Khola

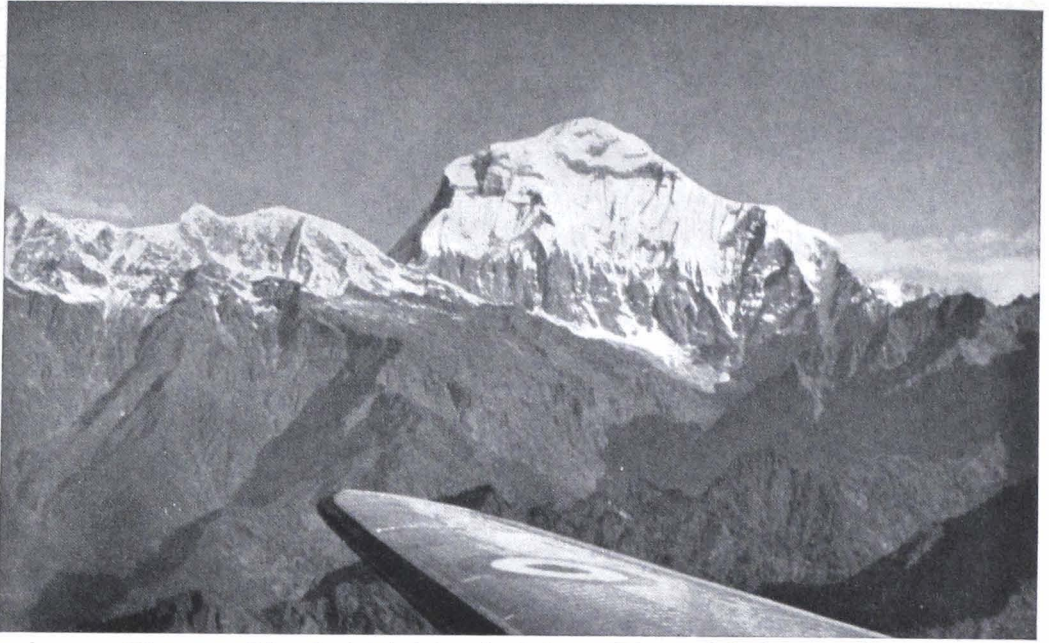


Plate 23 Dhaulagiri (26,811 feet) from SE.: aerial photograph

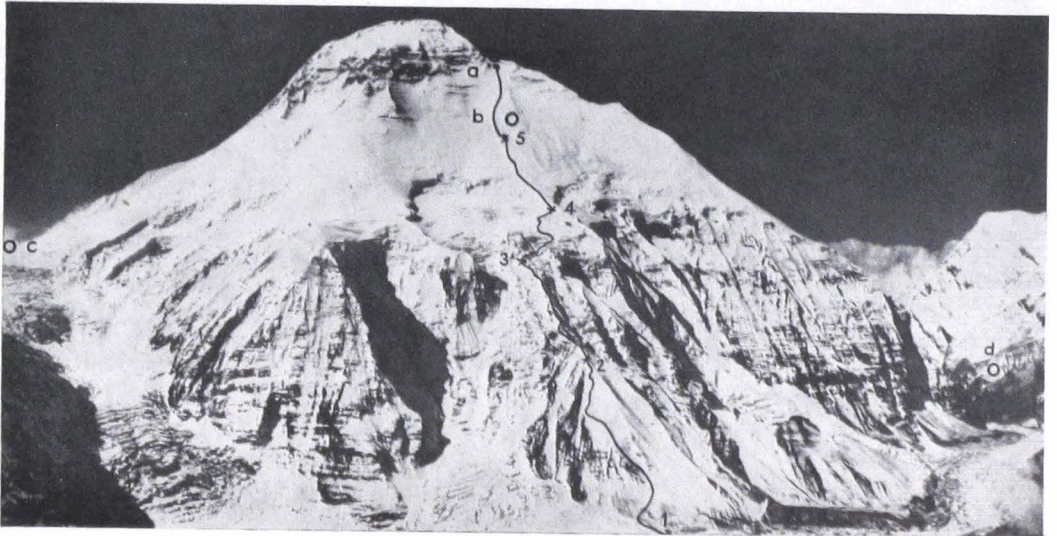


Plate 24 Dhaulagiri from N., showing highest point reached



Plate 25 Himalchuli (left) and Manaslu from SE.: aerial photograph



Plate 26 Gosainthan (Shisha Pangma, 26,291 feet) from SW., above the Tangu Pu Glacier

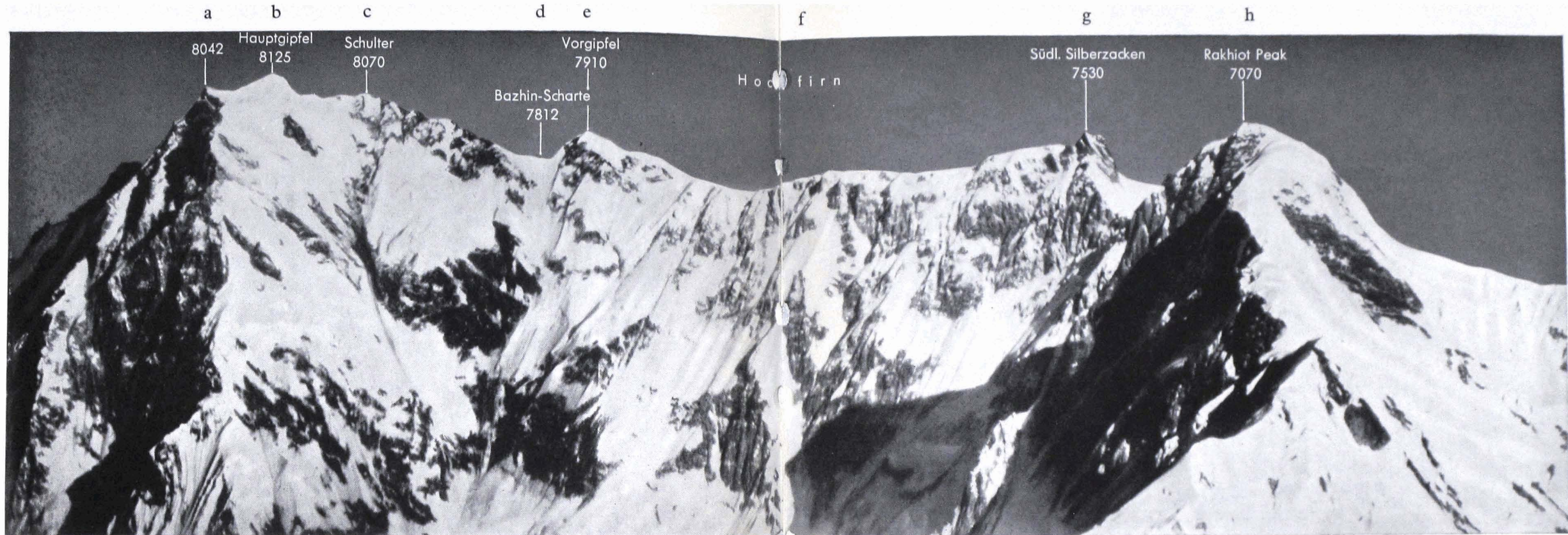


Plate 27 *The Summit area of the Nanga Parbat Massif from S. Panorama from Pirikot (Parjot) above the confluence of the Kamri—and Rupal—Streams. Telephotograph from 12 miles. The southern buttress walls of the Main Summit is one of the highest mountain- its 15,000 foot lea from the Rupal Valley*

a 26,386 feet

b Main Summit
26,658 feet

c Shoulder
26,478 feet

d Bazhin Notch
25,631 feet

e Subsidiary Summit
25,953 feet

f Summit Plateau

g Southern Silberzacken
24,705 feet

h Rakhiot Peak
23,197 feet

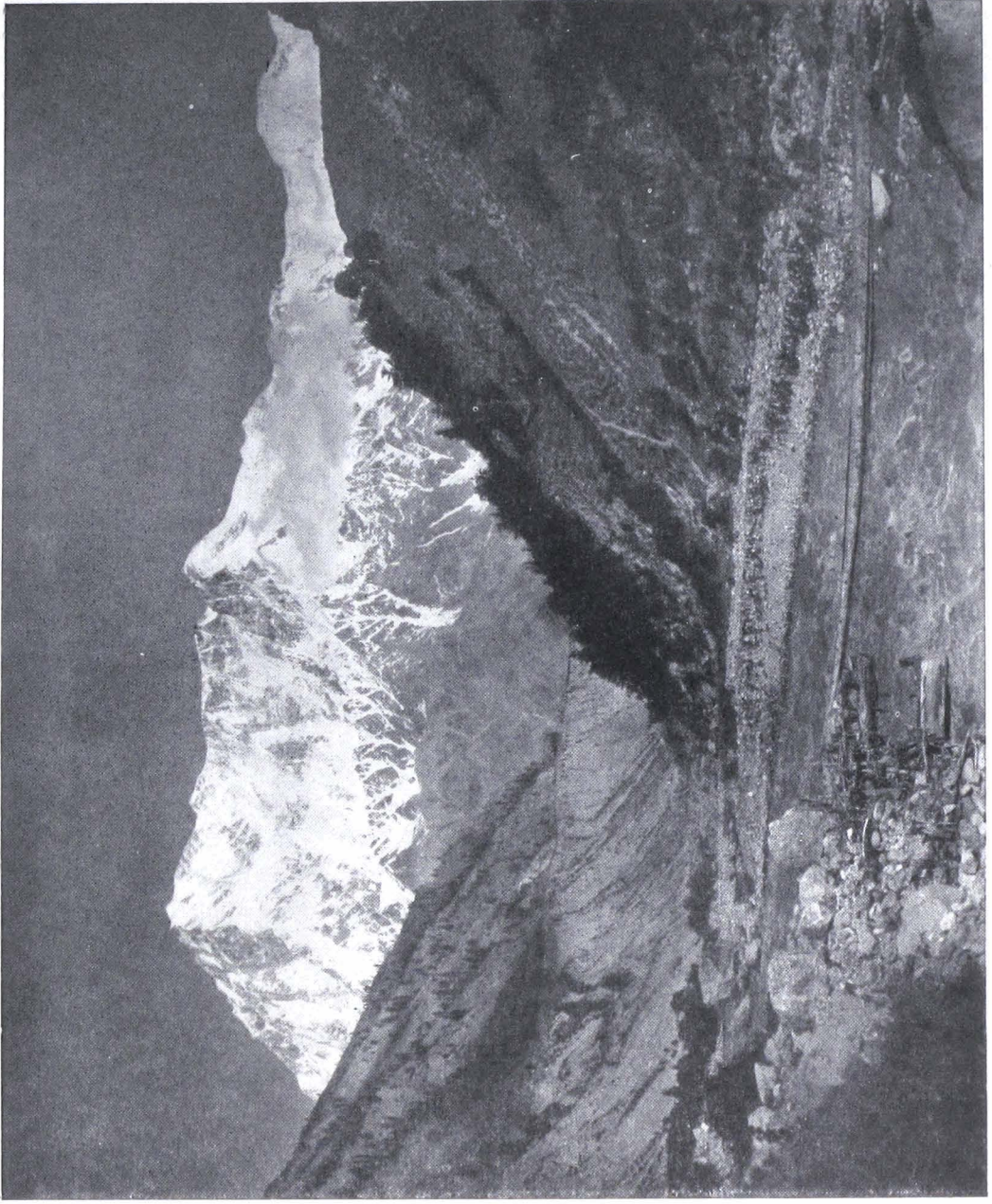


Plate 28 Nanga Parbat, with the Chongra Peaks to the right of the picture

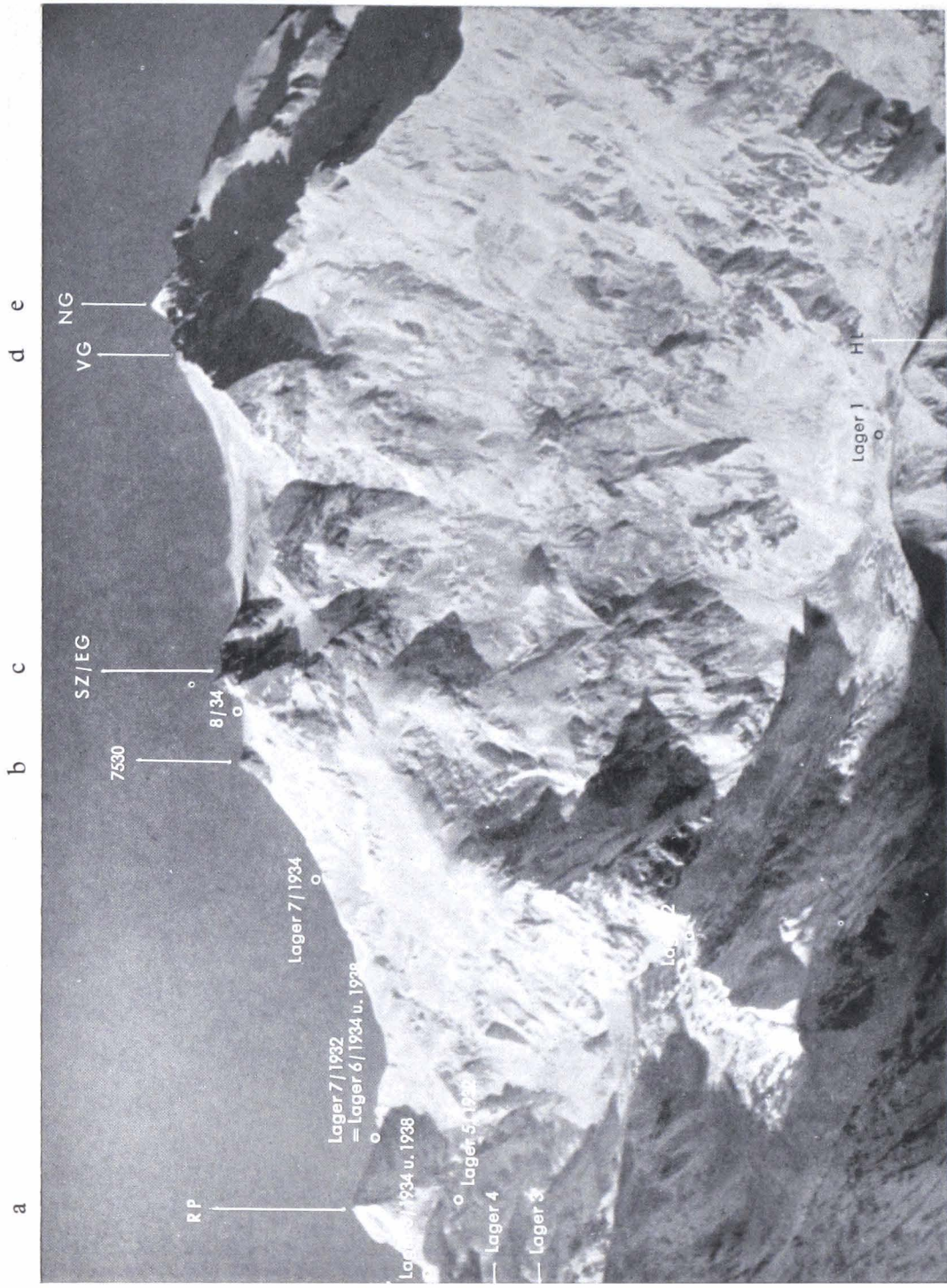


Plate 29 Nanga Parbat from N.: aerial photograph

Camps=Lager 1—8

a Rakhiot Peak

b South Silbersacken (24,905 feet)

c Silbersacken/East Summit

d Subsidiary Summit

e North Summit

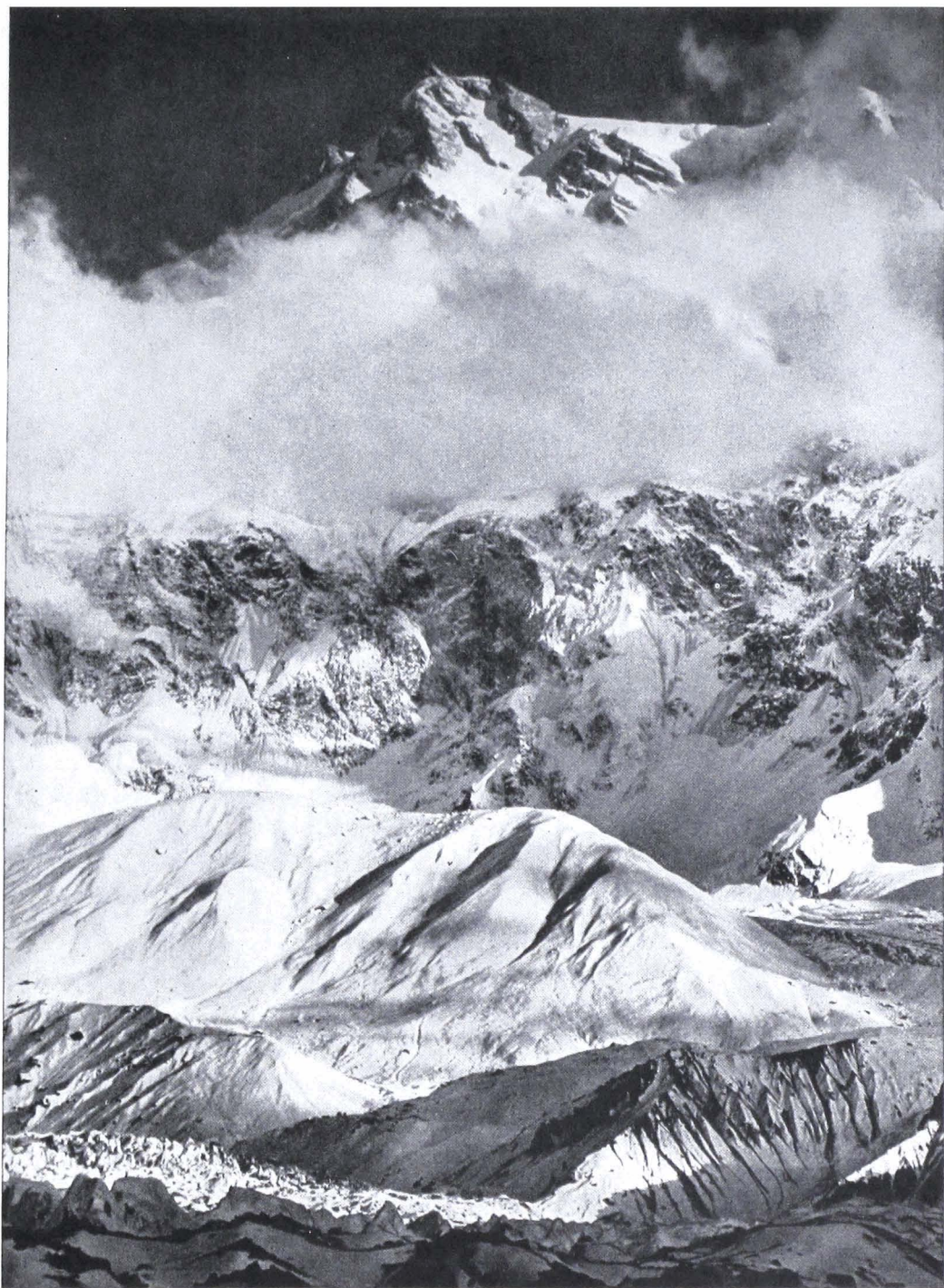


Plate 30 Nanga Parbat's two 'Silberzacken' and the edge of the Summit snow-plateau, with the great Moraine in the Rakhiot Valley below

are in fact two passes, with a glacier-plateau between them, whose waters may run into the Iswa Khola. Evans and his two Sherpas went down a little way into the Barun Valley, till they came on tracks of cattle and shepherds, thus obtaining the encouraging knowledge that the Barun Gorges, hitherto quite unknown, are passable.

Thence he returned to the Barun Lake, where he met Hillary, Lowe and Shipton. On 13th June they joined in the ascent of a 22,500 foot peak north of the Barun Pass Glacier, obtaining a marvellous view and on the following day climbed another, about 21,300 feet high, to the north of the Eastern Saddle.

An advance into the upper Barun Valley led to the foot of Pethangtse (22,062 feet), which might be climbable from the south. But Makalu's western face was quite out of the question; the North-North-West Ridge seemed to offer no hope at all, nor did the fearsome South Buttress.

Shipton and the two New Zealanders then descended the Barun Gorges into the Arun Valley and on down to Dingla, where they joined the already familiar route through Dankuta, Dharan, Biratnagar to Jogbani. Evans, with his two Sherpas, made a way by Matia, Topke Gola, Taplejung and the Singalila Ridge to Darjeeling.

So the 1952 Cho Oyu Expedition only devoted a small part of its time to the mountain itself. This may well have been because Shipton, its very experienced leader, and Riddiford, one of the most active of the New Zealand climbers, were repeatedly sick. Bourdillon, Evans, Gregory and Pugh, too, were out of action from time to time, so that there was never a chance of an attack in full strength. The question of the best route had therefore not been finally solved.

In Bib. 147, on p. 450, W. H. Murray put forward two possibilities. First, the North Ridge, which is on the whole not steep, though it leads up to a prominent shoulder; secondly, the North-West Face, which he describes as 'the most promising route I have ever seen on a great Himalayan peak'. But it does not seem quite so simple as all that, for as the 1952 Reconnaissance shows, there is a difficult icefall to be climbed at about 22,500 feet. All the same, the West or more properly North-West Face, easily accessible from the 19,050 foot Nangpa La, would seem to offer the greatest chance of success, and I am convinced that Cho Oyu will soon be in the forefront of the campaign against the 'Eight Thousanders' which is now beginning.²

GEOLOGICAL NOTE

Cho Oyu lies in the same tectonic belt as Everest, on the southern edge of the Tibetan Slab: hence its relatively smooth profile and its distinct

bedding. As on Everest, the strata dip at about 30° towards the north. Perhaps the prominent step below the shoulder is due to the dark, massive siliceous limestone of the Second Step, but of course this is merely a piece of tentative 'long range geology'.

NOTES TO CHAPTER FIVE

¹ The operations of the American and New Zealand Expeditions, as well as of a further attempt in 1954 by a strong French party, which succeeded in climbing Makalu II and reached a height of 25,600 feet on Makalu itself, are described in the Author's additional Note in the Supplement at page 215. H.M.

² Cho Oyu was climbed on 19th October 1954 by Herbert Tichy's Austrian Expedition, following this route. The extraordinary circumstances are set out in the Author's additional Note in the Supplement at pages 215 to 217. H.M.

³ The turquoise is, of course, a favourite stone in the jewellery worn by Tibetan women. H.M.

⁴ It is a great pity that, in spite of the frequent reconnaissances and full-scale expeditions since 1950, there is still no moderately reliable map of this whole area to the south-west, south and south-east of Everest. The various sketch-maps, all of which differ considerably, are inexact and gappy. It is certainly high time for the production of a comprehensive map of the Nepalese side of the Everest Group. G.D.

DHAULAGIRI AND ANNAPURNA

THESE two enormous mountains in Central Nepal are only about twenty miles apart, one to the west, the other to the east of the deep valley of the Kuli or Krishna Gandaki River. They have accordingly been grouped in one chapter here, although they are two distinct mountain massifs.

The name Dhavalagiri, contracted into Dhaulagiri, is Sanskrit (Devanagari): Dhavala, pronounced Dawala, meaning white and Giri, with a hard 'g', mountain, so that this is the Mont Blanc of the Himalaya. Annapurna, too, is a combination of two Sanskrit words, and at the same time presents a somewhat rare designation or more correctly, another form of the Goddess Parvati, Durga or Kali. She is therefore a daughter of the God Himavat. Parvati means Daughter of the God; Durga, the Inaccessible, and Kali, the Dark One. The literal translation of Anna is Sustenance, of Purna—Filled With. Annapurna is therefore the Goddess Rich in Sustenance, or The Provider.¹

The altitude of both peaks has been exactly measured trigonometrically. Dhaulagiri has been plotted from seven, Annapurna from eight stations, and the accepted heights represent the mean readings. It is, however, a drawback that all the stations are low-lying, so that refraction is a strong factor (see p. 6). The official readings of 26,811 feet (8172 metres) for Dhaulagiri, and 26,504 feet (8078 metres) for Annapurna, are minima which probably need adjusting upwards by 130 to 170 feet.

A historical review is very simple. Till 1949 both groups had only been seen from a distance and there were no usable pictures. But in October of that year, Dr Arnold Heim of Zürich was able to reconnoitre them from the air, thanks to the support of the Swiss Foundation for Alpine Exploration (Bib. 12d, pp. 107-114). From this flight he brought back important photographs and even a short film, although the Indian pilot did not go above 15,000 feet. A few months later the preparations for the second French Himalayan Expedition were under way (Plates 23 and 24).

The mistakes of the 1936 Baltoro Expedition had been well recognised (p. 76) and its experiences were taken seriously to heart. The new venture was planned as a light, mobile but yet strong expedition. The moving spirit was Lucien Devies, President of the French Alpine Club, the Groupe de Haute Montagne and the Fédération Française de la Montagne. Although he did not go out with it, he played the decisive part in setting in motion and organising the undertaking. The expedition was led by an engineer, Maurice Herzog, a climber bred and trained at Chamonix. Louis Lachenal of Annecy, Lionel Terray of Grenoble and Gaston Rébuffat of Marseilles were already universally known as three of the most accomplished among Chamonix guides and instructors. The rest of the six-man assault party consisted of Marcel Schatz and Jean Couzy, two fine climbers. The expedition's first-class photographer, Marcel Ichac, and its doctor, Dr Jacques Oudot, as well as Francis de Noyelle of the French Embassy in New Delhi, were all experienced and resolute climbers. Except for the doctor, there were no actual scientists: the absence of a topographer,² geographer or geologist being particularly regrettable. It was essentially a climbing venture of the greatest promise, for it was of the highest international class. Its avowed aim was to climb Dhaulagiri—or Annapurna—but, in any case, the first 'Eight Thousander' ever to be climbed.

They left Orly Airport, near Paris, on 30th March 1950, in a special Air-France plane, which contained the whole of the expedition's equipment, about three and a half tons in weight. After landing at Cairo, Karachi and Delhi, where Noyelle joined the party, the whole expedition gathered at the Indian rail-head, Nautanwa, on the frontier between India and Nepal, as early as 5th April.

Only a few years before, Nepal remained almost more impenetrably closed to outsiders than Tibet, particularly its central regions. This is now completely changed; for Nepal is modernising itself, and western climbers, savants and scientists are welcomed. Indeed, the Nepalese Government had extended a most cordial invitation to the French Expedition and promised every assistance, which was in practical evidence from the time it crossed the frontier. The lorries lurched over pot-holed roads through the Terai, the fever-ridden primeval forest at the southern foot of the Himalaya, to Butwal, the first sizeable place in Nepal. On the evening of 8th April they reached Tansing, a picturesque little town of 5,000 inhabitants on the last ridge before the Krishna Gandaki Valley, into which they then had to descend. The march now followed this river, which is more usually known as the Kali, along an ancient, much-travelled Tibetan trade route; but it is impossible to follow the water-line continuously, since the gorges are frequently impassable. The way goes up and down, with considerable

differences in altitude, and it mostly keeps to the terraces, on which the villages are mainly situated. The area is thickly populated and rice fields stretch high up the slopes.

On 17th April they passed through Baglung and on the evening of the 21st arrived at Tukucha, the village which had been selected from the start as the Base for operations. The 150 or so porters who had provided the transport to this point proved to be an honest crowd: not a single load was missing, which was certainly to some extent due to the services of the Nepalese liaison officer, Ghan Bikram Rana. Tukucha (8,000 feet) is a considerable village with several hundred inhabitants of Tibetan origin. Its houses are of stone and there are several large caravanserais; it is an important market, the caravans which come from Tibet bartering their loads of salt and borax for flour and tea. In sharp contrast with the bases for most Himalayan journeys, Tukucha is a place where the expedition was able to replenish its supplies and even buy such luxuries as fresh meat. The party set up its Base Camp on a broad open space, opposite a caravanserai, and immediately embarked on a series of reconnaissances, varying from a day's march to fully-fledged explorations lasting a whole week.

On the very next day after their arrival in Tukucha, Couzy climbed south-eastwards to the base of the Nilgiris (Blue Mountains) and won a first view across the Kali Valley to the Eastern Face of Dhaulagiri, its long, fiercely indented South-East Ridge and the endless North-East Ridge, which sweeps up to the 'Pointe de Tukucha' (22,688 feet). Although none of this looked very promising, it was decided to examine it more closely; so Lachenal and Rébuffat, guided by a Shikari, went off on a two days' reconnaissance in the direction of the East Glacier. After they had camped at about 13,000 feet, this effort petered out among the ribs and gullies of Tukucha Point, and it then became evident that, in order to ascend to the line of the East Glacier's fall, it was necessary to descend the Main Valley first for some distance (Bib. 85-89a, 12e, 197, 52).

Meanwhile Herzog and Ichac had started out to skirt round the north side of Tukucha Point, in order to try to reach the north side of Dhaulagiri by that way. This showed up the Indian Survey map as a complete figment of the imagination: for the Dambush Khola, one of the Krishna Gandaki's tributaries, debouching into the main valley near Tukucha does not, as shown there, rise on Dhaulagiri's northern slopes, but draws its water from a valley-head, ringed by huge limestone cliffs set in a horseshoe, north-east of Tukucha Point. From it there is a pass, which a rope consisting of Terray, Herzog and Ichac managed to cross, without much resulting gain. They had to climb down a little way and pass along a tedious snow-hollow in order

to reach a second saddle: but when they got there they still could not see Dhaulagiri. Instead, they found themselves looking out over a previously undiscovered deep and almost snow-free valley, which fell away gently to the north-west. Deeply disappointed, they went back to Tukucha.

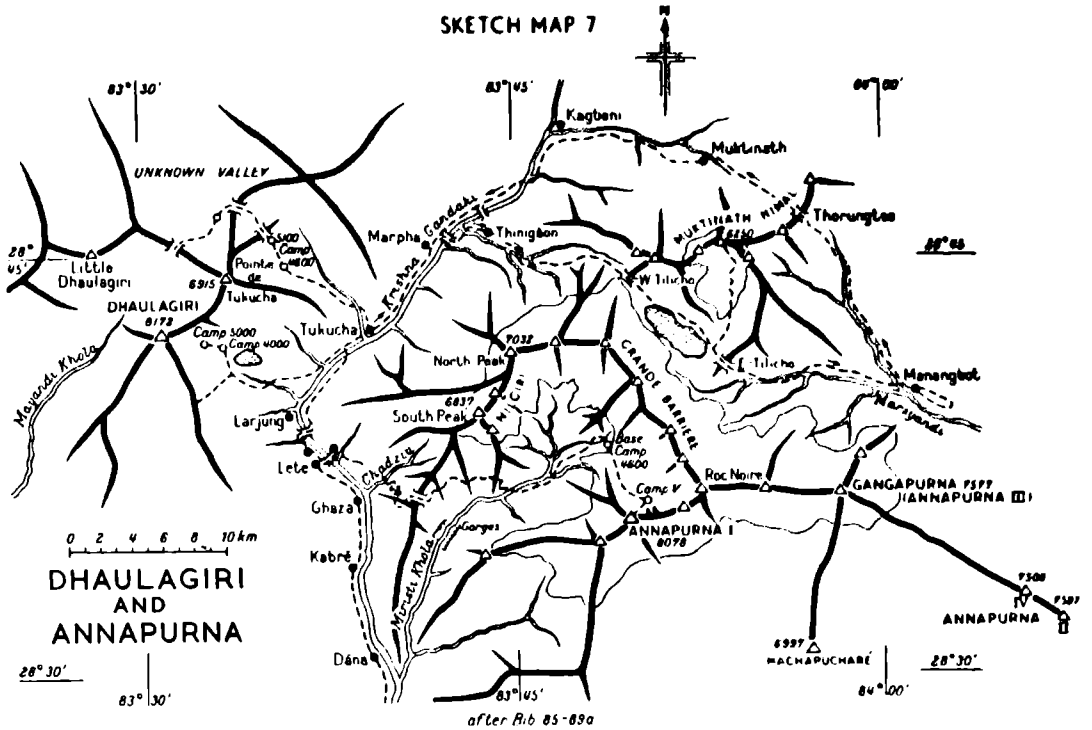
It was Terray again, this time with Dr Oudot and a number of Sherpas, who continued the good work. A miniature expedition had been equipped and it had been decided not to turn back until they had seen the true north flank of Dhaulagiri and could give a definite opinion about it. They pressed forward, over the two saddles already reconnoitred, to the 'Unknown Valley'—it is still not known where it debouches—and traversing its upper end at right angles came to a third pass (christened the 'French Pass' in 1953), from which they could at long last see Dhaulagiri. But they were sundered from the mountain by a savagely broken glacier, jammed between huge rock walls, which is the source of the Mayangdi Khola, a considerable river whose deep gorges skirt the western and southern flanks of Dhaulagiri. Terray and Oudot's view was that the precipitous, featureless North Face offered no possibilities whatever for an assault. The West Ridge looked a little less impossible, but it could only be reached from the Mayangdi Valley, not from Tukucha.

Meanwhile activities were in full swing on the east flank of Dhaulagiri. Herzog, Lachenal and Rébuffat with three Sherpas, armed with the results of the first reconnaissance, roved down the Kali Valley as far as the village of Larjung and then upwards, through the lateral valley which falls towards it from the East Glacier. A good climb brought them to the grassy alps below the tongue of the glacier, where they found a good camp site at about 13,000 feet. The next day's progress was less than they had hoped; for the bad weather, which was a regular feature of every afternoon, set in very early. They had to hurry to get under cover, and camped in a glacier hollow at about 16,400 feet.

The morning of the third day of this reconnaissance was again beautiful. They made ground rapidly up the glacier to about 18,050 feet; but their progress was barred by a huge ice-wall, which could only be mastered by arduous step-cutting, and by the use of hooks and ice-pitons (Bib. 12e). Above it the ground was somewhat easier, but soon they were confronted by immensely wide crevasses, which broke up the glacier with their intersections in every direction. They made several attempts to penetrate them, but finally had to own themselves beaten: there was nothing left but to retreat.

A few days later Schatz and Couzy tried the left side of the glacier and Terray and Dr Oudot the right, but with no greater success than

SKETCH MAP 7



before. An ascent over the icefalls of the steep and shattered East Glacier, especially with heavily laden porters, would therefore seem to be beyond the realms of practical possibility.

But before finally abandoning the East Glacier—as they had already had to abandon the North Face—they climbed on skis to a 16,000 foot saddle in the lower part of the South Ridge. From it they gained a view of one of the most appalling walls in the Himalaya, the 15,000 foot South Face of Dhaulagiri, whose construction is reminiscent of the North Face of the Eiger, but more than twice as high. We need look no farther for an opinion than to Lachenal, who had himself climbed the Eiger North Face: his view being that the South Face of the ‘White Mountain’ is even worse than its North and Eastern Faces. So any hope of climbing Dhaulagiri was becoming more and more remote.

A reconnaissance of Annapurna, the other local ‘Eight Thousander’, thus became increasingly important, and it was Schatz and Couzy who made the first efforts in this direction. A first advance in the direction of the Tilicho Saddle certainly produced no results. This 19,000 foot pass is shown on the 1:253,440 quarter-scale map of the Survey of India as being quite close to Annapurna: moreover a track up to it is shown along the whole length of the Miristi Khola. The village of Dana lies at the exit of this lateral valley into the main valley of the

Krishna Gandaki. Its inhabitants knew nothing whatever of such a track, which was supposed to lead over to Manangbot in the Marsyandi Valley; on the contrary, they resolutely contested the very idea, stating that part of the Mirista Khola consisted of impassable gorges. In actual fact, the Tilicho track runs much farther to the north than is shown on the map. A man from Thinigaon, north-east of Tukucha, knew something about it. In order to clear this question up and to gain information even on the broadest lines about the north and north-east side of the Annapurna Group, Herzog, Rébuffat and Ichac set out on a reconnaissance, with provisions for ten days, accompanied by the three Sherpas and three reliable local carriers.

They travelled by way of Marpha and Thinigaon, on the north side of the Nilgiris (23,050 feet), to the West Tilicho Pass (16,700 feet), which provided a big surprise, in the shape of a long corridor with a lake about three miles long in it—still frozen over, for it lies at about the same height as Mont Blanc's Summit. The little expedition continued along it to the East Tilicho Pass, moving partly over the frozen surface of the lake, which was still strong enough to bear their passage, partly along its northern shore. The main Summit of Annapurna (26,504 feet) was nowhere to be seen, for the view towards the heart of the group was cut off by a fearsomely steep, ice-armoured mountain wall, at least 23,000 feet high, which the French christened 'The Grande Barrière'. But as some compensation, a subsidiary mass of the Annapurna-Himal, the fine peak of Ganga Purna (Annapurna III, 24,859 feet—7577 metres), which towers above the Marsyandi Valley, was in full view. The prospect from camp near the East Tilicho Pass was truly magnificent.

The next day involved a tiring descent of some 5,000 feet to the three villages of Manangbot, in the upper Marsyandi Valley. The Frenchmen were the first white men to visit these places.³ They obtained information about two new huge peaks, Tchongor and Sepchia—probably identical with the 24,630 foot Annapurna IV and Annapurna II, 26,042 feet (7937 metres) of the Survey Map—but no one knew anything about Annapurna itself: the peak is in fact not visible from the Marsyandi Valley.

The energy with which the strength of the expedition was deployed is quite remarkable. While Herzog was returning from Manangbot to the Tilicho camp, Ichac, the tireless cameraman, with Angtharkay the Sirdar, climbed a summit of Muktinath Himal (about 20,342 feet) in order to plot Annapurna, if possible, over the top of the Grande Barrière. Unfortunately there was no view and it even began to snow. Rébuffat, accompanied by the Sherpa Angtsering III (nicknamed 'Pansy') returned to Tukucha by another route, over the Thorung-Tse Saddle

and the pilgrim-centre of Muktinath. For all its rich results, this reconnaissance contributed nothing to the main object—the conquest of Annapurna.

But Dr Oudot had meanwhile noticed something of the greatest importance, whether by a lucky chance or by a true climber's instinct. There is a 15,000 foot shoulder in the South-West Ridge of the Nilgiri-comb, which could be reached through the Chadziu Khola. His 'hunch' was that it might be possible to reach the upper Miristi Khola, above its impassable gorges, by this route, and so force a way into the Sanctuary on Annapurna's northern side. To solve the problem he took Schatz and Couzy with him, starting this time from the village of Lete in the Kali Valley. Thanks to the Sherpas' wonderful route-finding sense, the venture proved entirely successful. They had to climb 7,000 feet first through the jungle of the Chadziu Khola, then over steep grassy slopes, to a gap which offered the only gateway, thence onwards along endless grass-terraces, a whole day's march, between rock-walls thousands of feet high; then, at last, they found the only possible way down, through an easy couloir, into the upper valley of the Miristi Khola, above the terrible gorges. It was a truly outstanding reconnaissance and—as was to be revealed later—the key to success! They pushed on another whole day's upward march along the Miristi Khola, the stream which voids Annapurna's North Glacier; then, many days from the nearest human habitation, their provisions ran out. But before their eyes stood Annapurna, clear from valley-level to Summit-ridge: the North-West Spur, thrusting up between steep glaciers, seeming to offer the best chance of reaching the much easier-looking snow-slopes of the Summit-mass above. After a week of complete isolation, they returned to Tukucha, just as the Herzog-Rébuffat-Ichac party were coming in from their Tilicho reconnaissance.

It was the first time in three weeks that the whole expedition was united. An expectant hush lay on the main tent in the Tukucha camp. The hour for great decisions was at hand: it was 14th May 1950. According to the wireless reports of the Indian Meteorological Service, the arrival of the Monsoon could be expected by about 8th June; so with only three weeks of good weather at their disposal, it was a ticklish situation. They went over the Dhaulagiri possibilities briefly once more and, with the unanimous agreement of the whole party, Herzog decided to reject the 'White Mountain' once and for all. The chances were altogether too slender, the dangers for climbers and porters alike altogether too serious. So it was to be Annapurna, after all; and Annapurna was a gamble on one card—the successful assault from the Miristi Khola (Bib. 108).

They wasted no time, the first party of Terray and Lachenal, guided by Schatz and accompanied by four high-camp porters, moving off on the very afternoon of 14th May. Couzy, guiding Herzog and Rébuffat, with three Sherpas, followed next day: Oudot, Ichac and Noyelle formed the rear-guard, whose thankless task was to bring up the expedition's heavy baggage. This required careful organisation, and involved the enlistment of local portage. The provisional Base Camp was established on a moraine at about 15,000 feet, four days' march above Tukucha, at the foot of the North-West Spur.

An attack on the Spur followed immediately. The first reconnaissance, carried out by Terray and Lachenal—the pair who had made the second successful ascent of the Eiger's North Wall—brought them up to 19,030 feet. True, there were pretty difficult places on the way, but there were easier sections in between, and for this reason they advised Herzog to persevere with this route and to safeguard the difficulties with fixed ropes. So for the next few days six of the assault party were busy on the Spur; and on 21st May Terray and Herzog pushed forward to its north-western subsidiary Summit (19,700 feet). It was a bitter struggle, and so competent a judge as Terray placed four or five of the rock-pitches in the fourth, and one in the fifth category of the six-category scale of severity (Bib. 197). Conditions, too, were exceptionally bad owing to snow and ice-glaze. And yet this painful effort only led, in the end, to the climbing of an unimportant, unnamed crest in the lower third of the huge ridge. The big panorama of Annapurna shows the North-West Spur almost in profile—and at the same time reveals the utter hopelessness of this undertaking. For a judge ripe in Himalayan experience it is quite obvious that this ridge, with its numerous vertical pitches, crags, ice-towers and steps, in fact offers no possibility at all. Bitterly disappointed, Herzog decided on the evacuation of the Spur. All those precious days had been wasted.

Meanwhile, however, Lachenal and Rébuffat had examined the glacier on the east side of the Spur more thoroughly and drew new hope from their conclusions. The first obstacle, the lower *sérac*-zone of the North Glacier was soon disposed of. At first they used the right-hand lateral moraine; later Schatz attempted a line of ascent orographically farther to the right, which offered the assistance of a long comb of rock stretching down the middle of the glacier, but this variant proved unavailing and also dangerous. After that came a level, almost uncrevassed stretch of glacier, from which there was a comprehensive view of the whole glacier-mantled North Face of Annapurna. From there, its ascent looked technically possible, though difficult and open to avalanche-threats, especially if the weather should turn bad. A

Sherpa was sent down to the Base Camp with this important news. Herzog and Terray immediately hurried up the glacier and, after an exhaustive survey of the problem, the four of them decided on the route to be followed. The die was now cast, and action followed swiftly.

A new Base Camp 1 was set up at 16,733 feet, and on 23rd May Camp 2 was already in being at 19,360 feet, at the very base of the slopes. In the meantime the rear-guard had closed up. Dr Oudot and Ichac, with one party of porters and, only a few days later, Noyelle, with a second column of carriers from Tukucha and the rest of the heavy equipment, were in the Sanctuary of the Upper Miristi Khola. They immediately took over the shuttle-service between the original Base Camp and Camp 2, while the three ropes of the assault-party were already preparing Camps 3 and 4 at 21,000 feet and 22,640 feet respectively.

Camp 2 had originally been sited on a flat stretch of glacier which seemed to be safe from avalanches, seeing that it was some way from the walls of the mountain. But Himalayan powder-snow avalanches have a habit of running a long distance, even over a level surface; and it was not long before one of them almost reached the Camp, causing the tents to flutter like flags in the wind-rush projected by the avalanche. The Camp was, therefore, re-sited farther to the right and eventually grew into quite a 'village', where the relatively large tents, designed for use at lower levels, were installed to provide a fair measure of comfort. In this way Camp 2 became almost a rest- and recreation-resort for the hard-worked members of the 'Cordées d'Assaut'. Still, every day counted for so much that only cases of extreme exhaustion or those definitely requiring medical attention hurried down for a quick visit to Camp 2.

The section between Camps 2 and 3, that is between about 19,350 and 21,000 feet was of great technical difficulty, and definitely dangerous, too. It was a question of genuine ice-work on slopes of more than 70° , with absolutely vertical 'steps' between them, which not only demanded properly made hand- and footholds, but even ice-pitons and safeguarding with Karabiners (spring-clips). This was an effort of modern ice-technique, such as is called for on one of the famous ice-walls of the Alps: only it took place some seven thousand feet higher up! Although the most difficult places were made safe with fixed ropes, even the best and most experienced of the Sherpas, heavily laden as they were, required frequent and energetic assistance on the climbing rope. Terray, whom the high-camp porters, full of admiration, had christened the 'Strong Sahib', had every opportunity, during all this work, of displaying the great bodily strength at his disposal.



Drawing by Burgasser

Camps II - V. S=Crevasse-Bivouac. L=Avalanche.

A still more risky factor was that, over a height-differential of some 700 feet, a great avalanche-chute had to be used. Avalanches came down it daily, especially when the concentrated heat of the sun had done its fierce work after snowfalls during the night. Terray (Bib. 197, p. 134) describes it as a genuine miracle that this couloir was used for thirteen days without an accident occurring; and on each of those days at least one rope was on the move, often several during a day. Another problem was to find an even reasonably safe place for Camp 3; in the end Herzog sited it in a flat, snow-filled crevasse, under the shelter of a *sérac*. This was on 31st May.

The pace was rapidly increased. During the last few days they had already tackled the section under the 'Sickle'—a steep sickle-shaped precipice, above which projects the menacing edge-cliff of the Summit snow-field's broken rim. On this very strenuous, and at times very severe stage, Terray and Rébuffat, in establishing a provisional camp, drew heavily on their reserves. Rébuffat, indeed, had incurred slight frostbite of the feet as a result: both were badly in need of a short rest and came down to Camp 2, to join 'Doctor Sahib' Oudot, Ichac and Noyelle. Schatz and Couzy were in poor shape; so only Herzog and Lachenal could at the moment be considered as fit for the attempt on the Summit. On 1st June these two, accompanied by the Sherpas Angtharkay and Sarki, moved Camp 4 to a new site 4b, above the wall of the 'Sickle', at the beginning of the Summit Snow-cap and under a sheltering *sérac*. The Sahibs spent the night at this new camp; the Sherpas—who had gone down in the evening—at the old Camp 4.

The task for 2nd June was the establishment of Camp 5, the last high-camp from which to make the assault on the Summit. The site for it, already selected in advance from down at Camp 1, was a rock-rib at about 24,280 feet, under the eastern subsidiary Summit of Annapurna. This too was a day of 'toil and sweat': they encountered deep snow, dangerous avalanche slopes and some ice-walls demanding the cutting of steps. Slowly they gained height, spurred on by the hope of finding a good camp-site up on top of the rocks. But when at last they arrived there, worn out and gasping, they met with a bitter disappointment, for the rocks proved to be excessively steep, slabby and covered with a thin glaze of ice. There was not a sign of a shelf, no possibility whatever of putting a tent up anywhere. There was nothing for it but to hack a small, flat space out of the steep snow-slope below the rock, drive a piton into a crack in the limestone slabs and secure the tent to it. The two faithful Sherpas helped eagerly and efficiently in the building of the camp; then they went down to Camp 4, leaving Herzog and Lachenal in sole possession of their highly uncomfortable overnight resting-place.

So they spent the last night before the decisive day, in Camp 5 at 24,280 feet. They put everything on and crept into their comfortable down sleeping-bags, of course taking their climbing boots with them, otherwise these would have been useless lumps of ice by morning. Outside, the wind howled, the snow trickled down over the slabs and piled up between the cliff and the tent. Herzog, on the upper side, towards the slope, lay there longing for the morning, for the snow accumulating above him grew continually heavier and he felt as if he were suffocating. Lachenal, lying on the lower side, had a recurring sensation of sliding down into the yawning abyss, tent and all, though he kept on comforting himself with the knowledge that the piton to which the tent was tied still held firm.

At last day dawned. Both men were very exhausted owing to the discomforts of the night. They did not even bother with the tiring business of preparing a warm breakfast. Instead they took a large dose—admittedly not exactly measured—of Maxiton tablets.⁴

The rucksacks were soon packed. Herzog mentions a tube of condensed milk, some nougat, a pair of socks and the Foca: the miniature cine-camera had jammed and was regretfully left behind. They moved off at about six o'clock, unroped. The broad Summit snow-field of the 'Sickle' was steep but uncrevassed, and the use of the rope seemed superfluous (Bib. 86, p. 100). The weather was fine, but very cold; their lightweight crampons bit splendidly on the firm snow, only occasionally did they break through the hard crust and sink in to any depth. Taking regular turns in the lead, they climbed stride for stride, hour after hour, with the summit ridge overhead. A steep couloir to the extreme right seemed to lead directly to the top. The pace was much the same as when climbing Mont Blanc. Gradually, the final slope drew nearer: presently they were in the couloir, close in each other's steps, panting and continually peering upwards to see whether at last . . . at last. . . .

My memory of what happened in that moment of fulfilment has faded: only a few images remain. I remember quite clearly reaching the ridge and then traversing to the left . . . our Summit! It seems to me incredible that I am really treading its snows. All our exertions, all our sacrifices to reach this spot seem incomprehensible. Lachenal does little to give vent to his joy. He wants to go down at once, for he can feel his feet freezing.⁵ One quick look down the other side of the Ridge. I can see the dark precipices of the southern side and, literally miles below, a few billowing clouds, but not a sign of the valley floor. . . . We climb a couple of yards down from the ridge on to the highest

rock and take a few pictures of the flags and pennants we had brought along. . . . At that moment our manoeuvres cost us a great deal, for the fixing of the flags was an immense labour and the adjustment of the camera produced a serious mental tension.⁶

Lachenal started down at once. I stowed my things quickly in my rucksack and swallowed a drop of condensed milk. One last look toward the summit . . . and I hurried down the couloir after Lachenal, who had gone on ahead. It now became a real race towards Camp 5, which we had left this morning. I was putting my gloves on as we started down, but suddenly one of them is blown away. Quite slowly, unmistakably, irretrievably it rolls down the slope. I watch it go helplessly and sense the disaster this will bring in its train. I climb down the steep slope as quickly as possible, my axe held in both hands, trying to overtake Lachenal. I hurry over the big diagonal slope, but now the bad weather is on us. The wind whistles, thick clouds envelope me, the Monsoon is here: this is the start of a race with death. I never thought of taking my spare socks out of my pack and pulling them over my hands in place of my lost gloves . . . Lachenal was still ahead of me: I could see him in the mist about fifty yards away. Presently he was on the ice-slope above our tent, then I lost sight of him.⁷ (Translated from Bib. 86, p. 101).

It was bitterly cold and snowing hard. As he approached Camp 5 Herzog saw, with pleasurable surprise, that there were two tents. What had been happening in the meantime? For an explanation let us turn to Terray's clear report (Bib. 197, pp. 141-2).

On 2nd June Terray and Rébuffat, thoroughly restored by their respite in Camp 2, went up in a single day to Camp 4—actually covering the stage from 3 to 4, using the fresh tracks made by Couzy and Schatz, in an hour and a half—which proves their splendid form. They joined their comrades at Camp 4. On the morning of 3rd June, with Terray in the lead, they made a good line of steps for the porters up the steep ice-wall, still covered by only a thin skin of snow, to the Upper Camp 4; the difference in height between 4 and 4b being some 500 feet. In doing so they crossed the rim of the 'Sickle' and were particularly pleased with this 4b Camp, which was extremely well sited in the shelter of a *sérac* and had been carefully prepared. Here they met Angharkay and Sarki, who on 2nd June had gone up to Camp 5 with Herzog and Lachenal and had returned to 4b in the evening, there to await the Sahibs, as instructed. Their feet were damaged by frostbite and they were generally not in too good condition.

The other two Sherpas who had just come up with Terray were also suffering severely from the cold and soon disappeared into the tent in search of warmth.

After a short rest, the Frenchmen went on, first by a left-hand traverse, upwards by a zig-zag course, then through a wilderness of crevasses and *séracs*. Very deep snow soon gave way to hard crust. They ran into the old, old trouble. In order not to incur serious frostbite, they had to take their boots off and resort to energetic massage—in bitter cold and with a fierce wind blowing.⁸

Happily the ground now became easier and they were able to go straight up towards Camp 5 over a compact, wind-smoothed snow slope of 30° to 50°. Close at hand as the camp looked, it never seemed to get any nearer, although Terray had increased the pace considerably; their feet began to lose all feeling and it was high time to get into the tent for further massage. When they got there, however, the tent was half collapsed and had to be set up and made fast again. They also had to scoop a platform for the second tent out of the steep slope under the rock-band: and this had to be done without a spade,⁹ using only ice-axes and cooking utensils. The plucky Sherpas, who had volunteered assistance, were sent back to Upper Camp 4 as soon as they had dumped their loads, before the track could be obliterated. The four Sahibs—Rébuffat had been successful in restoring life to his feet—worked frantically to put Camp 5 into decent order. Then at last they occupied the two tents, but found, to their great annoyance, that only three air-mattresses and one cooker were available. That was fatal enough for four people, but what would it be like when Herzog and Lachenal came down from the top? In the circumstances Couzy and Schatz decided to make room for them by climbing down at once, while it was still possible, to Camp 4, leaving only Terray and Rébuffat in Camp 5 at 24,280 feet, waiting in deep anxiety for the return of the Summit party.

At last . . . the crunch of a footstep on snow . . . Terray rushed out of the tent. There was Herzog, radiant with joy, shouting: 'We've done it!' At this joyous moment Terray wanted to give him a hearty handshake, but the hand Herzog stretched out to him was cold as ice and hard as stone. Horrified, Terray cried: 'Your hand is frozen!' But Herzog only gave it a perfunctory glance and replied, 'Never mind, it'll soon come back. And where is Lachenal? He should be here any moment now.' So Herzog went into the tent to Rébuffat, who immediately started to attend to him.

Terray heated water, but still there was no sign of Lachenal. Then Terray, sticking his head out of the tent, heard a faint call for help. Lachenal was lying on the steep face about 300 feet below the camp. Rushing into his boots and giving himself no time to put crampons on, Terray dashed out and chancing a standing glissade—a very risky matter on the hard snow—managed with the greatest difficulty to come to a stop near his friend. Lachenal, who had lost his axe, his cap, his gloves and one climbing-iron, had obviously fallen a long way.¹⁰ Looking quite distraught, he cried out that his feet were frozen to above his ankles and that he must therefore go down immediately to Camp 2 for treatment by Dr Oudot. Terray tried to explain to him that to attempt to climb down such a fantastic way in a blizzard, half an hour before nightfall and without so much as a rope or crampons, was sheer lunacy. But Lachenal's insensate fear of ghastly mutilation was so deep-rooted, that for a moment he made an insane attempt to possess himself of the ice-axe belonging to his best friend and close companion, and escape with it.¹¹ But after a few steps he stopped and decided to follow Terray, who had hacked steps at a furious pace up the slope, Lachenal crawling after him on all fours. And so they reached the camp.

All through the night of 3rd-4th June the blizzard tore at the tents. In one of them Rébuffat worked on Herzog, in the other Terray on Lachenal, massaging and rubbing the white, numbed blocks of limbs, for hours on end, with every reserve of will-power they could summon up. All the time they had to re-fill the cooking vessels with snow, to provide warm drinks for the two seriously injured men. The snow piled up between the slope and the tent-roof, continually restricting the space in the tiny shelter. At last, with indescribable joy, Terray saw the just reward of his devoted service: Lachenal could move his toes again, and colour was ebbing back little by little into his feet.

Day began to break, but the storm, normally inclined to subside towards morning, was still raging. Was this the Goddess Annapurna's retribution? Or was it only the onset of the Monsoon which the Indian Weather Service had predicted as imminent?¹² It was essential to get down at once. Terray got Lachenal and himself ready to move off. The boot problem was almost insoluble. Lachenal's badly swollen feet would no longer go into his climbing boots; Terray's, a couple of sizes larger, fitted him perfectly. So Terray lent them to him, forcing his own feet, in only a single pair of socks, into Lachenal's smaller ones. He would never have got into them at all, if he had not cut them

open the evening before, in order to get them off his friend's solidly-frozen feet.

In case of emergency, Terray stuffed a sleeping-bag and some food into his rucksack and shouted over to the other tent, telling them to do likewise. But its occupants were so impatient to be rid of the hell of Camp 5, that they did not listen to him—a fact only discovered later by Terray. Outside, a wind of gale force was still blowing, and getting crampons fixed was a considerable undertaking. Lachenal had lost one of his during his fall, so Terray had to make do with one only. Worse still, Terray's axe could not be found. In the excitement of the evening before it had not been stowed away with sufficient care: try as they would, this irreplaceable support and helper could not be located anywhere, and since Lachenal's fall had cost him his axe, there were only two available. Terray and Rébuffat, the only climbers still in tolerable condition, and the obvious anchor-men for the descent, took charge of these. For a moment Terray thought of taking a tent along as an emergency measure but, although the wind was still strong, it had stopped snowing and visibility had improved. They should now be able to locate the long traverse between the *séracs*. Moreover, Herzog and Rébuffat had already moved off, roped together, and Lachenal was impatiently jerking at their own rope. So they wasted no more time, but set off.

At first downward progress was rapid, but at the first *séracs* the difficulties began. The wind had dropped, snow was falling again in great heavy flakes, and the mist became so thick that they could hardly see one end of the rope from the other. The question now was how to find a way to the sheltered, hidden site of Camp 4 through this labyrinth of ice towers and crevasses. Their position had become one of extreme peril, and the question was now one of life and death for them. There was nothing for it but to go on searching and searching, so long as there was even a glimmer of hope. For none of them had any doubt what an emergency bivouac in the open at 23,000 feet would mean for men in Herzog's and Lachenal's physical condition.

Snow continued to fall like a thick, white veil. The four unfortunate men, as it piled deeper round them, sank in it to their thighs, their waists; breaking a trail became more and more exhausting. Terray and Rébuffat, continually changing the lead, performed superhuman prodigies. Every now and then they thought they recognised a way through, but it always turned out to be a mistake, and they had to start looking again. Without a moment's hesitation they tackled the most dangerous slopes and

engaged in acrobatic ice-manoeuvres—Terray wearing only one crampon. With unshaken confidence they went on seeking the narrow gateway to Camp 4—still always in vain. And while they were fighting for their lives in the icefall at the rim of the 'Sickle', sending out vocal SOS's at regular intervals, Couzy, Schatz and four Sherpas were lying in their comfortable down sleeping-bags, only two or three hundred yards away, fully convinced that the others would be waiting up at Camp 5 in such terrible weather, and that to look for them in such torments of snow would be senseless. If only the short-wave equipment had been working!

Dusk was falling. The four men in the icefall knew that only few have survived a night in the open at 23,000 feet and that, even if they could endure such an ordeal, the only real hope of rescue was still a sudden change in the weather. Slight as the chances of survival were, they meant to fight to the last breath. They began to look for a suitable spot in which to dig a cave in the snow. Suddenly Lachenal uttered a cry and disappeared from sight. But it proved a lucky mischance, for the hidden chasm which had engulfed him turned out to be only about fifteen feet deep and its floor appeared to be solid. It was a natural cave, offering complete protection from the wind; into it they all slid, and there they settled down for the night. They took their boots off and all stuffed their feet into the single sleeping-bag which Terray had so fortunately brought down. Nevertheless, it was a long and painful night, with the worst to come at the end of it. For towards morning a snow-slide developed from above, completely burying the crevasse and entombing them utterly in its darkness. Still they refused to die, and fought their way out, half-suffocated. But all their personal belongings laid out near them, the whole of the climbing gear and their climbing boots too, had been buried under masses of snow. In stockinged feet, they rootled in the snow with their bare hands, till they found at least the absolute essentials, especially their boots, axes and ropes. Their snow-goggles and, what seemed to Herzog at the time almost the worst of all, his camera with the Summit-film in it, had disappeared.¹³

Rébuffat, the first to retrieve his boots, managed with great difficulty to heave himself up into the open air. His companions asked him anxiously about the weather. Shouting down into the bivouac cave, he replied that there was a strong wind blowing, but—that he could see nothing. Terray followed out into the open, only to find that he too was completely snow-blind. On the 4th of June both of them, believing that in the darkness of the driving snow it was safe enough, had worked without their goggles, but

at these great altitudes the ultra-violet light is so powerful that, even in thick cloud conditions, it is never safe to go about without the protection of dark glasses giving 90 per cent absorption. So the two blinded men believed that the weather was still bad, and that their fate was sealed.

During that appalling night Lachenal's feet had frozen again. He had so far been unable to find his boots in the avalanche snow, and now he was trying in a hopeless kind of way to get out of the crevasse in stockinged feet. Somehow Terray managed to help him out—and learned from Lachenal, whose sight was unimpaired, that the sky was blue and the weather on the mend!

Meanwhile Herzog had been carefully combing the snow and, after some time, thanks to his efforts, Terray was able to pull up two pairs of boots and the rucksack on the rope. Then it was Herzog's turn, but with his frozen hands and feet he was almost helpless, so that it needed all Terray's giant strength to bring a heavy man, exhausted to the point of death, safely to the surface. At last all four of them were up in the blessed warmth of the sun, but still in a desperate plight. The two who were still physically fit were blind: the other two were completely out of action owing to frostbite. So they resorted to further distress signals.

These shouts for help were, of course, aimed at the neighbouring Camp 4, but owing to the ice-cliff in between, failed to reach it. Instead, they were picked up at the distant Camp 2 and Ichac, down there, identified two figures high up on Annapurna's ice-slopes, to the east of Camp 4. He was struck with the fearful thought that they might be the only survivors from the upper Camps, nor could he understand why they did not move across to Camp 4—or else, why, in perfectly fine weather, they were not continuing the descent, but remaining in the same spot, repeating their distress calls? Ichac, Dr Oudot and Noyelle racked their brains to the point of despair, but in vain. Obviously they could lend no aid from Camp 2, for an ascent to the point where the two were shouting for help—they were Rébuffat and Lachenal—would take about fifteen hours. Then, suddenly, at about twenty minutes to nine, a dark dot appeared among the *séracs* near Camp 4, making an almost horizontal track in the deep newly-fallen snow, and drew near the two first figures, behind which two more (Terray and Herzog) had made a sudden appearance out of the crevasse. At last the five men were together and slowly began to move over towards Camp 4.

It was Schatz who, on this sunny morning, had come out to look around. He had expected that the four men from Camp 5

were on their way down, and wanted to go part of the way to meet them; only to find his companions quite close by and in this sorry state.

The two conquerors of Annapurna were almost beyond aid. Rébuffat's toes too were frostbitten; and Terray, the 'strong Sahib'—a tower of strength in the battle—had serious trouble with his feet.

At last they reached Camp 4, but still they were a long way from safety. After the heavy snowfalls of the last twenty-four hours, the slopes between 4b and Camp 2 were highly dangerous from avalanches, and the weather had now turned fine, but warm. It would have been more prudent to wait till next morning before attempting the descent, but it is understandable that there was now only one thought in anybody's mind—to get down with all possible speed to Camp 2 and the Doctor Sahib. If there was anything left to save, it was Dr Oudot who would save it.

Sinking in to the waist, they started down; ten men in all, six Sahibs, four Sherpas. Herzog and Rebuffat, on a rope with the Sherpas Aila and Sarki, went ahead and, at twenty minutes past twelve, were just crossing the great couloir, which debouches just above Camp 3, when an avalanche started. A wedge of snow, at least three feet thick, slid down with a roar like thunder, carrying everything before it. Only Rébuffat, who was going down last and had just happened to unrope, was able to reach the edge of the funnel in a few strides, clear of the avalanche's track. Herzog and the two Sherpas disappeared in the billowing masses of snow which poured past Camp 3 in a broadening flood almost down to Camp 2.

Only another miracle prevented this from being the end of the brave leader of the expedition and his devoted companions.

Herzog was hurled against the wall of a small crevasse and wedged in it. The rope connecting him with the porters stretched almost to breaking point, almost suffocating him and jamming his arm in a most painful position, but it held; and when the masses of loose snow had finished roaring down the slope the two porters could be seen hanging on the slope, half-stunned but undamaged.

At last the time had come when the team in Camp 2, equipped with spare goggles and axes, could hurry to the aid of the party so slowly and so painfully descending the mountain. At last they were all safely gathered under the shelter of tents.

But now Dr Oudot was no longer only the cheerful mountain companion, but the skilful surgeon, fully conscious of his terrible responsibility. The smell of ether was everywhere; Camp 2 took

on the appearance of an advanced dressing station after an engagement. Both Herzog, and only to a lesser degree, Lachenal were in a sorry state: it was no longer a question of frozen fingers and toes, long past hope of preservation, but of the preservation of very life itself. Deep into the night Oudot was still working by the light of torches, with Noyelle, Ichac and Schatz as his assistants. It was all work demanding the utmost precision, which can normally only be undertaken in hospital with the greatest care and precautions.¹⁴

Even more confounding are the reports and pictures of the transport down the mountain of the serious casualties afterwards. This operation, carried out partly in baskets on the porters' backs, from Annapurna's high Inner Sanctuary down to the Valley of the Kali, almost defeats description. The plucky, self-sacrificing Sherpas—the heroes of Everest, Chogori, Kangchenjunga and Nanga Parbat—here wove another leaf into their chaplet of fame. Among them were two of those promoted to the status of high-camp porters whose achievement was literally titanic and, of the others, Pandi, nick-named 'the Chinaman', proved himself endowed with the strength of a bear. Is there a European living, who could successfully have accomplished the journey along these 'tracks'—beneath *séracs*, down difficult slabs, through black moraine-rubble, across the Miristi Torrent in full spate, along the steep grass-terraces of the Nilgiri comb, down through the bamboo thickets of the Chadziu Khola—with a dead weight of fourteen stone on his shoulders?

From Tukucha onwards Herzog and Lachenal, could at least be carried on stretchers; but to set against that, the full weight of the Monsoon was now unleashed and it was through incessant floods of rain that the journey back from the mountain continued for fifteen days, up hill and down dale, across emergency bridges, through flooded rice-fields, but now in damp heat which was almost too much even for healthy men to bear. For cases suffering from gangrene these conditions were the worst possible. All Herzog's fingers and toes, all Lachenal's toes had to be amputated piecemeal. To keep such wounds sterile in such conditions is an impossibility. Their temperatures at times reached 41°C (105°F): only that marvellous drug Penicillin saved the suffering pair from death.

On 6th July at Butwal, for the first time in three months, they heard the chug of motors: it was the note of the lorries which were waiting to take the expedition on its homeward way. At Nauntawa they were back in India, at the railhead.

In the same year (1950) and only a few days later, a British Expedition was also at work in the Annapurna Himal. Those engaged were H. W. Tilman, its organiser and leader (Bib. 209), Colonel D. G. Lowndes, as botanist; Major J. O. M. Roberts, a Gurkha officer with Himalayan experience (e.g. Masherbrum, 1938); Doctor R. C. Evans; J. H. Emlyn Jones and W. P. Packard, the latter from New Zealand.

The topographical survey originally intended had unfortunately to be abandoned, because at the critical moment there was no light-weight photo-theodolite available.

On 10th May the expedition left Katmandu, the capital of Nepal, with four Sherpas and fifty porters. Thirteen days later they were in Thonje, where the Marsyandi Valley turns westwards behind Annapurna. Like many other Himalayan rivers the Marsyandi rises north of the Himalaya proper, which are not the true watershed, and are intersected by deep gorges.

After a short side-excursion up the Dudh Khola towards the Manaslu range (cf. Chap. 7) they headed towards the Annapurna Himal. This group is nearly twenty-five miles long, and in it rise Annapurna I (26,504 feet) to the west; Annapurna II (26,042 feet) to the east, with Annapurna IV (24,630 feet), Annapurna III or Gangapurna and the 'Roc Noir' between them; to the north lies the 'Grande Barriere', comprising several 23,000 feet peaks and the Nilgiri (23,050 feet), while a spur ridge bending away to the south includes the well-known Machapuchare (22,957 feet). There is certainly a rich climbing choice here.

The Marsyandi Valley above Thonje lies in the rain-shadow of the Annapurna Massif, as can be clearly seen from the character of its vegetation. The Base Camp was set up in a clearing among the pine forests, in the neighbourhood of the scattered villages which combine to form Manangbot (11,483 feet). Only a short time before, Herzog and Rébuffat had been here and had reported (Bib. 88, p. 90) that they were the first Europeans to visit this remote, secluded valley, and that they had been welcomed by the inhabitants with great curiosity and friendly interest. Tilman, on the other hand, reports (Bib. 209, pp. 102-3):

The people are traders, who spend the winter months in places like Delhi or Calcutta, and as far afield as Rangoon and Singapore. They are familiar with train, boat and air travel and with the paleface and some of his less admirable traits. They speak Hindustani larded with American, wear wrist-watches and Army boots without laces, and carry discarded haversacks and water-bottles. One of them whom we attempted to photograph retorted by

whipping out a camera himself. On the whole they were not pleased to see us and I was not delighted with them. Apart from that, they were not eager to sell us food or transport . . . their winter trading ventures seemed to be lucrative enough.

After spending some time in reconnaissance, Tilman decided to make an attempt on Annapurna IV (24,630 feet), almost two miles to the west of Annapurna II, and fifteen hundred feet lower. In the event of success on Peak IV, it would be possible to push forward a camp along the connecting ridge, to the foot of the Summit pyramid of Peak II. On 7th June Camp I was pitched on a moraine, at about 18,050 feet; on the 11th, a second Camp, on a snow terrace above an ice-wall; two days later a third, on the main ridge, at a height of about 21,000 feet. So far the snow was firm and the weather not too bad, but on the 14th the valley began to fill with Monsoon-clouds. Notwithstanding, a fourth Camp was established below the ridge, at 22,500 feet.

On 17th June Evans and Packard made the first attempt, but had to turn back after two hours and a half in ever-worsening weather. On the next day, too, they were driven back by the grisly cold and winds of gale force. On the third and final attempt Tilman, though no longer young, reached a height of about 23,500 feet: when a man is over fifty, the first flush of youth has gone from his climbing powers, especially at great heights. By 23,950 feet Evans too had shot his bolt; only Packard was still fit, but was not anxious to tackle the airy Summit ridge alone. So the attempt was abandoned.

Annapurna IV can certainly be climbed. It is by no means so certain whether a strong party could continue over its Summit and master Annapurna II (26,042 feet) beyond; for the Summit pyramid of the second highest peak in the Annapurna group looks a pretty tough proposition. It would, however, be well worthy of trying. Study of a fine aerial photograph of Dr T. Hagen's has convinced me that the ridge joining Annapurna IV and II may well be more accessible from the south-west. The approach would be from the beautifully-situated Pokhara northwards through Barbhara. The rocky South Ridge of Annapurna II also merits careful attention.

After a few rest-days, an equally unsuccessful attempt was made on Pt. 22,997, an unnamed 'little Seven Thousander' (7009 metres) east of the village of Naurgaon (14,000 feet). By then, three of the party had used up all the time at their disposal. Tilman stayed to make a few reconnaissances up to the Nepal-Tibet frontier, from Phugaon to the Kongyur La (about 19,050 feet), a pass in the Ladakh-Range—then over the Mustang La to Tange, a village near the Kali Valley,

and by way of Mustang and Muktinath to Tukucha. Then he wandered back, by way of the Pilgrimage shrine of Muktinath and the Thorung La (about 17,000 feet), to Manangbot, and spent the last month of his time in the basin of the Dudh Khola ('Milky River'), which draws its waters from the north side of the Manaslu Range and three glaciers on the southern side of the Ladakh Chain. These are the only glaciers stretching long debris-covered tongues down into the valleys hereabouts; the glaciers of Annapurna and Manaslu are, almost without exception, hanging-glaciers and ice-cascades, high above the valley levels.

Bimtakhoti in the valley of the Dudh Khola is a prettily situated hamlet about 12,000 feet up, and a trading place, where the inhabitants live by bartering sixteen measures of rice from lower Nepal for twenty-five of salt from Tibet. The salt is first brought to Larkya on the upper Buri Gandaki and thence on Zos—a cross between a Yak and a Cow—over a pass about 17,000 feet high, to Bimtakhoti.

Herę Tilman was detained by a slight mishap for nearly three weeks, before finally returning to Katmandu with Roberts.

Three years passed before the exploration of the Dhaulagiri Massif was continued. During the Winter of 1952/3, friends of mine in the Academic Alpine Club of Zürich (AACZ) asked me to suggest a repaying objective for a small, mobile expedition. I proposed that they should go up the completely unknown Mayangdi Khola, a true tributary valley of the Kali or Krishna Gandaki, and make a reconnaissance of the west and north sides of Dhaulagiri, even perhaps an attempt on the peak by its North-West Ridge; besides which, they could examine and photograph the still very obscure Dhaulagiri Himal with its many 'Seven Thousanders'.

The expedition consisted of only seven. It was led by Bernhard Lauterburg: the others, all Swiss, were Dr Rüdi Pfisterer, as doctor, André Roch, an old hand in the Himalaya, Peter Braun, Marc Eichelberg, Hannes Huss and Rüdi Schatz. The Sherpas were under an experienced Sirdar, Angharkay. The whole expedition went by air to Pokhara, where Dr T. Hagen, who had made the most meticulous preparations, met them. They left Pokhara on the 16th and 17th April. Having seventy-two ponies at their disposal, they were able on the fourth day to reach Beni, the village where the Mayangdi stream flows into the Kali.

At this point the loads had to be transferred to coolies and there was some bother about engaging these. The little village of Muri, where the real difficulties began, was reached on 23rd April. Long stretches of the main valley were impassable: these had to be circum-

vented by considerable up-and-down detours through lateral gorges, in the course of which it was necessary to build four biggish bridges made of tree-trunks.

For days on end the Swiss and their Sherpas had literally to hack a narrow lane through primeval forest and bamboo-thickets to allow the passage of their coolie-column, 123 strong.

Marches shrank to a couple of miles a day, heavy downpours made things still more uncomfortable and, during this battle with the jungle there were continual injuries which refused to heal properly. Things only improved in the upper part of the Mayangdi Khola, where they could make use of the actual floor of the valley, and on 2nd May the expedition reached the end of the forest-belt and established a Base Camp at 11,500 feet at the southern foot of Dhaulagiri's North-West Ridge.

A photograph taken by the French Expedition in 1950 (Bib. 89) looked promising, but it now became clear that this ridge is not accessible from the Mayangdi Khola Gorge. However, there was a spur, falling from the North Glacier, providing a route free from avalanche perils through the lower ring of cliffs to a snow-terrace. Camps were immediately pushed forward: Camp 1 at 14,800 feet at the foot of the Spur, Camp 2 at 16,750 feet halfway up, Camp 3 at about 18,000 feet on an ice-balcony almost at the top of the rib and Camp 4 at 19,350 feet after forcing a way through a big icefall. Thus far and for a little way farther everything went well enough, but Camp 5 at 21,300 feet was a most uncomfortable place. Rūdi Schatz writes of it: 'We had dug out a little platform in a slope as steep as the landing-run of a big ski-jump and put up two tents on it. The loose powder-snow, driven by the wind, trickled down incessantly, filling the space between the precipice and the tent up to its ridge-line and pouring over the top of the roof down the valley-side. It pressed heavily on the tent and was always threatening to collapse it. The Sherpas did not fancy sleeping in such a place at all. Their comment was "No good! No good!"'

Farther up, there was positively nowhere to place a camp. It would have been necessary to blast a platform in the precipitous limestone slabs which lay like tiles on a roof; the expedition was in no way equipped for such an operation. The attempt made by Rūdi Schatz and Peter Braun on 29th May 1953—the day on which Everest was conquered—was therefore only a reconnaissance in force, without any hope of reaching the Summit; for it is impossible to climb in the course of a day from 21,300 to 26,812 feet and back without the shelter of an intervening camp, especially when the technical difficulties are considerable. The two Swiss climbers, with three good Sherpas, attacked the precipitous 'Pear'—as they had christened the jutting,

bulging middle sector of the wall—on a cold moonlit night; the moon had been full the night before. Their ice-axes rang through the powder-snow on to slabby rock: fortunately there was no freshly-fallen snow. By 8 o'clock in the morning, they were at the top of the 'Pear', at a height of about 23,600 feet; there they relieved the plucky Sherpas of the oxygen apparatus and sent them back. They did not learn till later that, on the descent of a steep snow-couloir, one of them had slipped, dragging the other two after him. They had then slid headlong for almost sixteen hundred feet, till their downward rush was miraculously halted on the very edge of the ice-cliffs, so that they succeeded in continuing down to Camp 4 almost uninjured.

Schatz and Braun were meanwhile proceeding upwards, in complete ignorance of this mishap. They made excellent progress, although their oxygen apparatus weighed over thirty pounds. But at about 25,250 feet the climbing became more and more risky. True, they were only a little more than 300 feet below the Ridge, but they reckoned four hours for this short sector, if it could be climbed at all. The problem was one of powder-snow lying on precipitous, holdless light-coloured limestone slabs. Unless one is lucky enough to find the rocks at this point dry, it would hardly seem possible to gain access to the crest of the North-West Ridge without a liberal use of artificial aids; in bad weather one's descent would certainly be cut off.

The Swiss climbers had undoubtedly done everything a responsible mountaineer can do—but some 1,500 feet below the Summit they had to give up. There can be no doubt that Dhaulagiri, which raises its lonely head high above deep-cut jungle valleys, is one of the toughest of the 'Eight Thousanders'.¹⁵

The expedition's methodical reconnaissance of the whole area was of the greatest value. They climbed to the South Col (18,050 feet) and gazed up in astonishment at the mountain's monstrous South Face—one of the highest mountain-walls in the world. They took excellent photographs of the Dhaulagiri Himal—to the north-west of Dhaulagiri itself—with its great 'Seven Thousanders'; and they climbed a 'Six Thousander'. They crossed the 'French Pass' (17,225 feet) and penetrated the upper part of the 'Unknown Valley' until forced to turn back by savage gorges. Finally they forced a way to the great lateral valley of the Kali, visited the famous pilgrim-centre of Muktinath and thence marched south through Tukucha, thus completing the encirclement of the whole Dhaulagiri Massif. It was a first-class piece of pioneering, on which future expeditions will build their work.

The North-East Ridge of Dhaulagiri will probably play its part in the future. The North-East Col (about 18,000 feet) between Dhaulagiri and Tukucha Point (22,688 feet) is apparently only accessible from the

west, that is from the North Dhaulagiri Glacier. One can also reach it from Tukucha by the Dambush Khola and three passes—losing height seriously each time; or from Beni, through Muri and the Mayangdi Khola. Both these approach routes are arduous and tiresome. The North-East Ridge is certainly steep, but perhaps not as dangerous as the route through the North Face to the North-West Ridge.

We hope presently to hear further about the geology of the Dhaulagiri region from T. Hagen. It is, however, already beyond doubt that this 'Eight Thousand' is built up of Marine Sandstone.

NOTES TO CHAPTER SIX

¹ Dr Otmar Widmer, of St Gallen, was the first to bring this to my notice and I am indebted to him. G.D.

² All the same we are grateful to Ichac for a fine comprehensive map (Bib. 89 and 89a) and for a number of scientific observations. G.D.

³ But see p. 145 (Tilman).

⁴ Maxiton is Tartrate of d-Phenyl-1-amino-2-propans. It belongs to the drugs which paralyse manifestations of exhaustion and for a time restore its full powers of endurance to the body. Others are Orthedrin and Pervitin, the famous 'Stuka-Tablets'. If these Cellular Amino compounds are taken in too small a quantity they have no effect. Dr Wyss-Dunant writes about correct dosage: 'A medium dose (2 tablets) banishes exhaustion and fatigue after about half an hour for a period of about six hours. In an emergency a similar dose can be taken once more when that period has elapsed, but it must be remembered that this is a call on the last energy of a run-down accumulator, if this simile is permissible. After a thorough night's rest one can go back next day to one's work without ill effects. Thus everything depends on the intelligent use of this drug: it can be very helpful, but in certain circumstances its effects can be obtained only at great cost' (Bib. 12d, p. 78). G.D.

The Abi-Gamin Expedition of 1950 had very unsatisfactory experiences with Maxiton. In 'Berge der Welt', vol. 6, pages 43 and 279, Dr G. Chevalley reports: 'Berrill arrived, but terribly excited, trembling and hardly knowing what he was saying. I remembered having given him a Maxiton tablet about half way down and feel responsible. . . . Maxiton, like Pervitin, is a powerful stimulant, bringing about a kind of Euphoria. Its use is certainly dangerous and not to be recommended on high mountains, particularly at a time when there is exceptional strain: that is, an unforeseen prolongation of great exertion resulting in an exhausted organism with only feeble reserves. Such drugs suppress the sensation of fatigue, but do not mitigate the exhaustion. . . . In my anxiety to help my companion, I had not at the time thought of its poisonous reaction' (Bib. 12e, p. 279).

If in that case a single tablet had such uncomfortable results, it is clear that a far too heavy dose could produce a kind of delirium, together with a disturbance of balance and all sorts of nervous symptoms. Which is what seems to have happened on the 3rd—and perhaps also on the 4th—of June, during the Annapurna climb. G.D.

⁵ It is to be deplored that this expedition concentrated so intently on light-weight equipment and rejected felt-lined boots. G.D.

⁶ It is much to be regretted that no kind of panorama could be taken towards Dhaulagiri, so close at hand, or the Manaslu group. I am personally convinced beyond any shadow of doubt that Herzog and Lachenal reached the 26,504 feet Summit of Annapurna I at about 2 p.m. on 3rd June 1950, but I must admit that there is a complete lack of documentary evidence. It is a great pity that the doubts which have been thrown up in various quarters could not be dispelled by irrefutable photographs taken on the Summit. The familiar pictures of the flags in the snow, without any background, do not provide this evidence. G.D.

⁷ These important and pregnant events are related differently by Ichac (Bib. 108, vii) and Lachenal (during a personal meeting). According to them Lachenal came down second and shouted for a long time to Herzog who was in front of him and kept on pointing to his fists. 'Maurice stopped and looked at his hands: they were bare.' G.D.

⁸ This continual and unhappily not always successful fight against frostbite shows clearly enough that the boots worn by this French Expedition provided insufficient protection against cold. I have long been convinced that for heights over 20,000 feet felt-lined climbing boots (though naturally as light as possible) are essential. I myself wore them on Jomsong Peak (24,510 feet) and Sia Kangri West Peak (24,900 feet)—(cf. pp. 202 and 204)—and my feet were always warm, in spite of great cold and storms. The light nylon tents too, the object of so much pride in the Spring of 1950, seem to have behaved very badly. They do not keep the cold out, and encourage the formation of water-condensation. G.D.

⁹ A light avalanche spade is an absolute necessity and should never be overlooked on such enterprises as this. G.D.

¹⁰ Lachenal himself does not know how this fall came about. According to him the slope above Camp 5 is fairly steep, but free from any extraordinary difficulties and a simple matter for an experienced climber wearing crampons. Was the cause a loss of consciousness, due to exhaustion and oxygen shortage: or was it an after-effect of the excessive dose of Maxiton? A Maxiton 'intoxication' of that kind would also explain many other things. The absence of photographs from the Summit, of any description of the view, the loss of Herzog's gloves, the widely divergent accounts of the descent and so on. Herzog's failure to notice Lachenal's fall is certainly explained by the fact that Lachenal was not fifty yards in front of Herzog, but behind him, and that the Ichac-Lachenal version of the facts is more accurate than Herzog's report. G.D.

¹¹ I would not have repeated this incredible episode, had not Terray himself reported it (Bib. 197, p. 145). It seems to me that the most likely explanation of this incident, too, is the 'Maxiton-Delirium', with its after effects. Of course, the fall itself—a matter of more than 300 feet, rolling over and over and bruising oneself in the process—could have caused a serious disturbance of mental balance from the shock sustained. G.D.

¹² Actually this was not the beginning of the Monsoon and the weather would have been ideal again on 5th June. But the upper camps were entirely cut off from all communication. The light-weight 'Walkie-Talkie' sets, on which so much hope had been centred, refused to work at all above 17,000 feet. G.D.

¹³ The reports on this important point did not at first seem to me to tally properly. It was not cleared up until a detailed account written by Marcel Ichac to G.D. on 8th August 1953 gave the following clarification: on 5th June—after the rescue—Schatz, at about 11 o'clock, on Herzog's request, went up again from Camp 4 to the bivouac-crevasse, for a proper search. He rootled through the snow on the floor of the crevasse and was fortunate enough to discover the still-camera and the exposed films. It was the 16 mm cine-camera, with its films, which was never found again. G.D.

¹⁴ Injection of 50 cm² Azetylcholin into the arteries, to enlarge the vascular structure and to set the circulation going again. These perfusions had to be carried out in the most primitive conditions, at an altitude of 19,358 feet. G.D.

¹⁵ In 1954 an Argentine Expedition, following the same route as the Swiss, pushed forward to within 700 feet of Dhaulagiri's Summit, only to be forced down by appalling weather conditions, unfortunately with the loss of their leader's life. The author's account of this tragic near-miss is to be found in an additional Note in the Supplement at page 217. H.M.

MANASLU AND GOSAINTHAN*

(Shisha Pangma*)

THESSE are so far the two least known 'Eight Thousanders', and they have been taken together in one chapter for this basic reason, although they lie some seventy-five miles apart.

(a) MANĀSLU

The Survey of India symbol is Peak XXX, but in Bib. 22 it is called Kutang I, from the district of Kutang in which it rises. The correct name of this splendid mountain would, however, appear to be Manāslu, the name being obviously of Indian origin—Manasa in Sanskrit meaning Soul. Kutang, on the other hand, is Tibetan, tang or thang meaning a flat place.

In Bib. 113, p. 32, Marcel Kurz suggests the name 'Ghurka Himal' for the whole group between the upper course of the Buri Gandaki and the Marsyandi, seeing that the town of Ghurka stands on a hillock overlooking the confluence of the two rivers. Himalchuli 25,801 feet (7864 metres), which stands well to the front in a south-easterly direction and is so well seen from Katmandu and the great main valley of Nepal, has long been a well-known peak; but Manaslu, the true monarch of the region, had never even been photographed till 1950. The pictures for which we are indebted to H. W. Tilman and my colleague, the Swiss geologist, Dr Toni Hagen, are consequently of the highest value (Plates 22, 25 and 26).

Manaslu has been measured from three stations and is given the same figure as Nanga Parbat, 26,658 feet (8125 metres).

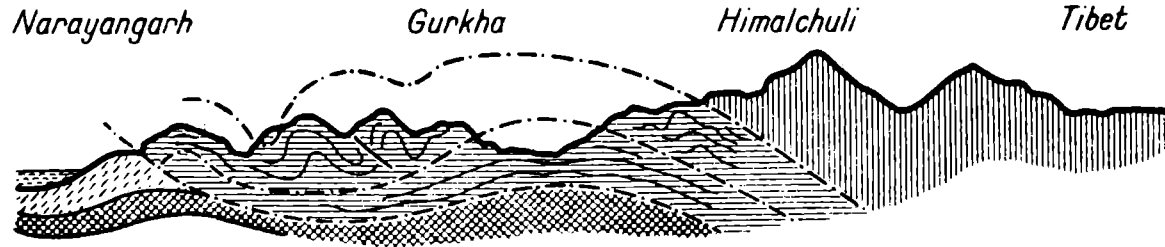
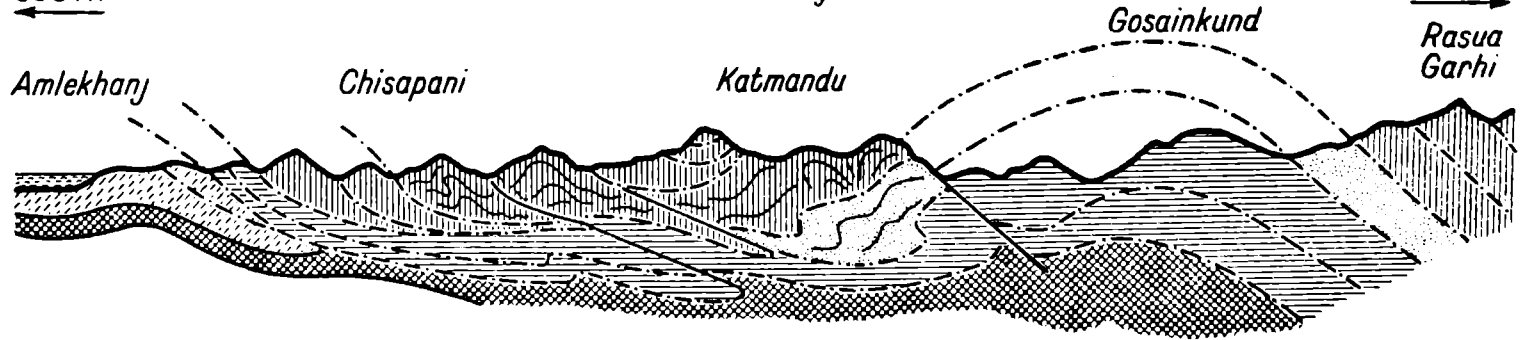
Tilman's photographs from the area of the Upper Dudh Khola show the North Ridge as supporting a peak of about 25,000 feet, then dipping about 1,000 feet to a Saddle and rising again pretty sharply to the Summit-plateau. This appears to be a broad, snowy platform very like the high plateau of the eastern limestone Alps, such as the Hochkönig. The main Summit of the massif rises from the eastern

SECTION SHOWING THE STRUCTURE OF THE CENTRAL - HIMALAYA (NEPAL)

after T. Hagen

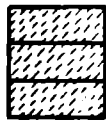
SOUTH
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NORTH
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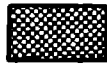
153

Siwaliks



Upper
Middle
Lower

Autochthon



(Eocene)

Nawakot-Nappes



Katmandu-Nappes



--- Thrust Planes

— Faults

end of the glacier plateau. A noticeable feature is a very prominent dark rock-tower, to the east of the Summit.

In 1952 the Japanese Alpine Club, with the support of a leading newspaper (*The Mainichi*) organised a reconnaissance of the Manaslu and Annapurna areas. Little has been heard about this in Europe, but I have been able to trace roughly the route taken, from a sketch-map published in *The Mainichi*; this was from Katmandu, through Nawakot, Aru Ghat, and the Buri Gandaki Valley to Larkya, so that they passed along the whole north-eastern side of the Himalchuli-Manaslu chain. They then proceeded over Tilman's pass, already mentioned (17,000 feet) (Bib. 209) to Bimtakhoti, and thence through the Dudh Khola down to Thonje in the Marsyandi Valley, which they followed up to Manangbot, that is along the north-eastern fringe of the Annapurna Himal. They returned to Katmandu through Ghurka and Nawakot.

The first serious attempt on Manaslu followed in 1953. Once again

Plate 31: The steep avalanche-swept West Face of Nanga Parbat, seen from the Diamir Nullah with the Mummery Buttress and Central Rib, showing the highest point reached in 1939. *Photo: D.H.E. 1938.*

Plate 32: Routes of the German Himalaya Expedition 1934. RP=Rakhiot Peak (23,197 feet). EG=East Summit (24,925 feet). Si=Silbersattel. NG=North Summit (25,643 feet). *Aerial photo: D. H. E. 1938.*

Plate 33: EG=East Summit. NG=North Summit. VG=Subsidiary Summit (25,953 feet). S=Shoulder (26,478 feet). HG=Main Summit (26,658 feet). *Aerial photo: D. H. E. 1938.*

Plate 34: Nanga Parbat from north-north-west. *Aerial photo: D. H. E. 1938.*

Plate 35: Nanga Parbat from south-west. *Aerial photo: D. H. E. 1938.*

Plate 36: On the ascent to the Conway Saddle. Left to right: Gasherbrum V (24,020 feet); Gasherbrum IV (26,180 feet) with cloud banner; Pt 7069 ('Hidden Sud', 23,193 feet); Hidden Peak (Gasherbrum I, 26,470 feet). The two possible approach routes to the upper snow-plateau are well seen, the 'French' and 'I.H.E.' Spurs. Clouds herald a break in the weather.

Photo: G. O. Dyhrenfurth 1934.

Plate 37: The Summit—pyramid of Hidden Peak, evening light. Telephotograph from Base Camp, I.H.E. 1934. (Leitz Hektor f=13.5 cm).

Photo: G. O. Dyhrenfurth 1934

Plate 38: Hidden Peak at a distance of nine miles, from the base of Chogolisa. The heavily crevassed South Gasherbrum Glacier at its foot is separated from the Abruzzi Glacier by a huge central moraine. Pt 7069 (23,193 feet) was named 'Hidden Sud' by the French Himalayan Expedition of 1936 and climbed by them to a height of 22,640 feet. *Photo: R. Angst I.H.E. 1934.*



Plate 31 The West Face of Nanga Parbat from the Diamir Valleys

o=Highest point reached in 1939

x=Wood from one of Mummery's
camps found here

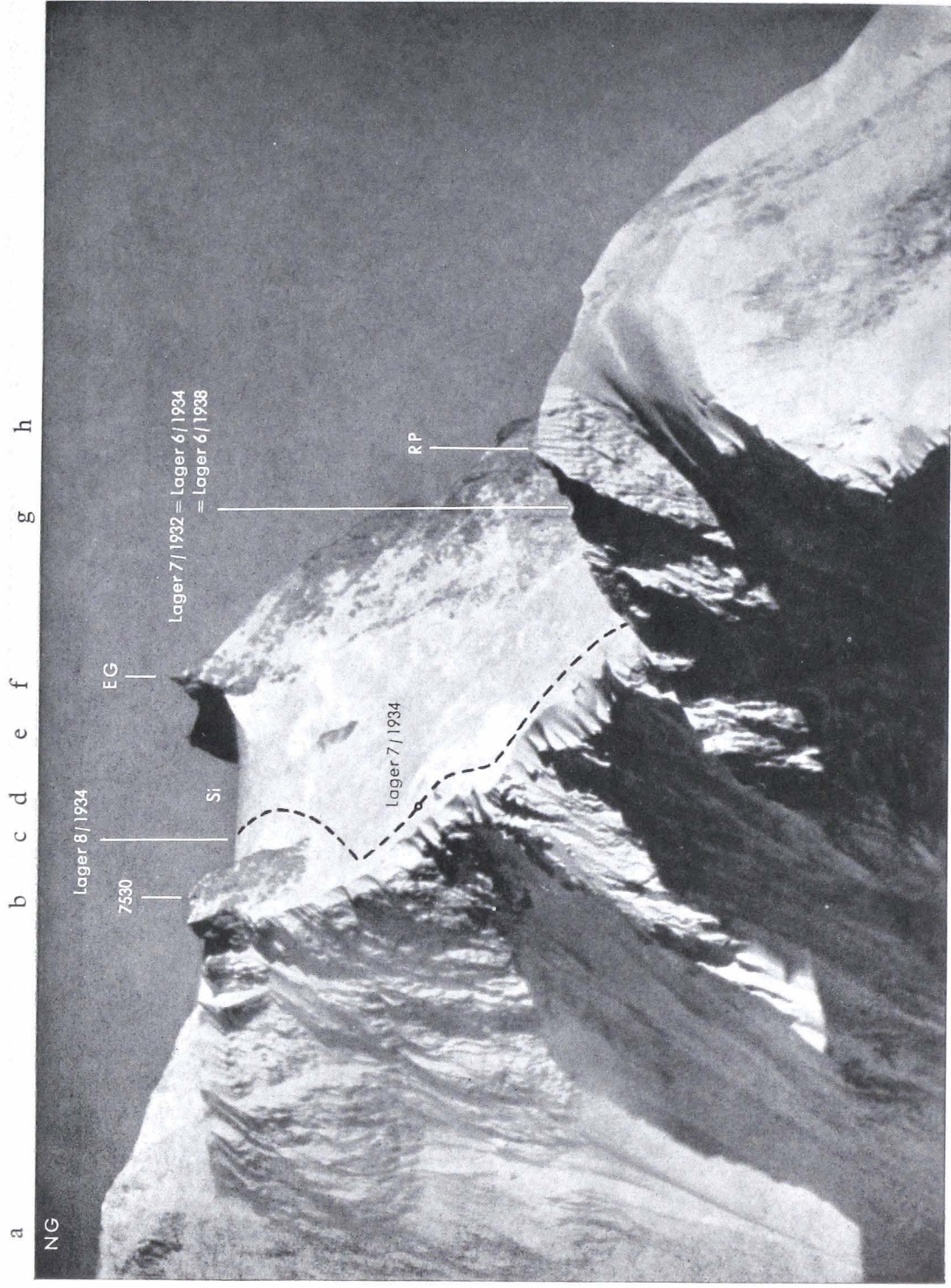


Plate 32 Nanga Parbat: aerial photograph from ESE.

a NG=North Summit b Southern Silbersacken c Camp 8 d Silbersattel e Camp 7
 f East Summit g Camps 6 and 7 h Rakhiot Peak

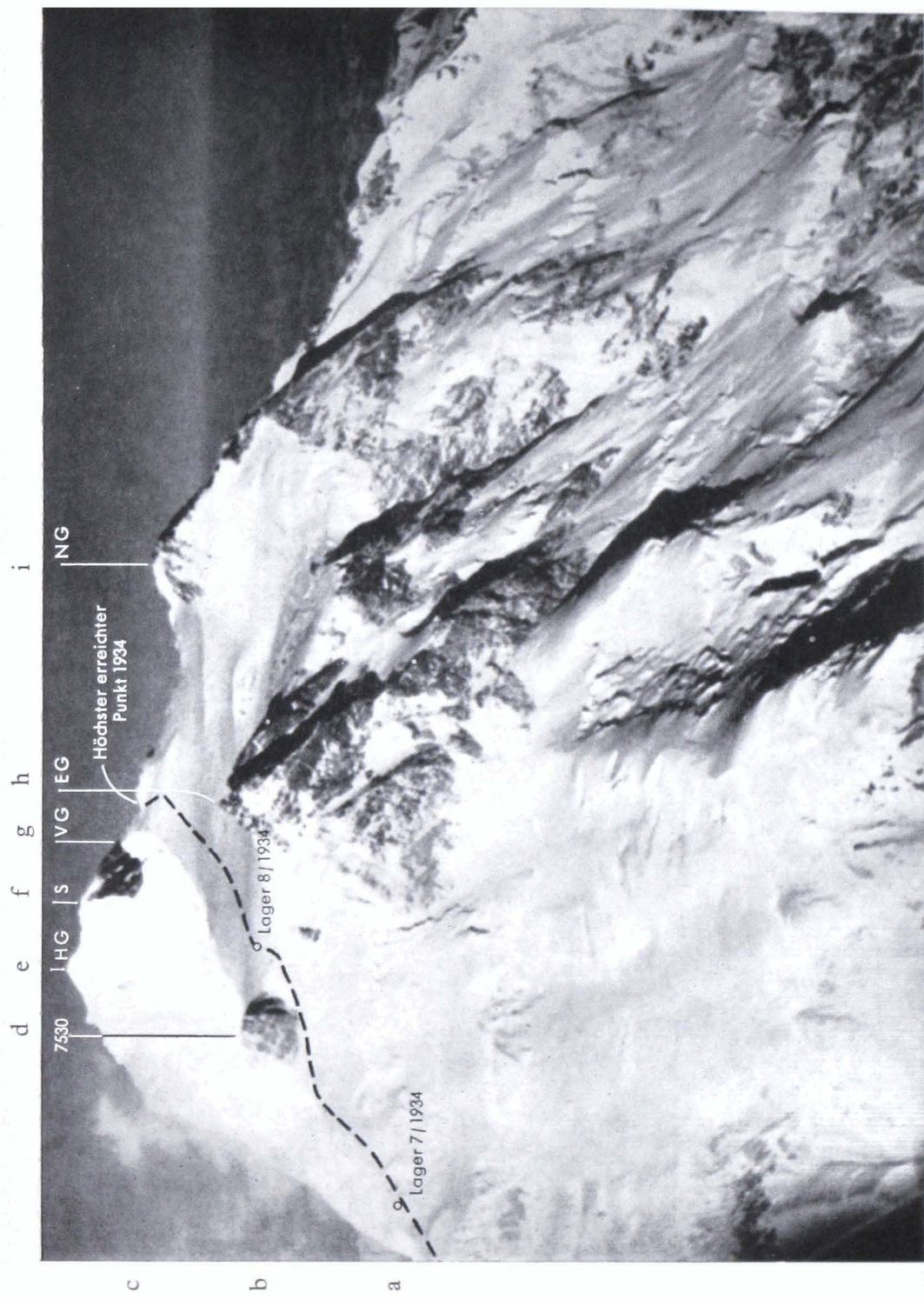


Plate 33 Nanga Parbat: aerial photograph from NE.

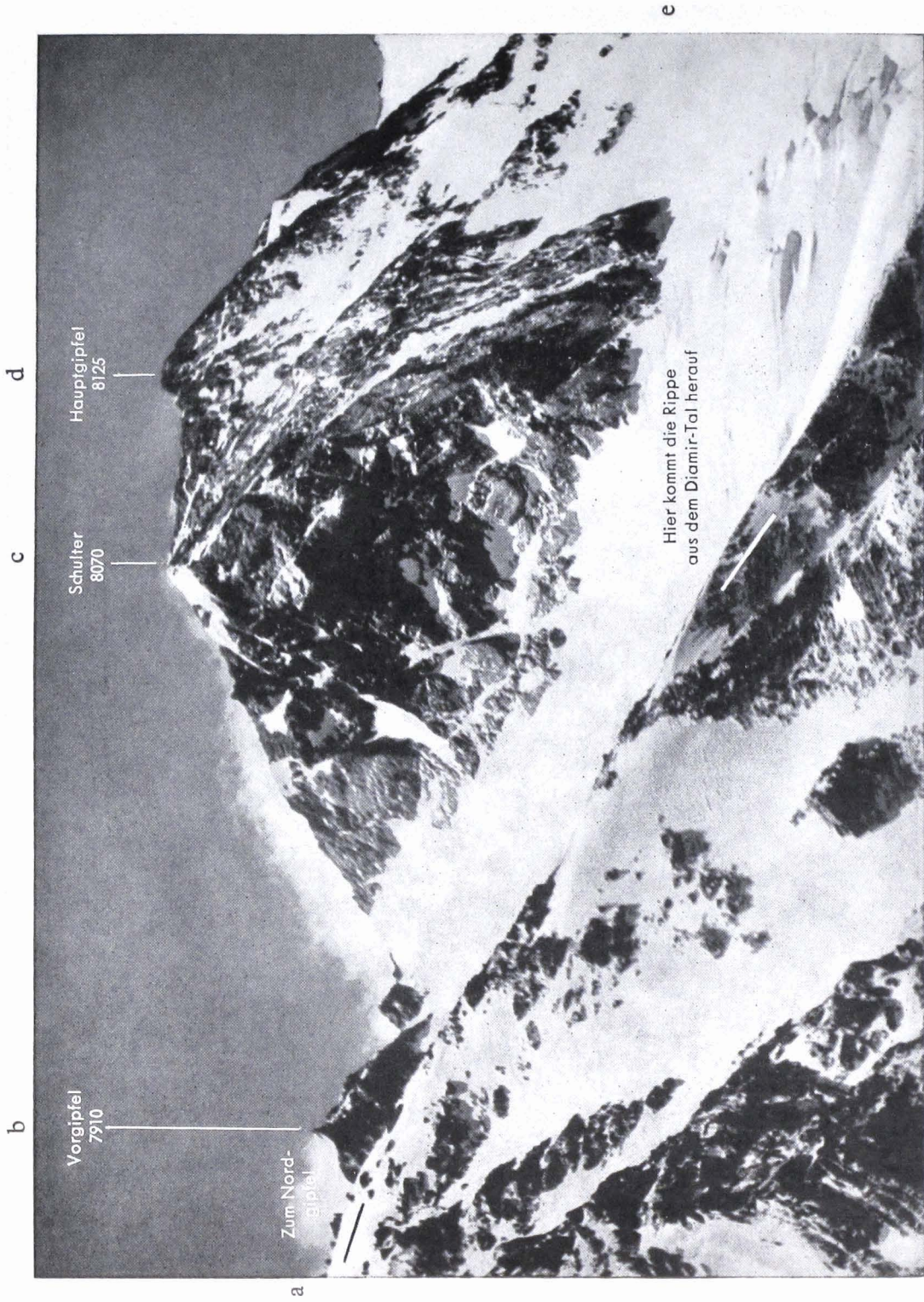
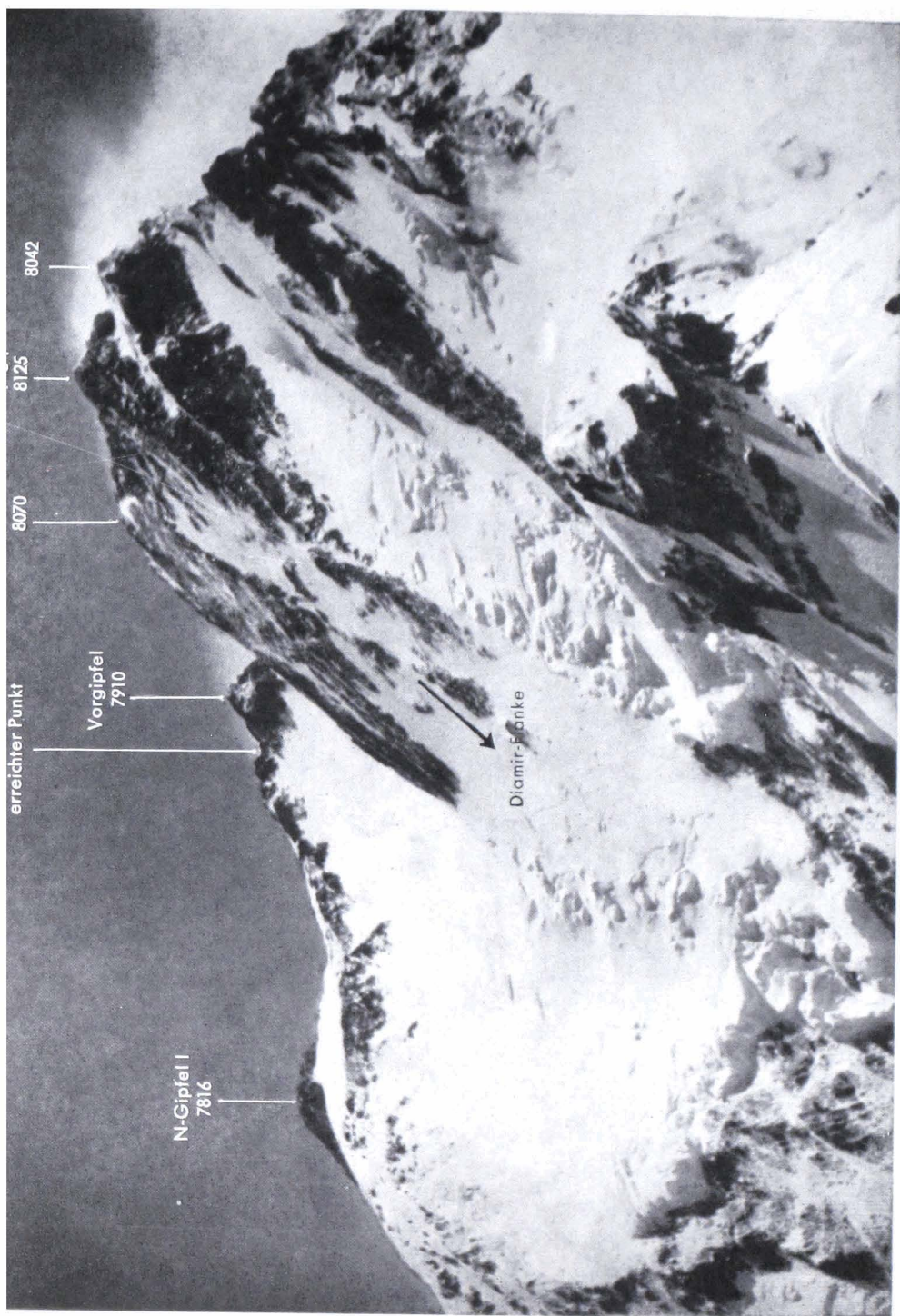


Plate 34 Nanga Parbat: aerial photograph from NNW.
 a To the North Summit 7910 feet b Subsidiary Summit 8070 feet c Shoulder 26,478 feet
 d Main Summit 8125 feet e Rib rising from the Diamir Nullah



a

Plate 35 Nanga Parbat: aerial photograph from SW.

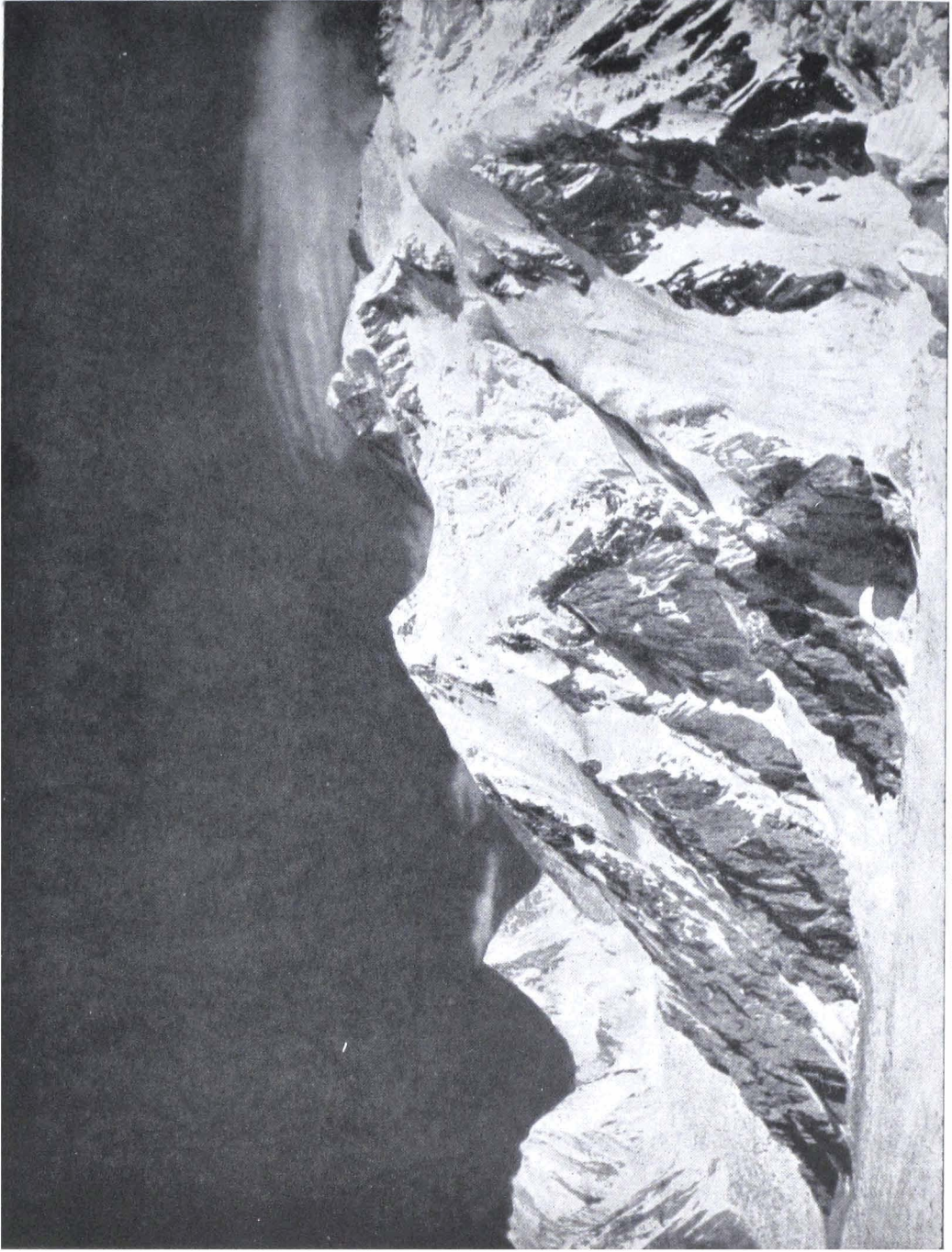
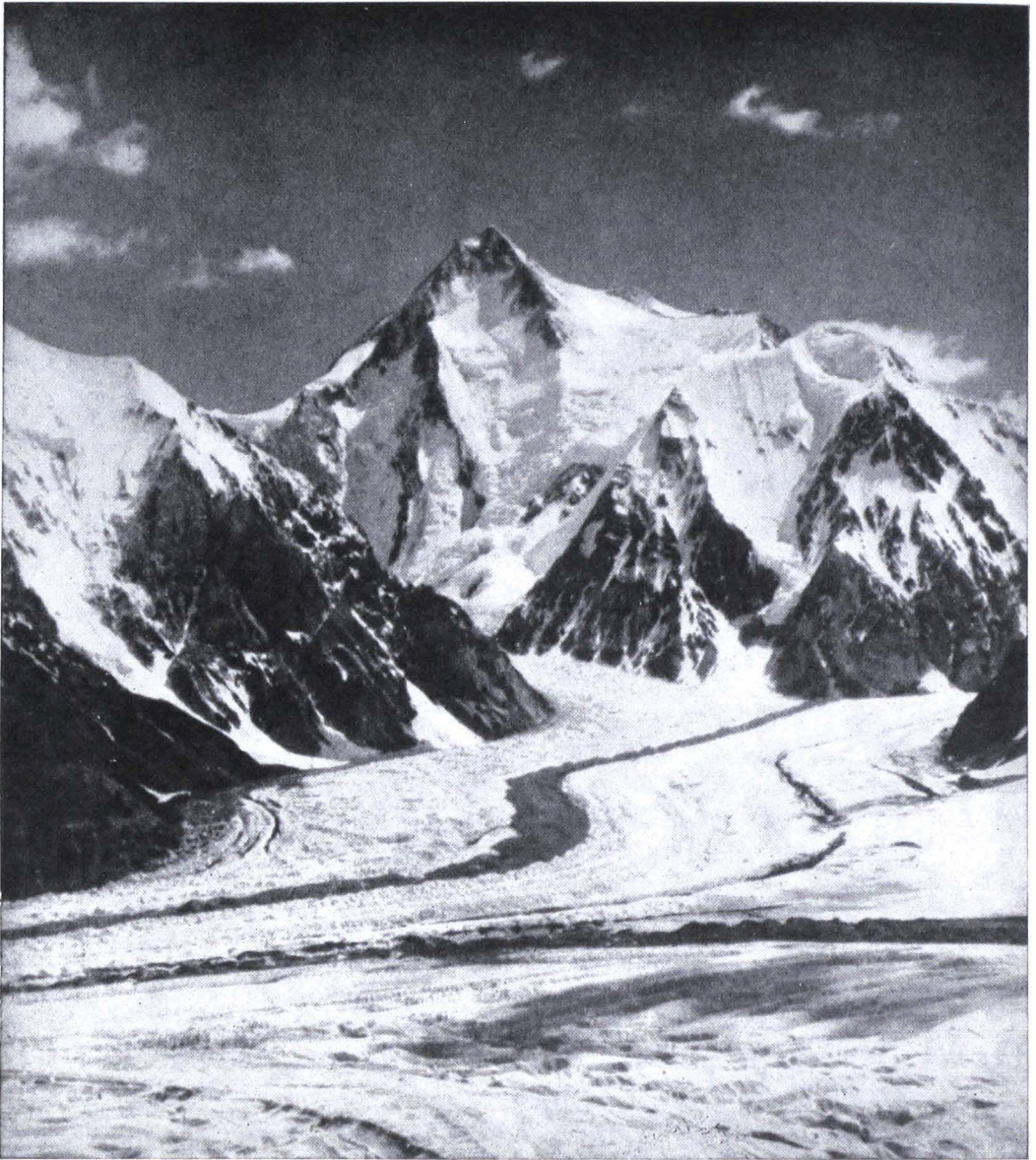


Plate 36 Hidden Peak (Gasherbrum I, 26,470 feet) from SSE.



Plate 37 The summit pyramid of Hidden Peak from SW.



*Plate 38 Hidden Peak (26,470 feet) and Pt. 7069 ('Hidden Sud', 23,193 feet)
to the right with cloud-banner, from SW.*

a Japanese expedition, led by Yukio Mita, passed through the Buri Gandaki Valley and seem to have attacked the mountain from the north-east. They reached a height of 25,250 feet, about 1,300 feet below the Summit. The detailed report of this somewhat dramatically staged attempt is still awaited, but the Japanese have so far remained very silent about it, possibly because a new Manaslu expedition is planned for 1954 or 1955.¹ Manaslu can obviously be climbed, and they are not anxious to show their hand in advance.

GEOLOGICAL NOTE

From a geological or morphological point of view the level plateau of which the peaks are remnants is of particular interest; like the rest it appears to be an ancient peneplane. Next to nothing is known at present about the structure of the Nepalese Central Himalaya. It is only through the investigations of Dr T. Hagen of Rapperswil, begun in the Winter of 1950-51, that light is gradually being thrown on the tectonics of this extremely important region (see the section, p. 153). His preliminary report suggests a large-scale nappe structure. The first evidence for this was found in the Nawakot district, some fifteen miles north of the capital Katmandu, where younger beds of conglomerate underlie older phyllites of Daling type. Gradually, two main groups of nappes have come to be distinguished in central Nepal. Hagen calls the lower group the 'Nawakot nappes' and the upper the 'Katmandu nappes'.

The Nawakot nappes consist of quartzites, phyllites, carbonaceous schists, sandstones, coarse conglomerates (Permo-Carboniferous), Triassic dolomites, limestones and polygenetic breccias (Rhaetic?). The 'zone of roots' of these nappes runs about twenty-five miles north of Katmandu. Towards the south the nappes form a great arch, the Gosainkund anticline, and then a broad trough, the Katmandu syncline. Since the axes of the folds pitch eastwards this syncline becomes narrower towards the west, that is north of the confluence of the Kali with the Trisuli. The Nawakot system contains two nappes thrust one over the other.

The Katmandu nappes consist of Daling phyllites, sandstones, schists, gneisses (Darjeeling gneiss), quartzites and Silurian limestones. The deeper parts of this system are intruded by granites, with pegmatites and aplites, and these have caused high-grade metamorphism in the rocks. In the main the Katmandu system proves to be older stratigraphically, that is in the earth's history, than the Nawakot nappes over which it is thrust. The system comprises four great

nappes which T. Hagen is able to identify both in the south and in the zone of roots to the north. Naturally the metamorphism is far more intense in the region of the roots than at Katmandu to the south; a correlation between the metamorphosed and unmetamorphosed parts of the nappes seems to be possible up to a certain stage, though this difficult task has to be left mainly for future work. The northerly zone of roots bears a great resemblance to that of the Swiss Alps, for instance in the area on the south side of the Bernina group. In both areas several nappes and *schuppen* are separated by narrow belts of mylonitised sedimentary rock.

The Nawakot system seems to correspond to J. B. Auden's (Bib. 1) 'Krol nappes', and the Katmandu system to his 'Garwhal nappes'. The Katmandu nappes lie more or less concordantly on the Nawakot nappes, but both were subsequently thrust and faulted in the southern area by movements during a later orogenic phase.

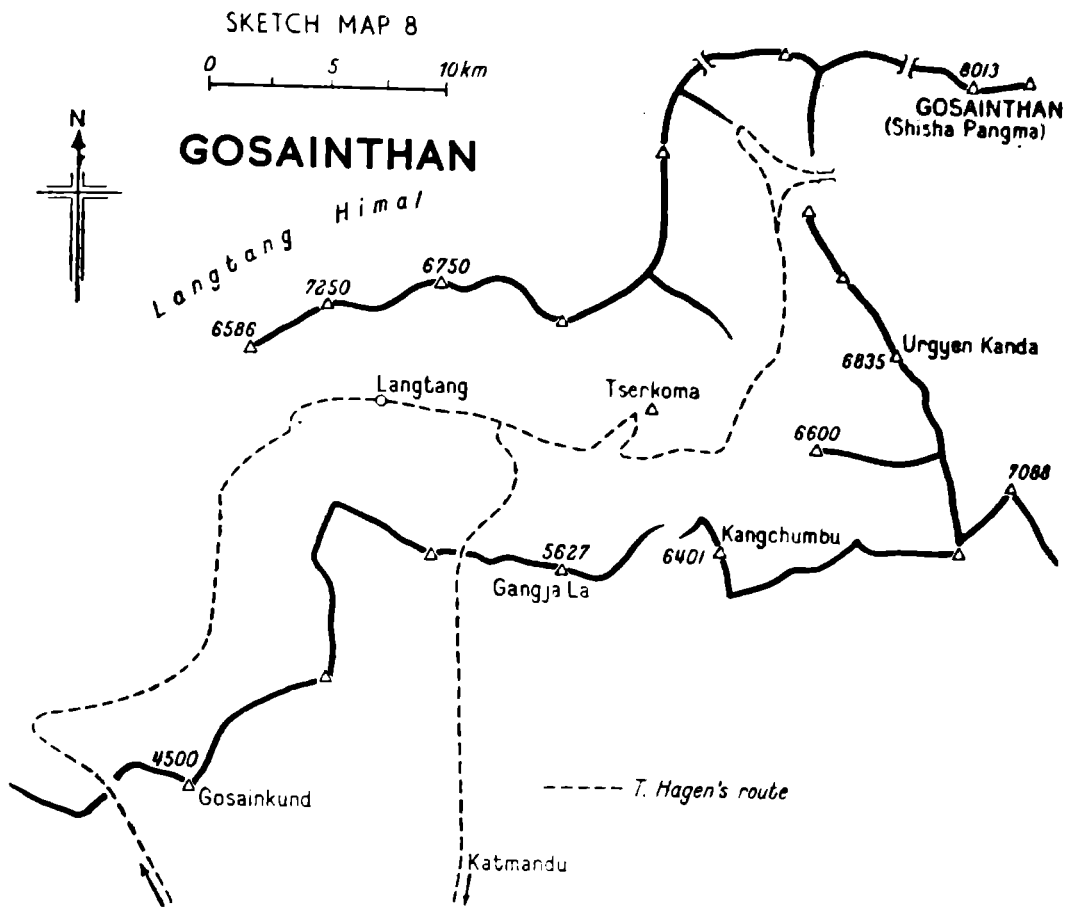
The Manaslu group and its 'outlier' to the south east, the stately Himalchuli (25,801 feet), belong to Hagen's Katmandu nappes.

(b) GOSAINTHAN (SHISHA PANGMA)

The Survey symbol is Peak XXIII, but the mountain is best known by its Indian name Gosainthan, a Sanskrit word, pronounced with the accent on the final syllable, 'Gosain' meaning God and 'than' place or abode.

There is, however, a famous Nepalese pilgrim-centre of the same name in the Gosainkund Hills, about twenty-five miles to the north of Katmandu. A well-known pilgrim-way leads from the capital of Nepal in five days of pleasant rambling, finally crossing a 14,750 foot pass, to the holy lakes, where in July each year great religious festivities are held. So why the huge mountain, another thirty miles to the north-east, bears the name Gosainthan on the $\frac{1}{4}$ in. Customs map (1:253,440) of the Survey of India is not altogether clear. For this massif actually stands in the Tibetan province of Tsang and the Main Summit is about ten miles from the Nepalese frontier. For this reason I think the Tibetan name Shisha Pangma deserves a very strong claim for preference. As to its meaning, Pang=grassy plain, meadow; ma is the feminine ending. Shisha (or Chisa) is, according to T. Hagen, a common appellation in this region for a Comb or Range. So Shisha Pangma signifies the Comb above the Grassy Plain.

This mountain, which stands about seventy-five miles west-north-west of Everest, has only been measured from two stations. The height of the west peak of the Main Summit is given as 26,291 feet (8013 metres); the east peak is only 25,134 feet (7661 metres).



Until recently this was the most obscure of all the 'Eight Thousanders'. The 1921 Everest Expedition came within twenty miles of it, but just here ran into political difficulties and could not even bring a photograph back. It was not till the Winter of 1945-46 that Heinrich Harrer and Peter Aufschnaiter passed along the north side of the Shisha Pangma Massif on their escape from India to Lhasa (Bib. 77) and made a sketch of the chain.² In 1950 T. Hagen obtained the first distant photograph from an aircraft to the south-west. In October 1951, Aufschnaiter approached to within six miles of the mountain's eastern side and took pictures from a height above the Kong Tso Lake. Considerable progress was made in the Autumn of 1952, when Hagen made his way from Katmandu, through Gosainkund, into the Upper Langtang Valley and pushed on over the Tangu Pu Glacier to an eminence about 20,200 feet high (see Sketch Map 8 and Plate 26), so that we have at last a good presentation of this remote and mighty mountain's structure.

From the climbing point of view, the Eastern Face and the terrific South-West Wall can hardly come under consideration. Aufschnaiter

thinks the most promising proposition would be to try the ascent from the north-west to the broad West Shoulder (to the left in Plate 26). The route would then presumably continue up the Main Ridge, which looks pretty difficult. Shisha Pangma is therefore probably no easy 'Eight Thousander'.

An additional difficulty is its situation in Tibetan territory, which is today under the jurisdiction of 'Red' China. In order to approach the mountain from Nepalese territory through 'No-Man's-Land', it would clearly be necessary to try to reach the West Shoulder from the south-west—a very questionable enterprise.

GEOLOGICAL NOTE

Hagen's work suggests that Shisha Pangma is a 'hinge' in the tectonic framework, a pivotal block separating two different zones in the direction of strike (West-East). Considered in cross-section it belongs without doubt to the folded margin of the Tibetan Slab. Thus it lies north of the zone of roots of the great Himalayan nappes and may be correlated with Mount Everest and Cho Oyu. The 'Eight Thousanders' of West Nepal—Dhaulagiri, Annapurna and Manaslu—lie tectonically farther south. We may expect to find the Upper Palaeozoic Everest limestones in the Shisha Pangma massif.

NOTES TO CHAPTER SEVEN

¹ Further details of the Japanese attempts on Manaslu, including the reasons for failure in 1953 and again when they returned to the mountain in 1954, are given in the author's additional Note in the Supplement at page 218. H.M.

² The English translation of Harrer's *Seven Years in Tibet* won it a well-deserved success in 1953. See also footnote in Chapter 8, page 186. H.M.

CHAPTER EIGHT

NANGA PARBAT

(a) NOMENCLATURE AND ALTITUDE

THIS corner pillar of the great Himalaya is the most westerly of all the 'Eight Thousanders'. Although called by a variety of names—Nanga Parbat, Diamar, Diamir, even Deomir, the Kashmiri name Nanga Parbat has gradually become established and is now known all over the world. It is derived from the Sanskrit Nanga Parvata, meaning The Naked Mountain. The other names, in their slight variants, all mean King of the Mountains, a more beautiful form of appellation, but one fallen into disuse.

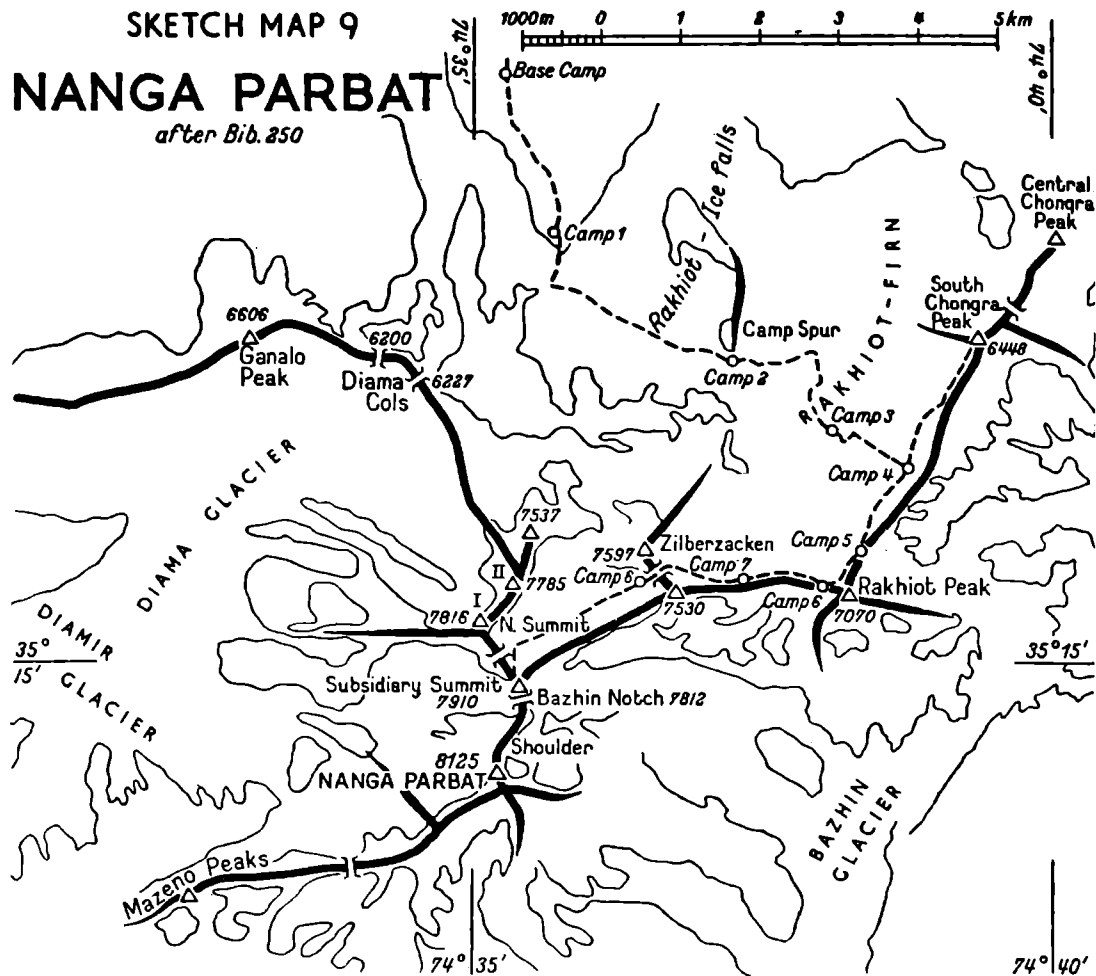
The Survey of India gives its height as 26,620 feet (8114 metres). But according to Professor R. Finsterwalder's recent painstaking photogrammetric Survey, the mountain should be rated (Bib. 67) at 26,658 feet (8125 metres) and we here support this higher measurement, which also appears on his very fine map (Bib. 250).

(b) HISTORICAL SURVEY

The first Nanga Parbat Expedition of 1895 consisted of a small party of famous British Alpine climbers, A. F. Mummery, G. Hastings, and J. Norman Collie, who were later joined for a short time by General (then Major) C. G. Bruce. They started by surveying the Southern Face of the huge mountain (more correctly South-South-East) which is one of the highest mountain walls in the world, from the Rupal Nullah. The floor of this valley directly under the Main Summit is 11,750 feet above sea-level, which gives a vertical difference of 14,900 feet in a horizontal distance of 18,700, a mean angle of 'only' $38^{\circ} 34'$, but the topmost seven thousand feet have an average steepness of 51° , with savage buttresses, precipitous terraces and hanging glaciers (Plates 27 and 28).

After assuring themselves that the Rupal side of the mountain was not even worth considering, they crossed the Mazeno Pass (17,580 feet) six miles to the west of the Main Summit and examined the north-western side, with slightly more promising results; so they moved their

SKETCH MAP 9
NANGA PARBAT
after Bib. 250



Base Camp across to the Diamir Glacier. We can pass over several minor exploratory wanderings between the Rupal and Diamir valleys (Bib. 29, 30). In August the weather deteriorated; Bruce, whose leave had run out, left the party; Hastings went to Astor in search of food supplies; Collie was in poor physical condition.

So Mummery, only accompanied by his two Ghurkas, one of whom later dropped out, made a lone attack on the North-West Face. Himalayan experience had not yet crystallised at that time, and one is left almost with the impression that Mummery merely tried to transfer to Nanga Parbat tactics which had been so successful among the Chamonix Aiguilles. By dint of great exertions he overcame all difficulties in pushing on up a steep rock-ridge to about 20,000 feet. At this point he believed he had disposed of the worst difficulties and estimated that, if he had only been able to spend another night on the mountain, he could have reached the Summit on the following day. Such optimism has a striking impact on the modern Himalayan climber; for today

we know that, on every mountain of this height and magnitude, the real work only begins at about 20,000 feet and that for the next six or seven thousand it is essential to reckon on three, four or even five well supplied high-camps. This kind of thing was unknown in 1895; they were short of food up there, and Ragobir, one of the Ghurkas, fell a prey to mountain-sickness. Reluctantly Mummery was compelled to beat a retreat (Plate 31).

In spite of this set-back, it was decided to reconnoitre the north side of the mountain. The bulk of the expedition, consisting of Collie, Hastings who had come back from his visit to Astor, and the porters, went round the base of the mountain, crossing over on the Chilas side by three low passes into the Rakhiot Nullah. Mummery intended to get there with his two Ghurkas over the Diama Col, a 20,350 foot dip in Nanga Parbat's North Ridge. The little party of three was seen for the last time on 24th August 1895. Collie and Hastings waited in vain in the Rakhiot Nullah.

It is now known that the descent from either of the Diama Cols to Rakhiot would have been quite impossible, for the ridge from Ganalo Peak (21,675 feet), through the Diama Cols (20,350 and 20,430 feet) to the subsidiary North Peak of Nanga Parbat, breaks away on its north-eastern side into the most appalling walls. These Diama 'Saddles' belong to a class of 'Pass', frequently met with in the Himalaya, which are only accessible from one side. So Collie and Hastings at first assumed that Mummery, perceiving the utter impossibility of a descent on arriving at his 'pass', had gone down again into the Diamir Nullah and was following them around by the laborious but perfectly safe lower route. Unfortunately they were mistaken, and all their subsequent searches for the missing men proved fruitless. The most probable explanation is that Mummery and his two companions fell victims to an avalanche on the Diama Glacier.

The tragic and unexplained end of this famous British climber and of the brave Ghurkas who went with him aroused almost as much interest at the time as the mysterious disappearance of Mallory and Irvine on Everest almost thirty years later.

THE 1932 EXPEDITION

[*ERWIN SCHNEIDER* writes] Thirty-seven years were to elapse before the next climbing party approached Nanga Parbat. It was originally intended that the outstanding German climber W. Welzenbach was to lead the expedition, but he was eventually prevented from so doing by business preoccupations and the German-American Himalaya Expedition of 1932 set out under the leadership of Willy Merkl.

The others were Peter Aschenbrenner, an Austrian from Kufstein, Fritz Bechtold, Hugo Hamberger, the expedition's doctor, Herbert Kunigk, Felix Simon and Fritz Wiessner, who later became a naturalised American (cf. the 1939 K^a Expedition, p. 84). In addition there were Rand Herron, of New York, Elizabeth Knowlton, reporting for the British and American Press, and Captain R. N. D. Frier, with his knowledge of local topography and languages, in charge of the transport.

By mid-May they were in Srinagar, the capital of Kashmir. A week was spent there in purchasing supplies, engaging porters and the negotiation of permission to traverse Chilas, on the north side of Nanga Parbat. This was finally only granted on condition that the expedition undertook not to go near any inhabited places beyond Astor on the north side of the massif. This was a damaging restriction, since it compelled them to traverse three trackless ridges from the Indus Gorge to the Rakhiot Nullah.

The march from Srinagar to the Rakhiot is almost 200 miles long. As far as Astor they journeyed along the much-travelled trade route from India into Chinese Turkestan (Sinkiang), though even this involves crossing the 11,800 feet Tragbal and 13,800 feet Burzil Passes, then still under winter snow. But they had one great advantage in that the whole of the expedition's baggage was carried as far as Astor on one hundred and ten beasts of burden. Another week was spent there before the enlistment of porters could be arranged and the route over the ranges explored. The Srinagar coolies refused to carry loads beyond Astor: every man jack of them had to be left behind. So one hundred and ten local porters and forty Baltis were enlisted. Difficulties with porters mark the whole conduct of this expedition as clearly as a red strand in a climbing rope. It would, of course, have been far better to bring along Sherpas from the Eastern Himalaya, but there were probably insufficient funds for that or it was thought possible to manage without them. In any case, the best Sherpas had already been engaged for other expeditions. So they tried to use Hunza people, but these men not only refused to act as high carriers at all but were a continual source of difficulties.¹ A difficult problem was that of their rations. Sherpas mainly eat tsampa (barley-meal) but almost everything else too. The Hunza men refused to eat anything but their chapattis, flat cakes of meal and water, which had to be baked on wood fires and iron plates.

After crossing the second ridge they came down into the Buldar Nullah. There they reconnoitred the Buldar Glacier, but this ice stream only leads to the foot of the steep northern face of the great Chongra Peak (22,409 feet), which rises a considerable distance from the main mass of Nanga Parbat. So the whole caravan had to trek

over yet a third ridge into the Rakhiot Nullah, where Aschenbrenner and Bechtold, who had gone on in advance, had been exploring the terrain up to the tongue of the Rakhiot Glacier. Only then did the party at last arrive at a proper base for its objectives.

Base Camp was at first pitched in the belt of woods near the left bank of the glacier at a height of about 11,400 feet, but was later transferred to a grassy hollow under the big moraine dividing the Rakhiot and Ganalo glaciers, some 1,600 feet higher up. The loads were all shuttled up to it but, when after a fortnight the first opportunity to check them presented itself, it was found that ten sacks of transport material, containing almost all the equipment for the porters, had been stolen. There was nothing to be done but grin and bear this grievous blow and to fit the porters out with any substitute equipment available, however inadequate.

It had taken thirty-seven days to reach the eventual Base Camp from Srinagar; it was now 24th June. The actual attack on the mountain did not begin till six days later, very late if the remaining days of good weather before the onset of the Monsoon were to suffice. There was however the consolation that here, in the west, the Summer Monsoon arrives later and is less heavy than in the Eastern Himalaya.

It had been established since Mummery's time that the south side of Nanga Parbat is unclimbable: and Merkl had had the opportunity of confirming this with his own eyes from a distance, a long way from Astor. The Diamirai face had looked far too steep and avalanche-prone; that is why he had turned to the north side, to find that it offered only two possibilities worth consideration. There were the North-North-West Ridge from the Diama Cols, or the North-East Ridge running up to the Summit over the Rakhiot Peak (23,197 feet).

The solid wall of precipices stretching from the Ganalo Peak (21,675 feet) to the Rakhiot Peak precludes any approach to the North-North-West Ridge, at least from the Rakhiot side. But the Rakhiot Glacier and the snow slopes above, sweeping down in a steep ramp from north-west to the south-east between steep inaccessible walls, seemed to offer a line of approach not too badly menaced by avalanche perils. If that proved to be so, the main problem would be solved; for, stated bluntly, the problem was to find a single comparatively safe and not excessively difficult way of getting on to a ridge leading to the Summit. The North-East Ridge has only one rocky step in it—at the Rakhiot Peak. Beyond this it rises steadily in the guise of a snow-ridge towards the saddle between the two Eastern Summits. Behind this graceful dip, later to become known as the 'Silbersattel', the 1932 Expedition had already seen, from a distance, as they came up the Rakhiot Nullah, a lofty, gently inclined snow-slope leading towards

the Summit. Whether this would be safe to climb or would have to be circumvented was still to be put to the proof, once anybody had succeeded in getting as far as that (Plate 29).

Camp 1 was established under the north-east wall, but definitely too close to it. The very next morning at breakfast, the climbers, some of whom had returned to the Base Camp, heard the very unpleasant news that during the night a great ice-avalanche had broken away from the wall and the wind-pressure from it had snapped all the tent-poles like match-sticks. Whereupon the porters had refused to go any farther and had only been calmed to some extent by being granted the rise in pay they demanded.

Meanwhile Aschenbrenner, with one porter, had set up Camp 2 on a little saddle next to a rocky spur in the glacier at 17,550 feet. Next Kunigk and Herron prepared a third camp in the form of a hole in the ice at about 19,350 feet. At this point the lower part of the glacier, a heavily crevassed and highly dangerous stretch, had been disposed of—gentle unbroken snow slopes led on to the crest in the ridge before its leap up to Rakhiot Peak. Bechtold and Merkl placed Camp 4 (20,200 feet) on the first of these slopes, in a beautifully safe position, on 8th July. Here they took to tents again; these they preferred to the snow-caves they had used lower down in the shattered and avalanche-swept sector, because of the greater safety they afforded there.

Partly for training purposes and partly to get an informative view, they climbed the South Chongra Peak (21,155 feet) from Camp 4. On 16th July Aschenbrenner and Kunigk, starting from a rather higher intermediate camp, at about the point where Camp 5 stood in the famous 1934 attempt, even succeeded in climbing Rakhiot Peak. Below them in the valley the Monsoon clouds were already banking up. Time was running short.

Camp 4 was the Base for the actual assault on the Summit. There was no doubt about the ridge route itself, but the Rakhiot Peak offered two alternatives. The continuation of the ridge could be reached either by climbing over the rocky shoulder of that Summit, or by circumventing this subsidiary peak altogether by keeping to the western bay of the glacier, in the so-called 'scoop'. Merkl chose the scoop, in spite of the obvious steepness and avalanche dangers. On 18th July, the day when the attack was due, all the climbers were assembled at Camp 4, fit and ready. But too much time had been wasted and snow now began to fall. The Monsoon was upon them: after a month of almost uninterrupted fine weather, the mountain had begun to defend itself with blizzards.

Kunigk was struck down with an acute appendix and compelled to climb down with Hamberger, the doctor, on a distressful journey,

partly on foot, partly mounted, to Astor, for an operation there. On 23rd July the weather cleared; but the porters, without a single exception, reported sick. So Aschenbrenner, Bechtold, Herron and Merkl went up without them towards the Rakhiot Peak. Ploughing a trail up the slopes in the fresh snow was painfully exhausting under the heavy loads they were now carrying, and they had to pitch a fifth Camp at about 21,300 feet. Starting out again in the middle of the night, they tried next day to gain height, but the deep snow and the weight of the loads sapped their strength so swiftly that they were forced to turn back. Aschenbrenner's toes were frozen and he had to go down to Camp 4.

On 25th July Merkl wanted to take Bechtold and renew the attempt to climb the scoop. Just as they were entering on the lower part of the icefall a *sérac* broke away high up on the ridge and precipitated an avalanche which swept down the scoop. Undeterred by this, the pair hacked a way up over hard snow to the more level upper section, where they placed a sixth Camp at the edge of a crevasse about 22,150 feet up. Meanwhile, down below, Herron, Simon and Wiessner had been bringing loads up to Camp 5, in the absence of any porters fit enough to carry.

An abortive attempt was now made by Bechtold, Herron and Simon to reach the crest of the ridge, floundering painfully through bottomless powder-snow. Herron and Simon, who had contracted chills, had to go down and Wiessner who had managed to persuade two porters to accompany him, came up in their place. At last, on 29th July, Bechtold, Wiessner and Merkl fought their way up on to the Ridge, reaching it at a point about 22,800 feet up, west of the Rakhiot Peak. From there, for the first time in the whole climb, they saw the Summit of Nanga Parbat—apparently a stone's throw away. Their only idea now was to push up on to it, which seemed to them to be a matter of five or six days' work.

Next day Bechtold and Merkl carried loads up to the ridge and by nightfall had pitched Camp 7 at 22,800 feet; but when they wanted to press on in the morning it began to snow again. They had great difficulty in getting down to Camp 6 and, as the snowfall continued unabated, they were driven back to Camp 5, which Captain Frier had in the meantime reached with four porters. The continued bad weather, however, left them no alternative but to retreat to Camp 4 and, eventually, to Base Camp.

On 28th August Herron, Merkl and Wiessner wanted to make another attempt, but the mass of fresh snow prevented any progress beyond Camp 4. There they waited a few days, but in the end they had to come down without even being able to evacuate the stores from

the higher Camps 5, 6 and 7. So ended the first attempt on Nanga Parbat from the north; but Merkl now knew for certain that it could be climbed by this route.

Another thing it had proved was that it was no good using local porters from Kashmir, Hunza and Baltistan for carrying to the high camps. Here, in the western Himalaya too, it is impossible to dispense with the priceless services of the Sherpas from Darjeeling, or more properly, Sola Khumbu.

A tragedy happened on the return journey: Rand Herron was killed by a fall from the Chefron Pyramid at Cairo. Naturally, the tragic story of the death, during a mere afternoon's outing, of a climber who had safely survived the dangers of Nanga Parbat, excited a great deal of attention.

THE 1934 EXPEDITION

Merkl was now set on completing the task he had begun so well. There were nine climbers in the German Himalayan Expedition of 1934, Peter Aschenbrenner, Fritz Bechtold and Willy Merkl, all veterans of 1932; the newcomers were Peter Müllritter, Erwin Schneider, Willy Welzenbach, Willy Bernard, the doctor, Alfred Drexel and Uli Wieland. Hans Hieronimus was made Commandant of the Base Camp. The scientific group was composed of Richard Finsterwalder, cartographer, Walter Raechl, the geographic expert, and Peter Misch, a geologist. In view of the size of the undertaking there were two British Transport Officers, R. N. D. Frier, who had accompanied the 1932 Expedition, and A. N. K. Sangster. It was a well-equipped and organised 'War of Attrition' that was about to be directed against Nanga Parbat (Bib. 10, 67).

They left Srinagar as early as 2nd May, with five hundred porters and thirty-five of the best Sherpas and Bhutias under their famous Sirdar, Lewa.² This time there was no necessity to take the laborious way from Astor over the ridges, for permission had been granted to approach the Rakhiot Nullah along the Indus. Only seventeen days later they pitched a provisional Base Camp beyond Tato, the last haunt of shepherds in the Nullah, where the endless snow-work began. The five hundred coolies were left behind at this point and the loads were ferried with the aid of the Sherpas, the Bhutias and twenty enlisted Balti porters to the 13,000 foot Base Camp sited on the same spot as two years before. Working at once from the provisional Base Camp, Bechtold, Müllritter and Wieland, with a few of the porters, established Camp 1 (14,650 feet) behind the big crest of the big moraine (Plates 29 and 30).

On 31st May, Aschenbrenner, Drexel, Schneider and Welzenbach went with sixteen porters from Base Camp to Camp 1, in order to push forward from there into the upper basin of the Rakhiot Glacier and established Camps 2, 3 and 4. They followed the 1932 route in changeable weather, mostly poor. Snow caves were this time barred, all camps being equipped with tents. The snow was so deep and the glacier so fissured that progress was slow and intermediate camps had to be placed before Camps 2 and 3. It was a very uncomfortable stretch. The swift movement of the glacier caused frequent new crevassing, sometimes even under the very tents. By day and by night ice-avalanches roared and the cracking ice detonated below the tent floors. Not till Camp 3 (19,350 feet) was the most troublesome part of the glacier left behind and the way to Camp 4, the advanced base for the attack on the Summit, open.

Bechtold and Müllritter had meanwhile come up to Camp 2 (17,550 feet) and were regulating the supplies from there. The advance party was in wireless communication with Base Camp and was thus in a position to pass all observations and requirements down the line the quickest possible way. Drexel, working the short-wave transmitter, was generally in charge of this. At Camp 3 there was a very noisy storm and it was difficult to hear or understand Drexel's voice, normally so strong and clear, down at Base Camp. He had caught a chill, as almost always happens at great heights; a combined result of breathing through the mouth and the dryness of the air. However, he was compelled by the deterioration of his condition to go down to Camp 2 with his porter Ang Tensing, while the Summit party were moving up and pitching the first tents in Camp 4.

The next morning a porter brought a note up from Bechtold in Camp 2. Drexel had arrived in a very exhausted condition and Müllritter had gone straight down to Base Camp to fetch the doctor. Drexel's condition had deteriorated so rapidly that he was no longer fit to go farther down. Dr Bernard arrived at Camp 2 with Müllritter in the afternoon, but found the patient beyond any help he could give. At 9 o'clock in the evening of 9th June Alfred Drexel died of oedema of the lungs. Late that night Wieland arrived, in one stage from Base Camp, having climbed the Icefall in driving snow with two porters and oxygen: but it was too late.

A number of climbers and porters were called back from the climbing operations to Base Camp for Drexel's funeral on 11th June. This was the first heavy blow to fall on this ill-fated expedition; and Drexel provided Nanga Parbat's fourth victim—going back to Mummery and his two Ghurkas.

During the next few days Camp 4 was stocked with climbing

equipment and food supplies; but they were still waiting for tsampa, the barley-meal for the Sherpas, which had not arrived on time. Rapid as had been the expedition's early progress, everything was now being held up. Eleven lovely, cloudless days went by—days spent at Base Camp.

No move could be made till 22nd June, when Aschenbrenner, Bechtold, Merkl, Müllritter, Schneider and Welzenbach left with fourteen porters—Bernard, Sangster and Wieland following three days later. On 25th June they reoccupied the advanced Base Camp (4).³ Then Camp 5 was set up at 22,000 feet, under the Rakhiot Peak. The route from 4 to 5, below the Ridge, was steep but in good condition, and on a well-trodden track required only two hours. That was why the Camp had been sited there; it was consequently possible to establish properly this last serious support place before the Summit with quantities of sleeping-bags, provisions and fuel. Beyond Camp 5, too, the rocky precipice of the Rakhiot Peak had to be made safe and passable for porters, a two-days' labour.

Merkl really wanted to follow his 1932 route through the groove, but this year its entrance was barred by a broad, vertical wall of ice. The actual attack on the Summit only began on 4th July—thirteen days after the advanced party's second start from Base Camp. Conditions had meanwhile become so exceptionally good that a strong climber could now move up from Base to Camp 4 in one day.

The assault party were Aschenbrenner, Bechtold, Merkl, Schneider, Welzenbach and Wieland, with seventeen high-carrying Sherpas. First they went as far as the shoulder of the Rakhiot Peak, up the track which had been prepared by step-cutting and the provision of fixed ropes. Then they traversed high up on the West Face, turned the Summit by so doing, and reached Camp 6, on the Ridge again, behind it (22,800 feet); this camp stood roughly where the 1932 Camp 7 had been. During these days the weather 'down below' in Camp 4 was mainly bad; the Monsoon was now announcing its approach; but up on the Ridge the party was moving above the clouds, which only rose during the evening to enclose it in mist. There was a strong wind blowing, but it was not uncomfortable; the clouds covered the whole world like a broad sea, out of which Nanga Parbat alone soared aloft, a solitary island; at times the blanket of cloud beneath them parted and through the gaps the climbers saw, nearly thirteen thousand feet below their boots, the flat rubble-covered glacier tongues and the green meadows of the Rupal Nullah alongside them. After living so many weeks in the snow, it was like a glimpse of a different world.

On a step in the Ridge, below the steep upswing to the 'Silbersattel', they dug their tents into the snow at about 23,130 feet, to site a seventh

camp. The mists had already closed in over the ridge several times during the day, and at such times a blizzard would blow and the work became difficult: but it cleared up in the evenings, and that night, as well as on the following day, they were on their lonely island above the clouds again. Bechtold had to escort two sick porters down from Camp 7. Four Sherpas had already gone down from Camp 6 on the previous day owing to sickness.

On the morning of 6th July five climbers and eleven Sherpas moved up towards the Summit, intent on pitching the last high camp—Camp 8. They started early, in good form, and at first climbed at a rate of 700 feet an hour. Aschenbrenner and Schneider cut a staircase of steps for the porters on the steep slope leading to the 'Silbersattel'. On the Saddle itself, where they arrived well in the forenoon, they saw before them the Summit slope which, cradled between the two East Peaks (24,923 and 24,705 feet) and the two North Peaks (25,542 and 25,642 feet) rises gently towards the subsidiary Main Summit (25,953 feet), quite free from crevasses. The two men sat down among the rocks of the 'Silberzacken' (Silver Tooth)—24,925 feet—waiting for the others to come up and join them.

When, about two hours later—about 2.30 p.m.—Welzenbach appeared on the 'Silbersattel' with the first of the Sherpas, Aschenbrenner and Schneider went forward along the high, level snowfield, with the intention of setting up Camp 8 farther along, close under the subsidiary Summit. At about 25,750 feet, some 150 to 200 feet below it, they found a suitable spot and there they waited.⁴ When nobody came, Schneider at last went back to persuade Merkl, Welzenbach and Wieland to come on; but without success. After waiting an hour and a half in vain, Aschenbrenner too came down to the 'Silbersattel', where Camp 8 was finally established at 24,540 feet.

Impatiently they awaited the morning, for the next day must surely bring the conquest of the first 'Eight Thousander'. It was the first time, and indeed remained so till quite recently, that in the history of the campaign against the world's highest peaks the goal had lain so near at hand: no technical difficulty to which the party was not fully equal, no ground open to an avalanche threat lay between them and the Summit. At the highest point which Aschenbrenner and Schneider had almost fortuitously reached while hunting for a suitable Camp site, they were only about 900 feet below and three-quarters of a mile short of Nanga Parbat's Main Summit. It was still early afternoon when they turned back from it, and they had already spent two hours in waiting at the 'Silbersattel'. The pair could quite easily have climbed to the Summit on 6th July 1934 and got safely back to Camp 6. But they were a team of five; and they had no doubt whatever that

together they could all climb the first 'Eight Thousander' next day. . . .

On the morning of 7th July, however, a fearful blizzard raged about their tents: so fierce that it was almost impossible to breathe out in the open. The snow scud was blown horizontally along the ground and all day long twilight reigned. During the first night a tent-pole broke. On the high plateau, whose surface snow was pressed into the consistency of hard ice by the endless gale, it was impossible to dig even a hole in the snow. The tents were no longer windproof, and the climbers all lay inside their sleeping-bags under a shroud of snow-dust. All the same, they decided to wait at least a day, for their experience in 1932 had taught them that no serious break in the weather lasted longer than a day or two on Nanga Parbat. There were

Plate 39: Hidden Peak, with plateau peak Pt 7504 (24,610 feet) below and to the right, in the main comb, the rocky shoulder Pt 7784 (25,539 feet). In the centre the upper part of the 'I.H.E. Spur' which reaches the Summit snow-field by way of Pt 6550 and Pt 6703. Taken from the Skia Kangri climb near Camp 7 by *H. Ertl* ('I.H.E.' 1934).

Plate 40: Broad Peak, North Summit (about 25,263 feet); Central Summit (about 26,250 feet); Main Summit (26,402 feet). The 'West Rib' leading up from the Godwin Austen Glacier to the upper glacier Terrace is well seen, as is the dangerous slope below the Col. *Photo: V. Sella* 1909.

Plate 41: The triple-headed Broad Peak, with the Godwin Austen Glacier in the foreground. *Photo: V. Sella* 1909.

Plate 42: Gasherbrum IV (26,180 feet) 'The Shining Wall', with Gasherbrum II (26,360 feet) to the right behind it. Clouds play about the towers of Gasherbrum V's West Ridge, with the pyramid of Gasherbrum VI (23,590 feet) to the right—evening light. (Leitz Elmar f=3. cm, Orange Filter.)

Photo: G. O. Dyhrenfurth 1934.

Plate 43: Gasherbrum IV—III (26,090 feet)—II, with Pt 7772 (25,500 feet) at the right edge of the picture, from S. *Photo: G. O. Dyhrenfurth* 1934.

Plate 44: Broad Peak from south-west, with the South-East Ridge to the right and the Concordia Camp in the foreground. *Photo: G. O. Dyhrenfurth* 1934.

Plate 45: Gasherbrum VI—V (24,020 feet, above the Swiss flag)—IV—III and II, from south-east. Taken from Camp 5 of the 'I.H.E.' by *G. O. Dyhrenfurth* 1934.

Plate 46: Gasherbrum IV with its South Ridge falling to the Saddle 6748 (22,140 feet), with Gasherbrum V to the left. *Photo: G. O. Dyhrenfurth* 1934.

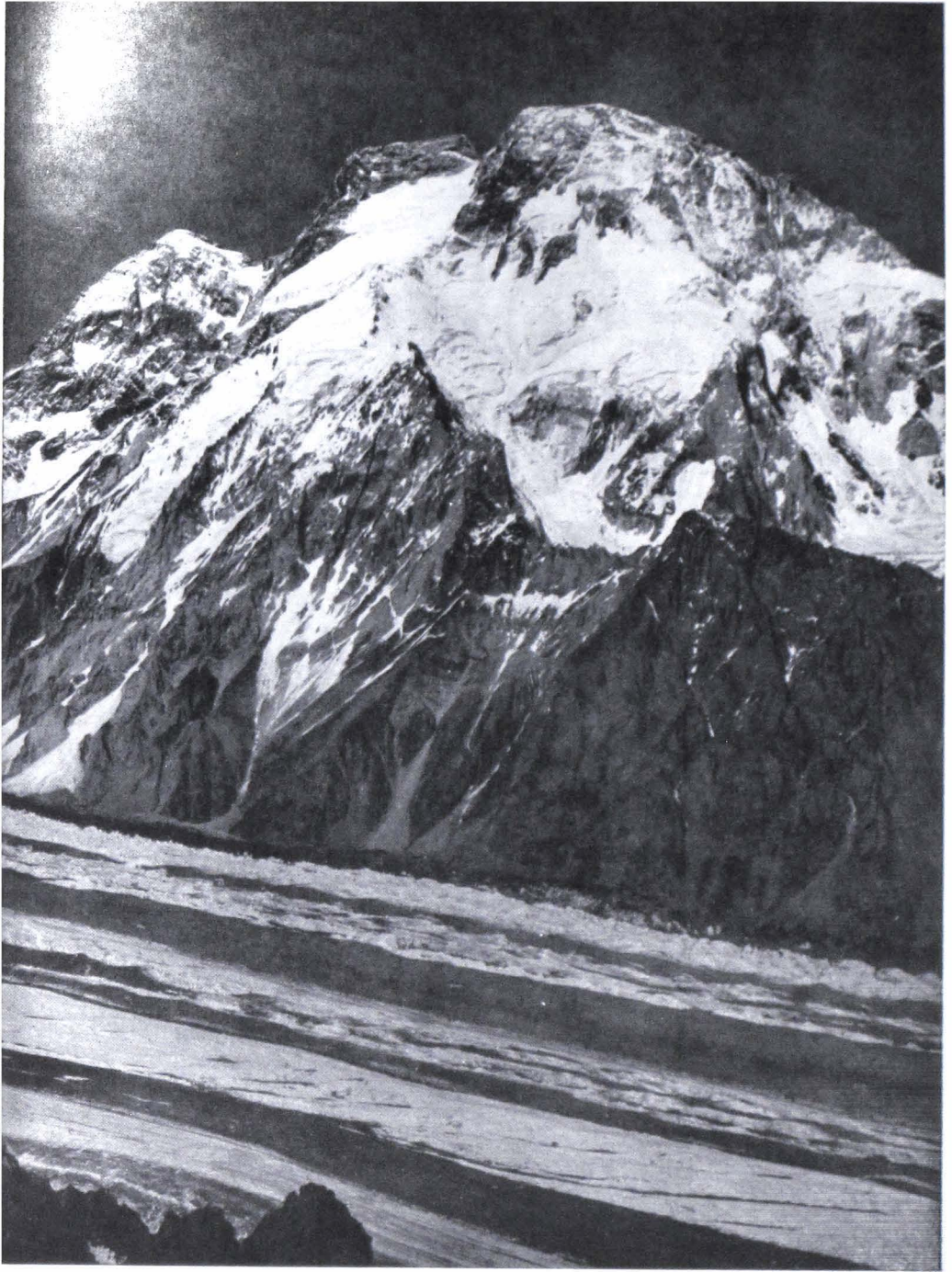
Plate 47: The great South Rib of Gasherbrum II provides a climbing-route free from avalanche threats through the ring of precipices to the upper snow-Terrace. *Photo: G. O. Dyhrenfurth* 1934.



Plate 39 Pt. 7069 ('Hidden Sud', 23,193 feet), with the peak of Gasherbrum III (26,090 feet) showing above it, Gasherbrum II (26,461 feet) and Hidden Peak (26,470 feet) from SE.



Plate 40 Broad Peak, the triple-headed 'Breithorn' of the Baltoro, from the Lower Savoia Glacier, i.e. from W.



*Plate 41 Broad Peak (26,402 feet) from the foot of Marble Peak, i.e
from SW.*

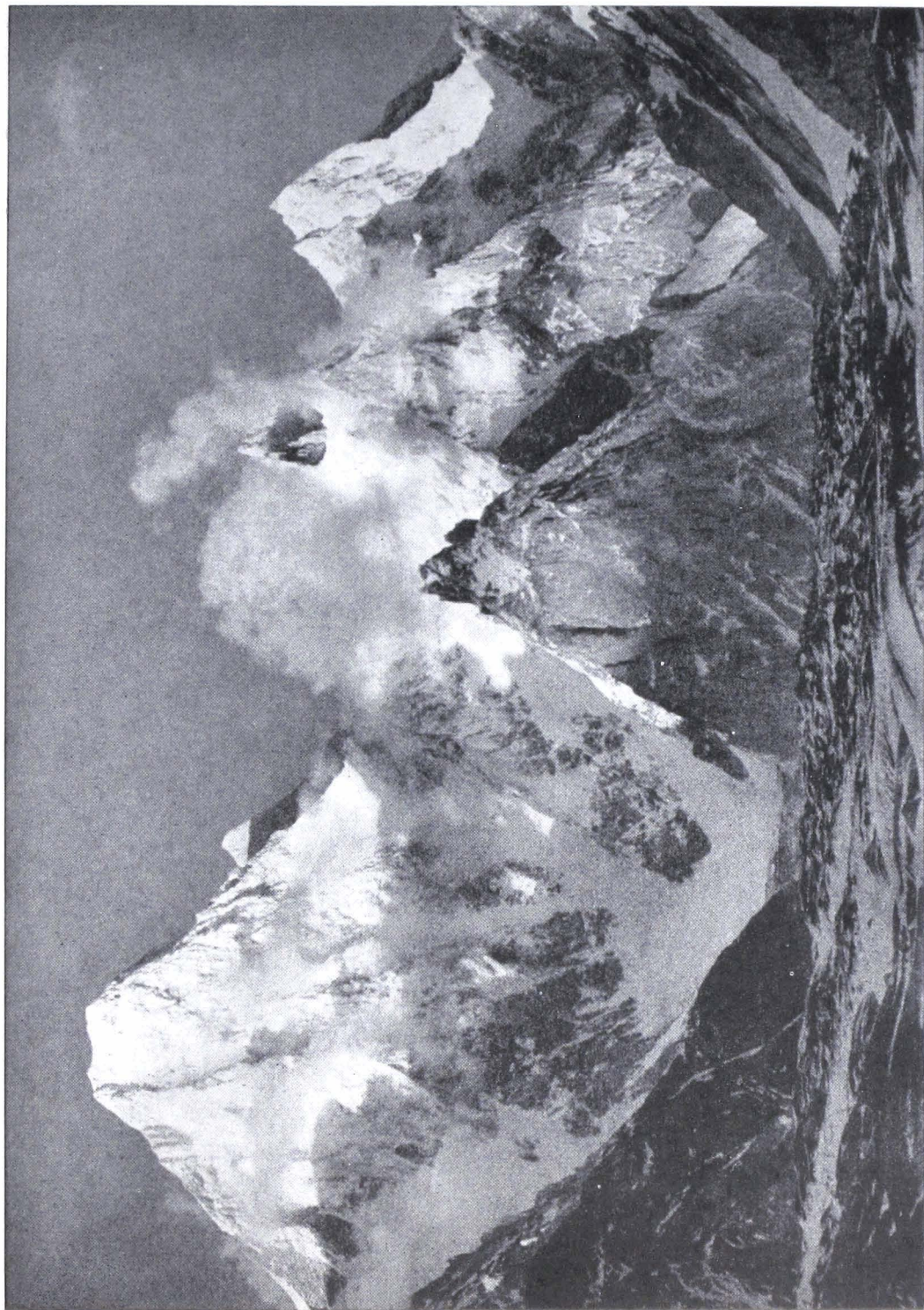


Plate 42 The Gasherbrum Group from W.

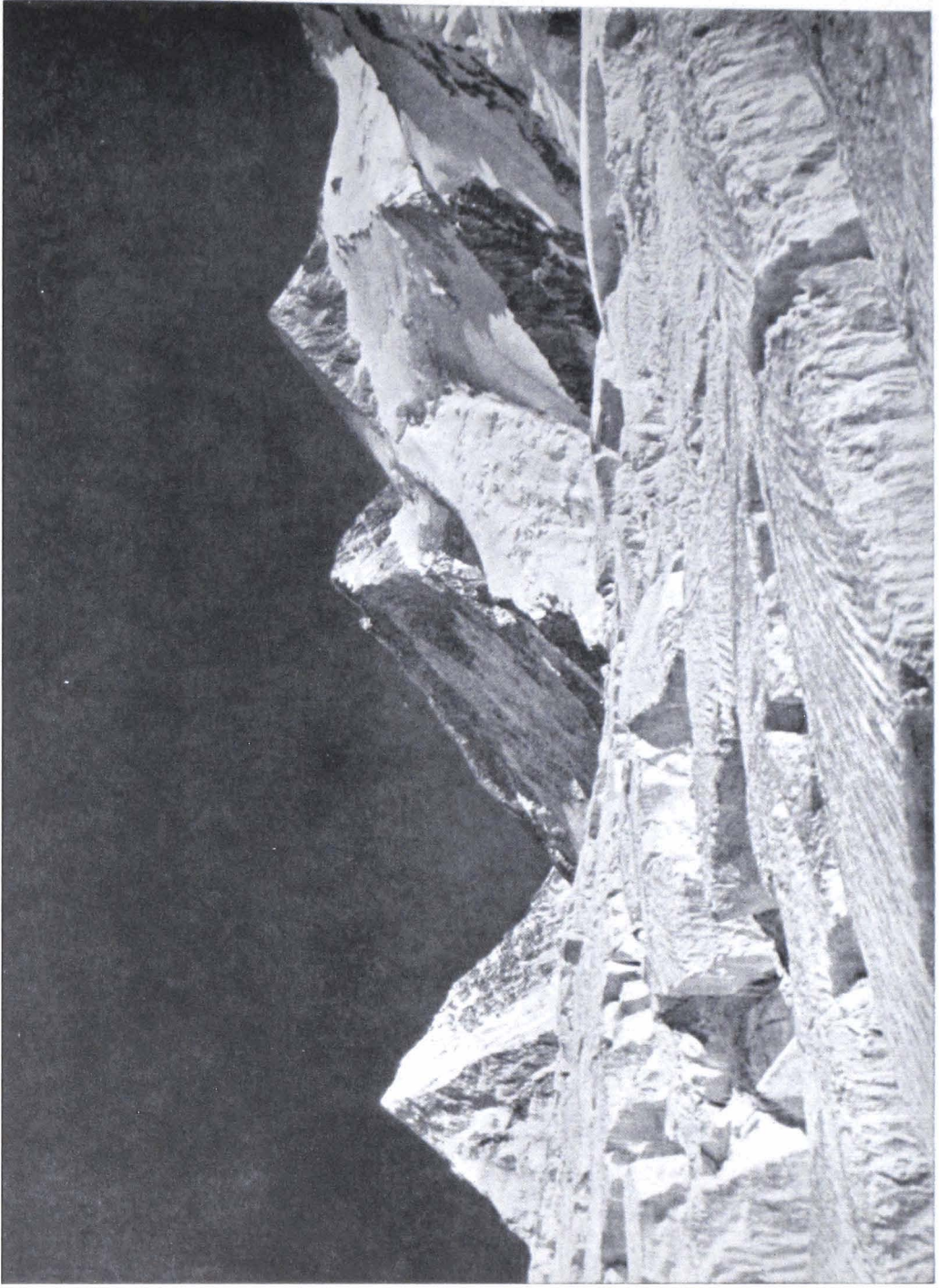


Plate 43 The summits of Gasherbrum IV, III and II from the South Gasherbrum Glacier

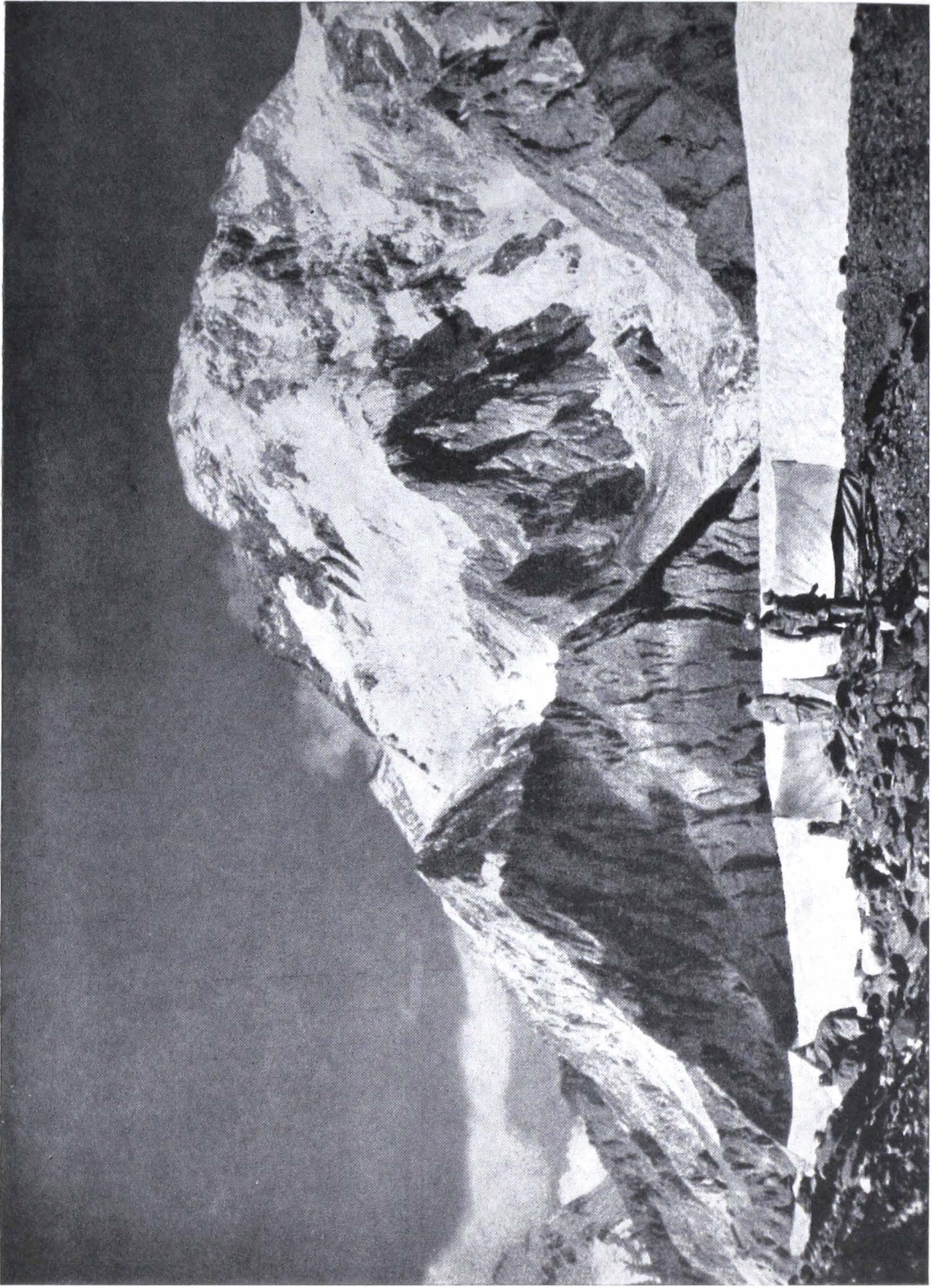


Plate 44 Broad Peak (26,402 feet) from Concordia

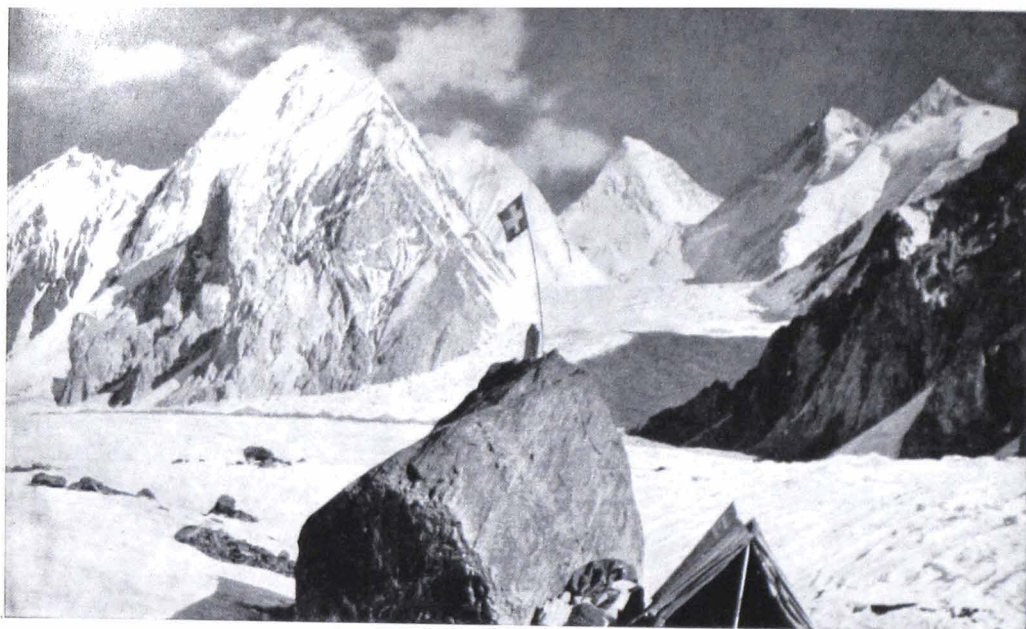


Plate 45 The South Gasherbrum Glacier and its surrounding peaks from the Abruzzi Glacier



Plate 46 Reverse view of Gasherbrum IV (26,180 feet) from the upper basin of the South Gasherbrum Glacier

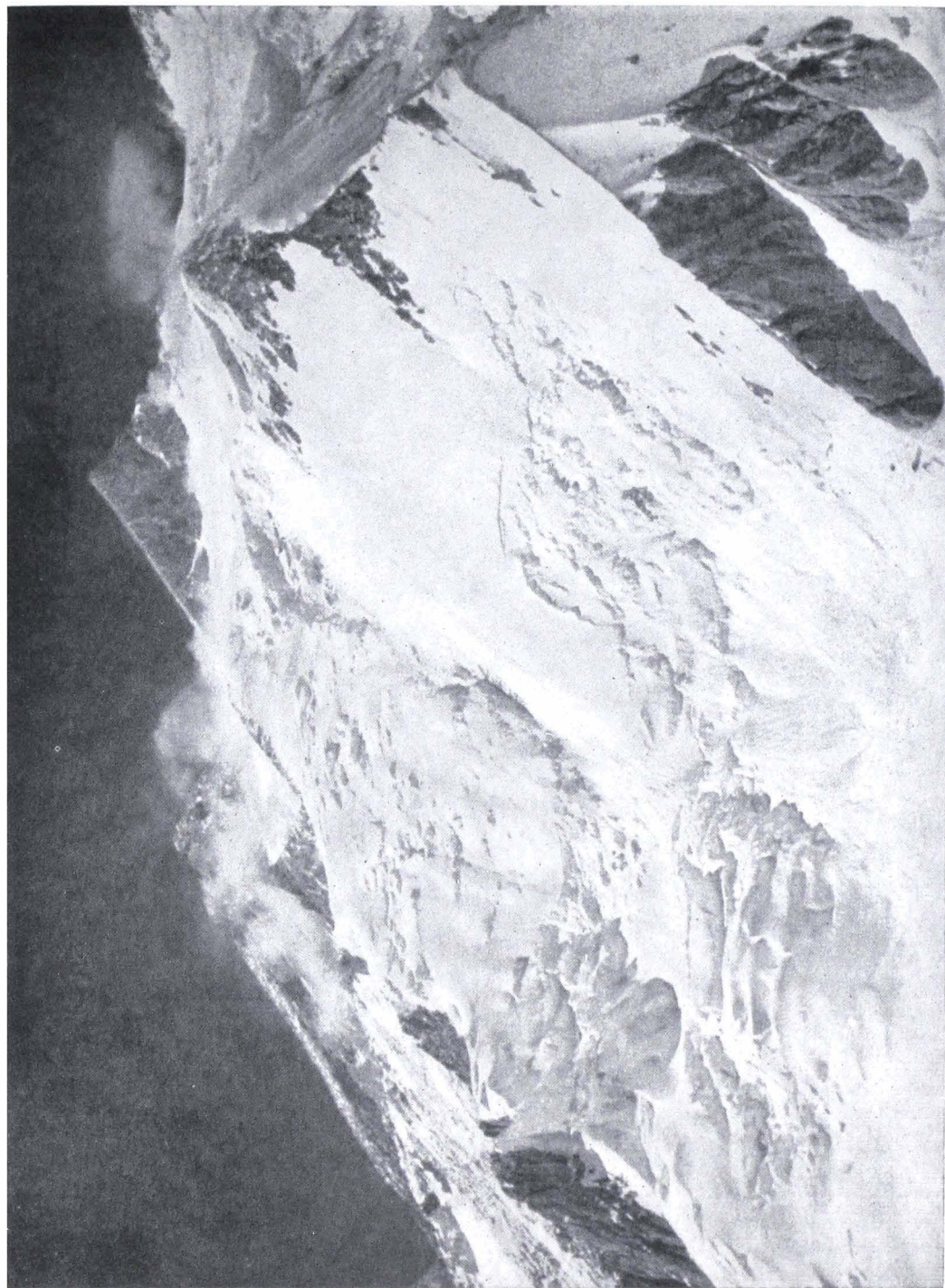


Plate 47 Gasherbrum III (in cloud) and Gasherbrum II from the S.

enough provisions and fuel for five to six days, but in the raging gale it was almost impossible to get the cookers working, so as to melt snow and prepare a warm drink.

The second night was almost worse than the first. Another tent-pole broke and on the morning of 8th July the weather was as bad as ever. Conditions in the tents had become almost unbearable: there was no sense in staying any longer. So it was decided to withdraw to Camp 4 and wait there for better weather. Aschenbrenner and Schneider, with three of the Sherpas, went ahead to break a track. Merkl, Welzenbach and Wieland were to follow close behind with the remaining eight porters. Everyone seemed still to be in good condition. The only thing they were regretting was that they would have to climb all the long way up again from Camp 4 to Camp 8, having lost precious days. They were all confident of reaching Camp 4 by the evening, and so they left their tents and equipment up there in order to travel the lighter.

On the way down from the 'Silbersattel' their old steps were still to some extent recognisable in the hard, wind-beaten snow. But on the Ridge deep, fresh snow made trail-breaking laborious and in the blinding storm the leading man could hardly see ten yards ahead. To save those behind from excessive exhaustion through floundering, the party that was breaking the trail proceeded downwards unroped on the easier ground below Camp 7. There was no danger: if one of the Sherpas lagged behind he would be overtaken and brought along by the second party, following close on their heels. Aschenbrenner and Schneider believed them to be very close behind, for when the storm clouds lifted for a moment, they saw the others coming down the slope below the 'Silbersattel'.

The tent at Camp 7 was half-buried in snow, so they passed by without stopping. Slowly they floundered through the deep snow, which was whirled high about them by the gale, to the lowest point of the Saddle and up again past the 'Negro's Head', the familiar rock tower, and on to Rakhiot Peak. In the ruling conditions, the best route was straight over the crest. At the fixed ropes they kicked off an avalanche of snow, quickly descended those safeguards in a few acrobatic movements and were soon safe in adequate shelter at Camp 5, the highest proper camp with tents and supplies in them. They only rested there, however, for a short time and, plunging through almost chest-deep snow on the slopes below, arrived at Camp 4 late in the afternoon.

It had been snowing and blowing there for several days. Bechtold and Müllritter had tried in vain to move up in order to replenish Camp 6; but as soon as the slopes steepened just above Camp 4 they had been held up by the heavy masses of snow.

Everyone expected the second party—Merkl, Welzenbach and Wieland, with the Sherpas—to arrive at any moment. When their comrades did not appear that evening, they were fairly convinced that they had spent the night at Camp 5; for the tents were in position there and in them plenty of sleeping-bags and provisions.

All the next day, 9th July, the storm raged with unabated fury. All through 10th July it chased the snow from the ridges in great plumes; and when, towards evening, the weather cleared a little, though the gale still continued to rage, those in Camp 4 saw, to their utter amazement, four figures climbing down the steep slope of the Rakhiot Peak—*above* Camp 5. They were four Sherpas—utterly spent, and suffering from frostbitten hands and feet. According to their report, they had spent the previous night in a snow hollow near the Ridge, near Camp 6. The three Sahibs were still up at Camp 7. . . .

During the following three days the climbers in Camp 4 tried several times to push upwards to beyond Camp 5, to bring aid to those marooned above. Unhappily in vain; for bottomless snow on such ground almost prevented climbing altogether. For instance, on one occasion three climbers and three porters took six and a half hours for the short stage between Camps 4 and 5 alone: on others it proved impossible even to reach Camp 5. Finally, not a porter would stir above Camp 4; they were all broken in body and spirit by the long period spent at high altitudes. And so, every rescue attempt ended in failure. On the evening of 14th July another Sherpa, Ang Tsering, came down—he had been sheltering in a snow-hole above Camp 6; he was the last to bring any news of the fate of those cut off above.

His story was that Merkl, Welzenbach and Wieland started down from Camp 8 (24,540 feet), with their eight Sherpas, shortly after Aschenbrenner and Schneider's 'pathfinder' party. On the first day (8th July) they only got down to the point where the traverse from the 'Silbersattel' joins the Ridge, a little above Camp 7; there they halted after only two hours' descent and spent the night in hollows in the snow. On the 9th they climbed down to the solitary tent at Camp 7 (23,130 feet). Just before reaching it, Wieland sat down in the snow, probably to rest: there he fell asleep and never woke up again. On the same day four porters came farther down the Ridge, overtook the three lagging Sherpas of the 'pathfinder' party in a snow-shelter near Camp 6 and took them along with them. Of these seven men, only four reached Camp 4; three of them died of exposure a little way above or near Camp 5 (21,950 feet).

Ang Tsering further reported that Welzenbach and two Sherpas had died of exhaustion in Camp 7. Merkl had gone down with him and another Sherpa, Gyali ('Gay Lay'), to the bottom of the saddle

before the Rakhiot Peak, from where they sent him—Ang Tsering—down to Camp 4 for help. This mission he carried out to the letter, all by himself, and fighting the storm every inch of the way.

On 15th, 17th and 18th July the climbers in Camp 4 (20,293 feet) made the last attempt to push up the mountain again, to meet Merkl and 'Gay Lay': it was an impossibility. They themselves were now worn out with their long stay above 20,000 feet. Snow never stopped falling. Hardly any porters were fit any more to carry loads up, even to Camp 4. So on the 18th this Advanced Base Camp was evacuated and they all retreated to the Main Base. The last two survivors on the Ridge, Merkl and 'Gay Lay', who had no sleeping bags and had eaten nothing for days, must have perished on the 16th.

So ended in unparalleled disaster this third assault on Nanga Parbat.⁵

THE 1937 EXPEDITION

In this year Paul Bauer and the German Himalaya Foundation, which had been instituted in the meantime, selected Nanga Parbat as their target. Bauer had recognised that the chances of success were greater on Nanga Parbat than on Kangchenjunga. The new Nanga Parbat Expedition was placed under the leadership of Karl Wien. The other six climbers were: Pert Fankhauser, Adolf Göttner, Hans Hartmann, Gunther Hepp, Peter Müllritter and Martin Pfeffer. There were also two scientists, Ulrich Luft, the doctor and Carl Troll, the cartographer. It was a very powerful team and there was every indication that the Summit would be reached this time. The whole route from the Rakhiot Nullah to close under the subsidiary Summit had already been traversed and every inch of it was familiar. It is dangerous in places, but not technically very difficult (Bib. 7, 8).

In spite of bad weather and heavy snow falls, Camp 4 had already been established by 11th June. This time it was sited a little farther to the south-west than in 1932 and 1934, in a hollow nearer the Rakhiot Peak. Compared with the avalanche dangers of the ground between Camps 1 and 3, this site seemed relatively safe. Perhaps insufficient care played its part in the choice of the precise spot for the establishment of a camp. Only a minor icefall hangs on the slope from the ridge of the Rakhiot Peak.

On 14th June loads were carried up to Camp 5, the intention being that some of the party should occupy it on the following day. Camp 4 was therefore occupied in unusual strength on the night of 14th and 15th June, seven Sahibs, the whole climbing party, and nine Sherpas spending the night there. A few minutes after midnight an ice-

avalanche fell from the Rakhiot Peak, burying the whole camp. As a result, all sixteen occupants lost their lives.

Ulrich Luft was the only European left down at Base Camp. The weather had improved and he kept on looking in vain up towards the Rakhiot Peak, where he might expect to see the party climbing. Becoming uneasy, he set out for Camp 4 at the head of five porters, taking up provisions and mails, arriving on 18th June to find nothing in the deserted spot but silence, a wide expanse of snow, a trail that broke off suddenly—and an ice-avalanche, already some days old and covered with fresh snow. . . .

A very small party, led by Paul Bauer, flew out immediately to India to undertake the search operations. Almost every member of the party which the avalanche had annihilated was found and given proper burial in the snow. All their watches had stopped at 12.20.

So ended the fourth attempt.⁶

THE 1938 EXPEDITION

The very next year saw another German Himalaya Expedition at work on Nanga Parbat. This time the most experienced of all German climbers, Paul Bauer, led the party himself. Besides Fritz Bechtold, whose fourth visit it was to the mountain, and Ulrich Luft, there were five newcomers—Rolf v. Chlingensperg, Hias Rebitsch, Herbert Ruths, Ludwig Schmaderer and Stefan Zuck. Bruno Balke was the doctor, and there were two transport officers, K. Hadow and Mac-Kenna. For the first time in the history of Himalayan climbing, a three-engined Junkers aircraft was employed to transport the heavy baggage. Lex Thoenes was the pilot, his assistant Otto Spengler acted as observer, and Rudolf Mense as radio operator. Short-wave communication with the aircraft was maintained by Alfred Ebermann, who accompanied the expedition. Altogether Thoenes undertook seven flights to the mountain, five to drop parachute-loads at Base Camp and Camp 4, two for purely photographic purposes (Plates 29 and 32-5).

The short-wave sending-and-receiving apparatus, which regularly provided meteorological reports, and the services provided by the aircraft were alike of enormous assistance. This time, too, the direct approach route by Abbotabad—Balakot—the Kagan Valley—the Babusar Pass and Chilas was available, having been made reasonably serviceable by two hundred labourers and soldiers (Bib. 9, 11, 150).

Base Camp was reached on 31st May. In spite of appalling weather conditions—it snowed almost without intermission—the first tent of Camp 4 was pitched on 24th June. This time the Camp was sited

—as in 1932 and 1934—in a perfectly safe place. The climbers were continually forced back by blizzards to Base Camp, and it was not till 17th July that they succeeded in establishing Camp 5 at 21,200 feet. A safe route on the Rakhiot Peak was then prepared, not this time by the 1932 approach through the groove, nor over its ridge, as in 1934, but half way between the two by traversing to the foot of the rocky North-West Spur and up the groove at its back to reach the Ridge behind the Peak itself. On 22nd July a new 1938 Camp 6 was pitched where in 1932 Camp 7, and in 1934 Camp 6, had stood (22,800 feet). As they continued up the Ridge, close to the 'Negro's Head', the tower just before the lowest point in the Saddle, they came upon the bodies of Merkl and 'Gay Lay', still well-preserved, and buried them there. A few days earlier, on the 19th, they had found one of the porters who died on the Rakhiot Peak in 1934, hanging on the Face in the fixed ropes, which they found still in place: they buried him in a crevasse above Camp 5.

Merkl had a note on him which Welzenbach had written in Camp 7 on 10th July 1934. It read (Bib. 150):

To the Sahibs between C.6 and C.4, particularly Dr Sahib. We have been lying here since yesterday, after losing Uli [Wieland] on the way down. Both sick. An attempt to get down to 6 failed through general weakness. I, Willo [Welzenbach] have either Bronchitis, Angina or Influenza. Bara Sahib [Merkl] has general weakness and frostbitten feet and hands. We have had nothing warm to eat and practically nothing to drink for six days. Please help us *soon* here in C.7.

Willo and Willy.

On 23rd July Luft and Zuck pushed forward from Camp 6 towards the 'Silbersattel', but it began to snow and they had soon to turn back. On the next day Rebitsch and Ruths pressed on along the Ridge and at about 2 p.m. reached the point where in 1934 Camp 7 had stood (23,300 feet). The storm grew worse, but they still went on. At about 3.30 p.m. they reached a height of about 23,950 feet, still 500 feet below the 'Silbersattel', and about where the traverse from the Ridge up to the Saddle begins. It was cold, a gale was raging and it was snowing: so they turned back.

On 25th July Schmaderer and Zuck went up towards Camp 7, Luft, Rebitsch and Ruths following them with loads. Snow again started to fall, what is more they actually ran into a thunder-storm up there and once again they had to turn back without reaching a place for Camp 7, as intended. Next day the weather looked better and the climbers were going well; but that morning—26th July—a red parachute was

spread out down below—the signal for everyone to come down. The camps were evacuated and they descended to Base Camp. Once again the Monsoon had broken, this time in its full force.

At the end of July there was, temporarily, an apparent improvement. On 3rd August five climbers with two Sherpas and five Balti porters reached Camp 5. Enormous masses of new snow and the invariable afternoon snow-storm drove them back once again. Next day the last of them were back at Base.

Such was the failure of the fifth Nanga Parbat Expedition, too, though this time fortunately no lives had, for once, been lost. [End of *ERWIN SCHNEIDER'S* contribution.]

THE 1939 EXPEDITION

Only a year went by before there was another expedition: this time much smaller and only intended as a reconnaissance. It was led by Peter Aufschnaiter, of Kitzbühel. The others were Heinrich Harrer of Graz,⁷ Hans Lobenhoffer, of Bamberg, and Ludwig Chicken, a medical student, of Bolzano, whose father was a Scot (Bib. 2, 25, 12a, pp. 182-9).

Some doubts had eventually been raised whether the normal route since 1932, over the easy but savagely-crevassed Rakhiot Glacier, and thence over the Rakhiot Peak and 'Silbersattel', really offered the best way to the top. It certainly was enormously long. So the old Mummery route from the north-west on the Diamir side had become interesting again, and the idea was now to test its possibilities. A decision whether the next attack in strength should be from Rakhiot or the Diamir side, would be based on the reports of the reconnaissances.

A successful approach was made, as in the previous year, by the Kagan Valley, the Babusar Pass (13,680 feet) to Chilas, and thence from the Bunar Bungalow to the 'oasis' of Halala at the junction of the Bunar and Diamir Nullahs. The track through the Diamir Gorges seems to have provided a very uncomfortable journey to the last hamlets in the valley, called Zangot and Ser. The valley is wooded and plants grow in profusion right up to the glacier. A Base Camp was established on 1st June at about 13,615 feet on the right (northern) bank of the Diamir Glacier, in beautiful surroundings. It was only five and a half miles from here to the Summit of Nanga Parbat, but the difference in height was just over 13,000 feet! The small party immediately set about housing themselves—literally this time—for they built themselves a solid stone hut after the local style of architecture: then the reconnaissance began.

At the end of the previous year's expedition, Bauer had sent a small

detachment, consisting of Luft, Zuck and two Sherpas, westwards through the Patro Valley to the Diamirai Nullah. It was only a first glimpse, but the picture, 'The West Wall of Nanga Parbat' from the Diamir Valley (Bib. 150, p. 179), provided a good representation of this monstrous mountain-face and could now be enriched by further photography (Bib. 25).

On 13th June the four Sahibs, with their three Bhutia porters, crossed the glacier and reached the foot of the rocky rib which Mummery had climbed in 1895. At about 18,050 feet on this 'second rib' Lobenhoffer and Chicken found a wooden log about a foot long: it was the only remaining evidence of that historic Camp-site. They returned the same day to their Camp 2 (about 15,400 feet), below the fall of the Diama Glacier. A couple of days later they saw a gigantic ice avalanche pour down into the whole amphitheatre of the Diama Glacier, sweeping the 'second rib' in its course and also the site they had in mind for their next camp. Mummery's route which, with incredible courage, makes straight for the upper ice-terrace, almost in a direct line under the steep face of the Main Summit, was therefore proved to be, at least in its lower section, dangerously exposed to avalanches and to be rejected out of hand.

A closer inspection of the ascent over the Diama Glacier to the North Summit, which they had originally had in mind showed it to be so open to similar danger that it was scarcely worth consideration. So they tried out the rock-ribs north-east of the 'Mummery-Route', which lead straight up underneath the North Summit. Aufschnaiter and Harrer set up Camp 3, at about 17,200 feet, near the right bank of the lower Diama Glacier, above the Icefall and opposite the foot of the 'Middle Rib'. They managed to work their way up this to a height of about 19,350 feet in the face of pretty serious difficulties and under a continual bombardment of stones. In spite of this, Aufschnaiter considered it the only conceivable route on the whole Diamir side of the mountain. He is certain that Mummery's party never reached the Diama Cols, both about 20,350 feet, but perished in one of the innumerable avalanches which incessantly pour down from the countless hanging glaciers. Even the section between Camps 2 and 3, on the glacier, is severely menaced, as the expedition observed over and over again.

On 20th June they withdrew to the Base Camp, which for over a week almost assumed the aspect of a hospital. Lobenhoffer was in the worst state, with a high temperature, from which he only recovered very slowly. On 29th and 30th June, however, Aufschnaiter, Chicken and two porters ascended to Diamirai Peak (18,268 feet), by way of the well-known Saddle of the same name (17,995 feet)—the Peak, which

is a marvellous view-point, had already been climbed by Mummery and Collie on 11th August 1895.

At the beginning of July, the whole party marched down to Bunar, to set out on their second objective, a reconnaissance of Rakaposhi (25,550 feet) in the Karakorum. In May the political agent in Gilgit, Major Galbraith, between whom and the 1938 Expedition there had been cordial relations, had given Bauer a permit for this. Unfortunately Galbraith and his wife were drowned in the Hunza on 14th June, and his successor cancelled the permit. So there was no alternative but to turn back to the Diamir Valley and have another go at Nanga Parbat. The people of Chilas, long known for their rapacity, had meanwhile plundered the provision-dump and also the petrol store; conditions on the mountain, too, had deteriorated sadly, with much bare ice and increased peril from falling stones.

They spent from 16th to the 18th July in setting up Camps 1 to 3 anew. The four Sahibs were now entirely dependent on their own efforts, seeing that the Bhutia porters had refused to risk the obvious dangers. In this they were not so wrong, for the falling stones became such a menace that the rope consisting of Aufschnaiter and Chicken turned back, and only Harrer and Lobenhoffer pressed the attack home. The former compared the climb afterwards with the North Wall of the Eiger: the latter with the more difficult parts of the 'Sentinelle Rouge' route on the Brenva Face of Mont Blanc. After more than ten hours of hair-raising effort, they pitched a tent as Camp 4, at about 19,700 feet. The night, too, was thoroughly unpleasant, with stones whistling close by them. Next morning they climbed down and hurried out of range of the wall before the great avalanches started to roar down it.

At about 21,000 feet there is a characteristic ledge. The worst of the climb seems to be over by then and the way to the North Summit apparently clear. What about the ascent to it? Aufschnaiter expresses the view that it could be made safe even for laden porters, though he stresses the need for careful selection: but this does not sound very convincing. It seems clear that not only the technical difficulties but the actual dangers are too considerable.

On 23rd July Aufschnaiter and Chicken—after camping at about 19,350 feet—made the first ascent of the West Summit of the Ganalo Peak (about 21,000 feet but not marked on the Finsterwalder map) (Bib. 250). Except for a few treks, including one into the Rakhiot Nullah (Bib. 12a, pp. 187-9) this was virtually the end of the expedition.

After the outbreak of war its members were taken prisoner and interned in the Prisoner-of-War Camp at Ahmednagar,⁸ where Schmaderer and Paidar joined them later.

Eleven years were to pass before the next attempt on the mountain. Then, in October 1950, three Englishmen, J. W. Thornley, W. H. Crace and R. H. Marsh set out with the intention of making an extended visit to the Shimshal Ranges and the Northern Karakorum. A Pakistan permit was, however, not forthcoming and, rather than return home then and there, they decided on a winter reconnaissance of Nanga Parbat. They were in no way equipped for winter-climbing at high altitudes, a fact which Marsh excuses (Bib. 212) by saying they only intended to observe temperatures, snow-conditions and avalanche activities.

They established a Base Camp on 11th November at about 12,500 feet, probably in the Rakhiot Nullah, and a Camp 1 at 14,650 feet on the following day. Quite understandably, their four Sherpa porters were not keen to proceed beyond Base Camp, so the three Sahibs did all their own carrying. On the 18th, Marsh returned there himself, suffering from frostbite; but the other two men continued farther up the Glaciers. They were plainly visible until 1st December, carrying their heavy loads up to about 18,050 feet, finally pitching a tent at that elevation. The tent was still to be seen three days later, but its occupants were never seen again: after a heavy snow-storm the tent, too, had disappeared. Marsh tried to reach the place with Tensing and another Sherpa, but the attempt failed. Aircraft which made observation flights saw nothing to report.

So the total of victims claimed by Diamir, 'God of the Mountains', had now reached fourteen climbers and seventeen porters. . . .

A SECOND GLANCE BACKWARD?

[*ERWIN SCHNEIDER*] In 1895 Mummery believed he was on the brink of success and would reach the Summit on the very next day. We now know that, in spite of his superb skill and well-known speed, he had not the slightest chance of so doing.

In 1932 Merkl, working from the Rakhiot Nullah, discovered the long but definitely easiest route to the Summit. His attempt failed for a number of reasons. The first was that not a single member had any Himalayan experience. The second was continual porter-trouble. The local Hunza and Balti men are not the equals of Sherpas. The final and decisive factor was that the onslaught on the mountain started far too late, on 20th June. Experience shows that the Monsoon breaks in the Western Himalaya about the first week in July. In 1932 they were very lucky that it did not arrive till the 18th, and till then they

enjoyed exceptionally good weather conditions. All their long-drawn-out efforts from then till the end of August were simply a waste of time and energy.

In 1934 the preliminaries were unusually auspicious. The weather was very fair and Camp 4 was occupied as early as 7th June; but on the next day Drexel died in Camp 2 and this misfortune cost the expedition some seventeen days. The new Camp 4 could not be occupied before the 25th; but even then little attempt was made to hurry. It was not till 4th July that the real assault on the Summit began from Camp 5.

Far too many climbers attempted to reach the top at the same time, first seven, then six and, even after Camp 7, still five. This is far too great a drain on porters and equipment. It would have been much more sensible to proceed beyond Camp 6 in groups of two. If that had been done, whatever else might still have happened, the climbing of the first 'Eight Thousander' would have been accomplished. Even from Camp 6 things were taken far too leisurely. Until, on the day before the 'certain' triumph, the blizzard put an end to all Summit-dreams, the mountain was disastrously underrated.

It is not easy to find a satisfactory answer to the question why Merkl, Welzenbach and Wieland were unable to follow the 'pathfinders' on the way down from Camp 8, and collapsed after only two hours, before even reaching Camp 7. The most probable explanation is that man can only endure a short time above 24,600 feet, without breathing oxygen, before deterioration of his efficiency sets in. The provision of oxygen under compression introduces other well-known disadvantages.⁹ In bad weather the diminution of powers at great heights develops with alarming rapidity, so that the curve of efficiency takes a sudden plunge. It is then possible to feel fit and strong while at rest, but to notice at the slightest exertion that every movement has to be forced and every step becomes a battle.

In 1937 the climbers were on the job and up to Camp 4 in really good time. This time the fatal mistake was siting what should be the safest camp on Nanga Parbat in the wrong place. The exceptionally tragic feature is that at that point some square miles of level ground make it possible to select a completely safe site at will. Owing to the impossibility of finding a place entirely free from avalanche danger anywhere between Camps 1 and 4 they clearly fell into the error of underrating the capricious malice of the small, hardly noticeable Rakhiot Peak Icefall.

In 1938 Bauer had to concentrate, after the terrible casualties in 1934 and 1937, on a return without the loss of a single life; he could simply not afford, and clearly did not wish, to take any risks at all.

In addition, this expedition, more than any other, suffered from bad luck with the weather. Certainly its attack on the Summit was started far too late—at a time when the first onslaught of the Monsoon had passed across the mountain range. In view of the Monsoon its efforts, allowing for Bauer's safety technique, were without any hope of success and so achieved none.

The 1939 Expedition was frankly only a reconnaissance.

That of 1950, on the other hand, can only be rated as a singular aberration on the part of utterly 'clueless' amateurs. At best their courage is a thing to marvel at. [End of *ERWIN SCHNEIDER'S* contribution.]

THE 1953 EXPEDITION

The year 1953 proved to be the decisive year. The idea of a German-Austrian Nanga Parbat Expedition was in the air, but the man who after a great struggle finally brought it into being was not really a mountaineer but a medical man, Dr Karl M. Herrligkoffer, a step-brother of Willy Merkl's. He probably had not the slightest conception, at the outset, of the many and varied obstacles which were to beset him; this battle on the home-front is subject-matter for a whole book by itself. From the very start, in the Summer of 1952, there were letters and circulars, meetings and conferences, articles in the daily press and periodicals, broadcasts and even court proceedings, creating such a ballyhoo as has never before been known in a Himalayan Expedition and, it is devoutly to be hoped, never will be again. The least said of it, the better.

In the end, Herligkoffer succeeded in financing and mounting this considerable undertaking in the teeth of all opposition—a great feat of endurance which proved his exceptional toughness. But what he could *not* do was to undertake the leadership of the expedition himself, as Colonel Hunt was able to do so successfully on Everest in the same year. This had been clear from the beginning, and as a result the leadership was entrusted to Peter Aschenbrenner, a prominent climber and guide, experienced in the Himalaya and well-acquainted with Nanga Parbat from the 1932 and 1934 Expeditions. His occupation as custodian of the Stripsenjoch Hut made it difficult for him to get away and it must be admitted that he was not happy in his role as the leader of a climbing venture. Travelling out after the expedition, he joined it as late as possible and he had no desire to stay with it to the end.

The other members were Fritz Aumann of Munich, to supervise the main camp, Albert Bitterling of Berchtesgaden, Hermann Buhl

of Innsbruck, Hans Ertl of Munich, who came all the way from Bolivia expressly to make a colour-film of Nanga Parbat, Dr Walter Frauenberger, district judge of St Johann in Pongau, as acting organiser and leader of the climbing party, Otto Kempter and Hermann Köllensperger of the Munich Section of the German Alpine Club, and Kuno Rainer of Innsbruck—six Germans and four Austrians in all.

After a postponement of their sea-passage, they only arrived at Karachi on 4th April and Rawalpindi on 5th May, so that the expedition would have reached the mountain too late, had not the Pakistan Government most generously provided aircraft to Gilgit. From there, nearly 500 loads had to be forwarded by Talichi and the Rakhiot Bridge into the Rakhiot Nullah, which was only made possible by the considerable assistance proffered by the Authorities—jeeps, horse-and donkey-trains and 263 porters. Even so, it was 24th May before the whole train and its equipment was assembled in the Base Camp (12,130 feet) at the foot of the great Rakhiot moraine.

The difficulties of the undertaking were immensely increased by the fact that the invaluable Sherpas had not been given entry-permits; the headstrong Hunza men were a somewhat doubtful substitute. There were of course good men among them, who gradually acquired a certain amount of climbing experience, but the leaders of the expedition had not made sure of enough Hunzas in sufficient time, and the American K² Expedition (see page 91) had engaged the best of them. Owing to the acute lack of adequate high-camp porters, the establishment of Camps 1 (14,660 feet) and 2 (17,400 feet) was a long-drawn-out affair. They had to dispense with Camp 3 of the earlier expeditions and sited the new Camp 3 on the big glacier-terrace at about 20,200 feet—roughly at the same avalanche-clear spot where Camp 4 had stood in 1934 and 1938. Thus the old site 5 under the slope of the Rakhiot Peak became the new Camp 4 in 1953 (21,950 feet).

During these operations Kuno Rainer, always ready for more work, had almost worn himself out; in the end he had to go down to Base Camp with inflammation of the veins. To cap everything on 21st June the weather, which had mostly been fair, broke and the following days brought with them heavy snowfalls. An attempt to push forward on 28th June petered out at the end of the traverse of the Rakhiot Peak's western face. There was every indication of complete failure and Aschenbrenner, who wanted to get home, sent out from Base Camp, on 29th June, the signal for the retreat. Everyone was to come down, because the Monsoon had come and they were all in need of rest and recuperation at Base Camp.

At this precise moment the weather changed again. On 30th June

it cleared completely, and the four men who had stayed up in Camp 3—Ertl, Frauenberger, Buhl and Kempfer—refused to obey their leader's oft-repeated instructions over the wireless. Over this system a number of conversations took place—apparently unequivocal in form and content—and finally those in authority gave way. Those up on the mountain received full justification, in the shape of an unbroken period of glorious weather, lasting for the next thirteen days.

My old climbing companion Hans Ertl played a decisive part in the success that followed. It was he who pressed inflexibly forward with the task in hand; in spite of the woeful lack of porters he took a heavy full-size cine-camera up to great heights on the mountain and produced a masterly and invaluable colour film—an all the more astonishing performance, as he is now forty-five years old.

Dr Walter Frauenberger, tireless in his efforts, is only less worthy of special mention. By his patient and kindly methods he succeeded in getting four Hunzas up to above the Rakhiot slope; this alone made it possible to establish high-camp 5 (about 22,650 feet) on 2nd July, in the deepest notch behind the 'Negro's Head' and to equip it with all the essentials.

The actual conquest of the Summit, a solo performance on the part of Hermann Buhl, was absolutely unique, as every mountaineer in the world now knows (see Bib. 151).

Allowing for the loss of height in descending to the Bazhin Gap, the ascent from Camp 5 to the Summit involved almost 4,400 feet of climbing. Buhl set out at about 2.30 a.m. on 3rd July, followed more than half an hour later by Kempfer: he reached the 'Silbersattel' towards seven o'clock and began to cross the high snow-plateau. Kempfer, unable to catch up with his companion, gave up at that point, with the result that Buhl had practically no provisions. In spite of great glacier-lassitude he went on all the same, first to a depression between the Diamir Gap (25,300 feet) and the subsidiary Summit (25,953 feet), then down on the western side to the Bazhin Gap (25,630 feet) which he did not reach till about 2 p.m. Buhl rated the rocky gendarmed ridge to the Shoulder (26,478 feet) in the fourth and fifth grades of the six severity classifications: here he took two tablets of Pervitin. The final slope to the Summit also extended him to the full: 'Coca-Tee' was taken here. He reached the Summit (26,658 feet) just before 7 p.m., dug his ice-axe into the snow and took some pictures of his Tirolese pennants and the Pakistan flag. He left the ice-axe with the flag of the host-country up there: and the photograph on p. 79 of Bib. 157 proves beyond any doubt that he actually reached the Summit.

The descent to the Shoulder was quickly accomplished. There Buhl

would have found a good place for a bivouac, but he wanted to use the remaining daylight and therefore continued down along the left-hand (Diamir) side of the ridge. On a steep snow-slope his right crampon came off; he managed to save it, but lost the binding-strap in the process. With only one firm crampon and no ice-axe, but only ski-sticks, he had great difficulty in getting back on to rock again, and night had now fallen. At a height of about 26,250 feet, he had to bivouac, standing on a small, wobbly block of stone, his right-hand on the rock, his left holding the ski-sticks, 'without any equipment for a bivouac, no sleeping-bag, no tent-pack, not even a ruck-sack'. He had left his thick pullover and his spare clothes down on the plateau below. He took some Padutin tablets to stimulate his circulation, and an extraordinary stroke of luck, in the shape of a most unusually warm and wind-free night came to the rescue.

At first light, about 4 a.m., he moved on. There was no sensation in his feet, his boots were frozen stiff and his rubber soles caked with ice. On the rocks offering small holds he had to take his gloves off, and lost one pair in doing so. Hallucinations beset him, especially the type described by Smythe on Everest, convincing him that he had a companion with whom he carried on conversations. Every step demanded extreme care. He descended a groove, traversing steep snow slopes and slabs, then down another, ending in a thirty foot overhang, which called for a difficult climbing-effort. At last he stood on the snow field below the Bazhin Gap and, in order to reduce the steepness of the ascent to it as much as possible, embarked on a long traverse to the Diamir Gap.

During it, his exertions were greatly increased by his right crampon, fastened only with string, which kept coming off. Towards noon he at last reached the rocks of the Diamir Gap. He was tortured by scorching heat, hunger and above all thirst, and his hallucinations, visual and aural, became much worse. The gusts of wind on the high snow-fields almost drove him to desperation, and the short ascent to the 'Silbersattel' seemed endless (even with three more Pervitin tablets as a stimulus).

At last at about 5.30 p.m. he reached the Saddle. There, below in Camp 5, he saw two figures—Ertl and Frauenberger. . . .

'With feeble steps I went down the ridge in my old tracks,' he writes. 'Our meeting cannot be described.' Later, Ertl told me: 'When I saw him coming, I hid my emotion behind my responsibilities as a cine-cameraman and managed to "shoot" his last few paces towards us.' Walter Frauenberg wrote these words: 'Our young friend's reappearance moved me almost as much as if it were the return of a prodigal to his parents' arms.'

This forty hours' solo effort on the part of the Tirolese 'Wonder-Climber' was an incredibly heroic performance: but let it be said at once that it is definitely not to be recommended as a method to be imitated in the attack on future 'Eight Thousanders'. It would almost invariably lead to disaster.

I do not propose to go into the serious dissensions between the members of the expedition. Infinitely more important than any internal feuds is the fact that Nanga Parbat, whose malevolent shadow has lain across the path of Himalayan climbing for more than half a century, has at last been climbed.

(c) NOTES ON THE GEOLOGY

The geology of the Nanga Parbat massif is comparatively well known as a result of the work of D. N. Wadia (Bib. 226, 227) and Peter Misch (Bib. 67). 'The Nanga Parbat massif itself is composed of an isolated massif of gneiss. Metamorphosed sediments as well as orthogneissic material (i.e. material of magmatic origin) have a share in its composition. The orthogneissic portion is slight in the marginal area but increases rapidly towards the centre of the massif.' The difference in height between the valley of the Indus (Rakhiot bridge, 3,868 feet) and the Summit (26,658 feet) is about 22,800 feet, and on the south side an uninterrupted fall of about 14,750 feet can be seen. 'Astonishingly, the same structure is shown throughout this immense difference in height; we have before us the same series of gneisses, steeply dipping for the most part, from top to bottom. Tectonic complications are completely absent, so that there is no evidence whatever for the existence of nappe structures in the Nanga massif' (Misch).

The northerly strike contrasts strongly with the usual Himalayan strike, for here at its north-western end the Himalayan arc is deflected far to the north by a spur of the Indian foreland.

Around the border of the Nanga Parbat massif there is clear evidence of much younger orogenic movements.

NOTES TO CHAPTER EIGHT

¹ In Dr Ralph Bircher's well known book, *Hunza, the tribe that knows no sickness* (Bern, Hans Huber) the men of Hunza are very much idealised. In 1932 they again proved themselves very insubordinate . . . and stole like magpies. G.D.

² Lewa was my orderly in 1930 and climbed Jonsong Peak (24,509½ feet) with me. In 1931 he was with the late F. S. Smythe in his successful climb of Kamet (25,443 feet), the highest mountain climbed till then. G.D.

³ What an irretrievable loss of seventeen days! G.D.

⁴ They could easily have 'collected' one or two of the smaller named elevations, particularly the Subsidiary Summit (25,953 feet) or the North Peak (25,642 feet) and Peter Aschenbrenner was quite keen to add these to his 'Bag' of Summits. But Erwin Schneider only laughed, because the Summit itself was there, ripe for the picking next day. G.D.

⁵ In Bib. 49 I wrote this about it . . . 'Unparalleled not because of the number of victims—there have been Alpine disasters costing more lives; I need only recall the thousands of avalanche victims on the Tirolese front in the first war. But this horror on Nanga Parbat lasted nine whole days; days of long, slow, torturing death from cold and starvation. . . . In its day this tragedy has been gone over in detail by every Alpine writer . . . only one comment need be made now. It is almost unbelievable that three such experienced mountaineers as Welzenbach, Merkl and Wieland should have been unable to follow the small "Pathfinder" party down on 8th July. In the whole of a long day, during which Aschenbrenner and Schneider were able to break a trail from Camp 8 down to Camp 4, they were not able even to reach Camp 7, but had to halt half way and undergo their terrible ordeal by bivouac. Their snail's-pace progress can only indicate that they were in very poor condition. It would clearly have been more prudent if they had not forced a painful way up to Camp 8, exhausting their last reserves in the process, but had left the way to success open to their Austrian team-mates, who were at the top of their form.' G.D.

⁶ In Bib. 50 I wrote . . . 'Much has been written about this second catastrophe. It is a matter of world opinion whether this was an extraordinary coincidence, the evil Spirit of the Himalaya, or the hand of God. There is only one fact which needs underlining: a few minutes farther up, on the broad glacier-plateau west of Saddle 6283 (20,614 feet) Camp 4 would have been as safe from avalanches as is the *Paradeplatz* in Zürich. Why did the advanced Base Camp, on this occasion, have to be sited in the hollow under the ice-fall of the Rakhiot Peak, and that by a leader rich in Himalayan experience? In spite of various explanations and excuses, I have always found it beyond comprehension.' G.D.

⁷ See footnote Chapter Seven, page 158.

H.M.

⁸ It was from this camp that Harrer and Aufschnaiter escaped and made their way to Lhasa, the journey taking them nearly two years. See footnote Chapter Seven, p. 158. H.M.

⁹ Yet the presence of one or two oxygen apparatus would probably have saved lives on this occasion.

G.D.

CHAPTER NINE

HIDDEN PEAK

(a) NOMENCLATURE

THIS mountain's Indian Survey symbol is K⁵ and its official name Gasherbrum I. This word is of Balti origin—Balti is a Tibetan dialect language—and I have been frequently assured in the Baltoro Region that its rough significance is 'Shining Wall'; but the etymology does not seem absolutely clear to Tibetan linguists and it is indeed difficult to account for the almost complete coincidence of the two names Gasherbrum and Masherbrum, which both appear in the region but differ only in the initial consonant. Another source of doubt is that there are no less than four peaks officially, and two more unofficially, called by this name: so that we have Gasherbrum I-VI.

As to 'Hidden Peak', the name originates with W. M. Conway, who mistakenly believed that this beautiful mountain could not be seen till the upper end of the Upper Baltoro Glacier is reached; but since it does in fact lie far back and is considerably masked by neighbouring peaks, the name is a well chosen one and has won international acceptance.

(b) ALTITUDE

Hidden Peak has been measured from four stations without any great differential. The mean height arrived at is 26,470 feet (8068 metres) and has remained undisputed for many years. This, the second highest peak in the whole Karakorum Range, is an important trigonometrical point, from which many of the other measurements in the whole district derive.

(c) HISTORICAL SURVEY

This is no place for a repetition of the story of how the whole Baltoro Region was opened up (cf. Bib. 45), so it is proposed to confine our

survey to the few expeditions which have actually concentrated on the Peak itself.

THE 1892 EXPEDITION

The European members of the 1892 Expedition were William Martin Conway (later Lord Conway), the organiser and leader; Lieutenant C. G. Bruce (later General Bruce); the artist McCormack; and the Swiss guide Mathias Zurbriggen of Saas. Conway was always a far-sighted, energetic and thorough traveller-explorer and mountaineer, and even today his 1892 Karakorum Expedition is regarded as a marvellous achievement. Bruce brought along four Ghurkas from his unit, who contributed greatly to the success of the expedition and may be regarded as the fore-runners of today's Everest 'Tigers' (Bib. 31). The successful ascent of Pioneer Peak (22,606 feet), a subsidiary of the 23,983 foot Baltoro Kangri (then known as the 'Golden Throne') created a great sensation at that time; but the topographical survey of the Upper Baltoro Glacier, during which Hidden Peak was observed, photographed and measured for the first time, was probably of far greater importance.

THE 1909 EXPEDITION

The great Expedition led by the Duke of the Abruzzi, to which a tribute has already been paid in the chapter on K², did not actually concern itself with a close approach to Hidden Peak, but brought back Vittorio Sella's magnificent pictures of the mountain (Bib. 63).

THE 1929 EXPEDITION

As already mentioned (page 75) in this year another strong Italian Expedition was at work in the Baltoro Region, led this time by Aimone di Savoia Aosta, Duke of Spoleto, a nephew of Abruzzi's. We have to thank Professor Ardito Desio¹ for the highly valuable geographic and geological results of this scientifically outstanding expedition. He explored the upper Baltoro, the so-called Abruzzi-Glacier, right up to the Conway Saddle, the maps produced and the photographic material collected, not only of the whole range, but of Hidden Peak itself and its neighbours, being of great value (Bib. 171).

THE 1934 EXPEDITION

G. O. Dyrenfurth's International Himalaya Expedition ('I.H.E. 1934') confined its main activities to the upper Baltoro (Abruzzi)

Glacier and the neighbourhood of the Conway Saddle. At the same time Hidden Peak was reconnoitred from north-west, through west and south-west to south-east and the basin of the South Gasherbrum Glacier, which forms the inner side of the whole Gasherbrum Group, visited and explored for the first time (Bib. 45, pp. 144-7). Members of the expedition reached a height of 20,350 feet on the 'I.H.E. Spur', which leads up from the Abruzzi Glacier through the ring of precipices and over Pt. 21,993 (6703 metres) to the Urdok-Comb, establishing at the same time that this route to Hidden Peak has definite possibilities (Bib. 45, pp. 142-3). They had to content themselves with a mere reconnaissance nor was there any opportunity of making an attempt on the Peak, because in 1934 there were unfortunately no high-carrying Sherpas available and the local Balti porters went on strike.

Instead, the following neighbours of Hidden Peak were climbed:

- (a) All four Summits of Sia Kangri or Queen Mary Peak (between 24,350 and 25,000 feet).
- (b) The South-East Summit of Baltoro Kangri or the Golden Throne (about 23,800 feet).

These were the first great mountains of over 23,000 feet, not only in the Baltoro basin, but anywhere in the whole Karakorum Range of the Himalaya, to be climbed; they still remain the only ones whose Summits have been reached.

The scientific and photographic results, with both still- and motion-cameras, were highly satisfactory; particularly fine and interesting photographs of Hidden Peak itself being secured.

THE 1936 EXPEDITION

This was the year of the first important French Himalaya Expedition, which went out with the avowed intention of climbing Hidden Peak. Henri de Ségogne was its leader; J. Arlaud, the doctor; Marcel Ichac, the photographer; P. Allain, J. Carle, J. Charignon, J. Deudon and J. Leininger, the climbing-party; L. Neltner, the geologist and cartographer; J. Azémar was in charge of the Base Camp; and Captain Streatfield acted as British Liaison Officer.

In relation to its numbers it was a strong and very capable team which, thanks to a fairly broad financial backing, was in the happy position of having obtained the services of thirty-five Darjeeling Sherpas, thus ensuring an ample supply of porters for the high carries over difficult ground. It was also a splendidly prepared and well-equipped expedition, and the outlook was extremely promising. Yet the Frenchmen were entirely lacking in Himalayan experience: worse

still, the undertaking suffered from serious over-elaboration. Its fourteen tons of baggage, requiring eight hundred porters to carry it, made the whole venture top-heavy (Bib. 61, 194).

Forty days between 17th April and 26th May were sufficient for the approach, by the normal route from Srinagar over the Zoji La by Dras, Skardu and Shigar to Askole. Base Camp was pitched on the spot chosen by the 'I.H.E. 1934', just where the Abruzzi Glacier actually becomes the Baltoro, on the central moraine, at 16,250 feet. The attack was to be made over the South Spur and Pt. 23,196, Hidden Peak's shoulder.

On 29th May Camp 1 was in being at the foot of the Spur, which is for the most part rocky; then began the laborious business of pushing the high camps forward. The ground proved to be fairly difficult, at times even severe, so that many pitons and fixed ropes were required to make the rock safe for the Sherpas, who were more accustomed to ice. Progress, limited later by patches of bad weather, was fairly slow and it was 19th June before Camp 5 could be established at 22,300 feet. This completed the breach in the lower ring of precipices, and Camp 6 was next to have been placed in a sheltering ice-crevasse near Pt. 23,196 ('Hidden Sud'); the worst difficulties had apparently been overcome and the way to the Summit Pyramid lay clear (Plate 38).

At that critical moment they were baulked by what has so often happened in the struggle for an 'Eight Thousander': a particularly early Monsoon set in, about three weeks too early. On 22nd June snow began to fall heavily all over the Baltoro Region: by the end of June there was nothing left but to beat a reluctant retreat. On 1st July two of the Sherpas made an unintentional descent of more than 2,000 feet in a new-snow avalanche, but by some miracle escaped with their lives. On 2nd July the evacuation of the four camps on the Spur was completed under the most difficult conditions and everything was safely back in Camp 1; on the 5th they successfully descended from Base Camp, carrying the two injured Sherpas.

The plucky efforts of this French Baltoro Expedition of 1936 won a noteworthy success, but not a complete triumph. Their enterprise remains the only serious attempt on Hidden Peak, but it had to be abandoned without ever reaching the stage of a decisive attack on the Summit.

(d) FUTURE POSSIBILITIES

Hidden Peak is a glorious mountain, but it has one vulnerable side; for it has a gentle South-East Ridge, adjoined by a broad snow-covered Comb, at times almost like a plateau, at an average height of about

23,000 feet. These upper snowfields are surmounted by a number of small plateau-peaks which will remind any geographer forcibly of the morphology of the kind of limestone plateau frequently found in the Eastern Alps, as for instance around Salzburg. This 'Urdok Comb', as I have called it, breaks off on the north-east into enormous walls over 8,000 feet in height, falling sheer to the Urdok Glacier: there can hardly be any question of a practicable approach from this, the Shaksgam side. On the south-western side, the Urdok Comb is supported by precipices about 5,000 feet high, rising from the Abruzzi Glacier. Two huge ribs offer a way up through this belt, giving routes free from any danger of avalanches. One is the South Spur, rocky for most of its length, which rises to Pt. 23,196 (7069 metres), to which the French gave the name of 'Hidden Sud'; the other, farther eastwards, is the 'I.H.E. Spur', the lower part of which is rock, but soon gives way to snow, eventually reaching the plateau by traversing Pts. 21,491 (6550 metres) and 21,993 (6703 metres) (Plate 36).

By reaching a point below Pt. 23,196 (7069 metres), where the greatest technical difficulties had been left behind, the French Expedition has proved that the South Spur can be climbed. All the same, this route seems doubtful to me for one main reason: the standard of rock-climbing is at places so severe that too much time is lost in preparing a 'high-road' for the Sherpa carriers. There is therefore a great risk that, during these long weeks of hard work, the supply-line may become involved and all the painful labour set at naught by bad weather and fresh snow.

That is why I myself continue to think that the Rib farther to the east, which the 'I.H.E. 1934' reconnoitred, is well worth notice. True, this Spur is also not exactly easy, but consisting as it does mostly of hard snow, it can be made suitable for Sherpas in a comparatively short time; nor does the somewhat longer distance which has to be covered up above, on the Urdok Comb, to any great extent offset this valuable saving of time. The projected route leads up over the gentle slopes of the upper snow-plateau to the rocky shoulder Pt. 25,539 (7784 metres) and then along the East-South-East Ridge to the Summit of Hidden Peak. So far as can be judged, all the technical difficulties worthy of notice are confined to the lower sector of the Spur itself, to a height of about 22,000 feet. The whole middle part along the Urdok-Comb is certainly an easy 'nursery slope', and the final ridge looks quite harmless (Plate 39).

Are there any other possibilities? The whole of the North-East Face of the Hidden Peak chain, above the Urdok Glacier, is out of the question. The lower part of the North or North-North-West Ridge, up from the Gasherbrum La, does not look too bad; but on my

reconnaissance of the South Gasherbrum Glacier, I was much too close to the mountain to form a reliable judgment. This side of Hidden Peak is certainly far steeper than the south-east side and is probably to be dismissed as equally impossible. The same goes for the West and South-West Faces, which are such a marvellous sight from the uppermost reaches of the Baltoro (Plate 38).

A further suggestion might be an attempt to reach the top of the Urdok Comb from the Abruzzi Glacier at the Abruzzi Saddle between the Sia Kangri group and Urdok Peak II (23,236 feet). To get there it would be necessary to climb a hanging-glacier, with savage icefalls in it; and at close range this looks so wicked that I myself would steer clear of leading the supply-line of a whole expedition for some weeks through such a witches' cauldron. Besides, on reaching the Saddle, there would be the whole length of the Urdok Comb ahead of one, and this would mean far too many high camps.

These misgivings about the excessive length of the supply-line would be considerably increased if one tried to start from the familiar Conway Saddle and traverse the Sia Kangri Massif on the way. This whole long route is ruled out by the great length of the climb, with a descent of nearly 2,000 feet to the Abruzzi Saddle in the middle of it.

So the only two practicable routes left are the two first mentioned—the South Spur, attempted by the French, and the 'I.H.E.' Spur: the two routes of course merge in the upper sector of the peak.

There is not, and there can hardly be, such a thing as an 'Eight Thousander' which is an easy proposition from start to finish; but of all the peaks over 26,000 feet that have been studied from fairly close range, Hidden Peak would appear to be one of the least formidable.

(e) NOTES ON THE GEOLOGY

Hidden Peak, like most of the Gasherbrum group, is composed of a thick limestone series which belongs essentially to the Permo-Carboniferous, though perhaps it includes part of the Trias too. This series rests on a basement of black phyllites (and chlorite schists and dark calc-schists) which are probably of Lower Palaeozoic age (Silurian?). At the corner where the glacier basins join—by the base camp of the I.H.E. of 1934 and the French Expedition of 1936—an East-West fault is seen clearly: it seems to form a tectonic boundary between the Gasherbrum group and the Baltoro Kangri (Bib. 50).

In the Summit pyramid of Hidden Peak the folds in the steeply dipping limestone are seen splendidly; beyond, towards the Urdok Comb, the strata are flat-lying. On the climb over the South Spur Neltner discovered an almost black igneous rock occurring as veins

in the grey limestone; later under the microscope it proved to be a limburgite (Plate 37 and Bib. 61).

As mentioned previously under K² (p. 93), large-scale nappe structures have not been established in the Baltoro region; the folding is generally intense. It is a striking fact that Hidden Peak (26,470 feet), though composed of easily-weathered limestone, is higher than the nearby peaks of crystalline rocks—Chogolisa (26,021 feet) and Masherbrum (25,660 feet). The ominous girdle of precipices which defends so many 'Eight Thousanders', and which is of equal interest to scientists and mountaineers, is thus not lacking on Hidden Peak.

NOTE TO CHAPTER NINE

¹ Note.—See footnote Chapter Five, p. 94

H.M.

BROAD PEAK

CONWAY introduced this name in 1892 and it has since been accepted not only by the Survey of India but generally throughout the world; with good reason, for Broad Peak is in fact the enormous triple-headed 'Breithorn' of the Baltoro. Nor is there a local name for this mighty mountain.

There has been much controversy about its height, and the question has never been entirely settled. The height of 27,132 feet (8270 metres) given to the South or Main Summit on the photogrammetrically-based Negrotto map (Bib. 240) led to its being erroneously accorded sixth place among the world's 'Eight Thousanders'. In 1926, however, Kenneth Mason measured it from the Shaksgam area (Bib. 136) and as a result it has been downgraded; while the Spoleto Expedition in 1929 established that the real height is only 26,402 feet and the mountain accordingly only ranks as the twelfth highest. This fact deserves special notice, because the false estimate of 1909 still crops up from time to time in Himalayan literature. The estimate of 26,402 feet for the Main Summit is probably correct within a few feet.

On the other hand the figures for the Central and North Summits still remain unsatisfactory, even on the Desio map (Bib. 241). It is an obvious mistake to leave unchanged Negrotto's old figure of 26,018 feet for the North Summit, since this makes it 1,114 feet lower than the Main Summit. So if that peak is brought down from 27,132 to 26,402 feet, the adjoining summits must come down with it. A much worse mistake is to give 25,795 feet as the height of the Central Summit. The evidence of one's eyes alone, numerous photographs and panoramas taken by Sella and particularly the one adjoining page 152 in Bib. 32 show beyond the slightest doubt that the trapeze-shaped Central Peak can safely be assessed as only very little lower than the Main Summit—probably a few bare feet below 26,250. The conical North Summit on the contrary is obviously much lower and can hardly be more than 25,250 feet high. A re-measurement would be of the greatest value. With due regard to Chaps. 3 (K²) and 9 (Hidden Peak) there is no need for a long historic survey: it is sufficient here to

enumerate the Expeditions which have materially contributed to the exploration of Broad Peak.

1892 This was the year of Conway's Expedition which gave the peak its name (Bib. 31, 32).

1902 In this year the Eckenstein Expedition reconnoitred the upper Godwin Austen Glacier and brought back photographs of the peak from the North (Bib. 157).

1909 The Duke of the Abruzzi's Expedition provided a measurement of Broad Peak, which subsequently proved to be somewhat incorrect, and Vittorio Sella's pictures, which have not been improved on to this day (Bib. 63).

In 1926 Major Kenneth Mason, three fellow officers and the topographer Khan Sahib Afraz Gul Khan, in the performance of their Indian Survey duties, carried out an exploratory journey into the Shaksgam area and the Aghil Ranges. A stereographic plot of Broad Peak and the Gasherbrum Group was thus obtained from 'outside', that is from the east and north-east. This led to the correction already mentioned in the height of Broad Peak's Main Summit (Bib. 136).

1929 Three years later, the Duke of Spoleto's Expedition, thanks to Professor Ardito Desio's tireless efforts, greatly enriched our knowledge of Broad Peak (Bib. 171).

1934 The 'International Himalayan Expedition' brought back new photographic material (Bib. 45).

1939 In this year Fr. Wiessner photographed Broad Peak from high up on the Abruzzi Rib of K^s (Bib. 230).

No actual climbing reconnaissance has so far been made on the mountain itself, but I have often thought of attempting Broad Peak and have therefore gone very carefully into the possibilities of the climb.

I think we can say that the long and very difficult South-East Ridge of the Main Summit from the Col ('Broad Saddle') 21,622 feet over Pts. 23,171 and 25,332 is pretty unpromising, besides being difficult to approach. The North-East Face of the Central Peak is perhaps not utterly impossible, but is terribly menaced by ice-avalanches. The recommended route to the Main Summit is the Western Spur, which rises from the Godwin Austen Glacier and leads to the hanging glacier directly under the Col between the Main and Central Summits (Plate 40). This ridge is certainly climbable and offers a direct route, free from avalanche perils, through the lower belt of precipices to the great snow-terrace of the Western Face. Though this spur is too difficult a proposition for Balti porters, it is certainly within the capabilities of

Sherpas up to about 25,000 feet, probably without any tiresome 'route-engineering'.

The only problematic sector of this whole route would seem to be the last 700 feet to the Col between the two Summits. It is very steep, somewhat in danger of falls of ice and—as I was able to see very clearly with a telescope—mostly plastered with unstable snow-slabs. Only in exceptional conditions would it be possible to make a straight-forward ascent to the Col, which lies at about 25,600 to 26,000 feet. It might, however, be possible to clear the route by bringing down the avalanches first with a light mortar.

If the Col can be attained without undue risk, a moderate rock-ridge certainly gives access to the Main Summit. It remains a matter of doubt whether the almost vertical rock-step of the Central Summit on the other side of the Col can be overcome. The actual climbing here would be short but probably of a very severe character (Plate 41).

(a) GEOLOGICAL NOTE

The geological structure of Broad Peak seems to be rather complicated, though that is hardly surprising since it has not been possible for explorers or geologists to study the whole massif at all closely. On the west side the basement is composed of the black phyllites (Silurian?). Above these is the 'Marble Series' of crystalline limestones and calc-schists (Devonian?), which according to Desio include white crystalline gypsum and a grey-green igneous rock. The upper parts, and in particular the two northern peaks, seem to be composed of the K² gneiss, a plagioclase-quartz-hornblende rock; but the South-East Ridge of the main peak belongs to the younger limestone, probably Permo-Carboniferous, which forms most of the Gasherbrum group.

Broad Peak also has the girdle of precipices, of relatively recent origin, which is so characteristic a feature of the 'Eight Thousanders'.

NOTE TO CHAPTER TEN

¹ In 1954 Dr Karl Herligkoffer made the first serious attempt on Broad Peak. Details are given in the Author's additional Note in the Supplement at pages 218-219. H.M.

CHAPTER ELEVEN

THE GASHERBRUM GROUP PROPER

THE origin of the name Gasherbrum has already been discussed (page 187). There can be no doubt that the 'shining wall' refers to Gasherbrum IV (26,180 feet) whose gigantic trapeze-shaped summit with its pale limestone walls shines down far and wide over the whole Baltoro Glacier, so that the name is at once recognisable as singularly appropriate.

The actual Gasherbrum Group joins the Massif of Broad Peak at the Broad Saddle (21,622 feet) and that of Hidden Peak at the Gasherbrum La (21,326 feet). Its chief summits are:

- 1 Gasherbrum IV, which has given its name to the entire group. The former estimate was 26,002 feet: we propose to adopt the height of 26,180 feet (7980 metres) resulting from Mason's photogrammetric measurement from the Shaksgam side (Bib. 136).
- 2 Gasherbrum III, a savage rock-peak, given as 26,090 feet (7952 metres). These two summits thus belong to the small category of peaks between 26,000 feet and 8000 metres.
- 3 Gasherbrum II, a sharp-edged pyramid, forming an important point in the trigonometrical survey. Its height is established without any doubt as 26,360 feet (8035 metres), giving it thirteenth place among the known 'Eight Thousanders' (Plates 39, 45 and 47).

From here onwards the ridge continues across a broad rocky crest either 25,500 or 25,000 feet high, which does not merit classification as a separate summit, to the deep cleft of the Gasherbrum Saddle (about 21,326 feet: estimated height only) north of Hidden Peak.

On its other side Gasherbrum IV pushes out its West Ridge, which divides into a branch falling away towards Concordia and one to Broad Saddle. Its South Ridge rises from Col 22,140, which is only accessible from the Southern, but not the Western, Gasherbrum Glacier and therefore yields no practicable line of approach (Plate 46).

South of this Col there are two more fine peaks with every claim not

merely to be labelled crests in Gasherbrum IV's South Ridge. So I have suggested Gasherbrum V and VI (24,020 and 23,590 feet) as names for them (Bib. 45). None of the heights of the summits mentioned above can, however, be taken as finally established.

Here, too, the historical review can be kept within very short limits, since no actual attempt has yet been made to climb any of these peaks. There have, however, been the following reconnaissances:

In 1909 the Duke of the Abruzzi's Expedition (Bib. 63).

In 1926 Kenneth Mason's Shaksgam Survey (Bib. 36).

The 1927 Spoleto-Desio Expedition (Bib. 71).

THE 1934 EXPEDITION

In this year two members of the 'I.H.E.' (Bib. 43, 45), G. O. Dyhrenfurth and A. Roch, accompanied by a Balti porter, pushed forward energetically from the Abruzzi Glacier into the upper basin of the South Gasherbrum Glacier, to a height of 20,500 feet. They were able to explore and photograph the whole 'Inner' side of the Gasherbrum Group, and devoted special attention to the possibilities of climbing the Group's 'Eight Thousander', Gasherbrum II.

This 'four-sided pyramid' is seated on an extensive, high snowfield. It is possible to reach this plateau-like terrace. True, the approach over the unusually riven tongue of the South Gasherbrum Glacier is not exactly comfortable, but can be accomplished in a single day from the lateral moraine of the Abruzzi Glacier to the upper basin of hard snow. Moreover, there is a splendid camping place, on earthy limestone-rubble, in a sheltered hollow, half way along the left bank of the South Gasherbrum Glacier, that is on the Hidden Peak side.

Two ribs cut through the belt of precipices above the uncrevassed upper basin of the glacier to the great snow terrace on Gasherbrum II. One is the continuation of the Summit pyramid's south-western, the other flattens out near the foot of its eastern edge. If you choose the former more westerly rib, it will be necessary to complete the climb over the south-west edge of the Summit, which is certainly steeper than foreshortening allows it to look. I myself would recommend the spur to the east, which is mostly of rock and quite safe from avalanches. I think it is a very promising route; moderate in difficulty, direct, free from external dangers and preferable for good Sherpas without lengthy 'road-making' delays. The decision whether to traverse left and make for the South-West Arête or to climb straight on up the short, steep Eastern Arête need not be taken till the broad glacier terrace is reached (Plate 47).

Gasherbrum II (26,360 feet) is not easy, but relatively free from danger, and can probably be climbed. If I had had good high-carrying porters on the 'I.H.E.' in 1934, I would have made a determined attempt on it. I suggest the camps could be spaced out on the following lines: Base Camp at about 17,400 feet on the South Gasherbrum Glacier's big moraine (the 'I.H.E.'s' Camp 5a in 1934); Camp 1 in the limestone debris hollow near the glacier's east bank; Camp 2 in the upper basin at the foot of the South Spur; Camp 3 on the shoulder about half way up the Spur; Camp 4 where the big terrace begins; Camp 5 at the foot of the actual Summit Pyramid. Alas, it can no longer fall to me to put this itinerary to the test, but I certainly wish whoever inherits it the very best of luck!

I am sure the subsidiary Summit Pt. 25,500, the broad rocky crest previously mentioned, can easily be reached from the upper terrace. A traverse westwards, equally free from serious difficulties, might bring one down to the Col between Gasherbrum II and III (25,250 feet) and—possibly—from it to the top of Gasherbrum III (26,090 feet). The height to be gained cannot be much more than 800 feet and the rock, though steep, appears to have a favourable tilt. Of the Group's main Summits this somewhat sombre lump of rock is the least inviting objective, for it stands on the same plinth as the slightly higher Gasherbrum II, and is therefore not an entirely separate mountain. But, for this very reason, it could probably be combined with an attempt on Gasherbrum II, though, of course, not on the same day. It would be necessary to make a diversion from Camp 4 and establish a high Camp 5a in the saddle between the two Summits.

Gasherbrum IV (26,180 feet) perhaps sets the most difficult problem of all. This masterpiece of a mountain, visible from a great distance, must have attracted many a questing look. I have looked carefully at this superb peak from every possible angle; but I must admit that I know no really recommendable route. The Baltoro Face (Plate 42) can be ruled out before we start. The South-West Wall, fearfully sheer and over 8,000 feet high, with its pillar-like supporting buttresses, is repellent to a degree because of the vertical lift of the massive limestone bands. On the south-east side the mountain is at least, relatively speaking, lower. There is a matter of about 4,000 feet from the Col at 22,140 feet; it might perhaps be possible to climb the lower half of this. But the upper half of the South Ridge, which can also be seen very well from Concordia, and particularly the last thousand to fourteen-hundred feet, looks terribly hostile (Plate 46). All the same, it may be the best of the possibilities. It might be worth considering whether access can be gained to the Col between Gasherbrum III and IV by an exceedingly steep and repulsive icefall. If that could be done there

would 'only' be the three or four thousand feet of the East Ridge to climb, for one would be at its foot: but it is fearsomely steep and, again owing to its precipitous stratification—for it is the actual reverse of the Baltoro Face—very difficult to climb.

So it seems to me that Gasherbrum IV is one of the Karakorum Peaks whose Summit is unlikely to be disturbed for a very long time to come.

(a) GEOLOGICAL NOTE

The Gasherbrum group itself, like Hidden Peak (page 192), is composed of a thick limestone series. These limestones contain the remains of molluscs and corals, which cannot be identified with any certainty; they also contain occasionally, and never abundantly, the fusulinid *Neoschwagerina craticulifera*, a foraminifer about as large as a grain of wheat. This is a fossil characteristic of the marine Permian.

The moraines of the Baltoro and 'Abruzzi' glaciers are composed of rocks from the Gasherbrum group and furnished us with a rich collection of samples: grey limestones, calc-schists, black limestones, reddish and greenish marbles, quartz-bearing limestones and quartzites, pieces of diorite and serpentine, mylonite (a breccia formed along a thrust plane), large quantities of grey limestone breccia (a primary breccia), lesser amounts of red limestone breccia, yellow sandy limestones, red sandy and shaly limestones and so on. It is indeed sad for the geologist to be unable to arrange—even tentatively—this brightly coloured series of such diverse lithology in a stratigraphical succession, in order of age. Since we know most of the rocks only as derived samples in the moraines we can only guess, with greater or less error, where the various rocks originally came from. No reliable tectonic interpretation is possible without a well-established stratigraphical succession, and therefore our knowledge of the structure of the Gasherbrum group is sadly meagre.

The mighty South-West Face of Gasherbrum IV (26,180 feet) shows a very striking vertical contact, stretching right down the middle of the face, between the dark limestones of the West-North-West Ridge and the light-coloured limestones of the peak itself: it would appear to be a faulted contact. On the south-west side of Gasherbrum VI (23,590 feet) the thick Carbo-Permo-Triassic system rests on a basement of the well-known black phyllites (Silurian?) which dip northwards, under the limestones.

The dreaded girdle of precipices occurs around the Gasherbrum group too as an unmistakable sign of recent uplift.

TABLE OF THE 'SEVEN THOUSANDERS'

TABLE OF THE 'SEVEN THOUSANDERS'
SUCCESSFULLY CLIMBED

No.	Name	Height	Geographical (to nearest second)		Situation
			Lat. (N)	Long. (E)	
1	Nanda Devi (Main Summit)	25,645 ft. (7816 m.)	30° 22' 32"	79° 58' 22"	Garwhal Himalaya
2	Kamet	25,443 ft. (7755 m.)	30° 55' 13"	79° 35' 37"	Garwhal Himalaya
	Summit of Kangchenjunga's East Spur	25,263 ft. (7700 m.)	27° 42' 57"	88° 09' 53"	Sikkim Himalaya
3	Tirich Mir	25,263 ft. (7700 m.)	36° 15' 21"	71° 50' 32"	Hindu Kush
4	Minya Konka	24,891 ft. (7587 m.)	29° 36' 32"	101° 52' 12"	China (Hsikang Province)
5	Pik Stalin (Garmo)	24,590 ft. (7495 m.)	38° 56' 26"	72° 00' 47"	Alai Pamirs
6	Jonsong Peak (Main Summit) East Peak (Domo)	c. 24,510 ft. (7470 m.) 24,416 ft. (7442 m.)	27° 52' 52"	88° 08' 12"	Himalaya: junction of Sikkim, Nepal and Tibet.
	Pik Pobjedy	24,406 ft. (7439 m.)	?	?	Tien Shan
7	Nanda Devi (East Summit, LVII)	24,391 ft. (7434 m.)	30° 21' 58"	79° 59' 54"	Garwhal Himalaya
8	Mustagh Ata	24,388 ft. (7433 m.)	38° 16' 38-43"	75° 07' 02-06"	Pamirs

PEAKS OF OVER 22,967 FEET
TO DATE

Climbed by	Remarks
N. E. Odell and H. W. Tilman, 29.8.1936. Bib. 180, 200	Second ascent 29.6.1951 by R. Duplat and G. Vignes, who perished on the traverse to the East Summit (No. 7 below). Bib. 53
F. S. Smythe, R. L. Holdsworth, E. E. Shipton, with Lewa, 21.6.1931. E. St. J. Birnie and C. R. Greene, with Kesar Singh, 23.6.1931. Bib. 186	
H. Hartmann and K. Wien, 17.9.1931. E. Allwein, H. Pircher and K. Wien, 18.9.1931. Bib. 20, 21	Not numbered, as it is not a true peak in its own right.
Per Kvernberg, 21.7.1950. Henry Berg, Arne Naess and Capt. Tony Streather, 22.7.1950.	A splendidly successful Norwegian Expedition. Bib. 12c, 149
Terris Moore and R. L. Burdsall, 28.10.1932. Bib. 20, 21	Otherwise known as Minyag Kankar, Minya Gongkar, Minyag Gongkar.
E. M. Abalakow, 3.9.1933.	Bib. 15, pp. 252-3. Recently re-assessed at 25,100 feet (7666 metres) (cp. Bib. 12e, p. 274).
H. Hoerlin and E. Schneider, 3.6.1930. F. S. Smythe, U. Wieland, M. Kurz, with Tsering Norbu. G. O. Dyhrenfurth with Lewa, 8.6.1930. (Domo): G. O. Dyhrenfurth solo, 8.6.1930. Bib. 41	The main Summit has not been exactly measured, and 24,416 feet refers to the lower East Summit. H. Bossart has made a careful computation of 7470 metres ± 3 metres.
? 1951	Awaiting more precise details.
J. Bujak and M. J. Klarner, 2.7.1939. Bib. 14	Second ascent by L. Dubost with Tensing Sirdar, on the search for R. Duplat and G. Vignes (cp. 1 above). Bib. 53
E. E. Shipton and H. W. Tilman, with Gyalgen VI, 13.8.1947. Bib. 183, 205	They reached the Summit-cap but not its highest point. (In 1894 Sven Hedin reached 20,670 feet (6330 metres) in his attempt.)

9	Sia Kangri — Main Summit (formerly Queen Mary Peak) West, Central and East Peaks	24,350 ft. (7422 m.) c. 24,000 ft. (7315 m.)	35° 39' 51"	76° 45' 43"	Karakorum (Baltoro/Siachen)
10	Tent Peak	24,162 ft. (7365 m.)	27° 47' 15"	88° 11' 55"	Himalaya: border of Sikkim and Nepal
11	Abi Gamin	24,130 ft. (7355 m.)	30° 55' 57"	79° 36' 09"	Himalaya (Kamet Group): border of Garwhal and Tibet
12	Kabru	24,076 ft. (7338 m.)	27° 36' 30"	88° 06' 50"	Kangchenjunga Group: border of Sikkim and Nepal
13	Chomolhari	24,000 ft. (7315 m.)	27° 49' 42"	89° 16' 21"	Himalaya: border of Bhutan and Tibet
14	Mana Peak	23,862 ft. (7272 m.)	30° 52' 51"	79° 36' 56"	Garwhal Himalaya (Kamet Group)
15	Baltoro Kangri—East Peak (formerly 'Golden Throne')	23,820 ft. (7260 m.)	35° 37' 40"	76° 42' 17"	Karakorum (Baltoro)
16	Mukut Parbat	23,761 ft. (7242 m.)	30° 56' 58"	79° 34' 10"	Garwhal Himalaya
17	Khartaphu	23,640 ft. (7221 m.)	28° 03' 48"	86° 58' 43"	Everest Group
18	Nepal Peak North-East Summit Central Summit South-West Summit	23,557 ft. (7180 m.) 23,500 ft. (7163 m.) 23,443 ft. (7145 m.)	27° 46' 36"	88° 11' 14"	Kangchenjunga Group
	Chaukhamba (Badrinath)	23,412 ft. (7138 m.)	30° 44' 16"	79° 16' 52"	Garwhal Himalaya

<p>Main Summit: H. Ertl and A. Höcht, 12.8.1934. West Peak: Frau Hettie Dyhrenfurth, G. O. Dyhrenfurth, H. Ertl and A. Höcht, 3.8.1934. Central Peak: J. Belaieff, P. Ghiglione and A. Roch, 10.8.1934. East Peak: H. Ertl and A. Höcht with Hakimbek, 12.8.1934. Bib. 45</p>	<p>The figures given are minimum heights, since it is not clear whether the trigonometrical measurement (24,350 feet) refers to the Main Summit or the East Peak. Sia Kangri West Peak remained the world height-record for women till 1954 when Mme Kogan reached 24,300 feet on Cho Oyu.</p>
<p>E. Grob, H. Paidar and L. Schmaderer, 29.5.1939. Bib. 74</p>	
<p>R. Dittert, G. Chevalley and A. Tissières, 22.8.1950. Bib. 12e, pp. 7-56</p>	<p>First attempted in 1855 by Ad. and R. Schlagintweit, who reached 22,260 feet (6785 metres) Second attempt by Pocock, who reached 22,050 feet (6720 metres) in 1874 or 5. Second successful climb by N. D. Jayal, Sherpa Pemba and Garwhali Pooran Singh, from the south, in 1953.</p>
<p>C. R. Cooke, 18.11.35. Bib. 33</p>	<p>Attempted in 1907 by C. W. Rubenson and Monrad Aas, who almost reached the North-East Summit.</p>
<p>F. Spencer Chapman with Pasang Dawa, 21.5.1937. Bib. 23</p>	
<p>F. S. Smythe, 12.8.1937. Bib. 189</p>	
<p>J. Belaieff, P. Ghiglione and A. Roch, 3.8.1934. Bib. 45, 165</p>	<p>No one has yet climbed the Main Summit 23,990 feet (7312 metres).</p>
<p>H. E. Riddiford and E. McCarthy Cotter, 11.7.1951.</p>	
<p>E. E. Shipton, E. Kempson and Ch. Warren, July 1935. Bib. 179</p>	
<p>E. Grob, H. Paidar and L. Schmaderer, 27.5.1939. Bib. 74 A. Göttner and K. Wien, 1936. Bib. 7 E. Schneider, 24.5.1930. Bib. 41</p>	<p>On the way to Tent Peak (10 above). The first actual success on Nepal Peak.</p>
<p>L. George and V. Russenberger, 13.6.1952. Bib. 12h</p>	<p>1. First attempt by T. Messner and L. Spannkraft of the Austrian Expedition in 1938. Bib. 109 2. Second attempt by A. Roch, F. Steuri and D. Zogg. Their camp was swept away by an avalanche and two porters were killed. Bib. 176</p>

	Nun (Ser)	23,410 ft. (7135 m.)	33° 58' 56"	76° 01' 31"	Kashmir (Nun Kun Group)
19	Pauhunri	23,385 ft. (7128 m.)	27° 56' 56"	88° 50' 39"	Sikkim Himalaya
20	Pik Lenin (formerly Pik Kaufmann)	23,382 ft. (7127 m.)	39° 20' 43"	72° 53' 02"	Pamirs (Transalai)
21	The Pyramid	23,370 ft. (7123 m.)	27° 49' 11"	88° 10' 35"	Kangchenjunga Group
22	Trisul	23,360 ft. (7120 m.)	30° 18' 43"	79° 46' 40"	Garwhal Himalaya
	Pik Korschenewskoj	23,310 ft. (7105 m.)	?	?	Pamirs
23	Kun (Mer)	23,219 ft. (7077 m.)	34° 00' 48"	76° 03' 22"	Kashmir (Nun Kun Group)
24	Satopanth	23,213 ft. (7075 m.)	30° 50' 50"	79° 12' 55"	Garwhal Himalaya
25	Rakhiot Peak	23,196 ft. (7070 m.)	35° 15' 32"	74° 38' 25"	Kashmir Nanga Parbat Group
26	Dunagiri	23,183 ft. (7066 m.)	30° 30' 57"	79° 52' 04"	Garwhal Himalaya
27	'Kellas' Rock Peak	23,180 ft. (7065 m.)	28° 06' 50"	86° 55' 05"	Everest Group
28	Kharta Changri	23,071 ft. (7032 m.)	28° 07' 06"	86° 59' 37"	Everest Group
29	Aconcagua	23,036 ft. (7021 m.)	32° 39' 15" (S)	70° 00' 55" (W)	Chilean-Argentine Cordillera

'SEVEN THOUSANDERS' NO

	Khan Tengri	formerly 23,600 ft. (7193 m.) new measurement 22,951 ft. (6995 m.)	42° 40' 10"	80° 16' 43"	Tien Shan
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P. Vittoz and Mme Cl. Kogan, 28.8.1953.	Roy Berry, T. S. Stobart and R. James reached about 20,150 feet in 1946. Bib. 107
A. M. Kellas with Sonam and another porter, 16.6.1911. Bib. 111	Second successful climb by C. W. F. Noyce with Angharkay in 1945. Bib. 155, 199
E. Allwein, E. Schneider and K. Wien, 25.9.1928. Bib. 110 pp. 77-82	
A. Sutter, R. Dittert, J. Pargätzi, 6.6.1949. Bib. 12d	They reached a secondary Summit in the North-East Ridge about seventy feet lower than the Summit.
T. G. Longstaff, with A. and H. Brocherel and Kharbir, 12.6.1907. Bib. 133	Second successful climb by P. R. Oliver in 1933.
?	No detailed reports.
M. Piacenza and L. Borelli with J. Gaspard, Ali Rahin and porter 'Carrel', 3.8.1913. Bib. 158	
A. Sutter, R. Dittert, A. Roch and A. Graven, 1.8.1947. Bib. 12a, pp. 17-114	
P. Aschenbrenner and H. Kunigk, 16.7.1932. Bib. 112	En route to Nanga Parbat.
A. Roch, F. Steuri and D. Zogg, 5.7.1939. Bib. 176	
E. E. Shipton, H. W. Tilman and E. H. L. Wigram, July 1935. Bib. 179	
E. Kempson and Ch. Warren, 29.8.1935. Bib. 179	
M. Zurbriggen, 14.1.1897. Bib. 235	

LONGER RANKED AS SUCH

M. T. Pogrebezki, F. Sauberer and B. Tjurin, 11.9.1931. 2. E. Kolokolnikov with two carriers, 24.8.1936. 3. L. Saladin, E. Abalokow and three carriers, 5.9.1936. Bib. 12e, p. 275	
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	Dodang Nyima Peak	formerly 23,459 ft. (7150 m.) new measurement 22,750 ft. (6927 m.)	27° 56' 50"	88° 09' 19"	Sikkim- Tibetan Border
	Shilla	formerly 23,050 ft. (7025 m.) now appears to be only 21,000 ft. (6400 m.)	32° 16'	78° 14'	Punjab Himalaya (Spiti)

H. Hoerlin and E. Schneider, 10.6.1930. Bib. 41, pp. 129-137	It is, however, by no means certain whether the new measurement refers to Dodang Nyima Peak or Pt 6919. On the latest map of Sikkim the peak is called Chorten Nyima Peak.
Unknown Assistant of the Survey of India, about 1860. Bib. 46	Remained unidentifiable for decades, simply because there is no 'Seven Thousander' in this region.

**CHRONOLOGICAL TABLE OF THE SEVEN THOUSAND
SO FAR UNSUCCESSFULLY ATTEMPTED**

Year	Name	Height	Height Attained	Geographical (to nearest minute)		Position
				Lat. (N)	Long. (E)	
1892	Baltoro Kangri (‘Golden Throne’) Main Summit	23,983 ft. (7312 m.)	22,606 ft. (6890 m.) (‘Pioneer Peak’, a subsidiary Summit)	35° 39'	76° 40'	Karakorum (Baltoro)
1903	‘Pyramid Peak’	24,485 ft. (7465 m.)	23,394 ft. (7130 m.)	36° 03'	74° 57'	Karakorum (Chogo Lungma Range)
1905	Gurla Mandhata	25,355 ft. (7728 m.)	23,787 ft. (7250 m.)	30° 26'	81° 18'	Tibet (Ladakh Range)
1909	Skyang Kangri (‘Staircase Peak’)	24,750 ft. (7544 m.)	21,658 ft. (6601 m.)	35° 55'	76° 33'	Karakorum (Baltoro)
1909	Chogolisa (‘Bride Peak’)	25,110 ft. (7659 m.)	24,607 ft. (7500 m.)	35° 37'	76° 34'	Karakorum (Baltoro)
1935	Saltoro Kangri (Peak 36)	25,400 ft. (7742 m.)	24,509 ft. (7470 m.)	34° 24'	76° 51'	Karakorum (Siachen)

**METRE PEAKS (22,967 FEET AND OVER)
SHOWING THE HEIGHTS REACHED**

Expedition	Remarks
W. M. Conway with Matthias Zurbriggen. Bib. 31	Can certainly be climbed from the south-west.
W. H. Workman with Jos. Petigax, Father and Son and Cyprien Savoie. Bib. 19	Technically an easy mountain, perhaps a little lower than formerly estimated.
T. G. Longstaff with A. and H. Brocherel. Bib. 124	A second attempt by Herbert Tichy reached 23,700 feet. Technically an easy mountain.
Luigi Amedeo, Duke of the Abruzzi, with Jos. Petigax, H. and E. Brocherel. Bib. 63.	A huge transverse crevasse unfortunately barred the way at the time. Apart from that the South-East and East Ridges appear to be climbable.
Luigi Amedeo, Duke of the Abruzzi, with Jos. Petigax, H. and E. Brocherel. Bib. 63	The attempt was only abandoned because of bad weather. The East-South-East Ridge is not easy, but definitely climbable.
J. Waller, J. Hunt, R. Brotherhood and J. S. Carslaw. Bib. 98, 99	Given good conditions the ascent from the east is certainly possible.

1935	Istor-o-nal	24,271 ft. (7397 m.)	23,951 ft. (7300 m.)	36° 23'	71° 54'	Hindu Kush
1935	Changtse	24,730 ft. (7537 m.)	23,951 ft. (7300 m.)	28° 02'	86° 35'	Himalaya (Everest Group)
1936	The Twins	24,108 ft. (7350 m.)	21,000 ft. (6400 m.)	27° 44'	87° 10'	Kangchenjunga Group
1938	Masherbrum	26,660 ft. (7821 m.)	24,935 ft. (7600 m.)	35° 39'	76° 19'	Karakorum (Baltoro)
1938	Rakaposhi	25,550 ft. (7788 m.)	(?) 22,508 ft. (?) (6860 m.)	36° 08'	74° 29'	Karakorum (Hunza)
1939	Tirsuli (East Peak)	23,210 ft. (7076 m.)	20,178 ft. (6150 m.)	30° 35'	80° 01'	Garwhal (Milam Glacier)
1946	Sasir Kangri	25,170 ft. (7672 m.)	21,000 ft. (6400 m.)	34° 52'	77° 45'	Karakorum (Sasir Group)
1947	Pik Moskau	c. 22,967 ft. (7000 m.)	20,342 ft. (6200 m.)	?	?	North-West Pamirs
1949	Nupchu	23,026 ft. (7018 m.)	22,311 ft. (6800 m.)	27° 53'	87° 59'	Himalaya (Nepal- Tibet Frontier)
1950	Annapurna IV	24,688 ft. (7524 m.)	24,000 ft. (7315 m.)	28° 32'	84° 05'	Himalaya Western Nepal
1950	Pt 22,997	22,997 ft. (7009 m.)	20,670 ft. (6003 m.)	c. 29° 20'	c. 84° 18'	Himalaya Central Nepal E. of Naurgaon

D. N. B. Hunt and R. J. Lawder. Bib. 128	An easy Summit, only asking to be climbed by a trained party.
E. E. Shipton and L. V. Bryant. Bib. 179	The attempt had to be abandoned simply on account of bad weather conditions during the Monsoon.
K. Wien, A. Göttner and G. Hepp. Bib. 17	By the East Ridge from Pt 7005 (23,016 feet), 1937. A second attempt by E. Grob, H. Paidar and L. Schmaderer reached 20,834 feet (6350 metres). Both attempts were made during the Monsoon.
T. Graham Brown, J. Waller, J. B. Harrison, R. A. Hodgkin and J. O. M. Roberts. Bib. 163, 228	Harrison and Hodgkin were badly frozen and only just got away with their lives.
C. H. Secord and M. Vyvyan. Bib. 177, 225	A second attempt was made in 1947 by the expedition consisting of R. Kappeler, H. Gyr, H. W. Tilman and C. H. Secord. Bib. 12c
Polish Himalayan Expedition. Bib. 14	A. Karpinski and St. Bernardiskiewicz were buried in their camp by an ice avalanche.
J. O. M. Roberts, Ch. Wylie, G. Lorimer with two Sherpas. Bib. 164	Still very problematic. It would seem worth while to give closer attention to the North-East and East side of the Massif.
E. Abalakow, E. Timachew and carriers. Bib. 12c, p. 237	The most recent estimate is 22,944 feet (6994 metres).
A. Sutter, R. Dittert and J. Pargätzi. Bib. 12d	A technically difficult mountain.
H. W. Tilman, C. H. Evans and W. P. Packard. Bib. 209	The original intention was to traverse Annapurna IV to Annapurna II.
H. W. Tilman: Annapurna Expedition. Bib. 209	

ABBREVIATIONS

AAC	The American Alpine Club
AACZ	Akademischer Alpenclub, Zürich
AAJ	The American Alpine Journal (Journal of the AAC), New York
AC	The Alpine Club, London
AJ	The Alpine Journal (Journal of the AC), London
Alpen	Die Alpen, Monthly of the Swiss Alpine Club
Alpinisme	Journal of the Groupe de Haute Montagne, Paris
Berge der Welt	Periodical issued by the Swiss Foundation for Alpine Research, Zürich and Bern
Bergkamerad	‘Der Bergkamerad’, Munich (R. Rother)
Bergsteiger	‘Der Bergsteiger’, Munich (F. Bruckmann)
CAF	Club Alpin Français
CAI	Club Alpino Italiano
DAV	Deutscher Alpenverein
DAVZ	Periodical of the DAV
DÖAV	Deutscher und Österreichischer Alpenverein
DÖAVM	Reports issued by the DÖAV
DÖAVZ	Periodical of the DÖAV
GJ	The Geographical Journal, London
HJ	The Himalayan Journal, Records of the Himalayan Club, Calcutta, London, Oxford
Montagne	La Montagne, Journal of the CAF, Paris
ÖAK	Österreichischer Alpen-Klub, Vienna
ÖAV	Österreichischer Alpenverein Journal; ‘Berge und Heimat’
ÖAZ	Österreichische Alpen-Zeitung, Journal of the ÖAK, Vienna
RM	Rivista Mensile, Journal of the CAI
SAC	Schweizer Alpen Club (Swiss Alpine Club)
SACJ	Annual of the SAC, up to 1924

P—Pt (Measurement) One foot=0.304797 metres
One metre=3.28087 feet

SUPPLEMENT ON 1954 OPERATIONS

SUPPLEMENT TO K² (SEE CHAPTER 3, PAGE 92)

THE ITALIAN Alpine Club had made sure of the Pakistan Government's permission to make a full-scale attempt on K² in 1954. Thanks to the Duke of the Abruzzi, the Italians had old-established rights on the mountain; and if they did not succeed in 1954, the Americans would be having another turn in 1955. So it was well known in Italy that this was the critical hour, and they acted accordingly.

The financing of this enormous expedition, which was also supported by a State contribution, demanded about 120,000,000 Lire—say £60,000—five or six times the scale of the American effort in the previous year. The leadership was entrusted to Professor Ardito Desio, the well-known Geologist from Milan, who not only had great experience of the Karakorum but was known to be a good organiser. The carefully selected team, among whom were the best Italian guides, was an extraordinarily strong one: E. Abram, U. Angelino, W. Bonatti, A. Compagnoni, C. Floreanini, P. Gallotti, L. Lacedelli, M. Puchoz, U. Rey, G. Soldà, S. Viotto. There was also the necessary doctor, Dr G. Pagani, and a cameraman, M. Fantin.

The Pakistan Government set itself to assist in every possible way. Col. M. Ata-Ullah, as liaison officer, rendered splendid service in exceptional circumstances, because, owing to the terrible weather, there was every kind of difficulty with the porters and in the end the Baltis deserted. For instead of the usual good weather which June brings here, the early Summer this time brought nothing but snow storms, which seriously hampered and delayed the work on the Abruzzi Rib. At this point Mario Puchoz of Courmayeur fell a victim to 'altitude cough' and laryngitis, which subsequently developed into pneumonia. In spite of penicillin and the like, this is, of course, a very serious matter at great heights and many a good man has succumbed to it in the Himalaya. On 20th June Puchoz died in Camp 2, the sixth man to lose his life on K²; but the fight for the mountain went on.

In spite of forty days of bad weather in the following two months the high camps were gradually pushed forward and this time Camp 5 was equipped with a lift for the baggage-loads—a sledge dealing with 45 lb. a time and covering 1,000 feet in ten minutes. In this way it was possible to do without a crowd of high-camp porters. The whole Abruzzi Rib was safeguarded with fixed ropes and on 25th July Camp 7 was at last established at about 24,300 feet on the hard snow above the Rib. The advance party, consisting of Compagnoni, Lacedelli, Abram, Gallotti and Rey, reached the spot for Camp 8 (about 25,250 feet), close to the 25,427 foot top of the Shoulder, at the very place where the Americans sited their last camp in 1953. On the 30th Compagnoni and Lacedelli fought their way up to the foot of the great, dark rock-cliff and established Camp 9, from which the attack on the Summit would be made, at 26,400 feet. Meanwhile Abram, Bonatti and the Hunza-porter, Mahdi, made an attempt to bring up oxygen apparatus and supplies, but failed to reach Camp 9 before darkness set in. Abram managed to get back to Camp 8 in time, but the other two had to dig a cave in the snow and bivouac at almost 26,000 feet, thereby matching Buhl's bivouac on Nanga Parbat.

Compagnoni and Lacedelli in Camp 9 hardly slept at all. They kept on worrying about where their team-mates had got to; and where was the vitally-important oxygen equipment? As soon as it was light, they climbed down a little way and actually found the oxygen apparatus; then they struggled up to Camp 9 again.

There they consulted as to what to do. The sky was clear and the only clouds lay in a

smooth blanket thousands of feet below. So they decided to go on up, in spite of lost time. At 6 a.m. on 31st July they started off, with 40 lb. on their shoulders.

The snow was so deep that they could not make use of the broad Couloir which cuts right through the rock belt; so they tried the rocks which bound it on the left. Compagnoni fell, but luckily landed in snow. Lacedelli, removing his gauntlets, climbed a 100-foot pitch—only grade 3 by Dolomite standards, but of course that kind of classification makes nonsense at somewhere round 26,500 feet. Once above the rock-wall they moved diagonally to the left in deep powder-snow to the rim of the South Face, just at the bottom of the Summit ice-cap. A transverse crevasse gave them a lot of trouble at this point and the next 50 feet took Compagnoni, who was in the lead, a whole hour. The oxygen-bottles were now empty, because it had taken them much longer to come up than they had calculated. They snatched off their masks and took breath upon deep breath. Very slowly they got over their exhaustion and found to their astonishment that there was no sign of collapse. Soon they were off again, working their way with a tremendous effort of will-power up the steep snow-slopes, which seemed interminable. At last they were on the Summit Ridge, which runs from north to south, and at 6 p.m. they were standing on the Summit of K² at 28,253 feet. There they sat down—only then did they rid themselves of the useless oxygen apparatus, which had become so much ballast—and took photographs of each other, with the flags on their ice-axes and, in the background, far, far below, the familiar teeth of the Upper Baltoro, all of them photogrammetrically measured long ago. They even exposed a few feet of Cine film, using the automatic action; but unfortunately the film-camera with the film in it was later left behind at Camp 8, which is a great pity. None the less, the still photographs, black-and-white and in colour, taken on the Summit are incontrovertible evidence. So this is another case where all suspicion can be brushed aside; there is absolute documentary proof that the climbers reached the very Summit of K².

After half an hour's rest on top, they began the hazardous descent which led, owing to the onset of darkness and the fearful exhaustion of both men, to a nasty mishap. One of them slipped on a wind-slab and fell, dragging the other after him; an ice-axe was lost and Compagnoni fell nearly 50 feet, crossing a wide crevasse in his fall. It was almost a miracle that they found themselves, without any broken bones, among their team-mates in Camp 8 at 11 o'clock that night.

On the next day, as they continued the descent, there was another far too exciting incident; Compagnoni slipped and went flying 600 feet down the slope, towards the edge of the great eastern precipice. Fortunately, he was stopped in the nick of time by soft snow. All of which is some indication of the state of exhaustion in which the two successful climbers were making the descent. Altogether there were six slips on the way down. They were also fairly heavily frost-bitten; the worst damage being to Compagnoni's hands.

The successful K² Expedition of 1954, like that on Everest in the previous year, was a well-organised example of a 'War of Equipment', carried to its conclusion by every member of a great team. To underline the team-spirit at work, the names of the two successful climbers were officially kept secret until it was no longer possible to hide them. We know now that the final success was due to the relentless determination of two magnificent climbers—Achille Compagnoni, from the Val Furva, and Lino Lacedelli, of Cortina D'Ampezzo. Admittedly, they climbed 'on the shoulders' of their team-mates, as did the whole great Italian undertaking on those of the 1938, 1939 and 1953 American Expeditions.

In this way even the 'Mountain of Mountains' had in the end to bow its proud head to the foot of man.

SUPPLEMENT TO KANGCHENJUNGA (SEE CHAPTER 4, PAGE 112)

J. W. R. KEMPE and G. C. Lewis had reconnoitred the Yalung Glacier area and the north side of Kabru in 1953. Before the onset of the 1954 Monsoon they again visited the Yalung Glacier with a team of six, their object being to attack the south-east face of Kangchenjunga. However, they only reached a height of about 21,000 feet, where they gave up the attempt because of great danger from avalanches; nor were they any more successful on Talung Peak (23,018 feet), between Kangchenjunga and Kabru. The world's third highest peak remains an unsolved problem; but the importance of its Nepalese approaches has been recently enhanced by the closure of the Zemu area in Sikkim for political reasons.

DURING 1954 an important New Zealand Expedition under Sir Edmund Hillary was active in the Barun region, south-west of Makalu. They succeeded in climbing Baruntse (23,560 feet) as well as the comparatively modest but sharp peak of Pethangtse (22,060 feet); the latter, which lies on the main watershed between Makalu and Lhotse has been known since the first British Everest Expedition of 1921. They also reached a height of about 23,000 feet during a reconnaissance on Makalu itself. In addition, a large number of lower peaks over 20,000 feet high were climbed and the hitherto uncharted Choyang, Iswa, Hongu and Barun valleys accurately mapped. Unfortunately, a nasty accident in a crevasse, which might have ended even more disastrously, seriously affected the strength of the expedition, so that any proper attempt to climb Makalu had to be abandoned.

A simultaneous venture in the Barun area was that of the Californian Sierra Club's expedition under Dr William Siri, which made a determined attack on the steep South Ridge of Makalu. They succeeded in reaching a point a little over 23,000 feet. Siri considers this route difficult but still feasible; but the New Zealanders (and the French) are probably right in giving preference to the North-West Ridge.

A very powerful French expedition tackled Makalu in the Autumn of 1954, under the leadership of Jean Franco, with such first-class climbers as J. Bouvier, J. Couzy, P. Leroux, G. Magnone and L. Terray in the party, with the addition of Dr J. Rivolier, the geologist Abbé Bordet, a Nepalese liaison officer (who unfortunately died of inflammation of the lungs) and eleven Sherpas under Sirdar Gyalgen Norbu. During the period of training and acclimatisation they climbed nine fairly difficult 20,000 foot peaks. Then they started to push high camps up from the Barun Valley, finally establishing Camp 5 at 24,312 feet in the Makalu Saddle, which they thus reached for the first time, between Makalu II (25,120 feet) and Makalu I (27,790 feet). On 22nd October they reached the Summit of Makalu II, the great peak's north-western subsidiary, and on the 30th Couzy and Terray reached 25,600 feet on Makalu I itself, but heavy Autumn blizzards prevented their establishing a sixth camp. So this expedition, intended from the outset only as a reconnaissance might, with a little more luck, have mastered the fifth highest mountain in the world in a lightning attack on the Summit. An all-out assault is planned for the Spring of 1955. It seems that Makalu, one of the most magnificent of all mountains is, after all, ripe for the taking. A great advantage of the new route from the Barun Valley over the originally prospected approach from the Kama Valley is the fact that it lies entirely in Nepal and there is no necessity to set foot on the politically dubious soil of Tibet.

SUPPLEMENT TO CHO OYU (SEE CHAPTER 5, PAGE 123)

DR. HERBERT TICHY, the well-known Viennese explorer, had obtained permission from the Nepalese Government to attempt Cho Oyu. Without any fuss, he organised a small private expedition on economic lines, inviting only two thirty-one year old companions—Sepp Jöchler, of Landeck, one of the best Austrian climbers, and Dr Helmut Heuberger, an Innsbruck geographer—to join him; he himself was forty-two years old. Sirdar Pasang Dawang Lama and five Sherpas, specially picked by him, formed the rest of the party.

They left Namche Bazar on 23rd September. Working from their base camp to the east of the Nangpa La, they established Camp 1 at the foot of the West Buttress, at about 19,000 feet, and the first high camp, Camp 2, on a broad shoulder at 20,350 feet. A snow-ridge in good condition led to Camp 3 (21,650 feet) at the lower rim of the great Icefall which had caused others so many misgivings. In the incredibly short time of about an hour Pasang, followed by Tichy and Ajiba, found a way through it and soon made the difficult 200 foot Step safe with fixed ropes. On the next day they established Camp 4 at about 23,000 feet and the way to the Summit was clear, with success apparently within their grasp; but once again, as so often before in the Himalaya, the unexpected happened.

In the night all Hell broke loose as a fearful storm, striking out of a cloudless sky, snapped the tent-poles, tore the anchor-stays from the ice and threatened to blow the tents away. Tichy crawled out feet foremost and, without noticing it, lost his gloves. When the gale was about to carry away the Sherpa tent, which had also collapsed, Tichy threw himself upon it and as he did so his hands, which had been in his trouser-pockets, plunged into the snow; in a few minutes his hands were white and completely without feeling. Pasang and Ang Nyima II undid their trousers to warm them between their thighs, while Ajiba

fetches the missing gloves from the other tent and put them on Tichy's hands; but it was too late—his hands were frozen.

It was no longer a question of making an attempt on the Summit, or of an orderly evacuation of Camp 4; it was now a fight for life.

They fought their way down through the raging storm to Camp 3, occupied by Jöchler, and as quickly as possible down to Camp 2, where Heuberger, a Doctor of Geography, not of Medicine, administered preliminary injections to restore the circulation; next morning saw them all down at Camp 1, a relatively warm site on a moraine, from which there was a superb view. This camp was temporarily used as an advanced-base.

Pasang now went down to Namche Bazar to fetch up the rest of the equipment, while Tichy nursed his damaged hands and Jöchler, with Heuberger, did a training climb on a fine 20,500 foot peak to the west of Cho Oyu. At his juncture, on the 11th October, Madame Claude Kogan and Bertholet of the French-Swiss Gaurisankar Expedition suddenly put in an unexpected appearance. That venture, under Raymond Lambert's leadership, had abandoned its intention of attempting Gaurisankar (23,446 feet) or Menlungtse (23,562 feet) and had moved farther westwards, hoping to carry off a very much bigger prize in Cho Oyu. The Austrians maintained as clearly as can be that it was they who had obtained the Nepalese Government's permit for Cho Oyu, while the Lambert Expedition's brief extended only to the Gaurisankar Range. They pointed out that, fortunately, there had never before been an invasion of another team's territory in the annals of Himalayan climbing; and that any combination with the much bigger and stronger Lambert Expedition was out of the question, as the whole point of Tichy's enterprise was to show that a very big mountain could be climbed by a very small party. A bitter war of words ensued. In the end a compromise was reached, on the basis that the Lambert-Kogan party would allow the Austrians 'first-go,' provided it was a single attempt and made immediately. Tichy's party were thus under heavy pressure when they decided to make another assault, even though Pasang had not yet returned from Namche. True, Jöchler and Heuberger were now going very well, but Tichy was unable to use his hands, which were encased in cotton-wool and three pairs of mittens. The prospects looked pretty gloomy for the plucky Austrians.

This time they made a hole in the snow for Camp 3 at 21,650 feet, where a storm compelled them to spend three nights. Longer than that they could not stay; for their provisions and fuel were running out and the Opposition were already establishing their high camps close behind. On 18th October, as Tichy and his friends were getting ready to go up to Camp 4 of unhappy memories, in a mood of some pessimism, a Sherpa observed three men advancing up the snow ridge. At first it looked as if it were the Swiss who had lost patience and were coming up; but, to the delight of the Austrians, it proved to be Pasang with two Sherpas, bringing food, fuel and completely revitalising the whole party. It seems he had heard of the arrival of an Opposition team and had dashed up from the Valley of the Bhote Kosi, heavily laden though he was, in an unbelievably short time, with hardly a halt on the way. In spite of this incredible effort he did not seem in the least tired and insisted on an immediate advance through the Icefall to Camp 4 (23,000 feet). 'If the others get to the top in front of us, I shall cut my throat', he kept on saying, over and over again.

During the night an icy wind ripped at the tents of Camp 4. There were still nearly 4,000 feet to the Summit, far too much for a normal day, but there was now no possibility of establishing a fifth camp on the shoulder, as originally intended. And then there were Tichy's hands. . . . Nonetheless he made a tremendously plucky decision to start out with Pasang and Jöchler on a decisive attempt. This was on 19th October; Heuberger and the other Sherpas remained in Camp 4, in support.

The hard-blown snow offered a firm bite for crampons. The only place at which Tichy, who could, of course, not grip anything, asked Pasang for momentary assistance on the rope was at the notorious cliff, so prominent in every photograph, which necessitates a short spell of rock-climbing. Elsewhere the three men were able to move steadily forward, unroped. The gale had abated and indeed a gentle breeze at their backs helped them as they went up. About 3 p.m. Pasang Dawang Lama, Herbert Tichy and Sepp Jöchler were on the Summit of Cho Oyu, looking across at Everest and far out over the golden-brown plateau of Tibet. It was more than a moment of triumph. They experienced a feeling of complete harmony such as none of them had ever known, an almost unearthly sense of joy, 'worth far more than the small price of a few frozen fingers', to use Tichy's own words.

In the face of the modern fashion, which is to query the first climb of every peak of world-ranking or to write it off as a romance, it should be recorded that Jöchler's photographs,

taken on the Summit, show Pasang in the foreground holding up his ice-axe with the flags of Nepal, Austria and India attached, and Everest's unmistakable outline in the background. The photographic evidence leaves not the slightest room for any doubts. It has also been established that Cho Oyu is not as Shipton thought 26,750 feet (8153 m.) but 26,867 feet (8189 m.), which agrees almost exactly with my own reckoning of '8200, approximately'. This places it almost certainly as sixth in the list of 'Eight Thousanders' and as the third highest mountain so far successfully climbed.

After the Austrian success, Lambert and Mme Kogan decided to attempt the second successful climb of Cho Oyu, so as not to return absolutely empty-handed. But now heavy Autumn gales and grisly cold set in, compelling the Swiss party to turn back somewhere between 24,600 and 24,700 feet. While it is impossible to assess the exact height reached, it seems certain that Mme Kogan achieved the consolation-prize of setting up a new world altitude record for a woman. (The previous record was made in 1934 when Frau Hettie Dyhrenfurth reached a height of 24,000 feet (7315 metres) on Sia Kangri in the Karakorum, climbing with G. O. Dyhrenfurth, H. Ertl and A. Höcht.)

SUPPLEMENT TO CHAPTER 6 (DHAULAGIRI AND ANNAPURNA)
DHAULAGIRI (SEE PAGE 151)

FOLLOWING the wonderful pioneering work of the Swiss Dhaulagiri Expedition in 1953, a strong Argentine Expedition under Francisco Ibañez attempted the final assault in the early Summer of 1954, following the well-known route as far as the 'Pear'. In order to facilitate the establishment of Camp 6 at about 23,000 feet, a platform big enough for two tents was blasted out of the tile-like limestone slabs of the mountain's face—a labour which took Felipe Godey, an expert in the field of explosives, three days. A place for Camp 7 was found a little below the West Ridge at 24,600 feet. On 1st June two ropes of two set out on the final attempt, consisting of Gerhard Watzl, of Kitzbühel, who had emigrated to Argentina in 1948 and there been naturalised, with Pasang Dawang Lama; and Alfredo C. Magnani, of Mendoza, with the Sherpa Ang Nyima II. They soon reached the ridge, but difficult pitches compelled them continually to turn the obstacles by traversing on the narrow ledges of the South Face, and this lost them a great deal of time. It was 5 p.m. before they were back on the main ridge, at a height of about 26,100 feet; at that point the way to the Summit, only 700 feet above their heads, seemed to lie absolutely clear. They dug a hole in the snow and bivouacked in it; but the weather changed during the night and they had a bad time in their improvised camp. Instead of being able to climb to the Summit next morning, a matter of only two to three hours according to their reckonings, they were forced to fight their precarious way down to Camp 7 in a blizzard. There they found Ibañez waiting for them, with serious frostbite damage. An agonizing descent ensued, not only for poor Ibañez but for his team-mates, who were all suffering, though to lesser extent, from frostbite. Ibañez' fingers and toes had to be amputated, one by one; by indescribable efforts they got him down all the way to Katmandu where, in spite of every possible medical attention, he died in hospital.

So ended a very brave attempt; with a little more luck it might have been a resounding triumph instead of a ghastly tragedy.

ANNAPURNA

ANNAPURNA I (26,504 feet) had been climbed in 1950. This, however, left several other mighty peaks in this huge mountain-complex as very attractive targets. In the Autumn of 1953 a Japanese expedition under T. Imanishi reconnoitred the south side of Annapurna II (26,041 feet) and IV (24,630 feet), which lie to the north-east of Pokhara, where there is, incidentally, now an airfield. They established a base-camp in the upper Madi Khola, a day's march beyond Siklis, the last village in the valley, at a height of 8,200 feet. After an eight days' battle with the jungle which fills the valley, they came to the conclusion that the approach to the peaks was barred by a 10,000 foot rock-wall which was quite impassable for the porters. So they marched round to the Marsyandi Valley, a six days' journey, to attack Annapurna IV by the route Tilman had followed in 1950.

Their new base-camp was at 14,750 feet. From it they pushed forward five high camps to a height of 23,625 feet, the last two being sited on the main ridge. On 3rd November, Imanishi, Fujihara and the Sherpa Da Namgyal were overwhelmed by a terrible storm,

which blew away their nylon tent next morning. There was nothing left but to climb down as quickly as possible during the temporary lull in the gale; and the wintry westerly gales prevented any further attempts. In any case, November is generally far too late for attempts on these great peaks.

SUPPLEMENT TO MANASLU (SEE CHAPTER 7, PAGE 155)

IN 1952 the Japanese Alpine Club, with the backing of the leading Japanese daily, *Maimichi*, had sent out an expedition under K. Imanishi to reconnoitre in detail the little-known, huge massif of Manaslu. They started by looking at the western side from the Annapurna Group, then from Thonje they examined the horrific South-West Wall, next from Bimtakothi the equally repellent North-West Face; after that, they crossed the Larkya Bhanjyung Pass (17,102 feet) to the upper course of the Buri Gandaki and explored the north-east side, by the Larkya Glacier and the east side, by the Manaslu Glacier. To make absolutely certain, they satisfied themselves that the East Ridge and South Face were out of the question. They were now sure of the correct route and hoped to climb it successfully in 1953.

The immense expedition of that year under Yukio Mita consisted of fifteen Japanese members, two Nepalese liaison officers and fifteen Sherpas under Gyalgen II ('Mikchen') as Sirdar, with Ang Tsering III ('Pansy') as cook. The expedition moved off from Katmandu in two parties on 26th and 27th March, with about 280 porters, and reached the village of Sama by way of the Buri Gandaki Valley, not without its dangers. They reached their Base-Camp of the previous Autumn, at 12,650 feet, on 12th April; it was sited at the edge of the Manaslu Glacier, an hour beyond Sama. After a short period of acclimatisation, they pushed forward four high camps to 18,375 feet; Camp 4 on the Naike Saddle between the Larkya and Manaslu Glaciers was fitted out as an advanced Base Camp even to the extent of running telephone cable up to it.

On 3rd May they tackled the Great Icefall, establishing Camps 5, 6 and 7, up to 21,650 feet. On the 15th they reached a height of 23,300 feet and sited Camp 8 on the North Saddle; from there they made a first attempt to reach the Summit Plateau, but it failed owing to bad weather and masses of fresh snow, at about 24,300 feet. Withdrawing to the Naike Saddle, they spent six days in recuperating and replenishing their supplies. The second assault began on the 26th, and on the 30th they had established the tents of Camp 9 (24,600 feet) at the rim of the Plateau. The 31st was a perfect day, with no wind at all. At 7 a.m. K. Kato, J. Yamanda and S. Ishizaka set off and after five hours of climbing attained an altitude of 25,425 feet. 'At that point they could see the Summit clearly, although it still lay some distance away; it seemed to be accessible without any excessive effort or technical difficulty'. All the same, they turned back 'with heavy hearts' . . . for what reason remains obscure to me. In 'The Mountain World' 1954, p. 70,¹ Professor M. Takagi himself writes: 'It was our total lack of experience which let us down just below the top'.

The very fact that there were far too many, too closely-sited camps—from Camp 1 to Camp 9 there was, on the average, one every thousand feet or so!—argues an excess of organisation and of caution. But always remembering that it never pays to under-rate an 'Eight Thousander', Manaslu is obviously a relatively easy mountain.

On 2nd June they were all back in Camp 4 and on the following day reached Base Camp in good health and condition. Thence they travelled back over the Larkya Bhanjyang to Pokhara and on by plane to Katmandu.

Another attempt was made in 1954. But on this occasion serious difficulties with the local populace were encountered as soon as they got into the Buri Gandaki Valley; the inhabitants obstinately opposing this continual affront to the Gods of the Mountains. The Expedition had to withdraw but it is hoped that 1955 will bring the ultimate triumph over a mountain that is clearly ripe for the picking.

SUPPLEMENT TO BROAD PEAK (SEE CHAPTER 10, PAGE 196)

WHILE the Summit-party was still engaged on the final assault on Nanga Parbat in 1953, Dr Karl N. Herrligkoffer, the leader of that Expedition, had already put K² on his programme for 1954; but the Italians turned out to have a prior claim on that mountain. So he decided instead to make an Autumn attempt on Hidden Peak (26,470 feet, 8068 metres)

¹ Or "Berge der Welt", page 66 in the original Swiss Edition—H.M.

by a route on its reverse side, over the Siachen Glacier. At the last moment he was lucky enough to obtain permission to approach it by the direct route over the Baltoro. Difficulties with the Balti porters, who are never easy to handle, on this occasion proved insuperable; so Herrligkoffer changed his objective and attacked Broad Peak (26,400 feet, 8047 metres), which lies conveniently nearer.

According to his pictures, the assault was delivered in a north-easterly direction from Concordia, over the lower Broad Glacier and then up the very steep glacier, which bears no name on the 1 in. 75,000 Spoleto Map, but is bounded on the west by the rock-rib rising through Pts 5237-5560 to Pt 6230 (20,440 feet). I certainly do not believe that this is the only or even the best route to the Summit of Broad Peak; indeed, it seems to me that this approach to the upper ice-terrace is fairly exposed to the perils of avalanches and falls of ice. On this occasion the main reason for failure was the excessively late season, with the inevitable heavy storms and polar temperatures. The attempt was abandoned on 6th November at 23,300 feet. There were several narrow escapes, Senn falling 300 feet with only superficial damage, and Maag and Marek emerging safely after a fall into a crevasse.

The most important results seem to have been the surveys made by W. Kick, the Engineer; but these were carried out, quite independently of the main Expedition, in the Chogo-Lungma Range, fully 80 miles away to the west.

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The Bibliography which follows is an important and essential addition to *this* book: if for no other reason than lack of space, it therefore lays no claim to completeness. My main concern was to provide the sources and some of the most important works relating to the 'Eight Thousanders'. I have been even more sharply selective where the 'Seven Thousanders' are concerned, but I believe that the very scanty references in the Bibliography will have enhanced the value of the tables (pp. 202-211) considerably.

All the works in this list are numbered consecutively, so that it would only be necessary to refer to them in the text by their numbers. The arrangement of the Bibliography is alphabetical by Authors' names, the works of each Author being listed chronologically. Where there are more than three Authors, the subject-title of the work appears instead, as is customary in Library usage. The list of maps at the end is the regional order, and is confined to a small number of maps of particular importance to the European climber. For amplification I refer the reader to the 'Survey of India's Map Catalogue, Provisional Edition, Calcutta, 1945', in which all official maps issued before 1945 are listed.

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