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THE SECOND MOUNT EVEREST BOOK

The Assault on Mount Everest, 1922.— Brigadier-General the Hon. C. G. Bruce, C.B., M.V.O., and other Members of the Expedition. London: Edward Arnold & Co. 1923. Pp. xii, and 340. *Maps and Illustrations.* 25s. net.

THE Mount Everest book of 1921 'Mount Everest: the Reconnaissance,' has now its sequel in a second volume, 'The Assault on Mount Everest.' The object of the first Expedition was purely one of reconnaissance; the object of the second Expedition was to climb the mountain, and this book is the story of the gallant attempts made to reach the summit. Both authors and publishers are to be congratulated on having been able to put into the hands of the public a second volume of such entrancing interest, and at such a moderate price. The sequence of the story is well arranged, especially its division into the general narrative of the Expedition, followed by the successive attempts to climb the mountain, with chapters on acclimatization at high altitudes, and on Natural History.

In General Bruce, the leader of the second expedition, the Royal Geographical Society and the Alpine Club were fortunate in having a man who had spent nearly thirty years of his life in the Himalaya, and who knows the conditions of climbing there probably better than any other living man to-day; who understands the Himalayan peoples and how to handle them. As any climbing party is dependent upon native porters, it was essential that there should be with the Expedition some one who could humour and get the best out of them. He could not be expected at his age to take part in the climbing, but for the command of the Expedition no better Leader could be found.

The volume starts with an introduction by Sir Francis Younghusband, who deals with the necessity of enlisting a corps of porters, the selection of the climbing party and the personnel of the Expedition, and the necessary equipment. The great question was whether the Expedition were to take oxygen with them or not, and this was finally decided in the affirmative. He then goes on to discuss the question which had been repeatedly asked him, "What is the good of it all, and who will benefit if the climbers eventually get to the top?" His conclusion is that human beings by it will gain an increased knowledge of their own capacities that they cannot know until they try; and that the standard of human achievement is being raised every day. His philosophy implies that a new enjoyment of life will be opened up, that for one precious moment the climbers are lifted above their ordinary life, and that after all the enjoyment of life is the end of life.

The story of the Expedition is admirably told by its leader, who takes us from the start at Darjeeling. The chief problem was to advance into Tibet at the last possible moment, in order to avoid the very worst of the winter's cold, and yet at the earliest possible moment, so that the Expedition could arrive at the foot of Mount Everest with sufficient time to attack it before the weather broke and the monsoon started. The Expedition left Darjeeling on March 26, the journey across Sikkim being uneventful, and it was too early to enjoy the beauties of the hillsides covered with rhododendrons. The principal difficulties of the former Expedition were avoided by employing the local Tibetan mules, which regularly cross the Jelap La, and which are the hardiest and best form of transport available. From Phari onwards the Expedition struck the true Tibetan spring weather: blizzards and icy winds with the ground

still frozen hard. The route followed was that of the Expedition of 1921, past Kampa Dzong to Tinki, and on to Shekar, but from Shekar, instead of going on to Tingri Dzong, a new route over the Pang La brought them to the Rongbuk valley, and to the interesting Rongbuk Monastery, where General Bruce made great friends with the sympathetic and saintly Rongbuk Lama, who could understand the object of climbing Mount Everest when it was explained to him that it was a sacred pilgrimage.

By May 1 all the outfit of the Expedition had been collected at the Base Camp. It needed good staff work to keep the high camps supplied with fresh meat, flour, and fuel, as the supply of coolies was difficult to assure.

Captain Noel was the official photographer of the Expedition, and as the exceptionally beautiful illustrations in this volume testify, he had his time from now on fully occupied. He was quite indefatigable, taking a kinematograph camera with him to the North Col, where he remained for four nights at 23,000 feet—a remarkable *tour de force*. His kinematograph film of the journey, the climbing, the Tibetan dances and festivals, and strange monastic life is deservedly well known. Other members of the party, also, have contributed excellent pictures to the book: notably the photographs by Captain Finch from about 24,000 feet, and those by Mr. Somervell at 27,000 feet.

General Bruce also gives an account of a trip that he made to the beautiful Kharta valley after the climbing season was over. This valley with its lower elevation was looked upon as a sanatorium for the Expedition, where the climbers could recover from the effects of the high altitudes and the excessive dryness of the Tibetan atmosphere. After the barren solitudes the sight of the beautiful green grass, the Alpine flowers, and the bushes and shrubs helped the recovery of the health of the party. The Dzongpen of Kharta proved as friendly to the new Expedition as he had been to the former. Some of the party made a trip to the Kama valley, but the weather by now had badly broken, raining steadily every day and with the mists low down in the valleys and hiding every view. The most interesting of the smaller journeys was that of Captain Noel and Captain Morris up the gorges of the Arun into Kharta. This path had never been traversed by Europeans before. No great waterfalls were found, but a wonderful gorge covered in the richest vegetation, with the mighty rushing stream, above which towered great cliffs disappearing into the mists above, and a path that climbed thousands of feet to avoid a cliff only to descend the next moment to the level of the river.

The chapters written by Mr. Mallory form a delightful and thrilling narrative of high literary quality. His vivid description of the beauties of the scenery of the new wonderful world that opened before their eyes will make every mountaineer envious. He describes the delights and discomforts of camp life on the glaciers in a very human way: the begoggled crowd that moves with slow determination up the mountain slopes, the little army of cylinders containing oxygen, or the pleasures of the table at high altitudes with quails and truffles and other delicacies.

The way to the North Col, the only possible approach that led to the summit, was not without difficulty and danger. By May 19 a camp was established and fully provisioned there, and the first attempt was made on May 20. The first climbing party was Mallory, Somervell, Norton, and Morshead. The slopes up which they started were not difficult, but the unfavourable wind of Tibet soon sprang up, and after reaching a height of 25,000 feet a camp had to be made. High bivouacs are seldom comfortable, and this was no exception. By night several of the party had already suffered from frostbite, but in spite

of the discomfort they were able to console themselves with the fact that they had pitched a camp at 25,000 feet, an altitude that no climbing party had ever reached before. The following morning broke fine, but Morshead was unable to proceed, and the other three started without him. It was luckily possible to climb almost anywhere on these broken slopes. Had it been otherwise they would have been unable to proceed, and Mount Everest would remain for ever a virgin peak. But even without any difficulties the rate of progress was slow, too slow to reach the summit in one day, and after reaching a height of 26,985 feet it was decided to turn back, and by 4 p.m. the high camp, where Morshead had been left, was reached. The descent to the North Col was painful, and almost ended in a catastrophe. Camp was not reached until 11.30 p.m. by an utterly exhausted party, only to find that there were no cooking-pots in which to warm up any food. The following morning they were just able to crawl down to Camp 3, and thus ended the first real attempt on the mountain.

The story of the second attempt is told by Captain Finch, who was in charge of the oxygen apparatus, which needed constant and expert attention. Various little improvements were made in the mouthpieces, as the original masks proved impossible to use. On May 24 Captain Finch and Captain Geoffrey Bruce, with Corporal Tejbir, started on the second attempt, camping first at the North Col. Throughout this climb oxygen was used. Early the following morning porters were sent on to establish a high camp if possible at 26,000 feet, but by 1 p.m. the inevitable wind had so freshened and snow had begun to fall that camp had to be pitched at 25,500 feet. During the night the wind increased to a gale, and it seems to have been only a miracle that the tent was not blown over the precipice which descended sheer to the Rongbuk Glacier 4000 feet below. Climbing was again impossible the following day, as the wind did not drop till late in the afternoon. About 6 p.m., however, some porters, anxious as to the fate of the party, had climbed up from the North Col with Thermos flasks filled with hot drinks. Wonderful people they were, these Sherpa Bhotia, that could cheerfully face this long climb all by themselves with no Europeans to lead them and at heights never before attained by man. Without these cheerful and sturdy mountaineers the conquest of Mount Everest would be an impossible task, and all praise is due to them for their wonderful work. The second night was passed more comfortably than the first by sucking oxygen slowly, with the marvellous result that the party were actually able to sleep quite naturally. The following morning was clear, but soon after the start Corporal Tejbir collapsed, and could go on no further. The old enemy the wind began to freshen, so that it was necessary to leave the exposed ridge and traverse across the great northern face of the mountain. By midday they had reached a height of 27,300 feet, when an accident to Captain Bruce's oxygen apparatus necessitated a halt. To reach the summit now seemed impossible, and they realized that it was necessary to turn back. On their descent they passed their porters, who were cheerfully ascending again to the 25,500-foot camp to bring their kit down—the third time in three days that these porters had climbed up to over 25,000 feet.

Captain Finch's conclusions are that to reach the summit oxygen is absolutely necessary. He compares the rate of progress of the first party, who after leaving their high camp at 25,000 feet ascended only 330 feet per hour, with that of his party on the second attempt, who with oxygen made 900 feet per hour. He also advocates the use of oxygen between 21,000 feet and 23,000 feet, with increased quantities after 23,000 feet. He considers that only one camp above the North Col at a height of 26,500 feet would be necessary, and

that from that camp with a full supply of oxygen the summit could be reached in four hours, but that it would be necessary to make a dump of oxygen at 27,500 feet. He finishes his account with a chapter on equipment, which is extremely important if frostbite and sickness are to be avoided.

After the failure of the first and second attempts to reach the summit, it was determined to make a third attempt. Mallory and Somervell were the two fittest of the party, and were ready to undertake this task. On June 4 there was a heavy snowfall, and on arrival at Camp 3 they found the snow was from 15 to 18 inches deep. On June 7 they thought it would be possible to make a start for the North Col. Their intention was to use a modified amount of oxygen. After the start the snow was found to be deep and soft on the way to the North Col, and it was slow work, when suddenly the surface cracked and started to move slowly downwards carrying all the party with it. It would seem a miracle that the whole party were not buried, but as it was seven of the coolies were swept over an ice cliff into a crevasse and killed. This tragic calamity naturally brought to an end the third attempt to climb Mount Everest.

Mr. Mallory's conclusions differ from those of Captain Finch. He considers that two camps must be established above the North Col, one at 25,000 feet and one at 27,000 feet, and that porters could supply these camps without the use of oxygen, instancing the feat of some who climbed to the 25,500-foot camp three times, and accomplishing their tasks of carrying heavy loads quite easily. He considers also that if the high camp on the North Col could be made sufficiently attractive, it would be advisable to spend several days there in acclimatizing oneself before starting on the final climb. And he considers that it would not be impossible to reach the summit without oxygen.

Mr. Somervell adds a few notes on acclimatization, showing that it is not only possible, but is also quite rapid at these high altitudes, and that acclimatization at 23,000 feet should be sufficient for the attainment of the summit of Mount Everest. He also noted that each man had a different rate of acclimatization, and that some, especially the older ones, seemed to deteriorate in condition while staying at a great height. His conclusions are that it would be possible to get to the top of Mount Everest unaided and without oxygen, and he considers that the chances of climbing the mountain are probably greater if oxygen be not used, as the apparatus requires the use of a very large number of coolies.

A short chapter on natural history by Dr. Longstaff agreeably supplements the accounts of the climbing, but the acquisition of specimens was much restricted owing to the prohibition of the use of firearms in Tibet.

Altogether this second volume of the Mount Everest Expedition forms a fascinating story of adventure well told and full of interest from start to finish. If there is any criticism to make it is that more is not told of the expedition through the Arun gorges, and that there are no illustrations of that part of the country. There is also the same difficulty that the former Expedition experienced in the spelling of Tibetan names, the Tibetan pronunciation being totally different from the written characters, and in this volume the spelling of the names of places is at times not only different from that of last year, but also it does not agree with the spelling in the maps at the end of the volume.

C. K. HOWARD-BURY.

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February 1924

A YEAR IN LHASA

Sir Charles Bell, K.C.I.E., C.M.G.

Read at the Meeting of the Society, 3 December 1923.

VISITORS to Tibet, and even those who stay there a long time, do not as a rule come into touch with the leading people of the country. But during the nineteen years out of my public service which I spent partly on the borderland between India and Tibet and partly in Tibet itself, it was my good fortune to be brought into close contact with the Dalai Lama and the leading men of the country on several occasions. In 1910 the Chinese invaded Tibet and occupied Lhasa. The Dalai Lama, with the majority of the members of his Government, fled to India and remained there for over two years. Being, among other duties, in charge of our political relations with Tibet, I saw His Holiness and his ministers at short intervals during the whole of this period. For they were naturally distressed at the invasion and occupation of their country, and any little kindness or hospitality that one could show was likely both to ease their minds and to react favourably on the relations between Tibet and India. They returned to Lhasa in 1912, after their soldiers had expelled the Chinese troops from Central Tibet, and from that time onwards I received constant invitations from His Holiness and the Tibetan Government to visit them at Lhasa.

The Prime Minister of Tibet revisited India in 1913 in connection with a diplomatic conference, and remained there for eight or nine months, during which time our friendship was further strengthened.

In October 1920 our Government deputed me on a diplomatic mission to Lhasa. I left the Chumbi Valley on November 1, arrived in Lhasa on the 17th, and remained for nearly a year—longer than any white man had been there for over a hundred and fifty years. And as the invited guest of the Dalai Lama and the Tibetan Government I was shown pretty well everything that I wished to see. I quote these biographical details merely to show that I enjoyed facilities for studying the life in Lhasa, a few features of which I propose to show you this evening.

And how interesting that life is! For—more than in most countries—

the social, political, and religious activities of Tibet centre in their capital. Here the leading men and women foregather, here are the members of the Government and the large monasteries, here dwells the Vice-Regent of Buddha in the person of the Dalai Lama.

The road from Sikkim to Lhasa is by now fairly well known. The first portion of it is especially familiar to you from the admirable photographs of the Mount Everest Expedition. We will therefore pass over it quickly. You experience a great change as you pass from lower Sikkim, with its warm wet climate, its large proportion of Gurkhas, and its semi-Indianized bazaars, across one of the passes into the Chumbi Valley. Here we are in a valley the lower portion of which is 9000 to 10,000 feet above sea-level and possesses a good climate, temperate in heat and cold, temperate in rainfall. The standard of prosperity, shown among other ways by the houses of the people, is high compared with that of India.

We go up this valley to Phari, which is known to you from the Mount Everest pictures, and the Tang La, or "Clear Pass," where we cross the main axis of the Himalaya and are at once in the cold dry climate which Tibet knows so well how to provide. Here our road diverges from that which was subsequently followed by the Mount Everest party. They proceeded westward to their highly successful attack on the great mountain, an attack which we all hope may attain a greater, and even a complete, success next year. Our road lay to the north-east. Crossing "The Plain of the Three Sisters" at an elevation slightly lower than the summit of Mont Blanc, we passed along the "Otter Lake" and other plains and valleys to the town of Gyantse, whose name denotes "The Peak of Victory." This, one of the largest towns in Tibet, was opened as a mart for British and Indian trade by the treaty which our late President Sir Francis Younghusband concluded at Lhasa in 1904.

From Gyantse onwards one of the two officials, jointly in charge of the Gyantse district, accompanied us. He had been deputed by the Tibetan Government for this purpose, and served also to show the people that we were going to Lhasa on the Dalai Lama's invitation.

The road crosses the Karö La, 40 miles from Gyantse, at an elevation of between 16,000 and 17,000 feet, descends to "The Lake of the Upland Pastures" (*Yamdrok Tso* in Tibetan), along which it passes for some 27 miles. A few miles off our road was the monastery of Samding, the home of Dorje Pamo, the highest lady in Tibet. For she ranks as an Incarnation of a Buddhist deity, the only female Incarnation in Tibet, and possesses the peculiar power of turning herself and the fifty-nine other inmates, who are monks, not nuns, into pigs. I was, I think, the first white man to visit her at her own monastery. We had a long conversation, and she regaled my party and myself with an excellent lunch. It is not every day that one has the opportunity of lunching with a goddess! She was twenty-four years of age, with a pensive mien

and an air of quiet dignity. We exchanged presents, in accordance with Tibetan custom. I sent her a watch, for she told me that she hardly knew the time except at sunrise and sunset.

From this lake we crossed the Kamba Pass into the valley of the great river which flows from west to east through southern Tibet. On our maps it figures as the Tsangpo, but this is merely the Tibetan word for a large river. The actual name of this river varies in different parts of its course ; here it is known to Tibetans as Tsang Chu ; *i.e.* " The river of the Tsang province."

As we drew nearer to the Holy City we passed many pilgrims going and returning. Some of these were covering every inch of the way by prostrating themselves. Lying on his face the pilgrim makes a mark with his fingers a little beyond his head. Rising, he brings his feet to this point and again, muttering a prayer, prostrates himself. We met a Mongolian pilgrim who was travelling thus from Lhasa to the Yambu Chöten, a sacred Buddhist shrine near Katmandu, a distance of some 700 miles. He had already been three and a half months on the road, and would take at least two years more to reach the goal of his pilgrimage. Slabs of wood were fastened to his hands to prevent them from being torn to shreds on the stony ground. Pilgrims from Eastern Tibet, seeking the sacred lake of Manasarowar in Western Tibet, have been known to traverse 2000 miles in this manner, a journey which takes them from seven to ten years.

Perhaps some of our party, more than three-fourths of whom were Buddhists, were inclined to envy these pilgrims on account of the amount of religious merit which they were amassing by these mortifications of the flesh. But we were entitled to consider that we too were not entirely without religious merit. We had come to Lhasa in winter over the high Tibetan passes and tablelands. We might have expected gales and blizzards ; and indeed a blizzard was raging on " The Plain of the Three Sisters " until the very day that we reached it. But to us the weather had been remarkably kind. Now the Tibetans have unlimited faith in the power of the mind. They believe that it can influence a man's material surroundings ; that it can even influence the climate. My Tibetan friends quoted to me the verse—

Deeds white and black, for minds are clean and foul.
Is the mind clean? Then earth and sky are clean.
Is the mind foul? Then earth and sky are foul.
For 'tis upon the mind that all depends.

The good weather with which we were favoured was thus doubly good for us.

Crossing the Tsang Chu, where we were joined by one of the Dalai Lama's secretaries, the road runs down it for a short distance and then follows up the Kyi Chu to Lhasa 40 miles away. A few miles from Lhasa we crossed this river by a remarkably fine bridge, known as

Tölung Tresam, "The Bridge at the Corner of the Upper Valley." Tibetan names usually give a good deal of information.

We drew nearer to Lhasa, but still we could not see it. It seemed as though the Holy City must be screened from the outside world as long as may be. Two low hills blocked the view. On one stands the Temple of Medicine; on the other the palace of the Dalai Lama. It is not until you pass under the long arch of the chöten or stupa, known as the Pargo Kaling, that the town bursts on your gaze. We were now in front of the Dalai Lama's palace, the famous Potala. In it are the Dalai Lama's own rooms and numerous chapels, occupying the yellow and red portions of the great building. Behind the white walls are quarters for Ministers of State and ecclesiastical officials as well as a college, containing one hundred and seventy-five priests, who are in immediate attendance on His Holiness. The Dalai Lama has frequently to come to the Potala for religious ceremonies, but lives as much as possible in his country palace at Norbu Lingka, "The Jewel Park," a mile away, and two miles from Lhasa. This he finds cleaner and healthier. It affords him also more privacy and more room for exercise.

Travellers in Tibet seldom, if ever, fail to notice the lack of cleanliness among the people. However strong may be the justification for such remarks, we must remember that an elevation of 12,000 to 15,000 feet above sea-level gives a very cold climate, and that the Tibetans have not arrangements, as we have, for heating their houses or their water. The Tibetan himself, indeed, does not appeal to considerations of this kind. He views the matter from a different standpoint, and deals with it in one of his short and simple proverbs. Before quoting this I must explain that Tibetans divide humanity into two classes: Buddhists, whom they refer to as "the inside people," and non-Buddhists, whom they refer to as "the outside people." And so their proverb runs:

The outside man is clean outside;
The inside man is clean inside.

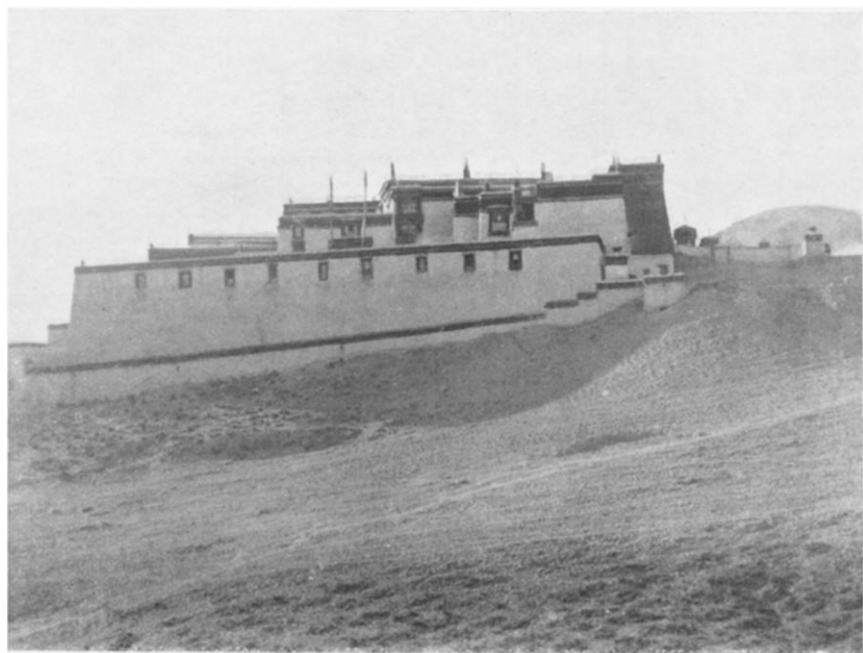
A bare mile beyond the Potala is the city of Lhasa, lying on the broad plain surrounded by groves of willow and poplar. The houses are large and substantial, built of stone and sun-dried brick. There are no brick-kilns.

Lieut.-Col. Kennedy, I.M.S., for whose services I had asked, joined us a week after our arrival. Mr. Dyer, the Civil Surgeon at Gangtok, who had accompanied us to Lhasa, returned to his work in Sikkim. Our party was now complete. Among my colleagues, to each of whom I owe more than I can express, was Kusho Palhese, a member of the Tibetan nobility, who had worked with me for seventeen years and had taught me much, very much, about the Tibetan people, their language, their customs, and their government.

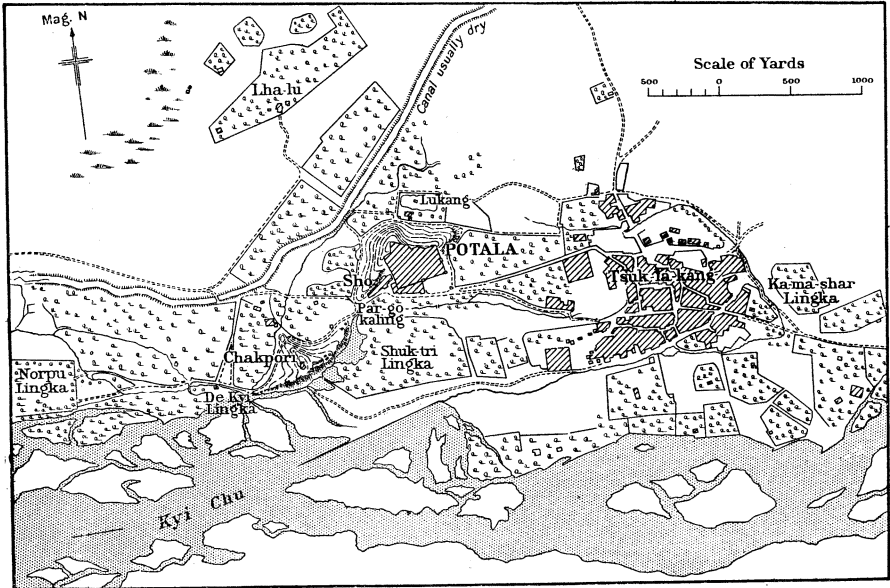
Our first days were largely occupied in paying and receiving numerous



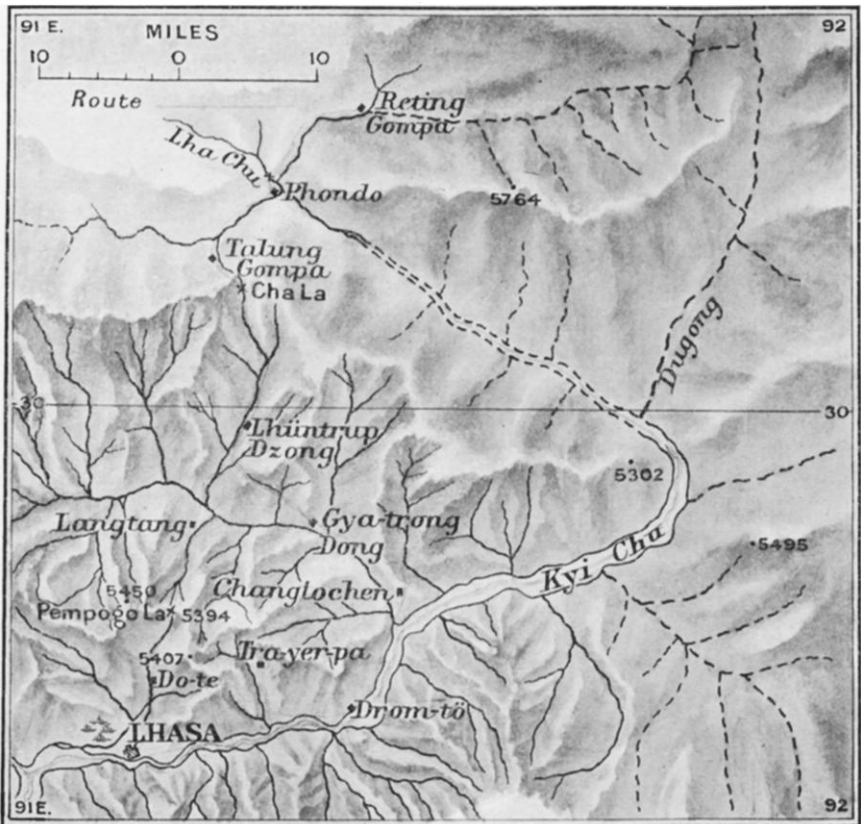
THE NATU LA BETWEEN SIKKIM AND TIBET



SAMDING MONASTERY



SKETCH-MAP OF LHASA, FROM THE SURVEYS OF COLONEL RYDER ON THE TIBET MISSION OF 1904



SKETCH-MAP OF COUNTRY BETWEEN LHASA AND RETING

visits. Everything in Tibet centres on the Dalai Lama, so that my first visit was necessarily to him in his country palace in the Jewel Park. He received me as an old friend. We sat together in one of his private rooms, fitted up half in Tibetan, half in European style. He dismissed everybody from the room so that we two could talk together alone, free from all restraint. In all our conversations both in India and here in Lhasa he was singularly frank. After this I exchanged visits with the ministers and other leading people in Lhasa.

Three or four months before I came to Lhasa, the Royal Geographical Society and the Alpine Club had asked for permission to attempt the ascent of Mount Everest through Tibetan territory. I felt bound at that time to oppose the project, for I knew that the scheme would raise suspicion in the mind of a people circumstanced as are those of Tibet. Difficulties of this kind cannot be smoothed out in letters. When, however, I came to Lhasa, the matter being left to my discretion, I asked the Dalai Lama and obtained permission for the Expedition. Personal intercourse removes many misunderstandings. In this, as in all talks with the Dalai Lama, I found him full of tolerance. It was certainly a noteworthy fact that Tibet should grant to Britain, her former enemy, a privilege which Britain's own ally, Nepal, had felt unable to accord.

I understood that the country, in which the great mountain is situated, is known as Chamalung, an abbreviation—such abbreviations are common in Tibetan—for Cha Dzima Lungpa, "The Country where Birds are kept," *i.e.* "The Bird Sanctuary." I was informed that it was so referred to in a Tibetan work, known as the Mani Kabum, which relates to the time of the famous king, Song-tsen Gam-po, in the seventh century of our era. In this book it is stated that birds were fed in Chamalung at the expense of the king. But the name can hardly refer to the mountain as a whole. Any name ending in lung or lungpa denotes a valley or other land lying lower than land near it. And the bird sanctuary would be on the lower slopes rather than in the snowy wastes which hold the upper lands of the mountain in their death-like grip. Tibetans often leave mountain peaks unnamed, whether these be great or small.

Visits to the streets and shops of Lhasa were not without interest. The goods are exposed for sale partly in the shops, partly on the road outside. It may interest you to see two or three as samples of the rest. Vegetables are not eaten largely in Tibet, for it is difficult to produce them in such a cold climate. The Chinese and semi-Chinese element are the chief growers of vegetables, but they are sold here and there in Tibetan shops.

Since his return from India in 1912 the Dalai Lama has started a meat market in Lhasa. I dare say our Food Inspectors would not pass it. But for Lhasa it marks a great advance on previous arrangements and meets the requirements of the people.

The staple diet of Tibet is yak's meat, mutton, barley flour, cheese,

butter, and tea: especially tea, of which every Tibetan drinks at least ten or fifteen cups a day. The average daily consumption might be about thirty, but there are many who drink fifty or sixty cups regularly every day. The tea, which is as a rule of a coarse quality, is grown in China and is pressed into the shape of bricks, which on their long journey through Tibet are encased in coverings of hide. They are carried on the backs of ponies, mules, or donkeys, of yaks or other cattle, and thus travel from the extreme east to the extreme west of Tibet, a distance of some 3000 miles across the great mountains and valleys of this difficult country. The yak, which is one of the chief beasts of burden, covers only $1\frac{1}{2}$ miles in an hour, and perhaps 10 to 15 miles in an ordinary day's march. So the journey takes a long time, and the tea must of necessity be well packed.

In our own country it would no doubt be difficult to prescribe when winter will begin and when it will end. Our ministers, officials, and clergy would resent being forced to wear an overcoat on a warm day or forbidden its use when an icy north wind was blowing. But Tibet, in this as in so many other matters, does things differently. On the anniversary of the death of Tsongkapa, who in the fourteenth century reformed the Tibetan Church, winter commences. On the eighth day of the third Tibetan month it ends. This places winter between a fixed date in the first half of December and another in the last half of April. Between these dates all officials, lay and ecclesiastical, must wear fur hats and cloaks after prescribed patterns. Outside these dates, however cold the day may be, they are not allowed to do so. The Tibetans are in the main an orderly people. Even the brigands, of whom there are plenty, are governed largely by rule. Many of them are highway robbers for six months in the year in their own districts and peaceable traders when they visit Lhasa and elsewhere. Nobody minds this: it has been so since time immemorial. Many of these brigands are markedly prosperous. They find the combination of business profitable; trading in other districts and robbing in their own.

In Lhasa there is frost at night for eight months out of the twelve. From the beginning of December to the end of January the temperature in some of the rooms in our house did not rise above freezing-point, night or day. Our highest temperature in the summer was 91° Fahrenheit in the shade; our lowest in the winter 10° below zero. What made it really cold was the strong wind, which attains its greatest violence during the winter and spring months. Tibetan residences are plentifully supplied with windows; we had about fifty in the small house in which Colonel Kennedy and I lived. Instead of glass you have white cloth in these barely thicker than muslin, a somewhat incomplete protection against the winter gales at an altitude of 12,000 feet.

Lhasa is the home of festivals. They take place on specified dates throughout the year. I shall have time to touch on only a few of them,

and that briefly. The Tibetan calendar differs from ours. Their New Year falls in February; when we were in Lhasa it fell on the eighth. Four days before it the Dalai Lama made a State Entry into the Potala from his country palace.

In Christian lands on the last day of the year midnight services are held in the churches that men and women may repent of the sins of the old year and start afresh in the new. Something of the same kind may be seen in Tibet, though the manner of action is different. Two days before the close of the year a monastic dance is held in the great courtyard of the Potala. Its object is to cast out the evil of the old year so that the new year may start fresh and clean.

On the first day of the new year the leading priests make their obeisance to the Dalai Lama in the Potala. The next day is known as "The King's New Year." We attended it, and a most interesting ceremony it was. It represents events in the times of the kings of Tibet, one thousand to twelve hundred years ago, when Tibet was probably one of the most powerful nations in Asia. There are religious services and songs, a dance with axes, a dance with swords, and theological disputations between two of the leading doctors of divinity. In an interval between these all Tibetan officials, from the ministers downwards, made their obeisances to the god-king, and received his blessing.

At one point there was an interlude that, though comical, was not without its significance. A large number of low square tables were brought in and placed in the centre of the hall. On them were laid fruits, cakes, sweetmeats, dried carcasses of sheep, and the head of a bull. These had all been blessed by the Dalai Lama and were meant for the sweepers, grooms, sedan-chair carriers, and other servants of His Holiness, that these poor folk, though not admitted to the ceremony, might share in the general rejoicing and in the blessing. The doors were thrown open and in they rushed. With them crowded in a number of outsiders, eager also to gain some of the food, not because they were poor—most of them were not—but because it had been blessed by the Dalai Lama. These thrusters were belaboured by the door-keepers, strongly built men, between 6 and 7 feet in height, who laid on with thick sticks, one stick breaking in the process. The intruders, however, seemed to care but little, provided they could gain the blessing that came with the food. Like Jacob in the Bible, each wrestled for his blessing and refused to let go, even though he was hurt.

At this ceremony, and at certain others during the next two months, Tibetan lay officials wear a special uniform with a white cap. These caps were introduced by King Song-tsen Gam-po, when, some twelve hundred years ago, he introduced Buddhism from India. They represent the turbans worn by Indians.

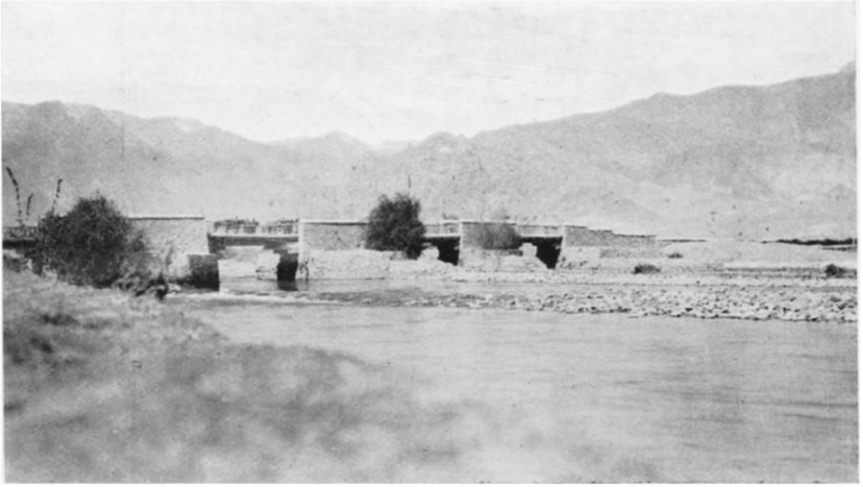
Now begins what is the most important festival of the whole year. It is called Mönlam Chempo, *i.e.* "The Great Prayer," and lasts for

twenty-one days. People flock into Lhasa from all directions, especially monks, and most of all those of the great monasteries. The population of the capital, which is ordinarily perhaps fifteen to twenty thousand, is swollen to four or five times this number. More than three-fourths are monks, many of them spoiling for a fight. It is a time of grave anxiety for the Dalai Lama and his Government, as in times past there have been serious outbreaks leading to wholesale massacres. "The monks," as the Dalai Lama used to tell me, "act on the spur of the moment; they never stop to think." During this particular year everybody feared an outbreak owing to some measures which had been brought forward by the Tibetan Government, and were by most of the people believed to have been inspired by me. These measures, though necessary, were unpopular among many of the people and especially among the more bigoted section of the priesthood. Householders, large and small, were sending away their property by night and hiding it in the villages in the country. However, by a judicious mixture of tact and firmness on the Dalai Lama's part, the danger was eventually averted.

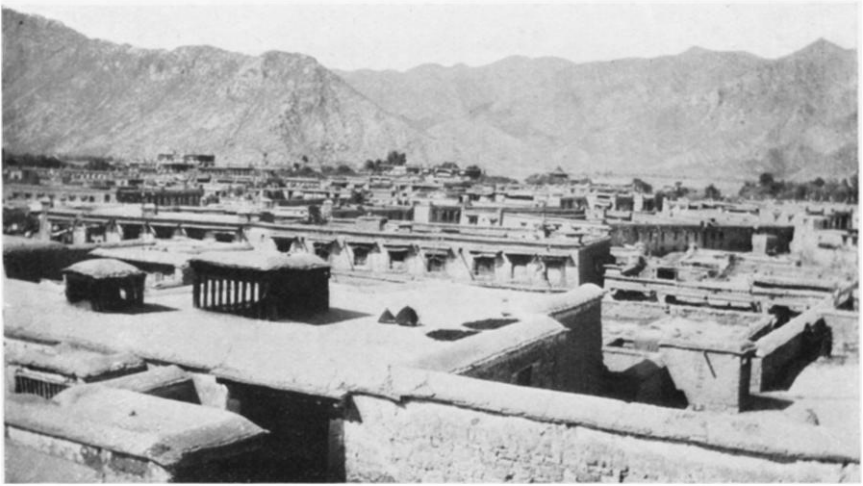
Throughout the "Great Prayer" religious services are held thrice daily in the great Temple in Lhasa. I watched the proceedings at one of these, and found twelve thousand monks taking part in the service. They were divided into sections and placed wherever room could be found for them.

On the night of the fifteenth day we attended a festival which is known as "The Offerings of the Fifteenth," but may briefly be described as the Butter Festival. The monasteries, ministers, and others make offerings of butter, eighty or ninety offerings in all. Each is in the form of a triangular wooden frame, 40 to 60 feet high, with a sharp apex. On the frame is stretched a covering of leather, and on this are figures, pictures, etc., all of butter, painted in various colours, and often covered with gold leaf. On each side of the frame is an ascending dragon; in the middle a circular flower or wheel, usually red. Below are figures, in groups and alone. The whole is tastefully and elaborately designed, and the figures are carefully moulded. And all are made of butter. On the top of each offering is a red silk umbrella.

As it was night and the festival took place in the heart of Lhasa, the authorities were very nervous for our safety. The tension among the monks was high. There were a good many of them in Lhasa at the time, the streets were narrow and unlighted, and a stone could easily be dropped or a shot fired from the darkness of a neighbouring house. But we had attended other ceremonies, and the people would have drawn wrong conclusions if we had not been present at this one. By the Dalai Lama's orders twelve soldiers accompanied us, and six monks equipped with long staves. The crowds made way for us, and we were able to make a thorough inspection of the various interesting exhibits. In some of these small platforms were arranged, and the figures made to move by



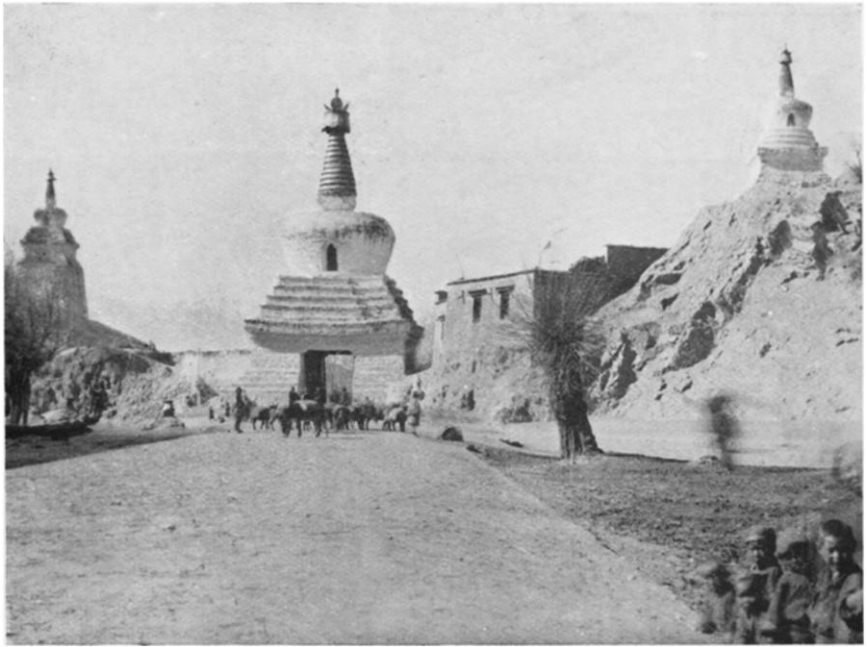
TÖLUNG TRESAM



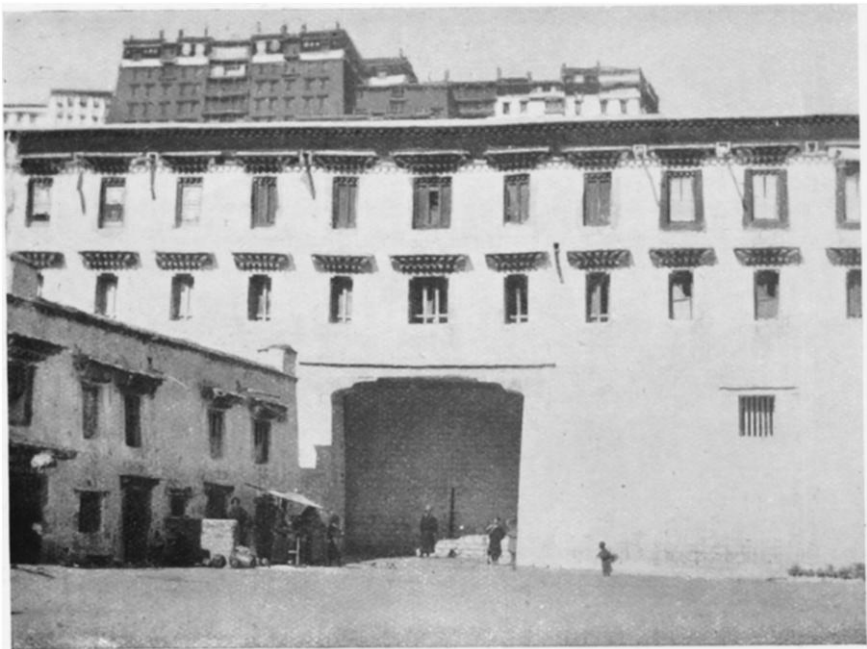
THE NORTHERN QUARTER OF LHASA



THE TWO SHENGOS WITH IRON RODS OF OFFICE



PARGO KALING



MAIN ENTRANCE TO THE POTALA

strings pulled from behind and below. The countrymen stared agape at this marvellous performance; the sophisticated town lads laughed, but enjoyed it just as much.

It is a pleasure to be able to record that, when the trouble broke out again five months later, the monks themselves, suspicious though they are of the foreigner, desired my arbitration in the dispute.

During the concluding days of the "Great Prayer" there were sports of various kinds, gun-firing and arrow-shooting on galloping ponies, a pony race without riders, a foot-race over a 6-mile course, wrestling, and the carrying of a heavy weight. These sports are presided over by two masters of ceremonies, who are chosen from the youngest officials just beginning their career. They are attended by a large staff, including six Maids of Honour chosen from the ladies of Lhasa.

The festival of the "Great Prayer" is in its essence a prayer to the next Buddha, "The King of Love," to come quickly. And when it was over, all dispersed to their homes far and near, and as they went you could hear some of them singing:

Lhasa's Great Prayer now is ended;
And the King of Love invited.

Many of the ceremonies in the Great Prayer illustrate events in the times of the early Tibetan kings. Some of these kings conquered territory in China and India, and recorded their conquests, their treaties, and their internal affairs on monoliths in Lhasa and elsewhere. But one of them, a young man, departed from the ordinary lines and introduced a measure somewhat akin to the capital levy of which we hear so much at present. The wealth of the country was divided equally among all the people. But the equality soon disappeared. He tried again, with the same result. Yet a third time the division was made. But during their times of ease the poor had lost the habit of working, and so became poorer than ever. After this third attempt the king was poisoned by his mother.

The present Dalai Lama is the thirteenth of the series. Soon after each one dies, or, as the Tibetans say, retires to the heavenly fields, his spirit is believed to pass into the body of a newly born boy. The fifth Dalai, who was the first to rule as a king and is the most highly revered of the whole series, introduced the present system of administration in Tibet. Among other innovations he transferred the civil and criminal jurisdiction of Lhasa city to two monks during the Prayer festival each year. The ordinary judiciary and police are for the time removed, while these monk-magistrates, known as Shengo, hold control throughout the city with their own henchmen. In former days they were not scrupulous as to how they exercised the control, provided that their coffers were filled. Many abuses resulted, heavy fines were imposed on trifling pretexts, and people used to flee from Lhasa to avoid the

exactions. During the early years of his rule over twenty years ago the young Dalai Lama sent for the two monk-magistrates.

"By whose authority do you do these things?" he asked.

"By the authority of the Great Fifth Dalai Lama," they replied.

"And who is the Great Fifth Dalai Lama?" queried the young ruler.

Though taken aback for a moment, the Shengo did not fail to answer, "Without doubt Your Holiness is he."

"What I have given I can take away," came the quiet reply, "and I will assuredly do so unless you cease from your exactions."

From the date of that interview the worst abuses ceased, and the good people of Lhasa have always been grateful to the Head of the Faith for his intervention.

The Dalai Lama's government rules an area of some half a million square miles, with a population averaging only five or six to the square mile. It is a land of mountain, desert, and unbridged rivers, a land of snow and ice and blizzards. There are no railways, no roads as we understand them, no motor cars. There is, practically speaking, no carriage, cart, or other wheeled conveyance of any kind from one end of the land to the other. The country is poor. When these limitations are considered, it must be admitted that the Lama and his Government exercise a very creditable control over their territory. It is not indeed as close a control as in Nepal, one of their southern neighbours, where the Gurkha proverb runs :

There's no answer to an order ;
There's no medicine for death.

But Nepal has a dense population concentrated in a comparatively small area.

Law and order are maintained in those portions of Tibet which are still under the Dalai Lama's rule far more successfully than in the parts of Tibet which have been annexed by China, or in China herself.

Numerous indeed were the religious ceremonies that we attended throughout our stay in Lhasa ; many were the monasteries that we visited, with their monk inmates ranging from thirty to ten thousand. And often after a round of such visits I seemed to hear the gentle voice of the old Prime Minister, who from the first had spoken to us as follows :

"There are in Tibet many religious ceremonies, many monasteries and innumerable priests ; but the whole of our religion can be summed up in one short verse, a verse that every Tibetan knows :

Taking self as an example,
Do ye good, not harm, to others ;
This, just this, is Buddha's teaching."

The same thing, is it not, as "Do unto others as ye would they should do unto you," or "Thou shalt love thy neighbour as thyself" ?

The Tibetans like being in the open air as much as possible. During

the summer they often spend the whole day in picnics and other outdoor entertainments ; sometimes right out in the open, sometimes under awnings. The time is spent in feasting, singing, dancing, and gambling, in having a good time generally. Towards the end of the summer theatrical entertainments take place. The Dalai Lama starts the ball rolling in the Jewel Park with a series of plays that continue for a week. I followed with an entertainment to my Tibetan friends that lasted for three days ; a separate play being performed daily. The play began each day in a park near Lhasa at about ten o'clock, and ended with the daylight nine hours later.

On August 24, by the Dalai Lama's invitation, Colonel Kennedy and I left Lhasa for a tour along the northern road from Lhasa to Mongolia. This had, I think, never before been visited by white people except by Huc and Gabet, the well-known Lazarist missionaries who had passed along most of our route seventy-five years before, but have not left much record of this portion of their journey.

Crossing the Pempogo pass, we descended to the Pempogo valley and halted for the night at the monastery known as "Elephant Plain," built in the twelfth century. We were accommodated in the large Assembly Hall. We found here the mummy of an Indian saint, who is believed to have lived over nine hundred years ago. We saw also a chöten or stupa erected by the founder as a protection against epileptic fits, these being held to be due to planetary influence. The protection is gained by walking round the chöten.

The following day we crossed the Pembo river, with some difficulty, for it was swirling along flush with its banks, and halted at Lhüntrup Dzong. Our next march took us over the Cha pass to the Talung monastery. On the way we passed several parties of Mongols and of people from the far distant regions of north-eastern Tibet. I had chosen this time for the tour as being the time when the summer caravan comes into Lhasa from Mongolia and Siberia. Once every summer and once every winter the long trek across the high cold plateau of northern Tibet is undertaken. The parties of pilgrims and traders unite in one large caravan as a protection against brigands. Arrived at Nagchuka, 150 miles north of Lhasa, they await the Dalai Lama's permission to continue the journey, and then proceed in small parties to Lhasa. The journey from Mongolia takes about four months.

We were now leaving behind the agriculturalists of Central Tibet, who enjoy the comparative luxury of a settled existence, and are approaching the land of pastoral nomads who raise no crops, but wander over the country with their flocks and herds. We saw many plants of the wonderful blue poppy of Tibet, which was then in full bloom and flourishing from an altitude of 13,500 feet upwards.

The head of the Talung monastery—the word means "The Tiger's Prophecy"—is known as "The Precious Mother," which seemed a

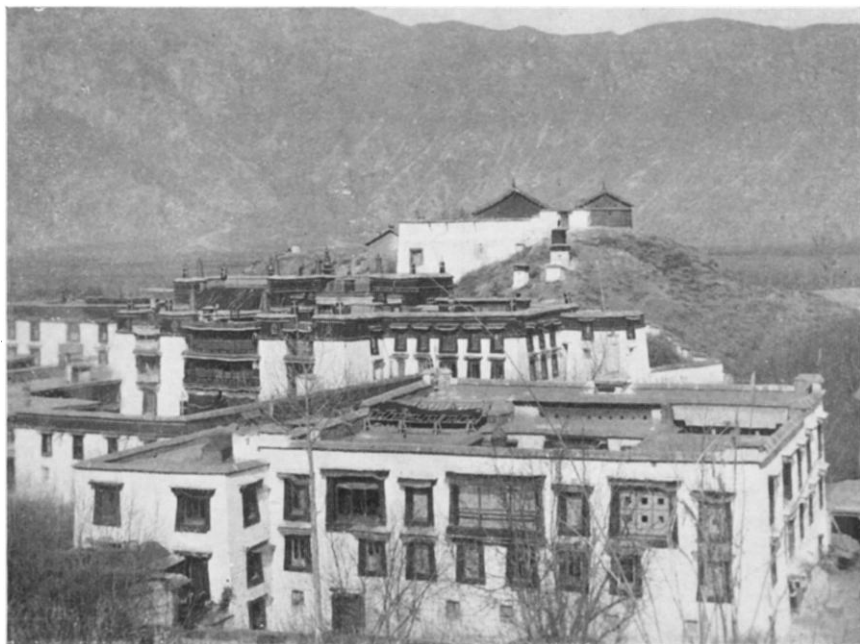
somewhat curious title, for the head in question was a boy four years of age. Another curious feature in this monastery—which, lying off the road, was probably not visited by Huc and Gabet—was its old library. Ten to twelve thousand volumes, each in its massive wooden covers and said to be written in gold letters, were piled against the walls. These books were saved from the fire that destroyed the great chapel of the monastery several hundred years ago. As a result of this experience they are now pensioned off. They are not put to further use, but rest in peace against the lofty walls. We found the same state of affairs at Reting, a new library taking the place of the old.

On our march to Pondo we passed a small house of religion built into the face of a precipice, whose priest had remained seated Buddha-wise for twelve months, so that now he was unable to stand upright. He has a reputation for learning as well as for sanctity. Young priests come to him from all over Tibet to receive instruction in the Buddhist scriptures.

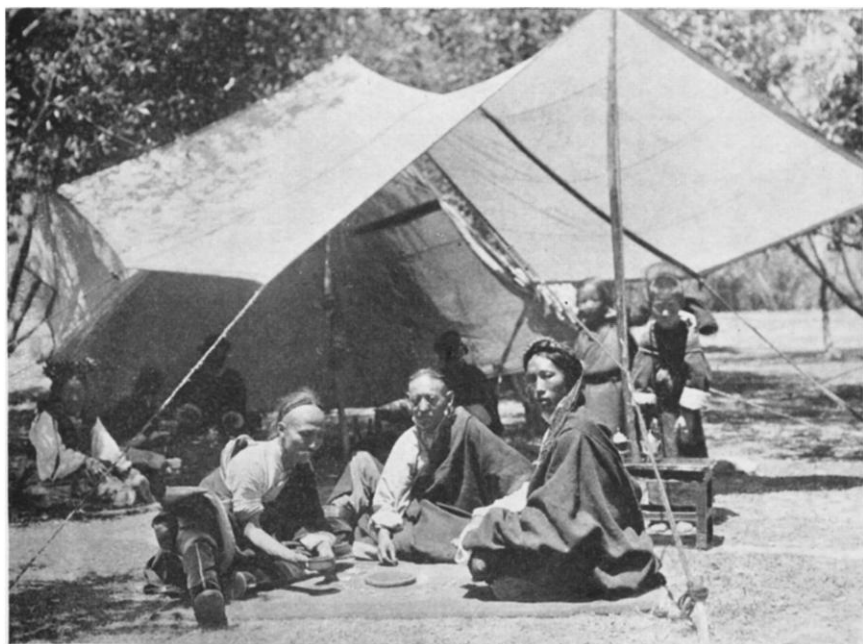
At Pondo there is a suspension bridge for foot-passengers over the Lha Chu, one of the very few suspension bridges in Tibet that are usable. Tibetans ascribe the building of such bridges in Tibet to a priest named Tang-Drong Gyal-po, who lived some hundreds of years ago. Images of this saint are put up where there is danger of a river overflowing its banks, for he is believed to have power over water. From near Pondo we saw a small portion of the Nyenchen Tanglha range. Round and about we passed many parties of Mongols and others from the north on their way to Lhasa. They ride ponies, mules, and yaks, but not camels. These are largely used on the northern plains of Tibet, but are not allowed on the Lhasa side of Nagchuka.

Seven miles beyond Pondo we left the north road, a mere track leading up a side valley to the left. Another 6 miles brought us to Reting, which is 64 miles from Lhasa. Reting owes its reputation mainly to two things. The first is this: though trees in Tibet do not usually grow at a much higher altitude than 13,000 feet, and then but sparsely, here and there, yet round Reting there is a dense forest of juniper trees growing up the mountain-side up to and beyond an altitude of 15,000 feet. Tibetans regard this as a miracle and ascribe it to the prayers of the most famous of the early Tibetan kings, Song-tsen Gam-po, who lived thirteen hundred years ago. Cutting off his hair, the king strewed it on the ground and prayed that trees might grow from it to enable a temple to be built. The temple and monastery were built three hundred years later. There are twenty-one thousand trees altogether; it is not allowed to cut or lop any of them except for building material. Several of the trees have names of their own.

The other great possession of Reting is its *Cho*. A *Cho* is an image of Buddha made under the direction of Buddha himself. There are said to be only three in Tibet, two in Lhasa and one here at Reting.



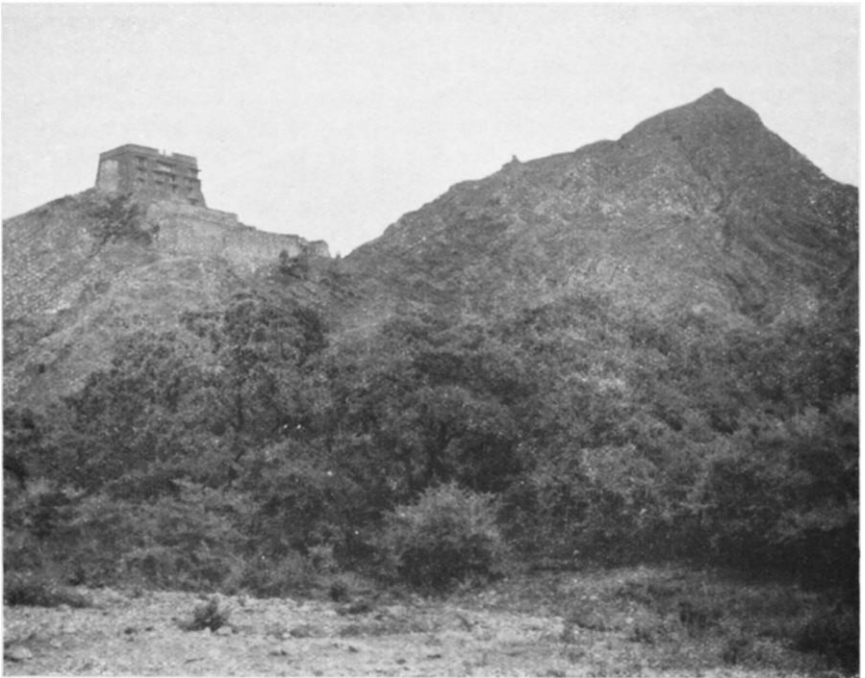
KÜNDELING MONASTERY, IN WHOSE PARK THE MISSION LIVED



A PICNIC PARTY



THE LABRANG (ADMINISTRATIVE BUILDING) OF RETING MONASTERY



LHÜNTRUP DZONG

One of Reting's unconsidered possessions was a fine Tibetan mastiff, who lived in a courtyard outside our rooms. He had a deep soft bark—a sign of good breeding. For the bark, say Tibetans, should be like the sound from a well-made copper gong.

The river at Reting is the same as the river at Lhasa, but it winds for 150 miles on its way from Reting to the capital. I went only a few miles beyond Reting, as I could not afford to be too far from the nearest telegraph office, which indeed at Lhasa was full two days' journey distant.

On leaving Reting, with its little hermitage nestling in the trees above it, we returned to Lhasa partly by the same and partly by a different route.

But it is time to conclude. We left Lhasa on October 19, and on the 18th I paid my farewell call on His Holiness the Dalai Lama. It was a sad parting for us both. When I left I felt that there were but few Orientals whom I knew as well as the mysterious personage who governs Tibet. On our departure next day, in addition to the usual receptions, guards of honour, etc., the Dalai Lama himself stood on the roof of a neighbouring house to watch us pass, and was thus himself in full view of the people. Such an action on the part of the God-King, whose sanctity requires seclusion from the eyes of the crowd, was probably unprecedented in the annals of Tibet.

Before the paper the PRESIDENT (Lord RONALDSHAY) said: We are to-night to have a first-hand account of the city of Lhasa, and that, as I need hardly remind you, is a somewhat rare privilege, for the number of Europeans who are competent to give a first-hand account of that city is necessarily very small. Rather more than a hundred years ago an eccentric traveller by the name of Manning made a journey which took him eventually to Lhasa, but his Diary reflected his own eccentricities and gave us very little information with regard to the city. Then some three-quarters of a century ago the world was startled and entertained by the descriptions given by those famous Lazarist missionaries, Messieurs Gabet and Huc. After that the curtain fell upon Lhasa and was not raised again until 1904, when the famous Younghusband Mission made its way to that city. That Mission, no doubt, did much to lay the foundations of good relations between ourselves and the people of Tibet, but it must necessarily have appeared to the Tibetans as the strong arm of Great Britain which was imposing terms upon a recalcitrant neighbour. Since then, however, the most remarkable change has come about in the relations between the Tibetans and ourselves. At the present time the Tibetans are most friendly towards Great Britain, and I have no hesitation in saying that that extraordinarily satisfactory state of affairs is very largely, if not mainly, due to the last twenty years of work which have been put in by our lecturer this evening, Sir Charles Bell. The friendly relations which he was able to establish with the Tibetans, and in particular with the Dalai Lama, culminated in the invitation which he received from the latter to visit his capital, and that invitation at last materialized in a visit to Lhasa by Sir Charles Bell which extended over a period of a full year. Sir Charles Bell, therefore, is particularly well qualified to inform us of those changes that have taken place in Lhasa since we last had an authentic account of it given by the Younghusband Mission, and I have much pleasure in asking him if he will now give us his account.

Sir Charles Bell then read the paper printed above, and a discussion followed.

The PRESIDENT: I am sure you would like, before we disperse, to hear a few words from Sir Francis Younghusband.

Sir FRANCIS YOUNGHUSBAND: I should like, in the first place, to endorse all that the President has said as to the value of the work which has been done by Sir Charles Bell during the last twenty years on the Tibetan border. It is very largely, perhaps chiefly, due to that work and to his capacity for entering into the life and thoughts and feelings of the Tibetans that our relations with the Dalai Lama's Government are so favourable as they are to-day. It is always a good way of getting to the hearts of an Asiatic people to study their literature, and especially their sacred literature. It is to that work that Sir Charles Bell has devoted many years of his life, and because of it he was able to get that friendship with the Dalai Lama himself which has been of such incalculable value to us. We in this Society are especially indebted to Sir Charles Bell, because it was through his personal influence with the Dalai Lama that we were able to get sanction for the Mount Everest Expedition to attempt to climb the highest mountain in the world.

The President has said that the number of Europeans who can give first-hand information with regard to Lhasa itself is very small. I regret to say that during the last few months two of that very small number have died. First of all, Sir Henry Hayden, a very able geologist, who was a member of my Mission to Tibet. He was a most delightful companion and very enterprising traveller, who not only went with me to Lhasa, but who last year, at the invitation of the Dalai Lama himself, had proceeded there to advise the Dalai Lama on the geology of Tibet, and who last summer lost his life in the Alps. And just this last few days we have heard of the death in China of that adventurous traveller, General George Pereira. General Pereira had only last autumn completed a great journey across China, from Peking right through Tibet to Lhasa, and from Lhasa to India. I should like to take this opportunity of bearing testimony to the great value of what a traveller of the character of General Pereira does in countries like Tibet. He was a born traveller, and travelled for the sake of travel. The world knew very little of what he did. He went out in a most modest way, telling hardly any one where he was going. But he for years travelled through China and Tibet. And it is by the influence of travellers of his description that the good name of England is carried on in out-of-the-way parts of Asia.

Sir Charles Bell has given us some very interesting details about the way of life of these Tibetan people. I gather from him that he had a very clean mind, because when he went across the passes he had very favourable weather. My mind cannot have been as clean as that of Sir Charles Bell, or at any rate some of my companions must have had very dirty minds, for certainly when we crossed the passes there were the most terrific blizzards. It was just this month twenty years ago that we made our preparations at Darjeeling to cross the Himalaya by a pass 15,200 feet high in the month of January.

We had with us a very enthusiastic correspondent of the *Times*, Mr. Percival Landon, and for weeks before we ever reached Lhasa he used to go on in front and ascend hills thousands of feet and be quite convinced that there away in the distance he saw the glittering roofs of the Potala. As Sir Charles Bell has told us, we could not see Lhasa until we were immediately upon it, and the Survey Officers assured Percival Landon that there were at least three great ranges in between him and Lhasa. However, he always used to imagine to himself that through some chink he saw the roofs of the Grand Lama's palace.

We eventually reached there, as you know, and entered Lhasa by that chöten of which we had a photograph this evening. But I noticed a change, for there is now a nice straight well-fenced road up to the gate, whereas when we went through we had to make our way through puddles over a very rough road. In Lhasa itself I rather think that I signed the Treaty in that hall in which you saw the Grand Lama seated in state, but on that occasion there was a magnificent silk curtain pulled down in front of the Dalai Lama's throne and a table put in front of it, and on that the Treaty was signed.

Sir Charles Bell has referred to the monks of Lhasa and the great monasteries there, some of which he says contain 10,000 monks. When we were there the monks were troublesome to a certain extent, but not nearly so troublesome as in ordinary times. The only really serious trouble we had was with a monk who ran amok in our camp, and suddenly drew out his sword and cut down an officer. We tried the man, and asked him why he had done this, and he said that as he was going through our camp he saw the officer wearing an ugly hat. So he thought he must knock off the hat, and when he knocked the hat off he saw the officer's face was uglier than the hat, so he thought he would have a slash at that too. The officer was very much annoyed about this, and kept muttering about it for many months afterwards. But on the whole I may say that we parted good friends with the Tibetans, and had the feeling all the way through that they were really quite friendly people. We had no special enmity with them, and it was exceedingly important that we should not establish any permanent barrier between us. I am glad to say that, thanks to Captain O'Connor especially, who was my secretary there and spoke the Tibetan language and had a great liking for the people, we were in the end able to get on quite friendly terms with them.

Just before we left we went to a great festival in the Cathedral at Lhasa. Sir Charles Bell has described to us something of Tibetan religious ceremonies, and I must say I also was greatly impressed by them : by the masses of Tibetan monks and lamas, the great trumpets and cymbals and drums, and, most impressive of all, the deep voices to which the Tibetans are especially trained. One got the sort of feeling that these were a big people with a deep sense of religion and great power and reverence. And that, I think, is what Sir Charles Bell wished to convey to us. I would like to congratulate Sir Charles Bell and to thank him for the details which he has given us this evening of every aspect of Tibetan life. I would also express the hope that he will spend the next three days in going up and down amongst the electors of Great Britain giving an account of the Tibetans' experience of a Capital Levy !

The PRESIDENT : Sir Charles Bell has given the Dalai Lama and his Government a number of testimonials, and amongst them a testimonial as to the good order and good government of the country. The order preserved in Tibet, he said, was greater even than that which one found in China. In view of the state of affairs in China at the present moment, I am not sure that this is a testimonial which the Tibetan Government would wish to cry from the housetops. But it so happens that we have present a gentleman who with great ability has represented this country in China for a great number of years, Sir John Jordan, and he therefore may like to say a word or two.

Sir JOHN JORDAN : It is always extremely difficult to speak about a subject on which one knows nothing, and that is my position here to-night ; but Lord Ronaldshay has very kindly asked me to say something from the Chinese point of view, and I suppose that is a rôle I ought to accept. In the first place, before saying anything about China and China's relations with Tibet I should like to

express the very great interest with which I have followed the lecture. It has given us a deep insight into the life of Tibet and especially of Lhasa.

As you know, we in China have always been rather in competition with India as regards Tibet, and I suppose I have been asked to-night to show the other side of the picture, so to speak. We were interested in Tibet long before India took any interest in the subject at all. In the seventh century we sent a princess to Tibet who became the wife of that first King of Tibet whose name was something like "Strong Bow" (Srong-tsan-gampo). That lady left Peking in the T'sang dynasty, one of the most illustrious dynasties in China, which covered a period of great literary activity, and is still regarded as marking the highest stage of Chinese culture. That young lady made a long pilgrimage across Asia to civilize Tibet and became the wife of this "Strong Bow." He already had a wife—a Nepalese princess; but the princess from China took civilization and a great many things to Tibet.

I was interested in that monolith Sir Charles Bell showed us, and wonder if the writing on it referred to an early treaty with China. He said that Tibet conquered China. I should prefer to say that China conquered Tibet. Warren Hastings took much interest in Tibet, and he knew a great deal about the country in his day. He wrote a Memorandum for Bogle which might be an instruction at the present day to any one going to Tibet. And then Bogle was sent there, though he never got to Lhasa. That was about 1780. He made an arrangement to go to Peking, but that failed through the death there of the Tesho Lama, with whom he had entered into very friendly relations. The Tesho Lama was called to Peking to celebrate the seventieth birthday of the Emperor Kien Lung, and he died there of small-pox. Then China had its turn, and we sent a gentleman to whom the President has referred of the name of Manning. He was at Canton at the time, but he had been educated at Cambridge, and might, if he had chosen, have been a high wrangler. He succeeded in reaching Lhasa, but I must say I agree entirely with what the President said with regard to his Diary. Manning had one of the greatest opportunities that ever a man had; he established friendly relations with the Dalai Lama, but he was very disgruntled and spent his time in bickering with his servants. He praised the mutton, but otherwise saw little good in the country. His Diary was a most disappointing document. That was in about 1811. I think his grievance was that the Government of India had given him no encouragement.

Time passed, and Huc and Gabet went from China in 1844. In the mean time China had greatly strengthened her hold over Tibet. I do not quarrel with the lecturer in anything he has said; I only think he has omitted a good deal. He has said practically nothing about China, but, as a matter of fact, Tibet was a dependency of China. Not to go back further than 1790 or so, Nepal quarrelled with Tibet, and we sent two armies from Peking, one from the north and one from the south, to drive out the Nepalese, and followed them up to within a few miles of Katmandu. After that China sent two Residents, and for over a hundred years those Residents lived in Lhasa. The political relations of the country were entirely dictated by the Chinese Ambans, so that China had a very close interest in Tibet during all those years.

That all ended when China in 1911 became a Republic. The lecturer and Sir Francis Younghusband have quite rightly taken credit for the good that the Treaty of 1904 did. From India's point of view I admit. But then I speak for China. Immediately afterwards the Chinese said, "We will try what we can do." Just as India went in from the Indian side, the Chinese started from

their side. The districts that Sir Charles Bell has described as Tibetan territory ruled by China might rather be described as Chinese feudatory territory ruled by China at that time. As a matter of fact, in 1724 all Tibet was delimited, and all the part to the west was assigned to the Dalai Lama. The boundary was near Batang, and the part to the east was placed under feudal chieftains subject to the Emperor of China. After 1904 the Chinese came in from the Szechwan side, and made a determined effort to convert all these feudal principalities into an integral part of the Chinese Dominions. A Chinese official named Chao Erh-féng became a sort of Empire builder. He started and plundered all the monasteries, and I must say behaved extremely badly and conquered a great part of the country. During the last six or seven years of my time in China I had continual trouble over the boundary question, and all this part of the country was in a state of perpetual unrest. I want to show that the whole of that part of Tibet is not so peaceful as might possibly be inferred from the lecture.

Then for the Lamaist religion: I am afraid I cannot subscribe to the proverb that "the inside people are necessarily clean inside." I have grave doubts. We have a Lama temple in Peking. The Chinese emperors have always rather encouraged Lamaism from a political point of view. They established this big Lama Temple in Peking, with a large endowment, and a formidable array of priests. I can quite bear out what Sir Charles Bell has said with regard to the truculent nature of the monks. On one occasion, many years ago, when I was Acting Chinese Secretary at Peking, I undertook to take Lord Curzon to the Lama temple. We managed to get in, but we had the greatest difficulty in the world in getting out.

I would like to add that I thoroughly enjoyed the lecture, and I am very grateful indeed to Sir Charles Bell. In conclusion, I should like to associate myself very earnestly with the tribute that Sir Francis Younghusband has paid to my dear friend General Pereira. He served with me for over six years, and I can honestly say a finer man I never knew. I agree with every word that Sir Francis Younghusband has said. General Pereira was really a symbol of what a British gentleman ought to be all through the Far East; a marvellous traveller and a wonderful man who was respected by all for his innate kindness and goodness of heart. I think during all the time that he travelled in China he never had the least trouble with any man. I met him first in Seoul one day just before the Russo-Japanese war. He said, "I am going to stop here. I am going to be your Military Attaché." "But," I said, "I have no Military Attaché." "Oh," he replied, "telegraph home for permission. There's to be a scrap before long between Russia and Japan, and I am going to be in it."

The PRESIDENT: There are, of course, two sides to every shield, and we have just had the other side to the present shield from Sir John Jordan. It seemed to me he was rather trying to draw me into a discussion as to the merits of the respective attitudes of India and China towards Tibet. From any other platform I should be delighted to take up that challenge. As President of the Royal Geographical Society it would perhaps hardly be judicious for me to enter into a controversy of that kind. I shall confine myself, therefore, to joining with Sir John Jordan and Sir Francis Younghusband in the expression of gratitude to Sir Charles Bell for the excellent lecture which he has given us to-night.

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THE CONQUEST OF MOUNT EVEREST

Douglas W. Freshfield

THE departure from our shores of the third party of climbers bent on the exploration and ascent of the highest mountain in the world seems to afford a suitable occasion for recalling some of the circumstances which led to the conception of the Conquest of Mount Everest and for tracing the stages through which a proposal—held at first by most competent judges, including men of science and experienced mountain explorers, extravagant and unrealisable—has been converted, in the opinion of the same experts, into a practical problem which depends for a happy solution mainly on the weather. But good luck in this important matter will need to be supported by the exhibition not only of a firm belief in success and of indomitable pluck—of the latter there is no question—but of sound judgment and of the most meticulous care, a care on the part of the climbing party and its leaders that holds no detail of organization or equipment trivial or unessential. For any remarks I may venture to make on these topics I may plead as an excuse that what I write is largely the result of my own experience in five

mountaineering expeditions among distant ranges. Of these three were to the Caucasus, one to Ruwenzori, and the fifth to the Tibetan-Sikkim-Nepal frontier where the conditions are very similar to those encountered in the approach to Mount Everest.

As I have already reminded the reader, the answer given in the years before the War to the question "Can the highest mountain in the world be climbed?" by the large majority of those qualified to pronounce an opinion was in the negative. Many brilliant climbers had recently attempted Himalayan heights in vain; in vain in so far as that they had been repulsed in their efforts to attain their goal, or to reach any peak of over 25,000 feet. Most of these repulses, it is true, were inconclusive, since to the physical drawbacks incident to exertion at great altitudes had been added serious mountaineering difficulties. There remained, however, one instance which seemed decisive, that of the Duke of the Abruzzi's party in the Karakorum. In that case climbers inured by much past experience on mountains and in Arctic temperatures, and provided with every advantage in the way of equipment that princely resources could procure, were, at an altitude just under 24,600 feet, defeated by difficulty of breathing on an easy snowslope. It seemed therefore reasonable and almost inevitable to infer that about 25,000 feet would prove the limit accessible to mankind, and that the summits exceeding that height might boast permanently of their serene inaccessibility.

There remained, however, a few dissenters from this popular verdict. Of these the most competent and in my own mind the most influential was my friend and former companion in the Caucasus, the late Clinton Dent. Dent, I may remind the general reader, was a distinguished surgeon (at the time of his death he was Senior Vice-President of the College of Surgeons). He was also a brilliant climber, a former President of the Alpine Club, and the Editor of the volume on *Mountaineering* in the Badminton Series. He had seriously studied the physiological problem in question, and his conclusion was put in these words, "I believe most firmly it is humanly possible to ascend Mount Everest, and further I feel sure that even in our own time, perhaps, the truth of these views will receive material corroboration."

For myself I had full confidence in Dent's judgment, despite the apparently formidable array of opinion that could be brought forward on the other side. And I was anxious, before it was too late for me, myself to add another to the list of experiences of high altitudes. In 1890 I discussed with Mummery a joint visit to the Western Himalaya. The project fell through; but nine years later, at the age of fifty-four, I was able to carry out my ambition so far as to spend four weeks at heights varying between 14,000 and 20,000 feet on the northern and western shoulders of Kangchenjunga. The prodigious and exceptional storm of 23 September 1899, which produced a rainfall of 27 inches in

thirty-eight hours at Darjeeling, buried our camp at 15,000 feet on the Zemu Glacier under 40 inches of fresh snow. It obviously put an end to my hope of further testing the limit of human endurance on a great peak. Even to wade across a pass of over 20,000 feet through soft snow of that depth required a serious effort on the part of our fifty coolies, who had to carry besides their own food for three weeks the camp equipment and rations of six Europeans. Only one of the latter felt any serious effects of altitude. We all slept fairly well at about 19,000 feet. The late Dr. Kellas, in subsequent years and under ordinary conditions, ran backwards and forwards over this pass, the Jonsong La, as if it had been the St. Theodul. So far as they went, therefore, our experiences were the reverse of discouraging: the sickness level had for the average man been lifted some 8000 feet from the days of my own boyhood and the early climbers of Mont Blanc. But of course they did not go far, or add any fresh evidence to the controversy. They do however lend marked support to the conclusion of the expedition of 1922, that acclimatization of the human frame to altitude is at least up to 20,000 feet steady and progressive.

During my visit to India Lord Curzon, my former colleague on the Council of the Royal Geographical Society, was Viceroy, and I had opportunities of privately discussing with him the possibilities of Himalayan exploration and the prospect of the political obstacles to any approach to Mount Everest being overcome in the near future.

Six years later, in 1905, Lord Curzon, still Viceroy, wrote to me in London telling me that he believed there was at last some hope of the reluctance of the Nepalese being overcome, and asking me to interest the Royal Geographical Society and the Alpine Club in organizing a Mount Everest expedition. Unfortunately, the Nepalese Durbar subsequently vetoed the proposal, and our relations with Tibet at the time not being of a character to admit of any application in that quarter, all hope of any approach to the great mountain had to be indefinitely postponed.

The war supervened, and it was not until 1919 that the suggested expedition was again considered and seriously taken in hand. The immediate occasion was the discussion following on a paper read by Captain Noel to the Royal Geographical Society on a recent journey in which he had penetrated a short way beyond the Anglo-Tibetan frontier in the direction of Mount Everest. Sir Francis Younghusband, in the first chapter of 'The Reconnaissance,' has described in detail what took place at the Meeting, and I need not repeat the story. The result, in brief, was that the Royal Geographical Society and the Alpine Club agreed to send a deputation to the India Office. There it was sympathetically received by the Secretary of State and referred to the then Viceroy, Lord Reading. In these circumstances, Colonel Howard-Bury most kindly undertook to go to India and personally recommend

the scheme to the Viceroy ; and the latter, after some discussion, consented to place our request before the authorities at Lhasa, through the British Resident in Sikkim, Sir Charles Bell, who was instructed to pay an official visit to the Holy City. At Lhasa he was most cordially received by the Dalai Lama, and our request met with the immediate and cordial assent of the Tibetan authorities.

If I have referred in the preceding pages to my own part in the inception of the assault on Mount Everest, it has been mainly in order to furnish a reason for my having at the request of the Mount Everest Committee come forward at the present moment with an estimate of its prospects of a successful issue, and a suggestion, or rather an insistence, on some of the means by which in the opinion of the Committee success may (weather permitting) be reasonably anticipated. In dealing with these and in referring to matters connected with climate, acclimatization to high altitudes, diet, equipment, and general organization I may find occasion to refer to my own experiences twenty-four years ago in a region, the great spurs of the Kangchenjunga group, separated by only 70 miles from the eastern outliers of Mount Everest.

The business of the 1921 Expedition, led by Colonel Howard-Bury, was to investigate the country round Mount Everest and to ascertain the possible approaches to the mountain and the character of the difficulties to be anticipated in climbing it. On these subjects our ignorance was almost complete. General Rawling had reported that seen from a distance of 60 miles to the north the summit did not look inaccessible. Visitors to Sandakphu, near Darjeeling, had observed the final north-eastern ridge and noted its relatively gentle inclination. Signor V. Sella had while travelling with me photographed it from Chunjerma. But this was all ; of the configuration of the group, of the relations of its valleys and glaciers, we knew nothing.

The first party carried out successfully their appointed task. Except on the south, where the Nepalese frontier formed for the most part an impassable barrier, their feet encircled the great mountain and penetrated to the inmost recesses of its glaciers. There was but one mischance in the campaign. The climbing party on the Main Rongbuk Glacier, misled by the smallness of the stream—a common feature in the western Himalaya—issuing from a glacier in an eastern side-glen, failed to realize the extent and importance of the névé that gave it birth. Consequently it was not until too late for any practical purpose in that autumn that the upper region of the East Rongbuk Glacier was reached by a circuitous route over a pass from the Kharta Valley. It was thus ascertained that from its head the gap, immediately under the flank of Mount Everest, in the ridge between it and the North Peak that separates the Main and East Rongbuk Glaciers, was accessible by mounting 1000 feet of broken but moderately inclined snowslopes, safe in ordinary conditions if liable at times to avalanches. As it had

previously been observed that the face of the mountain above the gap was a rock-slope offering no insurmountable obstacles, the main object of the Reconnaissance had been effected—a way had been found for a serious assault in the succeeding years.

The party brought back, however, from their meteorological experiences an unexpected and somewhat surprising conclusion. They argued that the early summer, the period before the monsoon, was likely to be a more favourable season than the autumn for mountaineering in the western Himalaya. In this they went, on the whole, against the practice of earlier climbers in Sikkim, most of whose successes had been won in the later period of the year. My own experience was remarkable. I have mentioned the phenomenal snow-storm of 23 September 1899. For the following weeks up to the end of October the weather was continuously fine and the forenoons as a rule cloudless, while we enjoyed complete absence of wind. But there seem to be few Septembers without snowfalls, such as may make the highest peaks for a time dangerous or inaccessible. Moreover, the photographs taken by the second party show convincingly that rockfaces laden in autumn are mostly bare in early summer. This may prove a decisive argument for the earlier season. And there is also the relative degree of cold to be considered; in summer the frost is less intense. The Norwegians on Kabru in 1907 at a height of 22,600 feet suffered a temperature 23° below zero Fahr. At the fourth camp Mr. Mallory records at 25,000 feet one of 7° F. above zero; at my camp at 19,767 feet the temperature was by day 32°, but at night inside the tent 5° F.

From the story of the two assaults on the mountain in 1922 told by Mr. Mallory and Captain Finch their successors may gain many suggestions and some warnings. Mountaineers climb on the shoulders of their forerunners as on stepping-stones:

“The many fail, the one succeeds.”

But his success is the fruit of the lessons gathered from the efforts, and sometimes from the omissions or mistakes, of those who went before him and reduced the problem to be solved to more manageable proportions:

Νικᾶ δ' ὁ πρῶτος καὶ τελευταῖος δραμών.

The foremost fact established by the climbers of 1922 is that Mount Everest presents for the most part what in the Alps would be held an easy rock climb. There are few great Alpine rock peaks so safe that an indisposed man can be safely sent back alone. Telephotographic views have revealed to us not only the character but the details of the northern rock face. We can estimate the relative advantages of striking at the ridge directly from the Chang-La or of keeping on the face below it on the line taken by Finch and Bruce. The former course in calm weather is probably preferable. The ridge rises gently and the breaks—low cliffs—in it look manageable. It has been pointed out

that if the slope of the final cupola were found hard ice, step-cutting at 29,000 feet might prove beyond human powers. But the photographs show a horizontal ledge running round on the right to rocks that seem to conduct directly to the summit.

I must now venture some remarks on a delicate subject: The discipline and control of the climbing party; they are founded in great part on my own experience. Free discussion in camp of the various problems that come up from day to day is stimulating and exhilarating. So long as it does not assume the warmth that the high and thin air is apt to generate, it helps to pass long hours. But when the time for action comes the discipline should be military, and the decision of the chief once framed should be carried out unreservedly. So long as the summit of Mount Everest is gained, who cares whether it is with or without the use of oxygen? One might as well claim merit for going up the Matterhorn without a rope or an ice-axe, in dress-shoes or shirt-sleeves. A more tragic parallel may be found in the unfortunate prejudice against the use of sledge dogs shown by British parties in the Antarctic.

The leader of the climbing party should have the general plan clearly set out in his own mind and organized in every detail of equipment and provisionment. First he will need to establish Camp 4 on the Chang-La as an efficient base, well stored with available wraps and provisions and means of cooking them, and habitable for a sufficient gang of porters who would be relieved from time to time. One of his more important duties will be the arrangement of these parties of natives, whose business it will be to prepare the highest camp. The leaders of these parties should be Europeans who have nobly renounced the glory of the *first* ascent. The members of the small storming party should be sent up as little exhausted as possible to a camp made as enduring as forethought can make it, and suitably provisioned. This is the most essential matter of all.

Next he will consider the number of climbers to undertake the last assault. How many climbers should be chosen is, I am aware, a much-debated question. With all due deference to a younger generation, I gravely doubt the expediency of sending a party of two. No doubt two move somewhat more quickly, especially on difficult rock climbs. But on a long and great and relatively easy ascent a party of three has obvious advantages. If one is disabled two can more easily render assistance than one; again, one can hurry for further aid while the other remains with the sick or injured man. I believe three to be a suitable number; but if this opinion does not prevail I would venture a further suggestion. Why should not two separate parties, two in each, be sent off simultaneously? One party would assist the other in case of any accident or sickness, and three or two climbers could go on as might seem best. The chances of success would be greatly increased. On the other hand it may be argued that the highest camp would have to

be doubled, that is, to consist of two tents in place of one and proportionate wraps and provisions. It would be well if a system of signalling were established between the final camp and that on the Chang-La. This highest camp must not be under 27,000 feet. If the climbers can make 400 feet an hour above this elevation (and more than this is doubtful), it will take them five hours to get to the top. Building a stone man is apt to be exhausting work at any elevation; they should carry a pole and a flag to set upon the summit.

Let us now turn to details of equipment and diet. There were far too many casualties from frost-bite in the last expedition. Other climbers and many polar explorers have endured lower temperatures without so much serious suffering. By a universal adoption of something resembling arctic equipment, it ought to be possible to avoid such disastrous experiences as those recorded. With more carefulness in avoiding exposure of hands and ears, and by the universal use of wind-proof garments, the disabling of a party at a critical moment may, we must hope, be prevented. Boots, it need hardly be said, should be placed under the head at night, where they may escape being frozen. Hot-water bottles and air cushions are light to carry, and great helps to comfort on cold nights on hard rocks. The only drawback to the indispensable sleeping-bag is the difficulty of getting yourself and your porters out of it in a low temperature. But as early a start as possible should be insisted on. The days are short near the tropics.

Lastly as to diet. Digestions may differ, but there is a general assent as to the nature of the foodstuff that is most palatable at great heights, and the expedition is sure to be provided with every suitable luxury. It would be impertinent to go into details. Is there not the Badminton volume on Mountaineering? In my experience the one essential is that the meals, or snacks, should be *frequent* and light, but I am impelled by certain passages in the "Assault on Mount Everest" to deprecate, after laborious climbs, Gargantuan feasts such as are there recorded. I may quote what Clinton Dent wrote in the volume mentioned: "When the entire body is in need of rest before anything else, it is injudicious to throw on it the labour of digesting a heavy meal." It is, in fact, an indulgence calculated to impede the recovery to normal health and powers. On the other hand the risk of starvation such as befell Captain Finch and Captain Bruce must be most carefully guarded against. That in all the circumstances they accomplished what they did is one of the most surprising and bravest feats of mountaineering on record.

Before putting down my pen I take the opportunity to make a suggestion from the point of view of a geographer. It is, of course, most desirable that no risk should be run of offending the sensibility of the Nepalese statesmen. But we have learnt that the frontier of Nepal and Tibet in the Chomolungma group runs for the most part not along

the watershed but across the southern gorges. A parallel instance may be noted in the Teesta Valley in Sikkim, where Sir J. Hooker had pointed out to him the frontier of China at the Zemu bridge close to Lachen, and many miles south of the watershed. It would seem to follow that there should be no obstacle or objection to our mountaineers exploring any of the southern glaciers and upper valleys that are in Tibet. We have learnt that they are accessible from the north by much-used passes. It would be a most interesting addition to knowledge to extend our map to the region in question and to obtain photographs of the great southern cliffs of Mount Everest that are so conspicuous an object in the distant views from the spurs of Kangchenjunga. May I, in conclusion, since I have been led to mention that magnificent mountain, express my earnest hope that, after the conquest of Mount Everest, some members of the party may have time and energy to reconnoitre the north-west flank of Kangchenjunga from one of the heights above Pangperma at the head of the Kambachen Valley—the only quarter that seems to afford some prospect of a possibly practical line of attack?

In this connection I would add, in the interest of future travellers and mountain-lovers, a modest petition to the local authorities, or the Government at Calcutta, whichever it may concern. Since my visit in 1899 the pony paths up the Teesta valley have been improved and repaired, and—though they were not thought good enough for the heavy transport of the Mount Everest parties—Lord Ronaldshay found it possible to ride up the gorges past Lachen to the Tibetan frontier. But no path has so far been made up the 10 miles of the side valley that leads to the Zemu Glacier. The ground is not difficult, and it would be relatively a small matter to clear a track through the rhododendron jungle to the bare pasturages beside the great ice-stream. Here at a height of about 15,000 feet the traveller comes on the Green Lake Plain, a large meadow of Alpine flowers at the very base of the fluted snow-cliffs of Siniolchum and the gigantic precipices and soaring ridges of Kangchenjunga itself. This spot will in future be counted among the sights of the Himalaya and the wonders of the world. To make it reasonably accessible by a track, and by erecting a rough stone hut of the type common in the Alps, or even like that at Jongri, would be an undertaking that would earn the gratitude of posterity. Until this is done the Himalayan traveller, even if he be a Lieutenant-Governor, will run the risk of missing by a few miles one of the most superb spectacles on the face of the globe. The local conditions will perhaps be rendered more clear to the majority of my readers if I remind them of a parallel case. How many generations of travellers passed Visp on their way to the Simplon without realizing that the Matterhorn and Monte Rosa lay but a short day's walk up the valley on their right?

It may perhaps be said that this suggestion has no connection with

the Mount Everest Expeditions. I hold the contrary. Whether or not the highest mountain in the world falls this year to our assault there is no doubt that a strong stimulus will have been given to the exploration and climbing of the Himalaya, and that one of the first regions to be explored in detail must be the ranges of Sikkim, since they are both politically accessible and conveniently close to a great hill station, Darjeeling. The day cannot be far off when in India as in Europe the truth of the eloquent eulogy of the physical and moral benefits to be derived from mountaineering lately put forth by a very high authority will be recognized and acted on. For the benefit of those who ask the use of the assaults on Mount Everest I may conclude by quoting a portion of Pope Pius XI.'s recent letter to the Bishop of Annecy on the occasion of the thousandth anniversary of the birth of St. Bernard of Menthon, the founder of the hospices on the two passes that bear his name :

“ Of all the exercises which afford us a wholesome distraction there is—for a man who knows how to avoid rashness—none more serviceable than Mountaineering in promoting both health of body and vigour of mind. In his laborious effort to attain the mountain tops, where the air is lighter and purer, the climber gains new strength of limb ; while in the endeavour to overcome the various obstacles of the way the soul trains itself to conquer the difficulties of Duty : and the superb spectacle of the vast horizons which from the highest crests offer themselves on all sides to his eyes, raises without effort his spirits to the divine Author and Sovereign of Nature.”

THE ROSS DEEP

Lt.-Comm. R. T. Gould, R.N. (retd.).

A SINGLE deep-sea sounding, and an erroneous one at that, which produces for sixty years afterwards a most definite and extensive effect upon the views of geographers and oceanographers, may justly be considered an almost unique phenomenon ; and such is the famous sounding of “ 4000 fathoms, no bottom,” which Sir James Ross believed that he had obtained, during the third year of his famous Antarctic voyage, in lat. $68^{\circ} 34' S.$, long. $12^{\circ} 49' W.$

Ross's well-deserved reputation as a scientific navigator and explorer, and the attention which he devoted during the voyage to the technique of deep-sounding, combined to obtain general acceptance of this result, with the result that the “ Ross Deep ” in this position became a familiar feature on bathymetrical and other charts, and that the hypothetical outline of the Antarctic Continent in this region was plotted, as after events proved, a long way too far southward. For example, the late Sir John Murray, in the course of a paper on the scientific advantages

Bay the rise is small, being in no place greater than 2·3 feet. The maximum elevation—7·1 feet and 8·4 feet—occurs in two small islands to the east of Atami, though at several points near the entrance of Tokyo Bay there is a rise of 5 or 6 feet. The depression of the coastline is much less, being at no point more than 1·5 feet.

Interesting as these movements are, they are insignificant compared with the remarkable changes in the depth of Sagami Bay. The broken lines in the map are curves of equal subsidence, the dotted lines curves of equal elevation, the broken and dotted line between the two series of curves representing the line of no displacement. In each case the outer line is a curve of elevation or depression of 25 fathoms, and the inner curve or curves of 50 or 100 fathoms. It will be seen that there are three small areas of elevation, the maximum uplifts, from west to east, being 96, 113, and 135 fathoms. In the large area of subsidence, the maximum depression is 63 fathoms; in the ill-defined area in the north of Sagami Bay 166 fathoms; and in the small area to the east no less than 259 fathoms.

Considerable changes in the depth of the sea have been observed before in the epicentral areas of other earthquakes, but in no case have they been so free from doubt as the recent changes in Sagami Bay.

Several points of much interest arise from these observations: (i.) The first of course is the magnitude of the changes in the sea-bed as compared with those along the coastline. (ii.) More important still is the extraordinary distortion of the crust resulting from the movement that caused the earthquake, and the rapidity with which elevation passes into subsidence. In the eastern areas, the north end of a line $1\frac{1}{2}$ miles long is raised 810 feet and the south end lowered 1224 feet. Before the earthquake the sea-bed along this line was inclined at an angle of 19° to the north; after the earthquake the slope was reduced to 5° in the same direction. (iii.) Taking into account these great changes in the sea-bed, it is strange that the sea-waves following the earthquake were so small. At Kamakura and elsewhere along the coast, no wave of more than 20 feet high is reported. Is it not possible that the changes in depth occurred intermittently, some of them perhaps in connection with the more important after-shocks?

C. DAVIDSON.

HIMALAYAN GLACIATION

Spedizione Italiana De Filippi nell' Himàlaia, Caracorùm e Turchestàn Cinese (1913-14).— Series 2. *Resultati geologici e geografici*, vol. 3. Studi sul Glaciale. Giotto Dainelli. 4to. Pp. 651. 73 *Illustrations*, and *Appendix with 177 plates*. Bologna: Nicola Zanichelli. [1923.] *Price of both series complete, lire 2500.*

THIS is the first instalment of the monumental work on the scientific results of Dr. de Filippi's expedition to the Himalaya, the Karakoram, and Chinese Turkestan during 1913-14. The second series, of ten volumes,

is edited by Prof. Giotto Dainelli, who himself contributes the present volume on the Glaciology of the region visited. The district examined by Prof. Dainelli consists essentially of two distinct areas: (1) the Upper Indus and its tributaries comprising the territories of Baltistan and Ladak, and (2) the Basin of Kashmir. The first 455 pages are devoted to a description of the glacial phenomena of the Upper Indus valley and its tributaries, while 129 pages are occupied by a description of the Kashmir basin. The volume concludes with a general survey of the Glacial Period in these two districts. In the portion devoted to Kashmir the author considers the origin of the Kashmir basin and deals with the literature bearing on this question; he also discusses the evidence for the former existence of a large lake occupying the vale of Kashmir. A considerable space is given to a discussion of the evidence in favour of a recent elevation of the Pir Panjal range. This elevation was postulated by Godwin Austen, Lydekker, Neve, and Middlemiss from observations on the dip of the old lake deposits or "Karewa" on the flanks of Pir Panjal, which in places show a dip of 20° to the east, while the deposits on the flanks of the Himalaya opposite remain practically horizontal and occur at a lower level. Prof. Dainelli gives a diagram to show (1) that this elevation was in the form of an anticlinal axis; (2) that it reached a maximum of 2000 metres or more; and (3) that the line of maximum elevation corresponds with the position of Tataculi, which at the present day forms the highest point of the range.

The general result of the work on the glaciology of the district goes to prove the former greater extension of glaciation in the Upper Indus valley and the Kashmir basin. The existence of a glacial period in the Indus valley has been denied by many of the previous writers, though Medicott and Blandford, while doubtful whether the Himalayan glaciers ever spread over the low ground in great sheets like those of Europe, admitted that in places where the mountains rise steeply from the low ground, as in the Kangra valley, glaciers may once have reached to within 2000 feet of sea-level. The earlier portion of the volume contains a review of the literature bearing on this subject, and Prof. Dainelli discusses the views expressed by Diener, Drew, Lydekker, Oestreich, and others.

One argument which has been brought forward by some previous writers, especially Falconer, against the former extension of the present Himalayan glaciers to lower levels, is the absence of lakes comparable to those of Lugano and other large lakes in the Alpine district. The author admits the absence of large lakes at the foot of the mountains, and also the comparative scarcity of lakes in the upper basin of the Indus. As a set-off to this, however, he points out the abundance of lakes in the upper basin of the Jhelum in the Kashmir district. He also cites the case of the Caucasus, where lakes are absent but where extensive glaciation must have taken place in the Quaternary period.

Prof. Dainelli made a personal study of the lakes of the Upper Indus lying between its confluence with the Gilgit on the west and the plains of Kashmir on the east. From this district he cites fifty lakes and groups of lakes. Many of these are moraine-dammed, but some of the larger ones, as the Satpor Tso, the Tso Moriri, the Chiun Tso, and the group of lakes associated with the Pangong Tso, he considers to have originated by glacial excavation. In addition to these, many lakes which formerly existed have been drained or filled up. Apart from the relative scarcity of lakes, however, the chief fact of morphological significance is the remarkable scarcity of corrie lakes and the general absence of cirques. This absence may be attributed, in part, to the fact that we are dealing with the edge of a high plateau region of great elevation

where erosion is much advanced so that the valleys are very deep and the flanks precipitous, leaving little room for the formation of cirques; but a further and more important feature is the position of the mountain crests which, owing to their great height, are still covered by glaciers which prevent the cirques from being seen. This explanation appears to be borne out by comparing the basin of the upper Indus with that of Kashmir, a description of which occupies the later portion of the volume. In Kashmir the crests of the ranges lie at a much lower elevation, so that at the present day we find a relatively small development of glaciers, but a greatly increased number of cirques and corrie lakes. In pre-glacial times the region must have been characterized by a topography differing considerably from that of the present day. In the eastern zone—that is to say, in the upper Ladákh Indus, the region of enclosed basins and round the Depsang—the country had a much more marked high plateau character than that of the Rupshu and the Depsang to-day, whose topographical surface must have been much more extensive than at the present day.

As we pass from the north-easterly zone of Ladákh further and further to the west the character of high plateau becomes less marked. During the Quaternary Glacial Period the ice advanced until it covered the whole of the Upper Indus valley, at least as far as its confluence with the Gilgit. Dr. Dainelli's detailed researches on the glacial deposits of the Upper Indus has led him to recognize four successive expansions of the ice, followed by others of considerably less intensity. The two first were characterized by a different development from the later ones. During the first extension most of the valleys were invaded by ice, whereas in the later stages the Indus valley and most of the zone of the high plateaux was free from ice. Though it is difficult to say absolutely, it appears that the first advance was more intense than the second, and the third though less intense than the second was more so than the fourth. The succeeding extensions were considerably less important, and, in accord with the terminology of Penck and Brückner, are given the name of "Stadi."

The author gives figures to show the relative extent of the surface occupied by ice during these periods of advance, from which it appears that over a region of 100,000 square kilometres in the Upper Indus, of which one-tenth is occupied at the present time by ice, nearly two-tenths were ice covered during the fourth extension, three-tenths during the third, five-tenths during the second, and a still great area during the first glaciation. The first extension is correlated by Prof. Dainelli with the Mindel Period in the Alps. The second with the Riss, the third with the Würm, while the fourth is considered to correspond with the oldest post-Würmian extension in the Alps.

It is thought to be not improbable that during both the first and second extension the Indus glacier reached the mouth of the valley and debouched on to the plains, and it is certain that the glaciers on the Himalayan slopes of Kashmir extended to the plains of Kashmir. Pir Panjal, which lay below the snowline, had certainly no valley glaciers, and perhaps no cirques, and at the end of the first extension even some of the present-day characters may have been apparent. During the third extension, corresponding to that of the Würm, the snow-line on the Kashmir slopes of the Himalaya must have lain some 500 metres higher than during the second extension. The height seems to have varied from 3500 metres in Kashmir to a maximum of 5750 metres in the zone of the high plateaux of the Depsang, the essential feature of this third extension being that the Indus valley had no glacier of its own though the glaciers of the lateral valleys reached to the main valley. One of these descended by the Kul valley, reached the Skardu basin and dammed the Indus, forming

a lake which extended into Baltistan, while other glaciers, the Shigar and Shayok, reached the lake which expanded into the mouths of such valleys as were unoccupied by glaciers. This flooding was so intense in the Indus valley between Saspul and Fe, owing to the high relief, that a small lacustrine basin was formed in the mountains between Fe and Himis. Below Skardu similar phenomena were caused by the glacier debouching from the Astor valley. In the upper Shayok the glacier blocked the valleys of Tankse and Kiang-Kemmo, giving rise to lacustrine basins. Elsewhere the edges of the high plateaux near the Himalayan watershed—the Rupshiu and the Deosei—had their mantle of ice, though in a lesser degree, and sent ice-streams to the opposite slopes. Small glaciers were also in existence in the zone of the Eastern Karakoram, but did not reach the main valleys. On the Kashmir side of the Himalayas the glaciers no longer reached the basin of Kashmir, where the deposits laid down in the large lake which came into existence during the first interglacial period and vanished during the second interglacial period, were terraced for the first time.

The third interglacial period was occupied chiefly in the removal of the deposits of the third glaciation. To this time also is attributed the powerful movement of upheaval in the character of an anticlinal marginal axis which raised the Pir Panjal range in Kashmir to its present height.

The fourth extension, corresponding to the most ancient post-Würmian extension in the Alps, found the glaciers in the lateral valleys much less advanced than during the third extension, and only a few reached the main valley. The glaciers of the Shigar and the Shayok no longer united into a single tongue. In Kashmir the glaciers on the Himalayan side were also more restricted, but the Pir Panjal range now had glaciers for the first time owing to its recent elevation. These took the form of both valley glaciers and hanging glaciers. Intense alluvial deposits were accumulated at this period, and determined the formation of numerous lacustrine basins in the Rupshu. The snow-line was not 150–200 metres higher than in the period of the third expansion, varying from a minimum of about 3800 metres in Kashmir to a maximum of about 5800 metres in the plateaux region of Depsang.

The work is illustrated by drawings in the text, and is accompanied by a volume containing a series of maps and photographs. The most important maps are those of the Skardu basin on the scale of 1/100,000, giving the Quaternary deposits, those of the Kashmir basin on the scale of 1/300,000, and a map of the upper basin of the Indus on the scale of 1/100,000 portraying the probable glacier systems and lakes which existed during the third expansion of the ice in the district.

Of the photographs it is difficult to speak too highly, whether we consider their abundance, the careful selection of subjects, or the admirable way in which they have been reproduced. Some of the most striking are the panoramas of the Skardu valley and its deposits, the high plateaux of Depsang, the glaciated rock surfaces of Olting, and the erosion forms in the Lamaium valley. The series of photographs as a whole brings out most conspicuously the desolate character of the region, which with its bare rock surfaces and absence of vegetation, must indeed be a paradise for geologists.

We congratulate Prof. Dainelli on the completion of a very admirable and important piece of work.

E. J. GARWOOD.

THE TIBETAN BORDER

The Mystery Rivers of Tibet.— Captain F. Kingdon Ward. London: Seeley, Service & Co. 1923. 9 × 5½, pp. 316. *Sketch-maps and Illustrations.* 21s. net.

To the Alps of Chinese Tibet.— J. W. and C. J. Gregory. London: Seeley, Service & Co., Ltd. 1923. 9 × 5½, pp. 322. *Map and Illustrations.* 25s. net.

THE appearance almost at the same moment of two books of travel describing the remote corner where Western China borders on Eastern Tibet shows that this most interesting part of Asia is receiving the attention that it deserves. It is also a sign of the times that the authors are not only explorers hoping to be able to traverse some unsurveyed country, but are men of scientific reputation with a definite object in view—botanical collection in the case of Captain Kingdon Ward, and the solution of a most interesting geological problem in the case of Prof. Gregory and his son. Though both are chiefly interested in their own branches of science, they have evidently spared no pains to add also to our knowledge of the country, its inhabitants, products, and natural history. Somewhat different methods have been adopted in the two books. In one the botany is scattered throughout the book, in the other the geology is chiefly confined to the first and last chapters. Both authors have perhaps been wise in the plans they have followed. Descriptions of forests and flowers can with Captain Kingdon Ward's pen be made to add much to his pictures of the scenery. An account in detail of the discoveries which led Prof. Gregory to his conclusions on the geology of the country might be unintelligible to the general reader unless accompanied by much explanation. It should be noted also that 'The Mystery Rivers of Tibet' describes a journey made in 1913-14, while 'To the Alps of Chinese Tibet' is an account of travels as recent as 1922. The conditions here however do not change much, and both books may be said to give an equally faithful picture of travel at the present day.

Captain Kingdon Ward is already well known as the author of two previous books on the same part of the world, and in the present volume he fully maintains his reputation as an experienced and keen observer who describes what he sees in a readable manner. Most of his botanical expeditions were undertaken within a few days' march of Atuntze, a place which he made his headquarters for a time. In the autumn of 1913, when the plant-collecting season was over, he started off westward in hopes of exploring some new country in the Tibetan province of Pomed. Unfortunately, the desultory warfare which had been going on for some years between the Chinese and the Tibetans had at the moment become more active. A Chinese advance westwards was expected, and the Tibetans had the most rigorous orders to prevent any stranger crossing the Salween at Menkong. Unable to prosecute his journey in this direction the traveller turned south down the Salween, hoping to be able to turn west again from Tra-mu-tang to Hkamti on the Upper Irrawaddy. Here again fortune was against him. The Lisu porters, with whose aid he hoped to get as far as the Taron, received orders from the Tibetan official of Tra-mu-tang that they were not to accompany him, orders which may have had their origin in the news that had come through that British troops from Burma were advancing on Hkamti. The winter too had well set in: it was the middle of December and there was much snow on the passes. Though it might have been possible to reach the Taron, the carriers would probably not have been

able to get back to their homes till the summer. In fact, circumstances were too strong, and Captain Kingdon Ward had reluctantly to turn eastwards again and find his way back to Burma through Yün-nan.

It is satisfactory to know, though the author does not mention it here, that he was able, in the following year, to carry through successfully this journey to Hkamti. The author's botanical observations are naturally of much importance, and some remarks on pp. 91-95 as to the extravagant number of seeds required by some plants to enable them to survive in the struggle for existence are of special interest.

Many valuable observations are made on the different tribes, and an important point is mentioned on p. 178, where attention is drawn to the influence that slave-raiding and slave-dealing have had on forming racial mixtures.

Captain Kingdon Ward has wisely adhered to Wade's well-tried system in the transliteration of Chinese names, and has done good service in giving the Tibetan characters for some of the Tibetan names. A slip of the pen occurs on p. 311, where the Shweli is made to run into the Salween. But the only real fault that can be found with the book is the inadequacy of the map. The journey up to Atuntze is for the most part over well-known routes and is not described in detail. For this therefore the map at the end of the book is sufficient. But the little map at the beginning is not full enough, and the reader wishing to follow some of the author's journeys from Atuntze will find that he cannot do so.

Prof. Gregory and his son Mr. C. J. Gregory may be congratulated on doing a very fine piece of work in what must have been a regular race against time. It is apparent all through the book that they were working at high pressure, unable to spare more than the minimum time necessary for the performance of their task, and it is easy to imagine the anxiety that straying mules and lazy carriers must sometimes have caused them. A total of 1500 miles in four months may not seem much in some countries, but in the most mountainous province of China and at a bad season of the year for travelling it is a good performance. Prof. Gregory lets us into the secret of his age, and it may be said that many a man of half his years might envy his physical and mental energy.

The object of the journey and the conclusions arrived at are very clearly stated in chapters i. and xx. Put very shortly, the problem was whether the comparatively modern Himalayan System continued eastward through Tibet and Western China or whether it was blocked here by an older geological formation. The conclusion the authors have come to is that this system does continue into Western China, and that its most probable further extension is along the mountain chain between the Yangtze and the West river.

The greater part of the book is a straightforward account of travel written by travellers who make up for want of previous experiences of China by the gift of shrewd observation and a pleasant style which will make this volume a welcome addition to the books already written on Yün-nan. Not much new country was seen, but north of Yün-Lung the authors had the satisfaction of travelling along a hitherto unsurveyed route. Curiously enough they on p. 229 and Kingdon Ward on pp. 32, 33 of his book both give opinions as to the accuracy or otherwise of the existing maps, and come to opposite conclusions as to whether a certain stream runs into the Yangtze or the Mekong. The War Office map has been cautious enough to give the lower course of this stream in dotted lines.

The map accompanying this volume is adequate, and the routes of the travellers can be easily followed. The use of the Postal Guide in transliteration

has the inevitable result that the bigger places are spelled on one system and the smaller places on another. To this is perhaps due the fact that several names are spelled differently in the text and in the map. The map was prepared to illustrate a paper in this *Journal*, and the smaller names on it were assimilated to the Postal Guide system.

The chapter on "The People of Chinese Tibet and its Borderlands" does not perhaps contain much that is new, but it is all to the good that the authors have found time, with their numerous other duties, to take an interest in this subject. They report the presence of Shans in two places (pp. 150, 151, 235) where they do not seem to have been noticed before, and also the interesting fact that they have here become Buddhists of the Tibetan type. They consider that there is no trace of Caucasian blood in the Northern Lolo or Tibetans, thus differing from Kingdon Ward (p. 129) and several other travellers, who think that, though there is no tribe of pure Caucasian strain, men are occasionally met with who are not pure Mongolians. The man in the photograph in Kingdon Ward's book facing p. 128 and possibly the right-hand figure facing p. 225 may be taken as instances.

The authors naturally had no time to become acquainted with any of the languages spoken and have fallen into a few errors. Their translations of Chinese names are not always to be relied on, and some mistakes occur on p. 66. They do not realize that the order of the words is different in Shan and Siamese from that of the other languages discussed, and that therefore the second syllable of "Mekong" does not mean "river," but is the name of the river. "Hka" is Kachin, not Burmese. It is true that "kiang" does not seem to be much used in Northern China, but "ho" is widely used in many provinces of Southern China, and the crossing of a river called the Ho-wan Ho can in no way be taken as an indication of entering territory "occupied by people of the Northern or Tibetan group."

These are small matters to criticize and do not detract from the value of this book to the traveller or from its importance to the geologist. H. R. DAVIES.

REVIEWS

EUROPE

Place-names of Skye and Adjacent Islands, with Lore, Mythical, Traditional, and Historical.— With Index. Alexander Robert Forbes. Paisley: Alexander Gordon, Ltd. 1923. 8½ × 5½, pp. 496. 30s. *net*.

THIS book is a valuable collection of place-names, many of which have not been recorded before. It reflects the highest credit upon the industry and devotion of the author, and it is obviously a labour of love. But our faith in the author's interpretations is shaken by some of those given. The importance of early forms is rightly emphasized in the preface; whether the rarity of them in the book itself is always due to lack of early documents or not, we cannot say; in a large number of instances it undoubtedly is. But in the case of Troterness "upwards of thirty forms from 1507 onwards are omitted for the sake of brevity"; though room is found (on p. 139) for a rhyme of fifty-nine words on the Coolins, and much else that could well have been spared. The author's references to antiquities show that he is not familiar with the writings of scientific archæologists, and we regret to find him speaking constantly of "Druidical" remains. Nevertheless these shortcomings do not prevent us from congratulating Mr. Forbes upon a book which was well worth publishing.

O. G. S. C.

As regards the L.M.T. observations and the much-discussed question of the theodolite *versus* the prismatic astrolabe for observing equal altitudes, all I will say is that after considerable experience I have come to the conclusion that better results can be obtained with the prismatic astrolabe. It is not an easy instrument to use and requires a lot of practice, and the trouble of preparing a list of suitable stars, with their times and azimuths, is a drawback; but for really accurate work I have no doubt that it is the instrument to use in the field, provided weather conditions are suitable.

Some of my pupils have lately done very good work with it, or rather with the prismatic astrolabe attachment fitted to a theodolite which I designed some time ago.

THE MOUNT EVEREST EXPEDITION OF 1924

BY the time this *Journal* is published the Third Mount Everest Expedition will have left Darjeeling and be on its way up the Chumbi Valley to the plateau of Tibet. The article by Mr. Freshfield which we published last month sums up the general situation at the outset of what we hope and believe will be the final assault ending in the conquest of Mount Everest. We have now but to give some details of the party and their equipment.

The Mount Everest Committee were fortunate in finding General Bruce, the leader of the 1922 Expedition, fit and able to go again. He has with him six of the 1922 party, including the three who made the first high climb without oxygen, Lieut.-Colonel E. F. Norton, D.S.O., R.A. (who will be second-in-command), Mr. George Leigh Mallory, and Mr. T. Howard Somervell. Captain Geoffrey Bruce, 6th Gurkhas, and one may hope Corporal Tejbir, two of the three members of the second high-climbing party, are joining the Expedition at Darjeeling. Captain C. J. Morris, of the 3rd Gurkhas, will again be one of the transport officers, and Captain J. B. L. Noel, who made the celebrated kinematograph record of the last Expedition, will again be the official photographer. To the strong nucleus of four tried climbers with the experience of last season to guide them, the Committee have been able to add four other climbers of the first rank, though without previous experience in the Himalaya: Mr. N. E. Odell, of the Imperial College of Science; Mr. Bentley Beetham, of Darlington; Mr. A. C. Irvine, of Merton College, Oxford, who rowed in the Oxford boat in 1923; and Mr. J. de V. Hazard. Major R. W. G. Hingston, I.M.S., will be the medical officer and naturalist; and Mr. E. O. Shebbeare, of the Indian Forest Service, will share with Captain Bruce and Captain Morris the duties of transport officers.

The Committee are greatly indebted to the authorities who have been generous in granting leave to the various members of the Expedition; to the Territorial Association of Glamorgan, who have spared General Bruce for a second time; to the War Office, who have given

Colonel Norton leave from his duties with the Artillery ; to the University of Cambridge, who have allowed Mr. Mallory leave only a few months after he had taken up an important appointment at Cambridge ; to the Commander-in-Chief in India and the Governor-General of Bengal, who have spared Captain Bruce, Captain Morris, and Mr. Shebbeare ; and to the Air Ministry, who kindly released Major Hingston from his charge of the R.A.F. Hospital at Baghdad, that he might accompany the Expedition.

The Committee are further indebted to the Government of India for their good offices in obtaining, through the Political Officer in Sikkim, the consent of the Dalai Lama to the passage of the Expedition through Tibet, and to the Government of India also for free entry into India of all the expedition stores.

The oxygen equipment has been redesigned. A new type of cylinder has been manufactured by Messrs. Armstrong, Whitworth & Co., Ltd., and after tests by the National Physical Laboratory and the Research Department, Royal Arsenal, has been adopted upon the advice of Messrs. Riley, Harbord, and Law. Three cylinders will carry 50 per cent. more gas than four cylinders carried in 1922 without any increase in weight. The carrying frames have been made on the pattern of those supplied in 1922 by the Bergans Meis og Rygsæk, of Christiania, which proved so successful, and the greatest possible care has been given by the makers, Messrs. Siebe, Gorman & Co., to all the details of the valves and regulators. The Committee are specially indebted to one of their number, Mr. P. J. H. Unna, who has been responsible to them for the control of the design and manufacture of the apparatus. Mr. Unna has also given much attention to the supply of stoves, thermos flasks, and other high altitude equipment, and special cooking apparatus for use in rarefied air has been made by the Meta, S.A., of Basle. The supply of tents, sleeping-bags, windproof clothing, high altitude climbing boots, etc., has been superintended by Colonel Norton, and the committee are indebted to Messrs. Edgington (tents and bedding), Messrs. Burberrys (windproof clothing), and Messrs. Fagg (boots), for the care which they have given to the special requirements of the Expedition. They have also to acknowledge the assistance in many ways of the Army and Navy Stores, who have not only supplied and specially packed all the food, but have undertaken the shipment of the whole of the stores and their despatch from Calcutta to rail head at Kalimpong Road.

The Committee have also to acknowledge with gratitude valuable gifts of stores from the following firms: Messrs. Allen & Hanburys, Ltd., Medical Stores; Messrs. Brand & Co., Ltd., Medical Stores; Messrs. Bovril, Ltd., Bovril, etc.; Messrs. Carsons, Ltd., Chocolate, etc.; The Ever Ready Co., Ltd., Torches and batteries; Messrs.

Howards & Sons, Ltd., Medical Stores; Messrs. Meta, S.A., Stoves and Meta Fuel; Messrs. Virol, Ltd., Virol and Virolax; Thermos, Ltd., Thermos Flasks.

The instrumental equipment of the Expedition is very similar to that of two years ago. They are taking with them a 3-inch theodolite by E. R. Watts & Sons; aneroids by Cary-Porter and Short & Mason; thermometers by Casella & Co. and Negretti & Zambra; liquid prismatic compasses by Short & Mason; and Kata thermometers by Hicks. Various special apparatus for physiological research at high altitudes has been lent to Major Hingston by the Medical Branch of the Air Ministry. Captain Noel takes with him the same kinematograph camera by Sinclair, but with considerable special improvements.

In short, no trouble has been spared to equip this Third Expedition after fullest consideration of the experiences of previous years, and the Committee feel confident that if only the weather is kind we shall learn this year the extreme of human possibility, which it may be predicted will not fall short of the summit.

MOUNT OLYMPUS

Le Mont Olympe (Thessalie).— **Marcel Kurz.** Paris: Victor Attinger. 1923. 10 × 6½, pp. x. + 232. *Illustrations and Two Maps.*

IN his note on "The Summits of Olympus" (*G. J.*, 47, 293, April 1916), Mr. Freshfield complained that the information given by the narratives and diagrams of recent travellers is not only scanty but contradictory. He has now had the satisfaction of writing a very appreciative preface to the extremely good monograph by M. Marcel Kurz, which it is our pleasure to commend as a model of what such a monograph should be: well written in terse and lively French; fully documented, scrupulously fair, sufficiently illustrated, and adorned by two maps—the Larissa sheet of the Austrian 1/200,000 for the general geography, and a splendid new map of the massif from a stereographic survey by the author on the scale 1/20,000, contoured at 20-metre intervals.

In the interval between 1916 (Mr. Freshfield's article) and the end of 1923 (M. Kurz's book) we had published an article by M. Baud-Bovy (*G. J.*, 57, 204, March 1921) with a sketch-map of the mountain (drawn at the R.G.S. from material supplied by the author) which was a great advance upon any map of the summits then existing, but which, as we now can see, was far from right. M. Kurz commends the sketch, but is severe upon the efforts of M. Baud-Bovy to bring order into the nomenclature of the mountain by proposing a set of descriptive names in French, and a few personal names, including that of M. Venizelos for the highest point: upon which efforts "l'éditeur du *Geographical Journal* a du reste exprimé des réserves." Confusion of names is a principal difficulty in disentangling the topography of the various travellers who have given incomplete accounts of the mountain. At least three peaks have been called Kalogheros (the Monk). The name of St. Anthony given by Barth to one has been misplaced upon another. There has been more than one St. Elias. Moreover, there are at least four peaks so nearly the same

formal description of some mediæval stronghold. The history of this region, for centuries a bone of contention between France and Italy, is filled with alarums and excursions; Roman legions, Saracen pirates, Provençal freebooters succeed one another in these pages, whose atmosphere of treachery and bloodshed is now and then relieved momentarily by the fleeting glimpse of a troubadour, or the half tragic, half comic figure of a Mirabeau. Out of this abundant material, Sir Frederick Treves, with his lively style and ever-present humour, has succeeded in making the past live again in a manner which should awaken and grip the interest of the most casual visitor to the Riviera, as no orthodox guide could hope to do.

ASIA

Wonders of the Himalaya— Sir Francis Younghusband, K.C.S.I., K.C.I.E.

London: John Murray. 1924. 9 × 6, pp. vii. + 210. *Frontispiece and map.* 10s. 6d. net.

Rudyard Kipling has given us a graphic picture of the strange unrest of spirit which impels men to explore. Can we not, many of us, recall times in our own lives when—

“A Voice, as bad as conscience, rang interminable changes
On one everlasting whisper day and night repeated—so:
‘Something hidden. Go and find it. Go and look behind the Ranges—
‘Something lost behind the Ranges. Lost and waiting for you. Go!’”?

The author of ‘Wonders of the Himalayas’ most assuredly could. Always was he hankering to “go and look behind the Ranges.” We discover this before we have read many pages of the volume. Describing his passage of the first pass which he ever negotiated in the Himalayas he writes: “Then came the thrill of reaching the actual top and seeing ‘the other side.’” A little further on we read: “all I wanted to do was to make a dash into Lahoul and back just to have a glimpse of what the country was like on the far side of that wall of the Himalaya.” On another occasion when describing his approach to the Mustagh pass: “But what lay on the other side—that was the mystery;” and again: “we could not actually see the pass, but there it undoubtedly would be. And on the other side—What?”

The first journey described in this book—the first of the author’s long series of expeditions and a comparatively simple one over well-known country, the valleys of Kangra, Kulu, and Lahoul—was to prove but a prelude to undertakings of a very different nature, expeditions which were to lead him into the innermost recesses of the great backbone of Asia, and to make his name famous for all time as an intrepid and resourceful explorer. The body of the book contains a graphic account of the last and most hazardous portion of the great journey from Peking to India in 1887, a narrative of which was first given to the public more than a quarter of a century ago in the pages of ‘The Heart of a Continent.’ And finally we are conducted by the author to those wild and distant fringes of the Chinese Empire which impinge upon the hem of the Indian borderlands of Hunza Nagar and Baltistan. The object of this journey, undertaken in 1889, was not merely exploration. This remote and shadowy borderland had been the scene of wild and lawless doings. The trading caravans that passed to and fro between India and Central Asia, travelling tortuously over the inhospitable tracts between Yarkand and Kashmir, had been harried and preyed upon by marauding bands of a virile and tempestuous people sallying forth from the rocky fastnesses of Hunza. And we are given a picture by no means uncommon in the neighbourhood of

the more distant outposts of the Indian Empire, of a lone Englishman armed with little beyond his own personality and the prestige derived from the character of his race, imposing peace and order where strife and discord reigned.

But for the most part this is a book about mountains and the fascination which they possess for those who have once felt their spell. And while the narrative of exploration in their untrodden recesses loses nothing of its freshness for the lapse of years since the expeditions were made, it gains much from the searchings of spirit to which these prolonged spells of solitude amidst Nature at her grandest gave rise. For it was during the journey which forms the subject of the latter pages of this volume, that the writer tells us he set out on the exploration upon which he has been engaged ever since—"the exploration of the very heart and soul of things, the discovery of the real Power, the inner Being, of which the outer features of Mother Earth's face, the plants and animals, and we men are but the expression." Throughout the volume we find evidence of a deeply religious spirit. Are the conclusions which he has reached in his search for "the inmost secrets of the world which are the supreme interest for men," identical with the mystic pantheism which is a characteristic offspring of the brooding thought of India? The reader must judge for himself. This at least is clear from the pages of this volume, that "the real Power" of his search is no aloof and distant deity but in the fullest measure God Immanent.

The volume is singularly free from slips, though the reference, on page 97, to Shigar as the capital of Baltistan is surely a mistake? It is many years since the reviewer himself travelled down the valley of the Shigar river; but his recollection is that Skardu, near the confluence of the Shigar and the Indus, is the capital, and not the village on the lesser river's banks.

R.

Into Little Tibet— H. M. Boulnois. London: Simpkin & Co., Ltd. 1923. 7½ × 5, pp. 256. *Illustrations.* 7s. 6d. net.

This book is the narrative of a journey from Srinagar to Leh, through Dras and Kargil, which Miss Boulnois made in 1922. As she recognizes, such a journey is not now an out-of-the-way achievement, yet her account, with its emphasis on the difficulties and dangers of the way, almost gives one that impression. This is no doubt also due to the zest with which she set out, determined, one feels, to meet with adventures. In this spirit, every incident was recorded in her notebook. Though the journey itself was uneventful, apart from the usual troubles which attend travellers in such regions, the book is of interest for the descriptions of religious ceremonies and social life in Haemis and Leh. Unfortunately, it is a difficult book to read. The jerks and twists of the author's style, and the general attempt to convey impressions vividly—mainly by omitting verbs—are confusing and make it difficult to follow the narrative. The introduction at odd moments of passages explanatory of Buddhism adds to this confusion. The book is illustrated with photographs, and water-colour and pencil sketches by the author.

The Dravidian Element in Indian Culture.— G. Slater. London: Ernest Benn. 1924. 8 × 5, pp. 192. *Illustrations.* 10s. 6d. net.

This is a very interesting and original little book. Interesting in virtue of its subject, and the style and manner in which it is written, original inasmuch as the author's object is to show, contrary to the opinion generally held, that the culture of India is fundamentally native of the soil, and is not chiefly due to invading peoples from the north-west, the so-called Aryans.

Eye, not because the charted position fitted exactly, but rather because all the other bits of land visible above the sea ice were gravel ridges of the nature described by McClintock for those he actually visited, while the one island had a level skyline and was therefore presumably grass-covered. When we argued this way we were assuming from the symbolism of the chart (which we have wrongly interpreted) that Ireland's Eye was an island seen but not visited by McClintock."

Mr. Stefansson considers that the following sentence on Patterson Island in the Memorandum should be omitted: "Until the position charted by Richards is further explored (Stefansson did not do this) there appears to be no reason why it should not be retained on the charts in its original position, and shown as what it undoubtedly is, a small detached island." His reasons are as follows: "At two different times I spent several hours in clear weather on the top of Edmund Walker Island some 600 or 800 feet above sea-level and studied with the glasses the skyline in every direction. To the south and south-east Bathurst Island and Helen Island were plainly visible—not a loom or mirage, but the steady land with clear definition of details. Had there been between me and Helen Island or between me and Bathurst Island a lump of earth (this was summer when all land was entirely free of snow) as big as a small cottage, I should have seen it plainly with my field glasses, and probably with the naked eye. It is unthinkable, therefore, that there can be any land between the Findlay group (as named by the Canadian Geographic Board and mapped by Mr. McDairmid) and Bathurst island, or between that group and Helen Island."

We understand that the compilation of the detailed maps of Mr. Stefansson's expedition by the Geodetic Survey of Canada is completed, but that publication is delayed. Mr. White's letter is symptomatic of a certain local criticism of Mr. Stefansson. Since we published Mr. McDiarmid's paper in the *Geographical Journal* we could not ignore Mr. White's criticism of that paper. Having subjected the matter to an impartial investigation to the best of our ability, and given all sides full opportunity for discussion, we shall not willingly return to the subject.

THE MOUNT EVEREST EXPEDITION

THE Mount Everest Expedition has had this year two misfortunes. Captain Morris had to go into hospital for an operation to his heel instead of going again as transport officer with the Expedition; and General Bruce went down suddenly with acute malaria two days after leaving Phari. The first misfortune was not so unexpected, for Captain Morris had some trouble with his heel last year when climbing with General Bruce in Switzerland. But it was a great loss to the Expedition. In the first despatch from Darjeeling the General said that Major Morshead was anxious to replace him as transport officer. But it proved that he could not get leave; and indeed, after his severe injury by

frostbite in 1922 he was not really fit to go, though he made a last gallant attempt to pretend the contrary.

The second misfortune was altogether unexpected. General Bruce had been very well all through the arduous work of fitting out the Expedition at Darjeeling. He had been subjected to the full air-force tests for high altitudes by Major Hingston, and at Phari had come through the renewed tests better than some of his younger companions. Two days later, at Tuna, he was suddenly attacked with the acute malaria from which he had suffered at Bannu in 1919; he lost weight rapidly, became very weak, and was carried back to Yatung in a stretcher provided by the medical officer at Gyantse. After a few days' recuperation he was taken back to Gangtok by Major Hingston, and thence went on to Darjeeling, while the medical officer went off by Lachen to rejoin the Expedition.

All friends of the Expedition will sympathize with General Bruce and his great disappointment. After he had worked so hard and kept so fit it was bad luck that some slight chill in camp gave opportunity to the germs of Bannu malaria that suddenly knocked him out. There seems scarcely any hope that he will be able to rejoin the Expedition, though he reports himself as fit again at Darjeeling. He will, we hope, be content to remember that he performed this year two indispensable services—he chose the porter corps and camp servants from the numbers of hillmen that flocked into Darjeeling again to serve under him; and he got the Expedition safe past the danger point at Phari, where the bargaining for transport is critical, and the standard expenditure is set for the rest of the visit. Whatever success comes to the climbers will be built upon General Bruce's foundations, and we are all sorry that he has missed the pleasure of directing the last stages.

His command has passed into the most capable hands of Colonel Norton, who has brought the whole party without further casualties or difficulty to the old base camp in the Rongbuk valley two days earlier than in 1922. They had better weather on the passes and across the plateau; but winter was still fairly established in the upper Rongbuk, and they could not usefully have come earlier still. All members of the party, European and Himalayan, are reported fit and well. They reckoned that further time had been saved by the method of packing the stores this year, so that if the old reconnaissance of the East Rongbuk glacier is still valid, it should be possible to establish the higher camps several days in advance of the 1922 time-table, which is as follows:—

	1922.			1924.
Arrive Base Camp	May 1	April 29
Camp III. established	May 8	—
Camp IV. established on Chang La	May 17	—
First high climb	May 21	—

In 1922 General Bruce spent nearly his whole time at the Base Camp,

and was more than fully occupied then with transport and labour difficulties. This year it is likely that conditions may be easier at the base, and we anticipate that Colonel Norton will leave Captain Bruce or Mr. Shebbeare in charge there and transfer the headquarters to Camp III., at least for a while. The first climb can hardly take place before about May 17 at the earliest; the last not later than about June 10, unless the monsoon is delayed. There are perhaps three weeks in which success may be won whenever there are three consecutive fine days, and it is a good deal more than possible that oxygen and non-oxygen parties may both have made the ascent by the time this note (written May 19) is published. The despatch of April 29 was published on May 17, nineteen days from the base camp. It looks as if we may expect some news of the climbing any time after June 7.

THE TELEGRAPH TO LHASA

W. H. King, Assistant Engineer, Indian Telegraph
Department

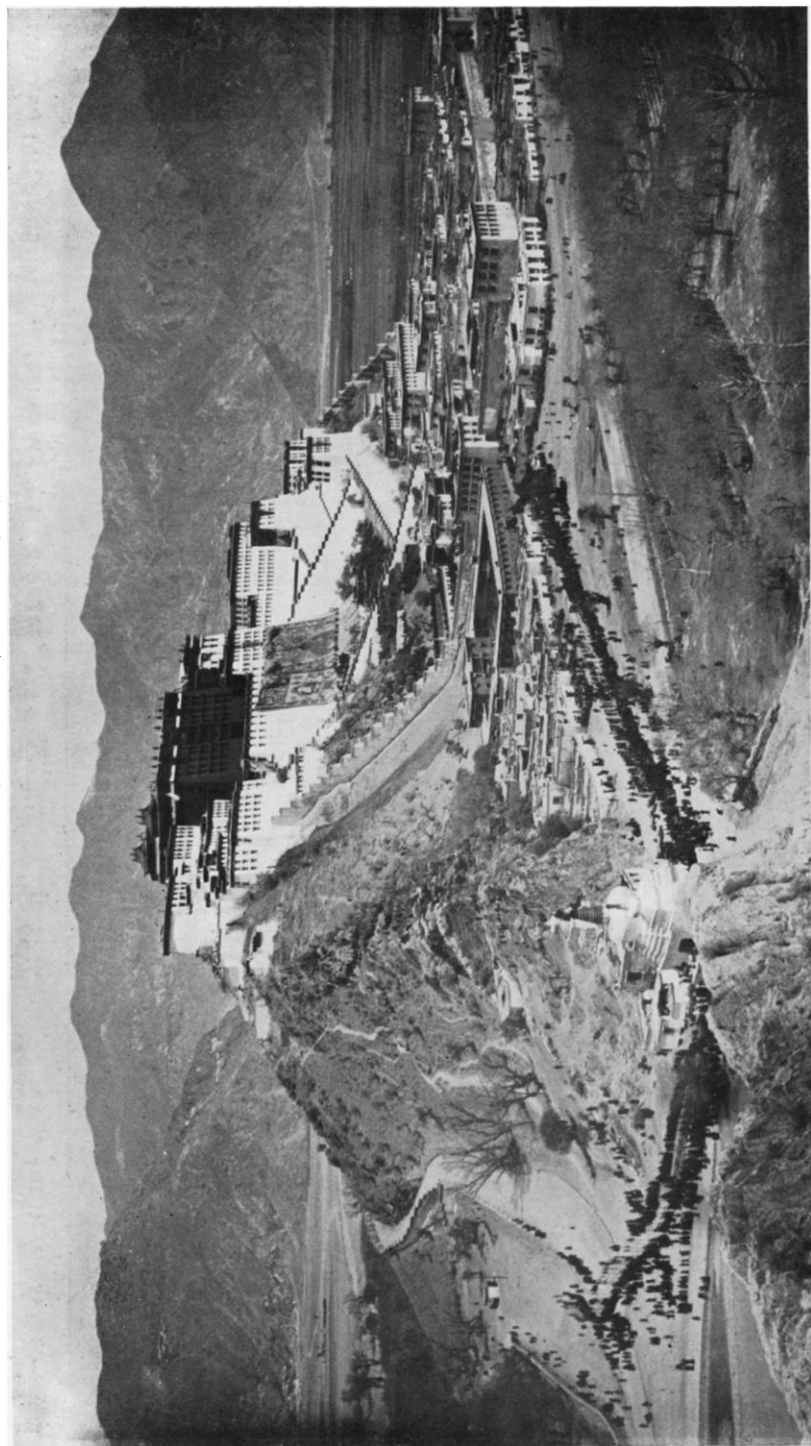
THE idea of extending the line from Gyantse 144 miles to Lhasa was conceived by the Tibetan Government. They purchased the wire, brackets, and insulators from us, and supplied their own wooden poles and labour in addition to paying the wages of the twenty-two head coolies recruited by us. The Indian Government lent them the services of one deputy assistant engineer, a supervisor, and the four linemen. The poles of the Lhasa line are of wood of a light type, but their transport was a stupendous task. In many cases they had to be carried by manual labour 60 miles to the site of the line, one village taking them on to the next. I saw teams of six villagers, husband and wife, two sons and two daughters, harnessed to three poles and carrying them along. The Tibetans distributed the material along the line, and I was given a further supply of eighty coolies for the work. All the transport and labour worked gratis for the Tibetan Government. The estimate allowed three months for the work, but thanks to the very sensible specification of the material prepared by Mr. J. Fairlay, Divisional Engineer Telegraphs, after his survey in 1921, the success of Col. Bailey in getting the Tibetan Government to realize the need for quick action if they wished to keep within the estimated expenditure, and the splendid arrangements made by the Tibetan authorities, the line was completed in five weeks at an average rate of 4 miles per day. For these arrangements the Tibetan Trade Agent, a Lama of high degree at Gyantse, is primarily responsible. Four Tibetan gentlemen were sent with us for training as linemen, but as their social status was too high for the class of work, four men of the peasant class were trained

instead. Of the four gentlemen two, named Keesoo and Jorkay, were recommended to the Tibetan Government for employment as supervisors.

In order to prevent trouble with the Tibetans, to serve as a mentor for Tibetan etiquette and customs, and to act as interpreter, a young Tibetan aristocrat named Kyipook was sent along with us. He is one of the four young Tibetan gentlemen who were sent to Rugby in 1914 for education. On his return he was given a further training in civil engineering in Roorkee Engineering College, and then a year's training in telegraphy at Kalimpong. He proved very useful, and, thanks to his genial and kindly nature, everything went off without a single dispute. He has been selected to be the Director of the Telegraph and Telephone in Tibet.

I was told that the Tibetan labourer was slow, stupid, and indolent, but I found him to be the best worker I have yet seen in my experience of labour in many parts of India and East Africa. In lieu of taxation Tibetans perform Government work without pay. For the telegraph line, therefore, the labour and transport had to be changed at every district. A large pile of stones on each side of the road marks the end of one and the beginning of another district. Under no pretext will a villager from one district work beyond his boundary. In spite of the privations which hard work under such trying conditions caused, I always found them happy and contented. The Tibetan labourer is quick to grasp what is required to be done, and quick to perform it. He is very submissive, cheerful, and polite. His position in life is very humble; he must pay very deferential respect to his superiors, and when he approaches any of them take off his cap and hold it in both hands, bow his body forward, and loll his tongue out and remain in that posture until dismissed. He, however, possesses a lease of land, flocks, and herds which yield him and his family ample supplies; so he goes through life with a full stomach, and is perfectly contented.

The completion of the line was looked upon as a great event by the inhabitants of Lhasa, and on the day on which the line was taken through the city the streets were crowded with people. The line was very favourably received all round except by those along whose fields it went; and the reason for this exception is that the owners thought they would be held responsible in case the posts broke. The Lamas gave us a friendly reception throughout, and in one case where the line had to be taken through the grounds of a monastery, the Lamas in occupation were very helpful. When within 3 miles of Lhasa the Tibetan Council sent a messenger asking me to avoid the main road for the last 3 miles and to enter Lhasa from across country, the reason assigned being that the Lamas from the two big monasteries of Drepon and Sera pass frequently along the road, and the younger men might be tempted to smash the insulators, just as they used to do with a Chinese line years ago. But the general effect of the line on all classes was one of pride that Tibet had



THE POTALA, LHASA; AND PROCESSION OF LAMAS.



Seated—MR. W. H. KING; TSARONG SHAPÉ, COMMANDER-IN-CHIEF; NGAPPA SHAPÉ, CIVIL MEMBER OF COUNCIL; PARKHANG SHAPÉ, LAMA MEMBER OF COUNCIL
Standing—MR. KYIPOOK, TIBETAN DIRECTOR OF TELEGRAPHS; MR. W. P. ROSEMEYER

telegraph and telephone lines at last, and that they would no longer be the laughing-stock of Chinese and Japanese merchants and pilgrims.

The Potala and the large Buddhist temple now have telephones in them connecting the offices of the Prime Minister and Council Chamber with the Dalai Lama's summer palace. We were allowed to wander freely over these buildings, and Rosemeyer was given permission to photograph anything he liked except one image in the Cathedral. The majority of the shopkeepers are Nepalese, and there are also a few Ladakhi Muhammedans. The latter, I was told, are noted for their sobriety and good behaviour. I found them good fellows, but in the habit of putting on prices tremendously. Their leader Khan Saheb Faizulla was very helpful in arranging our financial affairs by getting his agent to draw our money in Gyantse and paying us in Lhasa, and also in getting his brethren to sell at reasonable prices.

The first Telegraph Master of Lhasa is Mr. Sonam Tsering, sent on deputation from the Indian Postal Department. He is Tibetan by birth but a Christian by religion, educated in Kalimpong and Darjeeling. Except for him the line is worked by Tibetans. Two Lamas are undergoing training in telegraphy in Kalimpong, and on their passing out will relieve the Indian Telegraph Master. The system will then be managed and worked entirely by the Tibetan Government. The telegraph system is used almost entirely by the Nepalese and Ladakhi Muhammedans and a few Tibetan merchants, the majority of Tibetans not having any use for it. But the telephone is very popular with the Tibetans, and whenever opportunity affords the chance of a chat with a friend or relation the other side they avail themselves of it eagerly, and it is difficult to get them to end the conversation once they start. The post and telegraph system in Tibet is managed by joint Postmasters-General, one a Lama and the other a civilian. The postal system is fairly good and letters are regular. They have a system of runners worked on our Indian system, and I have often seen these men running their beat of 5 miles with the short spear and bells of the Indian runner.

The Buddhist priests of Tibet are called Lamas, and it is the invariable custom that at least one male and one female from every family be dedicated to the life of a Lama. The Prime Minister is an old gentleman of over sixty years of age, of august bearing and charming manners. He is a Tibetan of the old school, and a firm believer in the greatness of Tibet and the goodness of the Buddhist religion, with an unwavering belief in its gods and dragons. It was easy to interest this charming nobleman, as he possessed intelligence of a high order, and had visited India with the Dalai Lama and had seen a good deal of our modern inventions. His courteous manner displayed itself in a delicate style of flattery. When talking about the telegraph line he said, "Your department has erected a monument in Tibet which can be seen for miles and appreciated by all. Thousands of pilgrims will come from

China, Japan, and Manchuria, and will realize that at last Lhasa possesses telegraphs and telephones, and on their return home will spread the news and the name of the builder all over the East." Talking in this connection, he said that there was a waterfall 4 miles out of Lhasa which offered the means for working a large hydro-electric scheme for lighting Lhasa. At the same time he said a young Tibetan was learning electrical engineering in London, and on his return a scheme for lighting Lhasa was to be undertaken. It was his great ambition, he said, that God would spare him long enough to see the streets of Lhasa lighted with electricity.

Tsarong Shapé, the Commander-in-Chief, is the Dalai Lama's favourite councillor and his constant companion. He has a short, tough, wiry figure, and looks every inch a soldier and a leader. He possesses intelligence of a high order and a happy, vivacious disposition. He is very easy to interest, as he loves to listen to military, police, and diplomatic exploits, and takes a keen interest in everything Western, and is quick to understand its use. I found his house full of engineering instruments of all descriptions. He is an expert photographer and takes and develops his own plates. His daughter is being educated in a girls' school in Darjeeling. He accompanied the Dalai Lama during his journey through China and Manchuria in 1904, and also during his journey through India in 1911. When I was leaving Lhasa he asked me not to be anxious about the future of the telephones in Lhasa, as he would repair them himself. From what I saw him doing there, he is capable of carrying out his promise.

I came in occasional contact with a few military officers. Their uniforms are entirely British, and all of them cut smart figures in them. Surkong Depon (Colonel) is the mint-master of Lhasa, and an enthusiastic progressive like his master the Commander-in-Chief. The modern Tibetan army is well trained and smart. They have a fife-and-drum band, bagpipes, and bugles. These can compare with some of the best Indian regiments. It is quite inspiring to see the battalions fix bayonets, present arms to His Holiness to the tune of "God save the King," which the Tibetans have adopted as their national anthem, and march away with gorgeous yellow satin banners flying to the tune of "The-girl I left behind me."

The Dalai Lama took a keen interest in the fixing of his telephone, and pointed out the exact position where he would like it. A large battery was needed as the bell was of the battery-ringing type. He sent for his carpenter and ordered a box for the cells from his own design. The carpenter delivered the box ready with partitions in 20 minutes. We had no dry cells and had to prepare a battery by putting perished dry cells into a solution of sal-ammoniac. We had no jars, and His Holiness promptly satisfied this want with highly glazed Japanese flower-pots, which he cheerfully sacrificed. To enable him to use one telephone

on two circuits at will, I designed a plug-switch which the court blacksmith promptly made up from brass. The plugs needed an insulating handle, and His Holiness ordered his Manchurian ivory-carvers to make one of ivory. He was quick to grasp the idea of the switch and to understand how it worked, and he used to watch the preparation of batteries and adjustment of bells with great interest. His Holiness's hobby is gardening. His summer palace grounds are laid out on the English system, and are full of flowers and turf lawns. When I bade him farewell, I told him that I would send him the best magneto telephone on the market; his reply was that I may do so, but what he would like above all was some good flower seeds. I promised to send him some which were obtained from flowers grown in the Kashmir valley, as these would be more suitable to the Lhasa soil. The Dalai Lama talks in a low voice, and most people would think that it would never penetrate a long-distance line, but it surprised me to find that his voice penetrated often when others failed to reach. I listened-in on the line once on my return journey, and I was surprised at the rich timbre of his voice. His personal interest in his own servants was great. When I was leaving Lhasa for India, he asked me if I could take Rs.20 for him to two Tibetan youths who were learning gardening in the Residency at Gangtok, and also to deliver a message to them. He is a keen photographer and takes good photographs. I thought I was taking him a very rare present in an electric call-bell with bell-push, but I found that he had just six of these and about ten telephones, with large quantities of insulated wire.

On my return to Calcutta I was sent back to Rawalpindi and then up the Tochi valley in Waziristan on the North-West Frontier for a month. The difference between the two frontiers there is no mistaking, for where I could travel even at night without an escort in Tibet my work in the Tochi was restricted to the hours of 8 a. m. to 3 p. m., after which the road was closed and every one must be within barbed wire or remain out at their own risk. Even in the working hours my party had to be escorted, and we were a continual source of anxiety to the Officer Commanding Signals. Walking to and fro amongst the Waziri travellers on the road during the day is like walking amongst tame lions.

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Bulletin Géodésique No. 2 (Avril 1923), Conseil International de Recherches, Union Géodésique et Géophysique Internationale, section de Géodésie. Toulouse: Édouard Privat, [1923]. 10 × 6½, pp. 173. 4 *Diagrams and a Map*. No price.

Prime indagini sperimentali relative al Collegamento geodetico della Sardegna alla Liguria.— Antonio Loperfido. *L'Universo*, Gennaio,